Dedicated to
HERMAN JOHANNES LAM

DEDICATION

The completion of the seventh volume of this Flora gives me the occasion to dedicate this volume to HERMAN JOHANNES LAM, who from the beginning was intimately connected with the taxonomical study of the flora of the Malesian region, adopted the working team, provided for it a permanent niche in his institute, and finally played an important role when the perpetuating of its existence was threatened in 1958.

HERMAN LAM was born in Veendam, January 3rd, 1892. His father was an organic chemist and taught chemistry at Veendam. There was a possibility that he would be attached to the University at Groningen, but he accepted a new post in Rotterdam, in 1893, to set up the first municipal food-inspection department in Holland; this stood model for such inspections annex laboratories in other places. He also had a major share in the realisation of the Dutch 'Codex alimentarius'.

Thus, it was at Rotterdam that HERMAN grew up and received a 'classical' education at the 'Gymnasium Erasmianum' (1904–1911). Though he did not have an enthusiastic teacher he decided to study natural history, at his father's suggestion at the University of Utrecht.

This study lasted from 1911–1919. Just before the first World War (1914–1918) he managed to get his B.Sc., but during this war he was in military service part of each year. During the winter months he was allowed to pursue his academic studies, thanks to the support of his biology professors. It was quite an achievement to have this study crowned by a thick thesis (April 7th, 1919) within eight years under these difficult circumstances, as such would be the least required in peace-time. From this it can be deduced that HERMAN was an eager, devoted, and zealous personality, and during all his life he came up to this mark. In biology he felt not attracted or fit to devote his research to experimental work, and so his principal teacher became professor A. A. PULLE. As he had himself ideas to make a career in the tropics he got a training in acquiring form knowledge with plants of Surinam. PULLE, who tried to promote taxonomy of tropical plants at Utrecht, then the only centre in Holland where this was initiated, selected for him the family *Verbenaceae* of the Netherlands Indies, as LAM had in view to make a career there.

The thesis was entitled: 'The Verbenaceae of the Malayan Archipelago, together with those of the Malayan Peninsula, the Philippines, the Bismarck Archipelago, and the Palau, Marianne and Caroline Islands'. With these extensions beyond the boundaries of the former Netherlands Indies proper, he set a geographical standard delimitation which closely approaches the area covered by Flora Malesiana. Owing to the restricted wartime communications his voluminous thesis could only be based upon the materials in the herbaria of Utrecht, Leyden, and Berlin-Dahlem, without access to those at Kew and especially those at Bogor. In the brief chapter on plant geography he showed his interest in chorology and dispersal and the probable genesis of ranges. This was also reflected in the attached 'Stellingen' (theorems) on the Philippines as an area of junction of dispersal lines of *Verbenaceae*, origin and dispersal of *Cocos* and his defence of the then recently posed theory on continental drift by WEGENER (1917), then a novel and rather wild idea, on which he had to give a colloquium for his professor NIERSTRASZ. This just fitted him, as LAM felt always attracted by new ideas and theories. In the brief chapter on taxonomy he paid attention to affinities of genera, their place in the system, and derivation from others. This, again, is stressed in the 'Stellingen' where he posed an assumed polyphyletic derivation of *Geunsia* from *Callicarpa*[1], and, furthermore, he made a plea for biosystematics and delimitation of taxa by means of incompatibility. In both fields he was obviously led to

(1) This was premature jumping to conclusions. The disentangling of the *Callicarpa-Geunsia* complex is not yet solved and will require a great deal of detailed routine research, as I have recently pointed out.

deductions and theoretical reasoning. This characteristic facet of his scientific ambition, to synthesize main issues in addition to collecting factual material, was possibly to a certain degree due to his professor in zoology, H. F. NIERSTRASZ, to whom he referred in the preface of his thesis, and whose teachings had awakened in his mind a latent predilection for theorizing.

In one of the theorems he advanced, he mentioned with satisfaction that the Utrecht student corporation, 'Het Utrechtsch Studentencorps', showed a softening of its rigid traditions which he considered a sign of progress; this reflected an open, progressive state of mind.

I have dealt with this period and his thesis rather in detail because taken together they reflect in a nutshell LAM's scientific ambitions while allowing glimpses of his personality, and experience has taught that these hardly ever change after one has reached submature age.

In 1919 two positions were vacant for a botanical career in the Netherlands Indies, one at the rubber and coffee experiment station at Djember and one at the Herbarium of the Botanic Gardens at Buitenzorg (Bogor). He chose the latter and was appointed botanist in this institution, a division of the famous 's-Lands Plantentuin, mecca of tropical botany.

After having settled there in the same year, it appeared to his, not altogether agreeable, surprise that during 1917–1918, when, because of war conditions, communication between Holland and its overseas colony had been extremely difficult, Mr R. C. BAKHUIZEN VAN DEN BRINK had also and simultaneously prepared a MS-revision of the Verbenaceae, based on the Bogor material. These two treatises, of course, did not tally. Rather under pressure, this awkward situation led to the undertaking of a new revision of Malesian *Verbenaceae* which they performed together, dividing the genera between them. This paper was conceived in rather great haste; for brevity's sake descriptions were omitted, and it is found to be not very useful. It shows quite some deficiencies and proofs were badly corrected during LAM's absence in New Guinea. Also I have the impression that LAM did not perform his treatments with much enthusiasm and that he was more or less bored with this, what he called a rather dull and 'characterless' family, which gave him little synthetic satisfaction.

During this initial period at Bogor he tried, partly during holidays, to familiarize himself with the Javanese flora and he climbed several mountains. He gave accounts of most of these trips by publishing a small readable essay in 'De Tropische Natuur', the semi-popular journal of the Natural History Society in the Netherlands Indies. This he did also on certain shorter trips and it often appears that his is the only botanical information on such spots.

Then came soon the great opportunity to join a really large multidisciplinary expedition to Dutch New Guinea, led by staff-captain A. J. A. VAN OVEREEM, June 1920–January 1921. This was an immense experience, the manual work being facilitated by his able assistant, mantri AJOEB. The immense Papuan land caught his fancy for ever and besides the collecting work he paid full attention to all sorts of ecological observations and to the agricultural methods of the mountain Papuans. He made unique collections on the summit of Mt Doorman, a massif isolated from the Main Range, the only ones ever made. His experiences he laid down in a series of interesting and well-written papers, under the general title 'Fragmenta Papuana' (1927–1929) of which two decades later Miss L. M. PERRY, at Harvard, published an abbreviated version in English in 'Sargentia'.

Subsequently LAM's official work in the Bogor Herbarium was focussed on giving an account of the family *Sapotaceae* in the general scheme of the series 'Contributions à l'étude de la flore des Indes Néerlandaises'. This scheme was set up between the Botanic Gardens and the Forestry Experiment Station at Bogor by which the Herbarium should give priority of revisions to 'useful' families, yielding important timbers or other forest products. This knowledge was in turn of importance to the Museum of Economic Botany of which the chief, K. HEYNE, was engaged to

compose the 2nd edition of his 'Nuttige Planten van Nederlandsch Indië' (published 1927), up to now the standard work on this matter.

The revision of this large, and taxonomically difficult family *Sapotaceae* was published in 1925. Systematically LAM found it a 'rebellious' family, and undisciplined by its abundant reticulated connections of characters, resisting satisfactory efforts towards its revision. It led him to a study of geographical subdivisions and demarcation lines within Malesia published in 1927; in this he tried to reconstruct the pathways along which Sapotaceae had distributed in Malesia.

As a pastime he continued to think about genetic plant-geography and composed a paper (1930) on Wegener's continental drift theory in relation to Malesian plant-geography, stimulated by IRMSCHER's work on the same subject, which he fully supported. This paper, however, was in fact largely a review of the general geophysical theory, but not based on an analysis of the plant-geography, living and fossil, of Malesia.

End 1923 LAM agreed to act as general secretary of the 3rd Netherlands Indian Congress of Natural Sciences which took place at Bogor, 25–28 September 1924. These congresses, organised at intervals of 3–4 years, were fairly large events, and required efficient preparation and administration. As its general secretary LAM had to report and was also responsible for the publication of the Proceedings ('Handelingen') which appeared mid-1925. The diligent way in which he smoothed the way of this congress and its Proceedings was probably the reason why later he was entrusted with the same position for the much bigger 4th Pacific Science Congress in 1929.

In 1925 E. D. MERRILL, who had then just left Manila and had always been very much interested in the plant-geographical division of Malesia, especially its central part 'Wallacea', suggested to the then director of the Botanic Gardens, professor Dr W. M. DOCTERS VAN LEEUWEN, that a closer study should be made on the phytogeographical connections of the Philippines with the adjacent parts of the Netherlands Indies. DOCTERS VAN LEEUWEN, who was always enthusiastic to favour explorations by his younger staff members, accepted this project and paved LAM's way to make another large expedition, lasting three months, to northeast Celebes and the northern Moluccas: Talaud Is., Karakelong, Miangas, and northern Moluccas (Morotai, Ternate, and Tidore). In agreement with the Bogor strategy or policy of taxonomical research, these collections, as well as those from his earlier New Guinea expedition, were filed to be worked out by specialists, instead of having them hurriedly and uncritically worked out and published separately, the strategy followed by MERRILL in the Philippines and RIDLEY in Malaya, and from which so many hurriedly conceived superfluous names emanated. Much later the results of this expedition were mostly worked out at leisure during World War II (together with his student Mr L. B. HOLTHUIS) in two large papers (1942, 1945), followed by a sketch of the plant-geography of Celebes (1945).

After his successful expedition to 'Wallacea' in 1926 LAM became engaged in the revision of another important tree family, *Burseraceae*. This he found a family to his taste, 'entirely disciplined, well-bred, you could almost say civilized', yet not dull, but showing a limited number of interesting problems, some of which he tackled and solved to his satisfaction and that of others. It led him to a new system of part of the family, but also to the study of comparative morphology and phylogenetic hypothesis in conjunction with taxonomy and plant-geographic speculation. After some precursory studies the final revision was published several years later, in 1932.

In this study he believed to have detected real phylogenetic (evolutionary) lines. This stimulated him, as he said, towards phylogenetic problems. But at the same time he began to feel

uneasy, 'as everybody who is familiar with this matter will realize how difficult it is to discriminate in such cases, between various degrees of probability, and how easy it is to be carried along by the conclusion most alluring to yourself, on whatever account.' He felt himself on slippery ground, and this confused his mind, making him doubt the value and rigidness of scientific achievements and truths. This confusion, he told me, was strengthened when he read HAYATA's 'Dynamic System' and, impulsive and romantic as he was, it appealed to him and he wrote a paper (1936) 'on the various types and methods to express or figure phylogenetic trees, and use phylogenetic symbols, testing as it were their scientific value'. Amongst others he introduced the phylogenetic concept of the 'genorheithrum' (1938). At the same time W. ZIMMERMANN's book on phylogeny of plant life (1930) stimulated him still more towards phylogenetic speculation, but doubt about the scientific value of these speculations gradually undermined his self-confidence to no mean degree, he told me recently, and led him towards thought about the real powers and limits of science and religion. Obviously he really suffered from this doubt and was always nagged by his conscience by treading on hypothetical terrain. Through his emotional nature he felt it more deeply than others.

I have inserted this digression at his special request because his mental difficulties started with the conclusion of his revision of the *Burseraceae*. I extracted it from a larger MS note.

The delay in the publication of this work on *Burseraceae* was partly caused by his appointment as general secretary of the 4th Pacific Science Congress, a mighty and most successful enterprise, centered in 1929 at Batavia (Jakarta) and Bandung. The preparation of this large event occupied most of his time for almost two years; it showed his excellent capacity of efficient organisation. This was officially recognized by the Dutch Government by his nomination to 'Officer of the Order of Oranje Nassau'.

In these years he was also secretary of the Netherlands Indian Society of Nature Preservation which was successfully rehabilitated by him and his friend Dr K. W. DAMMERMAN, chief of the Zoological Museum at Bogor.

During the world-wide economic slump set in with the thirties, severe reduction and reorganisation of the staff of the Gardens led to his appointment as chief of the Treub Laboratory at Bogor in 1932, while he simultaneously succeeded the retired director of the Gardens, Prof. Dr W. M. DOCTERS VAN LEEUWEN as extra-ordinary professor of botany at the Medical School at Batavia (Jakarta).

This was soon followed, in 1933, by his appointment as director of the Rijksherbarium and extra-ordinary professor of plant taxonomy and geography at the University of Leyden. This brought his fourteen years of tropical career to a close, but of course did not dim his interest in tropical botany. At Leyden, activities in connection with tropical plants had, since MIQUEL's death in 1870, been in a deep slumber — apart from BOERLAGE's interest — a most regrettable lapse of over 60 years after the preceding BLUME-MIQUEL period from 1829–1870, when tropical botany had been the main task of the Rijksherbarium.

With great energy LAM engaged himself to revive Malesian botany, starting with a minute staff. In 1934, one year after his appointment, he erected a new journal 'Blumea' to replace the earlier 'Mededelingen', focussed interest on New Guinea botany, attracted students and colleagues to work on Malesian botany, and succeeded in slowly building up a larger staff, whom he tried to stimulate towards contributing revisions of tropical plants. He also emphasized the necessity, or at least desirability, of botanists making at least one large expedition to the tropics, which from his own experience he regarded as a major means of confrontation, not so much for pure collecting alone, but for the widening of the interest and horizon of the student, and his personal development, in that he was faced with all sorts of facets of life, from organising

trips to packing material, recruting native helpers, and bargaining about prices of transport, but also spotting desirable plants in the field and gaining experience with tropical plants, their variability, way of habit and habitat, and thinking about their possible origin. Making such expeditions has become a tradition at the Rijksherbarium since LAM took the helm. As a matter of fact it had been proposed long before, by MELCHIOR TREUB, for students of all branches of botany.

Being himself a pur sang individualist, he always left students freedom, had an open mind for suggestions, and allowed them to follow their predilection. Thus he also built up a division for algology, with the help of Miss Dr J. TH. KOSTER. This division became opportune after the donation of Mrs WEBER-VAN BOSSE's very large collection of Algae, and also a division of Fungi, which properly started when Dr MAAS GEESTERANUS wanted to specialize in Lichens. Rather sensitive to appreciation, LAM guided the staff as an enlightened autocrat, who took great care in maintaining most pleasant mutual relationships, thus creating an atmosphere of intimacy and appreciation: everybody knew that the boss was personally interested in him or her; often he invited staff members at his home. He always had patience to listen to arguments and weigh them; he wanted people to be straight and open, to make proposals and to defend them, and to expose freely their aims and desires. This sometimes tended to be somewhat difficult for shy persons, whom he tried to stimulate by making provocative remarks, no doubt having in mind to contribute in this way to overcome their shyness and develop their individuality. He always thinks in relative, shaded terms, adhering to the philosophy of 'omnia dubia', being not shy to throw his own opinions to the wolves and having a laugh at himself. Through his sensitivity he felt often more or less attracted by the lame duck and tried to shield the underdog.

This agreeable atmosphere was in my opinion one of the greatest human assets of his leadership; it stimulated work in no mean degree. We still harvest the benefit of it, even now that the staff has so much increased, which necessarily leads towards slackening of personal relationships. There is now an internal 'staff society' which organises festivities, and through which even the once famous Santa Klaus feast survives, be it only for children and grandchildren and without the superb rhymes of which LAM had the monopoly. LAM used to receive staff members on the first of January at his home; at present this reception is given by the director in the spacious canteen which is then for a few hours wet for the occasion.

Before World War II, and still more after it, LAM was much occupied with organising and administration, lecturing and teaching, practical courses, excursions, he had to set up from scratch. This lamed his personal research: it became so to speak embodied in the output of his students and promovendi which he charged with new revisions of the families which he worked on himself earlier: chiefly *Burseraceae* and *Sapotaceae*.

In passing, it should be realized that his own attempts, and those of others, at making (subfinal) revisions of Malesian plant families at Bogor in the twenties had been premature, largely due to inadequacy of available collections, as well as to insufficient contact with and benefit of the large European taxonomic centres. Even now, after the tremendous influx of collections in the past forty years, the riches of the Malesian flora are by no means exhausted and new species, even new genera or records of these appear each year. We assume that the bulk of the flora is now represented in herbaria, but high priority for exploring 'under-collected' islands has become urgent because the destruction of the virgin flora increases at an alarming rate.

At the end of the thirties a plan was made among Dutch professors and professional botanists to make a joint tour through South Africa. LAM decided to participate, but also to use the occasion to attach to it a collecting expedition to the Mascarenes and Madagascar, during which he was accompanied by his assistant Mr A. D. J. MEEUSE, now professor of botany at Amsterdam.

In 1939 he attended the Pacific Science Congress at Berkeley where he suggested the publication of plant maps of Pacific plants; long afterwards I could realize the publication of 'Pacific Plant Areas' of which now 3 volumes have been published.

Only during the war LAM could perform some taxonomic research work, mainly on his former collections, but since then he occupied himself largely with theoretical botany on phylogeny of *Cormophyta* including the fossil record, in conjunction with ideas about morphological derivations. This interest led, amongst others, to the appointment of W. A. VAN HEEL as plant morphologist. These morphological considerations held his full attention; he was especially interested in the telome theory, and in the concepts stachyospory and phyllospory in *Cormophyta*, in the frame of phylogenetic thinking. LAM liked concepts, and by the way, introduced the term 'taxon', now in universal use for taxonomic entity.

Since his work with the *Burseraceae* phylogeny, in conjunction with morphological derivation on the basis of typology (primitive to advanced, homology and analogy), palaeontology and plant-geography had occupied him deeply and he made it also the subject of his inaugural lectures at Batavia in 1932 and Leyden in 1933, as well as of his oration as a Rector Magnificus of the University (1959). In his 'Tradenda' he wrote that he had often experienced that his interest and way of thinking agreed more with that of historians and comparative linguists than with that of many a biologist.

When World War II broke out in 1940 LAM realized that this might threaten the lifelong effort of Dr C. A. BACKER, whose voluminous MSS on the Flora of Java existed as a single copy and were in the private possession of the author. Dr BACKER agreed that its safeguarding should be managed by the Rijksherbarium through multiplication by stencil. Of this so-called 'Nooduitgave' (emergency edition) of the Flora of Java the first part appeared already in November 1940; it was printed in 25 copies. As BACKER had not finished all families LAM also had to attract temporary collaborators (mainly Mr A. G. L. ADELBERT and Dr R. C. BAKHUIZEN VAN DEN BRINK Jr) to complete this first Dutch version. Much later he also succeeded to have the completed Flora of Java translated into English and attract funds to have this standard work printed in its final form.

During the war when many plans for the future were designed LAM, LANJOUW and others contemplated a taxonomical counterpart of REINDERS & KONINGSBERGER's textbook of general botany. With the closing of Leyden University during the occupation, in 1942, LAM resigned as professor and director. During this time he spent much time in drawing chapters for this textbook, but abandoned this effort as soon as the University was re-opened on May 5th, 1945, and he was re-appointed in his positions. The textbook was never completed; small parts of his MSS were incorporated in botanical chapters of a new Dutch systematical encyclopaedia, 'E.N.S.I.E.'.

In post-war years LAM made two larger tours abroad, both connected with the tropics. In 1949 he attended officially the 7th Pacific Science Congress in New Zealand, travelling there via North America and the Pacific Islands. In 1954 he was away from June to October, to attend officially the 2nd Pan Indian Ocean Congress at Perth. Here he was awarded a honorary doctorate; going by boat and returning by plane he was able to visit and collect in Ceylon, Australia, New Guinea, Manila, and Bangkok.

As mentioned before, New Guinea, the site of his first large expedition, and really a dorado for the botanist, held his fascination. In the fifties LAM was the driving force of an attempt towards organizing a large multidisciplinary expedition, equipped with modern means of transport. The main purpose was exploring the Dutch, western part of the Star Mountains, in Central New Guinea, near the frontier with the Territories of Papua and New Guinea; it lasted from March to September 1959. Owing to some bad luck but largely through inefficient organi-

sation, the botanical results were less than expected. The word 'multidisciplinary' sounds promising, but such large-scale undertakings are clumsy affairs now out of date, and small one--purpose expeditions which are far cheaper and more efficient should be preferred.

Besides building up the Herbarium and its international reputation, looking for ways to increase collections especially of the eastern tropics, attempting to increase staff for new projects or strengthening existing ones, LAM ran into serious difficulties with the available working space in the building. On two occasions in the fifties he was offered a temporary new abode in an abandoned factory in the town of Leyden. Partly because of insufficient safety against fire and partly because of the undesirability of then becoming separated from the Hortus and annex botanical laboratories, he declined these offers.

This lack of space was to quite some degree caused by the fact that he had granted working space to the team of the Foundation Flora Malesiana which had grown to a force of six persons. When by December 1957 the financial basis, from Indonesian source, fell away under this Foundation, and no other international support appeared to be available, LAM very strongly supported my plea to Leyden University to keep the team intact. With the intermediary of the 'Netherlands Foundation for Pure Scientific Research (Z.W.O.)' the University agreed to adopt this team and in the course of three years incorporated it in the staff of the Rijksherbarium. By this most fortunate decision the working scheme of Flora Malesiana became the official project of the tropical division of the Rijksherbarium, a most important achievement for this division which now got manpower and definite purpose. We cannot be too thankful for LAM's loyal and wise support.

It did not solve his space problem, however, and finally he gave in when the University proposed to accommodate four University institutes — among which the Rijksherbarium — in a 'Provisorium' for which the wool and stocking factory of PARMENTIER on the Schelpenkade 6, situated at a few minutes on foot from the old site, would be purchased and accommodated. He realized that this was the only, opportune solution to his space problem, the main worry being for him, and for me, that it was not fully fire-proof. As his successor it fell to my task to realize this accommodation. It would give opportunity for expansion of tasks and more efficient work for the staff, especially the technical staff. Moreover, it was intended to serve for only ten years; in 1970 it was envisaged in the then University planning that a permanent, fully fire-proof 'Rijksherbarium definitivum' would be built outside the town near the new Hortus. I must confess that, personally, I mistrusted this rosy perspective, and was not surprised when preparations for the planning of this new building were very soon abandoned.

I should not omit to mention that LAM's ideas about the organisation of taxonomic research work in the Netherlands had been quite different in the late forties. Shortly after the war, in 1947, there was a special meeting of the Netherlands Botanical Society, held at Utrecht, in which LAM made a strong plea for a 'Central Research Institute for Taxonomic Botany', not necessarily at Leyden. This would be affiliated with all Dutch Universities in such a way that all students in biology would get a primary training for their B.Sc. in their own University, but would receive research subjects and training for their M.Sc. or Ph.D. at the Central Institute. This ideal of his did not meet with the unanimous approval which was compulsory for success to approach the Government. I believe he always regretted this, but accepted the alternative principle that there would be no competition or overlapping between the taxonomic centres in the Netherlands, of which there are now three main ones: Leyden for the East, Wageningen for Africa, and Utrecht for the Neotropics. After all, I believe he will now realize that the alternative idea has worked out very well indeed and that its acceptance need not to be regretted.

The last years of LAM being in office took a large toll of his energy as he spent two years on

administrative and representative work for the University, first as Secretary to the Senate, followed by a year as Rector Magnificus, during which years he had to delegate part of his lecturing to younger staff members. The last years of his tenure were unfortunately darkened by a prolonged severe illness of Mrs LAM and a decline of his own physical condition.

During these years his many activities had led him to live more or less above his physical capacity and, though he was given all facilities after his retirement, he understandably enough did not immediately make the effort to take up personal research work of his fancy.

After having finished the printed version of his valedictory lecture 'Tradenda. Mijmeringen bij een afscheid' (June 1962), he set up a 'Rijksherbarium Foundation Professor Lam', starting himself with a modest grant and inviting other botanists to contribute a yearly donation. This Foundation, which is administered by the University, serves for purposes of importance to the Rijksherbarium. As yet it remained a small Fund and has been used to stimulate students: each two years a prize is awarded to the graduate student who has, during the intervening period, performed the best subject study for his doctoral examination. The prize is a large paper-weight in the shape of a lamb, in bronze, with inscription.

We are happy LAM still enjoys life and attends most colloquia at the Rijksherbarium. We wish him many happy years to come.

SOURCES

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Blumea Supplement IV. 1958. Jubilee volume for Professor Lam. Besides contributions from colleagues it contains also a list of plant and animal names commemorating Professor LAM (by P. VAN ROYEN) and further a complete bibliography up to 1958 (compiled by L. VOGELENZANG).

H. J. LAM. 1962. Tradenda. Mijmeringen bij een afscheid. Leyden.

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C. G. G. J. VAN STEENIS

ABBREVIATIONS AND SIGNS

acc. = according
Ak. Bis. = Aklan Bisáya (Philip. language)
Alf. Cel. = Alfurese Celebes (language)
alt. = altitude
Anat. = Anatomy
Ap. = Apáyao (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. = Bagóbo (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. = Bisáya (Philip. language)
Bon. = Bontók (Philip. language)
Born. = Borneo
Bt = Bukit; mountain
Bug. = Buginese (language)
Buk. = Bukidnon (Philip. language)
c. = *circiter*; about
C. Bis. = Cebu Bisáya (Philip. language)
cf. = *confer*; compare
Chab. = Chabecáno (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 collaborators
cum fig. = including the figure
cur. = *curante*; edited by
D (after a vernacular name) = Dutch
Daj. = Dyak (language)
Dec. = December
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. = Ilongót (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. = Isámal (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)
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. = Mangguángan (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 p. 247*a* lines 2–4 from top, where there appear to be two different species named *Haloragis oligantha*, one by ARNOTT published in 1836, and another by WIGHT & ARNOTT published in 1834. The latter has priority over the former which is thus invalidated.
The same can happen with generic names. Compare p. 76 where there appear to be two quite different taxa described as *Miquelia*, one by BLUME published June 1838 and one by MIQUEL published Sept. 1838. The first has priority, but the latter has been proposed to be conserved over the first.
(*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 for example p. 213b line 5 from top where it appears that ANDREWS in his Botanical Repository has misapplied the name *Aponogeton monostachyon* as described by LINNÉ *f.*
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) provisorium*; 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. = Pampángan (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., specimina, *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
resp. = respective(ly)
S = south (after degrees: southern latitude)
S (after a vernacular name) = Sundanese (language)
Sbl. = Sambáli (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 Bisáya (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. = Subánum (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. = Tiruraí (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 exluded
typ. incl. = *typo incluso*; 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