

I. EDITORIAL

Since the last Bulletin was published our circle of collaborators has unfortunately lost Dr A.H.G.Alston, who had agreed to join Prof.Holttum in editorship of the Fern volumes of the Flora. It is an irreparable loss to pteridology as Dr Alston had an unparalleled, detailed knowledge and has unfortunately postponed the publication of a large amount of his findings and conclusions, which are now lost or doomed to remain unavailable in hardly legible written and uncorrelated notes. I hope that it will be found possible to edit his interpretation of the Hortus Malabaricus of which he possessed a card index which obviously dated from his Ceylon time.

Another sad loss is the recent passing away of the well-known cyperologist of Kew, Mr E.Nelmes, who has done a great service to the Flora Malesiana by his work on the genus *Carex*.

We regret the death at the ripe age of 86 of Prof.Hochreutiner, an old-timer of Buitenzorg in the Treub period, later director of the Geneva Herbarium. Until recently he was still actively working on his beloved Malvales.

A tragic fate met Mr Wood, the young, active, and extremely nice forest botanist of the North Borneo Forest Department. He was a promising man who in a very short time had acquired an astounding knowledge of Bornean Dipterocarpaceae and whose hobby for mosses might have become important.

Just before finishing the text of this Bulletin we learned with deep regret of the death of Mr J.B.McAdam, the director of Forests at Port Moresby, aged 49 years, while on leave at Brisbane.

In honour of the memorable occasion of the Centenary of the Singapore Botanic Gardens the frontispiece is chosen of the main buildings of these Gardens which have played such an important role in the development of knowledge on the Malaysian flora. Accordingly this number is dedicated to these Gardens and their future prosperity.

As can be observed from the personal data kindly provided by the present Director, Mr H.M.Burkill, both the scientific and technical staff has suffered serious losses and shows few gains. This, Mr Burkill writes me, reflects one of the most crippling aspects of the work now confronting the Botanic Gardens, Singapore. It is not so much a problem as a stone wall. The answer to a problem is to seek a solution. In this case the answer is known. Even though we may yet

achieve physical replacement for the losses, it is only time and the weathering of the stone wall by which we can gain the experience and expertise now lost to us.

There is no doubt in my mind that the Government of Singapore, taking pride in this unique botanical institute of their own, will further its development in the future and will gradually see that the staff is completed with adequate personnel by which the high tradition of the Gardens can be upheld.

This Bulletin is appearing late and requires an explanation. It is mainly due to the fact that I was informed, by cable, Dec.31, 1957, that budgetary funds from the Indonesian Government ad c. £9,000 were to be stopped by Jan.1, 1958.

Guided by the advice of the Trustees of the Flora Malesiana Foundation I was entitled by them to attract help from other sources to cope with this emergency. This task has absorbed much of my time for the first half of 1958 and prohibited the compilation of a new Bulletin.

I felt like the helmsman on a seaworthy boat which, through lack of fuel, was closely approaching dangerous coastal cliffs by a treacherous current. And although I was determined to swim eventually alone if it came to shipwreck, and continue the course, I had a certain trust that S.O.S. signals would be answered timely, that was before Oct.1, 1958, when the available funds would be exhausted.

The result has been both disappointing and satisfactory. From various viewpoints it is not superfluous to put it on record.

Disappointing because, although the Foundation could offer an imposing record on the achievements in the way of scientific publications and could produce the highest possible recommendations, from the Presidents of the I.U.B.S., the Linnean Society of London, Svenska Nationalkommittén för Biologi, and I.A.P.T., from Sir Julian Huxley, and a century of other prominent botanists and amateurs, and the favourable institutional testimonies from three dozen institutes or offices of botany, forestry, and agriculture, no Foundation or Trust, including the Rockefeller, Guggenheim, Ford, Carnegie, Nuffield, Leverhulme, Gulbenkian, and Wenner Gren, could be persuaded to consider even the possibility of temporary emergency help to our organization, though it aims at a distinctly supra-national goal.

I gratefully acknowledge the sympathetic reaction from the then Program Director of the National Science Foundation Washington D.C., Dr A.C.Smith, who deplored not being able to give help as this Foundation could only provide for less than 30% of the projects found worthy of grants by American citizens or projects of immediate interest to U.S.A. science. I also remember the kind, disinterested intermediary of Dr Caroline Allen, New York, for approaching the American Foundations.

The result of this approach was very interesting indeed and may serve as exemplification how difficult it is to obtain funds for purely scientific work. And, for those who might think that applied scientific subjects are more attractive to Foundations, I mention that I have also advanced a proposal limited to revisions of the grasses and leguminous plants which should be particularly attractive for agricultural purposes in underdeveloped countries. This, however, did not meet with a more favourable reaction. Approaches to the sloganized Point-4 Program and Technical Assistance to Underdeveloped Countries bodies proved futile; obviously these bodies do not recognize an adequate critical knowledge of plants as an important scientific tool for promoting the use made of plants.

Most refreshing was the contact with the University of Leyden, where the Secretary of its Trustees, Mr N.F.Hofstee, was very soon convinced of the necessity of immediate help. From the free University funds he immediately granted £250 annually for office expenses. He arranged a favourable introduction to the Director of the Netherlands Foundation for Pure Scientific Research, "Z.W.O.", The Hague, where the size and scope of the project were studied. Towards the end of 1958 it had been decided that Z.W.O. was prepared to continue the financing of the permanent staff and the necessary material expenses, that is, the major part of the budget. I deem it a privilege to convey here, in public, our sincere gratitude for this trust. As Z.W.O. primarily initiates new research or fills emergencies on a temporary basis, the perspective has been opened to incorporate, in a gradual way, 1960-1962, the staff of the Flora Malesiana in the University of Leyden.

Another, equally refreshing experience was the loyal way in which the Directors of the Royal Botanic Gardens, Kew, Dr G.Taylor, and the British Museum (Nat.Hist.), Department of Botany, Mr J.E.Dandy, promised to try to mobilize help from the British Commonwealth through the Commonwealth Development and Welfare Scheme. Of the area covered by Flora Malesiana a considerable surface is occupied by Commonwealth

Territories. At a meeting in May 1958 of the Committee their proposal was accepted.

In a letter from the Colonial Office, London, dated April 15, 1959, it has been officially stated that for the years 1958/59 and 1959/60 an annual grant of £1,000 under the C.D. & W. Scheme has been offered to the project Flora Malesiana on behalf of the United Kingdom, Singapore, Sarawak, Brunei, and North Borneo; the single provision attached to it is that it should be exclusively used for the project. This is a most loyal and deeply appreciated gesture of trust towards our organization.

These additional funds are needed to cover sections of the former budget which cannot be supplied by Z.W.O. and further to fill long-felt desiderata for firmer assistance to collaborators.

For a share in the undertaking by Papua and the Australian Government, Mr J.S. Womersley, our pillar at Lae in Papua, had mid-1958 pleaded with the Department of Forestry, Port Moresby, for a grant sufficient to appoint a botanist for taxonomic research. In his letter of April 13, 1959, he stated: "It has not been possible to obtain any firm decision regarding a direct financial contribution by the Papua and New Guinea Administration, but this is still possible if there is a real need." Certain additional funds have been allotted towards increase of field work in Papua which is naturally beneficial towards the Flora Malesiana project. It is certainly appreciated that this positive result has been obtained.

During his leave I have also approached Dr E. Quisumbing, who in his capacity might be capable of persuading the Philippine Government to take a share in the project of Flora Malesiana. In his opinion, however, such a share would only be possible if Flora Malesiana could compose a specifically Philippine Flora or similar book. In his judgement a proposal towards a wider aim would be doomed with frustration.

It appears a great relief to memorize the sympathy from the side of the Director of the Singapore Botanic Gardens, from the Director of the Sarawak Museum, Kuching, and from the Forest Botanists of Malaya, Sarawak, Brunei, North Borneo, and Papua, who have all favourably advised their Governments towards actual help. It is further hoped that also the Indonesian Government will resume their share in the work, so that the accomplishment will come close to the original ideal of true international enterprise.

Since the last issue of this Bulletin two parts of the Flora were published by which volume 5 is completed. The thick fourth and final part of volume 5 contains the Introductory matter and the Dedication of the volume to Dr A.A. Pulle, my former professor at Utrecht, who is largely responsible for the revival of taxonomy and work on tropical floras in the Netherlands during this century. It contains further revisions of the Hydrocharitaceae (Den Hartog), Batidaceae (Van Royen), Restionaceae (K.Bakker), Centrolepidaceae and Rhizophoraceae (Ding Hou), Connaraceae (Leenhouts), and Erythroxylaceae (Payens). Further Corrigenda and Emen-danda and a substantial Supplement of Malaysian Collectors & Collections by Mrs Van Steenis-Kruseman, who is also responsible for the Index.

In these revisions some new species and varieties have been described and some new combinations appeared necessary. Restionaceae had not yet been recorded from New Guinea but two species occur. In the Centrolepidaceae there is one addition and Gaimardia has been revised entirely. In the Rhizophoraceae the marine genera have been revised from East Africa to the Pacific and the inland genera were worked up for the first time. In the Connaraceae heavy reductions have taken place both in genera and species. In Erythroxylon only two native species are recognized. In one of them a new flower type (the fourth) has been detected; close attention was given to the distribution of these flower types.

Thanks to grants made by Unesco under the Humid Tropics Research Project a coloured Vegetation Map of Malaysia, scale 1:5 million, which had been prepared for volume 2 of the Flora Malesiana, could be published. It is accompanied by an 8 page legend.

The prospect for publication in 1959 is the printing of the first instalment of the series on Pteridophytes which is entirely in the able hands of Prof. Holttum. It will contain exceedingly interesting introductory matter with general keys to all genera and taxonomic revisions of the Gleicheniaceae, Schizaeaceae, and Isoetaceae (by the late Dr Alston). Prof. Holttum is now working on the largest and in his opinion possibly most difficult group, namely the tree-ferns, of which over 300 names must be accounted for from inside Malaysia and another 60 must be critically examined from outside Malaysia. This is a colossal task indeed, requiring a deep knowledge and insight, drive, and above all courage, devotion, and tenacity.

For the Phanerogam series the MSS of the Thymelaeaceae (Dr Ding Hou), Capparidaceae (Mr Jacobs), and Staphyleaceae (Mr Van der Linden) will become available in 1959.

The Publishers N.V.Erven P.Noordhoff, Groningen, Holland, have taken over the issue of the Flora Malesiana from their daughter firm Noordhoff-Kolff, Djakarta, Indonesia, including the stock and the copyrights.

In an Australian report, discussed at the last ANZAAS meeting, Adelaide, I have noticed some surprise that Flora Malesiana has as yet not produced monographs of large and very large families. As yet 60 smaller and medium families have been worked up. This important point, which has possibly occurred to others, is doubtless true, but the information is incomplete and gives a false impression; the composer has obviously not scanned the pages of the Flora Malesiana Bulletin from which he could have learned that various large families are or have been in course of study. I find fit to summarize the information on this point.

First: Let it be understood that hardly any botanist working on temperate floras can fathom the amount of work involved in working up the large tropical families at the standard we set for our Flora.

Second: A monographer of a Malaysian plant family is faced with a vacuum or alternately an Augean stable and at best an unsatisfactory or obsolete former revision or monograph as his starting point. In both cases he has to build up the new frame of genera and species from the bare ground or even lay new foundations for the systematy of a large part of the family. This holds even for the ferns in spite of the large amount of previous modern work accomplished; fide the introductory remarks by Prof.Holtum in his first instalment. For Flora Malesiana we are not content with confining revisions to a mere citation of an "accepted" subdivision of a family or "accepted" delimitation of genera. We want to make basic research on these subjects and make the Flora Malesiana a major contribution to systematic botany. The large area covered by the Flora forces and permits such work; towards this aim we often have to overstep its boundary, and often we are tempted to revise families, subfamilies, or genera as a whole. We must remain practical and (reluctantly) stop somewhere to keep to the scope of the work clearly in mind.

Third: An immense amount of scattered literature must be worked through, and though I have in the past decades accumulated a bibliography which saves much time to all collaborators, the consultation of bibliographic data on that scale seldom occurs in revising temperate floras.

Fourth: The very large size of certain genera in the large families brings problems of different magnitude as compared with temperate floras. Mr Corner had in *Ficus* to evaluate about 1500 specific names, Prof. Holttum must fix the identity of c. 360 names in *Cyathea* alone; many of the large genera, *Ardisia*, *Aglaia*, *Dysoxylum*, *Shorea*, *Polyalthia*, etc. etc. will contain a hundred of good species or more. *Eugenia* far exceeds that number, and in the *Orchidaceae* the largest genera of *Dendrobium* and *Bulbophyllum* are of the magnitude of one thousand species each. But even a small family, as for example *Pittosporaceae* with 13 recognized species in Malaysia, necessitated the evaluation of 50 names and involved the complete revision of one genus.

Fifth: The obsolescence of the literature forces the investigator to re-examine typification and nomenclature of all taxa as hardly any group has been adapted nomenclatorially to the present (still changing) Rules of Nomenclature. This also forces collaborators to go far beyond the actual frontiers of Malaysia and is frequently a very time-consuming administrative task.

Sixth: The amount of material to be examined in the larger families runs often in the ten thousands of sheets. And when it is said "examined", it means compared with other sheets and examined thoroughly to establish the scope of variation. It frequently appears that it is insufficient to dissect only one flower of an inflorescence; this methodology has often led to mistakes. Besides, there is the difficulty that fifty or more percent of the material is incomplete, sterile or juvenile, bears only unripe fruits, or is otherwise inadequate. This must be our basis, and we cannot help it. But the examination is basic for our result and whereas the tropical vegetation is mostly ligneous it requires an amount of work completely unknown in examining the mostly herbaceous but always fertile specimens of temperate floras.

Seventh: From the above points it is clear that the time necessary for elaborating the large families runs into several or many years (for the *Orchidaceae* it means even a life-work), even when the monographers can make it a full-time job. But the latter favourable condition is extremely rare: almost all collaborators have other official commitments interfering with regular work; some can perform their work only as a spare-time occupation. This doubles or triples the time needed to complete their monographs.

Eighth: In order to polish the work it must carefully be correlated with allied sciences in order to give the information we aim ourselves to give (ecology, anatomy, phytoche-

mistry, uses, geography, vernacular names, etc.). The critical compilation of these aspects, which we find essential for a modern, tropical flora, are generally omitted in temperate floras.

From the above eight points it has been made clear, I hope, even to outsiders, that the compilation of large regional tropical floras is extremely time-consuming and that the revision of the large families are colossal tasks. They should not be made on a 'provisional basis' but as thoroughly and 'hard' as can be performed in order that they may attain some intrinsic permanent value, as can be attributed to Flora Brasiliensis, Flora of British India, or Flora Australiensis. Here, again, we should be practical and know when to find it unprofitable to dig still deeper, and say: stop and publish. We must realize the limitations of working with available herbarium material, as venturing into the field of overconsciousness will spoil results. The curve of labour against result rises perpendicular with an asymptotic course beyond the ninety odd percent; it is already very steep near the eighty percent.

Coming to our actual plans during the start of the Flora, now eight years ago, the idea was to have small, medium, and large families worked on simultaneously. Owing to our desire to produce each year at least one instalment most instalments are filled with the smaller and only few of the somewhat larger families, and they are largely produced by members of the permanent staff.

With work on some large families, of the magnitude of 200-600 species each, we have had bad luck. The first attempt towards revising Rubiaceae by Dr Bakhuizen van den Brink Jr was frustrated after three years as he was then allotted another large task. I hope that he will be able to resume his work on this possibly second-largest family of the Malaysian flora. A similar fate hit the revision of the Leguminosae by Dr De Wit. The life-work of Dr Van Slooten on the Dipterocarpaceae came to an untimely end by his premature death. After five years of strenuous work Dr Jansen had produced a basic MS on the Gramineae but his death frustrated its completion which will certainly require still three years of intensive work. Prof. Pennell's premature death bereft us of the opportunity of having his experienced work on the Scrophulariaceae.

Among the vicissitudes of our attempts towards the accomplishment of other colossal tasks there are some extremely promising prospects.

Mr Kern is 'seeing the end' of Cyperaceae; he has still to do Scleria on which Mr Blake gave excellent precursors, and Caricoideae on which the late Dr Kükenthal, Mr Nelmes, and recently Mr Raymond have paved his way considerably.

Mr Corner's and his collaborators' work on Ficus and other Moraceous genera respectively is very close to the finishing touch of this mighty revision.

Dr Moldenke is gradually advancing with the revision of the Verbenaceae.

Prof. Lam and his collaborators have almost finished the extremely tricky Sapotaceous members, which necessitated precursory revisions leading them far beyond Malaysian borders for true systematic understanding.

Mr Sinclair is revising Malaysian Myristicaceae and has set his next goal on the Annonaceae, both formidable families in Malaysia.

Dr Sleumer is already very advanced with his MS on the large family Ericaceae.

As a worthy final stanza I mention the formidable task Prof. Holttum has set himself, which will occupy him for ten years, to revise the ferns, roughly calculated at 1500 to 2000 species.

This census will, I hope, be sufficiently informative about the major jobs *statu nascendi*, of our ardent wish to have them accomplished, and of the difficulties encountered in having them realized.

It is clear that it is partly a matter of specialized, fully qualified man-power. And though nothing basic in science can be "manufactured machine-made", it is clear that, if we can succeed in providing extra technical help and facilities for our specialists in the large groups, this might remove part of the routine work off their hands, leaving them to perform the essential research.

Funds towards that aim would therefore distinctly be favourable for speeding up their work.

May 5, 1959