

VI. MISCELLANEOUS INFORMATION
(contd from p.1130)

a) Research and Publications:

C. A. B a c k e r & R. C. B a k h u i z e n v a n d e n B r i n k, Flora of Java, volume 2, will be published about New year 1966. This volume will deal with the second half of the dicots; the third and last volume will give the monocots. The 641 pages of text of this volume will be preceded by a 72-page essay by Dr. C. G. G. J. v a n S t e e n i s under the title: Concise plant-geography of Java. The main contents of this essay are here listed: Very brief survey of collections and phytography (four periods are distinguished, marked by the years 1817, 1860, 1905). Brief survey of vegetation types (submerged littoral - mangrove - beach - lowland swamp forests - hydrophytic vegetation - rheophytes - dryland rain forest - montane rain forest - mountain swamps - subalpine vegetation - monsoon forest; 32 photographs for illustration). General statistics (wild species 4598, introduced 413, cultivated 1523). Comparison of the floras of west, central, and east Java (west 3882, central 2851, east 2717 native species). Number and distribution of epiphytes, parasites, and saprophytes through Java (epiphytes 701, confined to west 251, to central 22, to east 23; parasites 61; saprophytes 41). Floristic difference between the coastal floras of north and south Java and its explanation (lists of species confined to the north and to the south coast given; physiographic factors discussed). The floristic plant-geographical position of Java and its adjacent islands (Sunda Strait is an important barri-

er; Java has many wide-spread species; the Lesser Sunda Is. are Javanese in flora but poorer. The present paucity of South Malesia seems due to the monsoon climate, absence of certain soil types, heavy devastation of Java, and long isolation of the island. Kangean and Bawean differ but slightly from Java in their flora). Endemic genera and species in Java (at present only *Grisseea* of Apocyn., *Heynella* of Asclep., *Semeiocardium* of Balsam., and *Silvorchis* of Orch. left; the number of species is negligible). Representation of elements (Widely distributed in Java 630, in Malesia 685; Asia-centered J 402, M 616; Malesia-centered J 316, M 580; Endemic J 4, M 298; Eastern-centered J 18, M 137). Altitudinal distribution (three tables with highest and lowest localities for the genera every 100 m; altitudinal deviations discussed for species which occur occasionally higher and lower than normal; regional shift of altitude; altitudinal differences through racial segregation). Climate and flora in Java - Plants as climate indicators (contains a comparison of the merits of the climate scales by Van Bemmelen, Mohr, and Schmidt/Ferguson, by application of 73 species to the drought classes of these authors; 164 species have been listed as indicators of an everwet climate). Many references have been added to each chapter.

Address of the publisher: P.Noordhoff, P.O.Box 39, Groningen, Netherlands.

Collector's number lists. The secretary of the Flora Malesiana has extracted literature for the published numbers of various old collections, and from these sources she has compiled name lists from Malaya, arranged by order of collecting numbers. Thus the materials collected by CURTIS, HULLETT, MAINGAY, KING's COLLECTOR KUNSTLER, SCORTECHINI, and WRAY have been listed; a great help if sheets of these collectors are found among incertae sedis. Information with regard to these numbers can be supplied.

Forest trees of Sarawak and Brunei. Mr. B. E. S m y - t h i e s at Kuching has been working on a revision of F.G. Browne's book of the above title (excluded the dipterocarps), in collaboration with the Kew Herbarium, where some problems are elucidated.

The end of "Nova Guinea"? In September 1964 the following text was issued by the publishers and editors. "Two concomitant causes have led to the decision to terminate the publication of Nova Guinea (established in 1912) by the end of December 1966, unless in the meantime unexpected events would allow continuation. They are the disappointingly low number of subscriptions and the termination of the journal's subvention from the Netherlands Organization for the Advancement

of Pure Research (Z.W.O.). Any correspondence regarding the conclusion of current papers may be addressed to the Secretary of the Board of Editors, Dr. H. Sleumer, Rijksherbarium, Schelpenkade 6, Leiden, Netherlands."

Bornean Peat Swamp Forest. Dr. J. A. R. Anderson completed a comprehensive report on the Ecology of the Peat Swamps; it is being prepared as an ecological monograph. Further investigations will be undertaken to elucidate the development of the Peat Swamps, and to obtain additional information on the autecology of the species.

Ecology of limestone vegetation in Sarawak. Dr. J. A. R. Anderson made collections on most of the principal limestone hills in Sarawak; about 700 species have been recorded and card-indexed.

At Sandakan, the work on the Manual of non-dipterocarp trees is energetically continued, by study of literature, in the Herbarium, and in the field.

Bibliographia Huntiana. This is a great project, undertaken by the Hunt Botanical Library at Pittsburgh, Penn., U.S.A. It is intended to serve as a guide to the world's botanical literature published during the period between 1730 and 1840. Six persons have been engaged full-time, using electronic computers for the rapid processing of data. It is the intention to surpass Pritzel's work, aiming at complete coverage of periodical literature, information about authors, review articles, translations, and multiple editions. It is estimated that 18,000 volumes must be examined, of which 4500 are available in the Hunt Library, 8000 in other libraries in the U.S., the rest in Europe. The year 1730 has been chosen because of its importance in the history of taxonomy, the year 1840 because then machine printing begun. All title-pages of books will be reproduced facsimile.

More particulars are to be found in R. McVaugh's Announcement: "Bibliographia Huntiana", Huntia 1 (1964) 17-24. The first issue of this "Yearbook devoted to studies of the literature on systematic botany and horticulture, botanical voyages and explorations, early agriculture, medical botany, and the related subjects of botanical biography, iconography, and bibliography" of 220 pages has been executed in the well-known excellent fashion, contains 18 papers on different subjects, partly of importance for Malesian botany. We welcome and recommend the issue with great pleasure: subscription price US \$ 7.50 a volume; editor: Hunt Botanical Library, Carnegie Institute of Technology, Pittsburgh, Penn. 15213, U.S.A.

Willis's Dictionary. By August 1965 Mr. H. K. Airy Shaw was halfway with the letter M through the proof reading of this eagerly awaited issue.

Plant geography of the Pacific. In 1960 Mr. M. M. J. van Balgooy of the Rijksherbarium published his plant-geographic subdivision of the Pacific (Blumea 10, 1960, 385-430, 1 map). The extensive documentation on which that preliminary paper was based, will now be made ready for publication by the author.

Flora of Micronesia. A contract between National Institutes of Health and the Pacific Science Board of the National Academy of Sciences, Washington, D.C., for work toward a Flora of Micronesia has been extended through August 1966. This is a continuation of a project started in 1946 and worked at on a spare-time basis until 1964, when it was supported by N.I.H. The flora is being written by F. R. Fosberg and Marie-Hélène Sacht, and based on materials collected on a number of expeditions, including those sponsored by the Board under its Coordinated Investigation of Micronesian Anthropology (CIMA) program (1947-1949), and Scientific Investigations in Micronesia (SIM) program (1949-1956). Emphasis is being placed on ethnobotanical information especially that related to diet and medicine. The basic reason for the interest of N.I.H. in the program is the hope of finding an environmental clue to the high incidence of amyotrophic lateral sclerosis and Parkinson's disease among the Guamanians. Dr. Fosberg and an assistant, Michael Evans, passed through Honolulu in June 1965, on their way to Guam to initiate a field program concentrating on rescuing some of the rapidly vanishing ethnobotanical lore. Dr. Fosberg spent some weeks with Evans on Guam and in the Trust Territory, leaving Evans to continue the work for a period of months.

Pacific Plant Areas. Volume II has suffered a long delay in publication. While negotiations were underway with N.I.S.T. at Manila and N.S.F. Washington, the monograph series in which volume I appeared was discontinued. It is now attempted to have it printed in Europe.

Ferns of Malaya, the book by R. E. Holttum is being reprinted as a 2nd edition. Orchids of Malaya, by the same author, has been reprinted as a 3rd edition.

I. H. Burkill's Dictionary of the Economic Products of the Malay Peninsula is now being reprinted and expected from the press by the end of 1965. Minor amendments have been incorporated. Available (2 volumes) with the Publications Officer, Department of Agriculture, Swettenham Road, Kuala Lumpur.

Pacific Naturalist has suspended publication; its last number was volume 4 (3), issued 20 February 1964.

Flora for the schools of Indonesia. In 1950 appeared the pocket-sized "Flora voor de scholen van Indonesië", by Dr. C. G. G. J. v a n S t e e n i s c.s.; it contained 400 selected species, mostly of village and roadside plants. Several efforts have since been undertaken to get an Indonesian translation of the Dutch text of this work which is merely intended for educational purpose; this has now been entrusted to Miss Murjati of Kebun Raya Indonesia and we may expect that it will be finished before long; the Flora can then be printed without delay.

Systematic Botany News Sheet. In the Australian Journal of Science, Mr. P. W i l s o n of the State Herbarium at Adelaide, started to give an annual concise account on work, progress, and personal news from the Australian Herbaria. Three such reports have so far appeared, in volumes 24, 25, 26 (1962-1963). To a certain extent this revives the former "Australasian Herbarium News". We hope that these accounts will be continued and distributed to the main Herbaria in the world which are mostly not subscribers to the Journal.

Mixed Dipterocarp Forest in Sarawak. With the aim to evolve an objective and practical method of classifying these forests, to gain knowledge of the frequency of tree species under different conditions, to study the relation between species and soils, and to study variation in density of different timber groups, Dr. P. S. A s h t o n began his field work in 1964.

Identification from literature. At the Rijksherbarium, Mr. F. H. H i l d e b r a n d is spending the time after his retirement from the Forestry Service by going through the literature on certain families and thus identifying duplicates, with which newly acquired materials are then compared. He recently completed the Ebenaceae and Fagaceae and is now doing the Annonaceae.

b) Herbaria, Gardens:

Correction. On page 1125 of this Bulletin the note of the "recovery of pre-war loans to the Arnold Arboretum" on the Manila Herbarium is unfortunately incomplete, erroneous, and liable to misinterpretation. The material which was "recovered" consisted in fact of a mixture of largely Chinese material and also of sheets from Borneo, Sumatra, and the Philippines which the late Dr. Merrill had at his private disposition since he left the Philippines in 1926 and which he used in connection with his work on the Chinese flora at

his own responsibility and for his own research. After Dr. Merrill's death the Chinese material was officially retained as a loan from Manila for the proposed Flora of China project. Obviously Dr. Quisumbing had neither anything to do with the return of this material nor with its recovery. Peccavi!

U.S. National Herbarium, Smithsonian Institution, Washington, D.C. Not long before the Bicentennial of the Institution in September 1965 the transfer was accomplished of the Herbarium to its new quarters, occupying floors 2 and 3 of the new concrete, air-conditioned wing of the Museum of Natural History. The material was transferred in the wooden cabinets and sufficient place is left for extension, new cabinets having been ordered to fill the reserve space. Office rooms and library surround the two huge halls, but I badly miss working tables before the windows and working tables in the collection itself. Otherwise the improvement is a great one. The entrance to the Herbarium is difficult to find, partly while the floors are not fitting the floors in the other part of the building; one has to reach it through a maze of gangways. An advantage will be less public visitors and more undisturbed work by the staff.

Rijksherbarium, Leiden. The moving to the new "provisorium" started on 2 November 1964; on 23 December the last of the 32,000 boxes was moved in. This caused a drawback in the mounting of specimens (in the year from 1 September 1964 till 1965, 24,351, last year 28,662) and insertion (64,287, last year 68,009). The access of phanerogams from institutions amounted to 23,945, the access of ferns to 3,081. Out on loan went 7,623, received on loan were 28,715 specimens. Duplicates distributed amounted to 5,711.

The institution suffered a great loss by the death of Mr. W. W i e r i n g a, the keeper of the collections, in August 1965. During many years of exemplary service he distributed innumerable duplicates, particularly during his 6-year stay at Bogor, and prepared with Mr. Groenewegen the new loose-item Index Kewensis at Leiden in which genera are arranged by families.

Komarov Botanical Institute, Leningrad. A three page report of a quick visit, useful as a first orientation about this probably the second-largest Herbarium in the world, was published by S.G. Shetler, Plant Science Bulletin 11 (1) (April 1965), issued by the Smithsonian Institution.

The Kepong Herbarium has been renovated; in May 1965 the new building was occupied.

Singapore Herbarium. There is reason for satisfaction with the rebuilt Herbarium, as well as for the Ministry sup-

port for the required extension for which so far had not been provided, to give extra storage volume.

Kuching Herbarium. It is hoped, though funds have yet to be confirmed, that extension of the already overcrowded Kuching Herbarium, only 5 years old, will begin early in 1966, which will lead to almost a doubling of the present size.

Sandakan Herbarium. Upon the smoking ashes of the former building a plan was made to replace in 5 years all 15,000 specimens. Since by January 1965 there were already 25,000, the safe prognosis has been made that when the 5 years come to an end in January 1966, the original amount will have been doubled. During 1964, 12,003 duplicates were distributed, and nearly as many names received in return, from Kew, Leiden, Kuching, Kepong, and Singapore. Dr. W. M e i j e r is certainly the one who is most responsible for the imminent need for more space in several Herbaria which had been recently enlarged.

Good progress was made with the numbering of trees in 29 plots of forest. End 1963 there were 2747 numbered trees, end 1964 there were 4414; several novelties may be among them, which can now serve to provide complete, fertile material.

In 'The history and prospects of forest botany in Sabah' (Sandakan 1964) folio offset, 33 pp., 13 pl., Dr. W. M e i j e r gave a nice concise outlay of the history of botanical exploration and the 7 functions of forest botany, botanical survey, ecology, agriculture, geology, phytochemistry and technology, education and forest regeneration; the last chapter by Mr. D. I. N i c h o l s o n. Issued on the occasion of the opening of the new Sandakan Herbarium.

Bogor Herbarium. On the way back from his field work, Mr. M. M. J. v a n B a l g o o y re-visited Java for 11 days in August 1965. He found the new premises of the Herbarium Bogoriense, which are being erected on the site of the demolished main building, gone up to the first floor (of the nine).

Tjibodas. While the Bogor Garden increasingly seems to function as a public park, the Tjibodas mountain garden, now under supervision of Mr. N. W i r a w a n, enjoys an unprecedented interest; every Sunday about 20,000 tourists visit the garden - the main roads are in excellent state - and often go to the Tjibeureum waterfalls. Now the Gede-Pangrango complex is completely safe of bandits, several tourists also go up to Kandang Badak and higher.

Lae Herbarium. "It was not until the latter stages of the 1939-1945 war that a serious attempt was made to establish a reference collection of dried plant specimens in New Guinea.

This came about through the inspiration of the late J. B. M c A d a m, then a Major with the Australian Army Engineers, under whose command were two Forest Survey Companies. Subsequently, he was first director of Forests, Papua and New Guinea. McAdam was greatly assisted by the late C. T. W h i t e, then Government Botanist, Queensland, and the late H. E. D a d s w e l l, until recently Chief of the C.S.I.R.O. Division of Forest Products. In charge of the plant collecting and identification was Lieutenant Lindsay S m i t h, a staff member of the Government Botanist at Brisbane."

"These Herbarium collections were handed to the Provisional Administration. When the present Chief, Division of Botany arrived in 1946 the Herbarium however included fewer than 2,000 specimens, housed in a doubtfully weather proofed, earth floored building at Butibum where the Forestry Company had been previously headquartered."

"In 1949, the Department of Forests acquired control over 140 acres located on the then outskirts of the township of Lae for the purposes of a botanical reserve. A building previously used as a residence was converted into an office and Herbarium for the Division of Botany. The collections, still totalling fewer than 5,000 sheets, were transferred to this building in 1951. From that day until February 1965 the building has housed the Papua and New Guinean Herbarium. Space, never adequate, has been made for the expanding collections by additions and alterations of the building."

"The herbarium collections now total approximately 85,000 sheets with an annual accession of 10,000 sheets. ... The new herbarium will provide accommodation for 250,000 specimens, no more than 15 years expansion at current rates accretion."

"Associated with the collections of dried plants are the living collections maintained in the Botanic Reserve in which the Herbarium is located. These collections bring together in one place plants of species scattered throughout the tropical world. Primarily scientific in purpose, the Botanic Reserve is being developed with the aesthetic sense in mind so that the residents of Lae and visitors may enjoy a pleasant and beautiful garden."

So far these quotations from the booklet issued on the occasion of the official opening of the new Herbarium on 12 April 1965, after Introductory Addresses by the Administrator Sir Donald Cleland, the Director of Forests, Mr. W. R. S u t t i e, and the Chief, Division of Botany, Mr. J. S. W o m e r s l e y, the actual opening was performed by Sir George T a y l o r, Director of Kew Gardens.

The ceremony was attended by several other distinguished guests, of whom Mr. M. M. J. v a n B a l g o o y had certainly come the longest way, to represent the Director of the Rijksherbarium.

Queensland Herbarium. The building of a new house for the collections at Brisbane has unfortunately been postponed.

Some Unknown Herbaria. When the UNESCO Visiting Committee for Tropical Herbaria visited countries in SE.Asia, it was found that several Herbaria were not registered in the Index Herbariorum. Here these "forgotten" ones are named, together with the symbol suggested by the Committee.

BURMA. The Forest Department Herbarium (RAF), 526 Merchant Street, Rangoon. The silviculturist Mr. M a u n g M a u n g G a l e is in charge. Established 1925 by C.E.Parkinson, then forest botanist, the specimens save some 7,000 got lost (now in Japan?), although type materials before the war were sent to Dehra Dun. Collections now about 17,000, partly unmounted. Recent publication: H.G.Huntley & Chit Ko Ko, 'Trees, Shrubs, Herbs, and Principal Climbers of Burma' (1961) price moderate, well-edited.

The Herbarium of the Union of Burma Applied Research Institute, Pharmaceutical Section (RAS). Director Dr. M a u n g M a u n g G a l e, organic chemist. The main object is phytochemical research. A modern collection of 1,000 specimens, mainly for reference.

MALAYA. Herbarium and Mycological collections, Federal Department of Agriculture, Kuala Lumpur, Selangor, Malaysia (KLA). Director Mr. I n c h e V a n T h e a n K e e, senior botanist. A herbarium of a few hundred sheets, mostly of economic plants. More important seems the collection of phytopathological fungi, founded after the war by Mr. A. Thomson, about 2,000 specimens well kept, and some 200 agar cultures.

PHILIPPINES. Herbarium of the College of Agriculture, Department of Agricultural Botany, University of the Philippines, Los Banos, Laguna (LBA). Director Prof. J. V. P a n - c h o, taxonomist. Founded by E.B.Copeland in 1908, destroyed by the war in 1944, now again comprises 17,000 sheets, after the war collected by staff; some duplicates in PNH and US. There is a beautiful arboretum adjoining the Makiling National Park; of the arboretum there is a printed list of "Perennials in the Arboretum of the U.P. College of Agriculture and vicinity".

Herbarium of the Forest Products Research Institute, University of the Philippines, Los Banos, Laguna (LBF). Director Mr. M. R. M o n s a l u d. Founded in 1954, the Herbarium contains 1,000-2,000 sheets; more important is the splendid collection of 27,000 wood samples and 8,000 slides. The plants to which these refer are mostly still extant in Herbaria outside the Philippines (see this Bulletin p.1125). There is cooperation with the Manila Herbarium, which may lead to renewed study of the forest flora of Mt Makiling (1400 m).

Herbarium of the College of Forestry, University of the Philippines, Los Banos, Laguna (LBC). Director Prof. L. L. Q u i m b o; there may be several thousand sheets, in steel cabinets in a modern building. Apparently mainly for use by forestry students.

Various news about mosses:

Having reached the age of the strong, Dr. R. v a n d e r W i j k at Groningen, the editor of the Moss-series of the Flora Malesiana, retired from his professorship. Of the work he did to lay the basis for Series III, a very important part consisted in the preparation of the Index Bryologicus. Three of the projected five volumes have been published and the other two are to follow soon. His collaborator, Dr. B. O. v a n Z a n t e n is engaged in revisions.

The Hattori Botanical Laboratory in Obi is one of the main Japanese centers of bryology, where often interest is paid to Malesian material; results are published from time to time in the journal of the institute. Also, Japanese collectors operate in Malesia: Dr. Z. I w a t s u k i and Dr. M. M i - z u t a n i of the Hattori Laboratory collected about 5,000 numbers of mosses in North Borneo in 1963; Dr. H i r a n o and two others of Kyoto University took about 1,000 numbers in Sarawak in 1964. Dr. Iwatzuki with Prof. & Mrs. A. J. S h a r p from Tennessee, U.S.A. planned to visit the Philippines on a bryophyte collecting tour in 1965. Dr. S. K u - r o k a m a of Tokyo and Dr. M. H a l e of Washington studied lichens and bryophytes in Java.

Following his appointment in mid-1963, Mr. A. T o u w at the Rijksherbarium has now brought order in the moss collections of this institute. As he is the first bryologist since a long time, considerable materials had been piling up, among which the collections by Dr. W. Meijer from Malesia take an important place. Mr. Touw has now pre-identified all of the musci and about one third of the liverworts to genus. There are about 330 genera of musci in Malesia; the exact number of liverworts is unknown and taxonomy of the latter is in a state of flux. After his projected Thailand expedition, Mr. Touw will resume his taxonomic work, concentrating on musci.

The materials collected in 1959 by the Dutch expedition to the Star Mountains in New Guinea have partly been worked up by Dr. S. H a t t o r i in Japan. As for the remainder, there is hope that an agreement can be worked out with a few specialists in Central and Eastern Europe for revision of certain families of liverworts.

Mosses of the Star Mountains Expedition, New Guinea. A full account was given by Dr. B. O. v a n Z a n t e n of

Groningen in Nova Guinea, Bot. no 16 (1964) 263-368, pl.22-36, under the above title. On page 264-265 the various localities where collecting was done are given with the dates and collecting numbers. The first set of mosses is at Leiden, another complete set is at Groningen; identification list on page 366.

c) Symposia, Congresses, Societies, and Meetings:

UNESCO. On 15 June 1965 a circular was issued of the following text: "In view of the enlarged functions of the Unesco Science Cooperation Offices in connexion with the expansion of the Unesco programme in science and technology, the name of the Offices have been changed to Regional Centres for Science and Technology. The name of the Southeast Asia Cooperation Office thus becomes Unesco Regional Centre for Science and Technology for Southeast Asia.

Correspondence to the Regional Centre for Southeast Asia should be addressed for the time being as follows:

Mr. L. M a t t s s o n

Director, Unesco Regional Centre for

Science and Technology for Southeast Asia

P.O.Box 1425

Sanam Sua Pa

Bangkok, Thailand."

UNESCO Seminar in Herbarium Techniques. On 12 and 13 April 1965, when the new Herbarium at Lae had been opened, the above subject was put amidst the surprised guests, who obligingly set up a discussion.

Association for Tropical Biology. Bulletin no 3 (1964, 73 pages) contains the news that the National Science Foundation made a grant of \$ 40,000 to the Association for support of the activities of the central co-ordinating office, standing committees, editor's office, and the issue of 6 Bulletins, for three years ending 30 June 1967. At Costa Rica two courses would be held in the spring of 1965. There is a stimulating essay by Prof. P. W. R i c h a r d s on a programme for tropical biology (p. 8-15). There is a tropical biological literature index, chiefly to Neotropics, which largely overlaps existing indexes. There is also a plant name index comparable to that of AETFAT for Africa, extracted from the Gray Herbarium Card Index Issue no 244, restricted to neotropical plants. Finally a list of new members with annotation of their fields of interest.

Bulletin no 4 (1965, 91 pages) continues these columns. It brings the news that on the untimely death of Dr. Norman H a r t w e g, Dr. B a s s e t t M a g u i r e of the New York Botanical Garden assumed the presidency. This institute will act as the chief center of the Organization for Flora

Neotropica (OFN), which means to prepare floras in monograph form for all of the plants in the western hemisphere tropics. The ATB-Bulletin will become the official organ for the Organization. Editor: Tropical Science Center, Apartado 2732, San José, Costa Rica.

Ecological Society of Australia. The general interest in ecology in Australia results, besides in the production of many studies, in the activities of the E.S.A. This society organizes monthly lectures at Canberra, e.g. by Dr. R. D. H o o g - l a n d in March 1964 on the flora and vegetation of Lord Howe and Norfolk Islands, and by Dr. R. G. R o b b i n s in May 1964 on the jungles of Malaya. They also organize symposia, on 19 August 1965 on "the training of ecologists" and on 16-18 February 1966 on "plant and animal social systems". President of the council is Mr. R. A. P e r r y. Subscription is £ 1.0.0 a year; the treasurer is Mr. A.G. McArthur, Forestry and Timber Bureau, Yarralumla, A.C.T.

d) Conservation:

Dr. W. M e i j e r is one of the most vigorous promoters of conservation in Sabah, where 50,000 acres of primary forest are annually cut down for cultivation. Following H.C. Dawkins's principle that at least 2 per cent of Forest Management areas should be left intact, and in large plots, the Forestry Service in Sandakan has the following proposals under study:

Tawau: Hot Springs Andrassy.
Lahad Datu: Silam Area.
Sandakan: Segaliud Lokan F. R.
Sapi F. R.
Labuk: Mile 80.

It is a most fortunate circumstance that the Conservator of Forests is now also Chairman of the National Park Board.

At Sandakan plans have been made for a Botanical Garden especially to save disappearing species, and to give some better outdoor recreation and stimulation to horticulture and general botanical interest.

The interesting rich flora on Beaufort Hill in Sabah is going to be saved in a 200 acres Research Forest, which is a mine of botanical rarities and very accessible.

The surroundings of Sandakan are keeping a good amount of representative reserves. Sepilok Reserve is being put to use now also as a centre for animal rehabilitation (orang utans and gibbons mainly) and continuous attempts are made to square the needs of wildlife protection with those of botanical research.

Limestone caves in Malaya. Volume 19, no 1 (May 1965) of the "Malayan Nature Journal" is a special Malaysian Caves Issue, of 112 pages. On three maps it gives the sites of limestone hills and caves in Malaya (all North of Kuala Lumpur), Sarawak and North Borneo. Twelve plates depict several of their fascinating features, besides many other illustrations. The issue gives a multifarious treatment of the caves' formation, archaeology, ecology, and fauna, among which the bats are of particular importance. In the strata of guano produced by these animals, various archeological remains may be preserved in those caves that were inhabited in prehistoric times. Since Buddhists found the caves suitable places for the erection of temples, as far back as the 10th century A.D., remains of these have also been found.

If the guano is removed to fertilise poor Malayan soils, all artifacts will be destroyed or made valueless by disturbing the stratification; therefore archaeologists are now at work to prove the significance of some sites, so that they can be protected. In order to preserve the caves their limestone shell must be kept intact, which has many features deserving of conservation itself. The flora of the vegetational cover includes rare species and is very rich because of the unique and varied nature of the habitats created by the peculiarities of chemical composition, topography and drainage. Such bodies as UNESCO have sponsored a study of the flora, FAO regards all natural vegetation as a valuable gene bank for plant breeding, the rare orchids are known to (perhaps too many) enthusiasts. Inside the caves, the mycologist finds fungi in the guano, some of which might be sources for anti-biotics; the zoologist finds an interesting animal world in darkness with curious commensal and parasitic patterns.

Following development plans for Malaya, the eyes of miners, cement and fertiliser industry, and road builders have anew turned to the limestone complexes. At Batu Caves there is at least five million dollars worth of capital equipment quite legally established and operating to quarry and crush the limestone rock. The resolution of this problem is largely to demarcate portions of the hill, or, near Ipoh, certain hills, for total destruction, the remainder to be jealously preserved. Land Officers in Perak have already responded to pleas from the Malayan Nature Society, but their hands would be greatly strengthened by more constant and general public support. It is apparent from the wise and balanced account by Mr. P. R. W y c h e r l e y at the end of this book, that the defense of this important case is in able hands. We express the hope that success will follow, which at least partly will depend on the strength of the Society.

The annual subscription is US \$ 5.00 or Mal.\$ 15.00 or Sh. 35/-, the permanent address P.O.Box 750, Kuala Lumpur.

Members receive the Malayan Nature Journal quarterly; it is well-executed and appears with perfect regularity.

Importance of botany for conservation. Mostly the sentence is formulated the other way round, and it may be only on second thought that the present order is appreciated. But the latter viewpoint is no less worth of a few remarks, now both at Sandakan and Kuching books are being prepared of non-dipterocarp trees, and a checklist has recently been issued at Kepong.

A book on non-dipterocarp trees may seem unconnected with forest preservation; in fact it has to this end an essential contribution to make. The simple reason is that botanical knowledge will limit the wasting of timber trees. In a brief paper 'Forest botany in North Borneo and its economic aspects' Economic Botany 18 (1964) 256-265, this is well explained by Dr. W. M e i j e r.

"The question is sometimes asked whether the forest resources in timber concession areas and elsewhere in North Borneo are fully utilized. The answer is: No. There is a great discrepancy between the present scientific knowledge of these resources and their use. While the Forest Department can supply samples of at least 150-200 different timbers, we find among the marketed timbers only 20." ... "At times, there may not be a market for *Eusideroxylon zwageri*, the hardest, most durable tree in North Borneo. ... Some areas might add up total outputs of 100 to 200 cubic feet of timber per acre if the large trees of *Koompassia excelsa* were utilized in the same way as the related *K. malaccensis* which went on the market in and outside Malaya in the last 10 years. At present, all these trees are poisoned. A tree like *Gonystylus bancanus*, now the first export timber of Sarawak, 15 years ago was considered to be non-commercial."

Dr. Meijer also remarks that in Malaya the situation is already much better and that courses are given by the Forest Department in Sandakan to surveyors and logging clerks of the timber firms to recognize more good species.

Knowledge of the "weed trees" is of value for the shade these may give to young cocoa plantations, a task which later is performed by dipterocarps. If the weed trees are unconsciously removed, the whole lot may die, and experiments must start with planted shade trees. "It appeared that a knowledge of the whole forest flora is essential for a rational approach to the shade and regeneration problems." Intensive field work is now revealing more and more of the relation between soil and floristic composition. Large areas have been deforested where the soil appeared unsuitable for agriculture. Knowledge of the indicator species may limit the time that has to be spent on soil analysis, and may help to prevent here, too, a waste of forest.