

V. EXPEDITIONS AND OTHER EXPLORATION
(continued from p. 1256)

C e y l o n, M a l a y a

Mr. Hiroshi I n o u e of the National Science Museum, Tokyo (TNS), collected mosses in Malaya from 1 to 20 Sept. 1965 and in Ceylon from 25 Febr. to 20 March 1966. A full set of duplicates will be kept in the New York Herbarium; other sets will go to the Hattori Botanical Laboratory (NICH), the Institut für spezielle Botanik in Jena (JE), the Rijksherbarium, and Geneva.

He has undertaken a revision of the Plagiochilaceae (Hepaticae) for the whole world, and will be glad to receive specimens for study.

C a m b o d i a

During Dr. P. S. A s h t o n 's trip in 1965 all collections made in his presence came under the name of Mr. L y C h a n g H e a n g; duplicates are to be distributed from Pnom Penh.

T h a i l a n d

The Fourth Thai-Danish Botanical Expedition was made by Dr. G. S e i d e n f a d e n, Mr. T e m S m i t i n a n d, and Mr. B. H a n s e n, mainly for orchids; they were accompanied by four other Siamese members. The expedition lasted from 16 Jan. to 9 March 1964. The party first operated in the area SW. of Chiangmai, then on 5 Febr. proceeded to Tung Salaeng Luang National Park (at 16°50'N 100°54'E) East of Pitsanulok, where the new forest station served as a base, whence Phu Mieng was visited. On 28 Febr. the party went further to the East, to That Phanom and Mukdahan on the Mekong, then went by way of Roi Et and Khao Yai back to Bangkok, all by Landrover. Many orchids were gathered for cultivation in Bangkok and Copenhagen, herbarium material was also collected, the number not mentioned, nor how the materials were distributed. From: G.Seidenfaden, Nat.Hist.Bull.Siam Soc. 20 (1964) 226-234, map.

The ornithologist Mr. E. C. D i c k i n s o n in his Account of the Doi Intanon Expedition 1963 (ibid. 279-292), relates that besides the birds also 40-50 orchid plants were taken, above 1200 m altitude, apparently by Mr. P. A. R e e - v e s.

The Fifth Thai-Danish Biological Expedition operated in Peninsular Thailand in Jan.-March 1966, as a combined botanical and marine-biological effort. The botanical team was led by Dr. G. S e i d e n f a d e n of Copenhagen with Mr. T e m S m i t i n a n d of Bangkok as co-leader; members were Mr. B. H a n s e n of the Botanical Museum at Copenhagen, Mr. A m o r n U b o l c h o l k h e t of Chulalongkorn University, Mr. M a n a s S u w a c h i b h a n d of the Kasetsart University, and Mr. S a k o l S u t h i s o r n of the Agricultural Department. In the regions of Ranawng, Pang-nga, Phuket, Krabi, and Nakhorn Srithamarat was collected to an amount of 769 numbers of vascular plants, with a small collection of cryptogams made on the islands near the West coast (where the marine-biologists operated). About 1000 live orchids were sent to Copenhagen.

On 24 Febr. Mr. H. M. B u r k i l l of Singapore joined the Expedition to make algal collections; he stayed till the end on 10 March, obtaining materials from Terutao, Koh Ka, Koh Pha Man, Koh Sindarar, Koh Simalan, and from various bottom dredges at sea. 166 numbers. among which a few sea grasses: Halophila minor was found as deep as 25 metres.

Distribution of the materials from the Thailand expeditions has been to Bangkok (BKF), Jamaica Plain (AAH), Edinburgh (E), Singapore (SING), and Tampa Florida (USF). Duplicates of Sphagna have been distributed to New York (NY), Stockholm (S-PA), Bangkok (BKF), Singapore (SING), Hiroshima (HIRO), Miami, Ohio (MU), De Pauw (DPU), Hattori (NICH), Paris (PC), and British Museum (BM).

The First Flora of Thailand Project Expedition, collecting under a new series of numbers, has been carried out in June-August 1966. Leader was Prof. Kai L a r s e n of Aarhus, in co-operation with Mr. Tem S m i t i n a n d of Bangkok, the other member was Mr. Esbern W a r n c k e, a bryologist and assistant to Mr. Larsen at Aarhus. The party visited Phu Mieng, Phitsanuloke in the North, Khao Yai National Park in Central Siam, Khao Samroi Yawt, and Huay Yang in the South-west, limestone hills in Chumphorn in the Peninsula, Chantaburi and Prachinburi in the Southeast. The results amounted to some 1900 numbers of phanerogams and cryptogams, with emphasis on certain monocot families and mosses, also in liquid. After Prof. Larsen left for Tokyo in August, Mr. Warncke was to continue until early September, accompanied by Mr. C. P h e n g k h l a i.

Still more mosses were collected in Thailand; during March-June 1965 Dr. P. P. T i x i e r of the Paris Herbarium (Cryptogamie) came with a SEATO-fellowship and made collecting trips with the co-operation of the Forest Herbarium, accompanied by Mr. Chamlong P h e n g k h l a i. They visited Phu Mieng, Phitsanuloke, in the North, Phu Luang, Loei in the Northeast, Khao Yai National Park in the Centre, and Chantaburi in the Southeast. The collections amount to 2000 numbers; a duplicate set will be sent to Bangkok after proper determination.

The "Thai-Dutch Botanical Expedition 1965/66", organized by the Rijksherbarium in co-operation with the Royal Forest Department with the aim to collect cryptogams and other botanical materials in the mountains of northern, central, and southern Thailand, conducted by Mr. E. H e n n i p m a n and Mr. A. T o u w in co-operation with the Forest Herbarium, began when the two left Holland by air for Bangkok on 10 Nov. 1965. After a few days of preparations they left for the North by Landrover, accompanied by Mr. Chamlong P h e n g k h l a i, the Chief of the Section Botany & Zoology of the Forest Products Research Division. First they went to Tak to make collections in the mountains near the Burmese frontier, Langsang National Park, and the foothills of Doi Pha Wo. On 26 Nov. they went to Chiangmai and the Forest Station of Doi Suthep at 1050 m, which served as a base camp; from there they worked on the mountain and also on the summits of the nearby Doi Buak Ha and Doi Pui. From 3-8 Dec. they explored Doi Chiangdao, with 2200 m the highest limestone peak of Thailand, with very difficult slopes and ridges on which large Dracaenas and Euphorbias grow, where water has to be carried up from 900 m. It appeared that for the deciduous forest the beginning of the dry season was too late to find ferns in optimal condition; the end of the wet season would have been better. But in the moister higher regions the situ-

ation proved more favourable. Muang Fang, the most northerly station of the expedition, was reached on 9 Dec. On the 13th the party left for Doi Inthanon (the allegedly local name Doi Angka appeared to be locally unknown), the highest mountain of Thailand, of granite. On the 18th the top was reached and a rich collection of pteridophytes, mosses, and herbs was secured. On 22 Dec. they returned to their Doi Suthep base, from which they explored the very NW. corner of Thailand (recently opened up by a road, but poor in mosses and ferns), from 26 to 31 Dec.

On 4 Jan. 1966, Chiangmai was left for the vicinity of Loei in Northern Central Siam, where Phu Krading was climbed, and rich collections were made, particularly in narrow rocky gullies, till 17 Jan., when the party returned to Bangkok, to set out on the 22th for the Peninsula. On 24-29 Jan. the island of Phuket was visited but like the opposing mainland disappointing. From 30 Jan. to 8 Febr. a trip was made to Khao Luang near Nakorn Srithamarat, where the evergreen forests yielded a good deal of mosses and ferns. On return in Bangkok, a trip was made to the Khao Yai National Park in Central Siam, from 15 to 20 Febr. After two days of packing, the botanists were on 23 Febr. back in Holland.

Their harvest amounts to about 1000 numbers of vascular plants, with duplicates, in E. Hennipman's own series, and 3000-4000 specimens of mosses and other cryptogams, in A. Touw's own series; it will take much time to sort these mosses out. A 14-page internal report exists in Dutch, with a map.

The presence of a Japanese team of cryptogamists from Kyoto (see below), with about the same itinerary, resulted, after the first surprise, in a cordial collaboration, continued after return at home.

Kyoto University Expedition. In collaboration with the many-sided Centre for SE. Asian Studies of Kyoto University, Dr. Motozi T a g a w a, accompanied by Dr. Naofumi K i t a g a w a, Mr. Nobuyuki F u k u o k a, and Mr. K. I w a t s u k i, made botanical trips in NE. Thailand (Phu Krading and Phu Luang), N. Thailand (Tung Salaeng Luang, Doi Suthep, Doi Inthanon, Doi Pacho, Doi Chiengdao), SE. Thailand (Khao Yai and Khao Soidao), and Peninsular Thailand (Khao Chong and Khao Luang), in the period between 9 Nov. 1965 and 24 Febr. 1966, mostly working in two parties. Ferns and mosses were most intensely studied.

They obtained about 15,000 sheets of vascular plants and about 3,000 packages of mosses; some living plants were sent home. Sets will be distributed from Kyoto University (KYO) to BKF, L, US, TI, and other Herbaria. There are plans for continued floristic investigation of SE. Asia, and another trip, to Thailand and Malaya, may be made mid-1967.

Malaya

During 3-14 May 1965, Mr. A. C. A l p h o n s o and party of the Singapore Herbarium collected in Trengganu, besides many living plants, 12 herbarium specimens.

During 1-11 Dec. 1965, Mr. B a j u r i bin S a p p a n and party of the Singapore Herbarium collected 143 herbarium numbers in Perak, and also orchids and ferns for cultivation.

During 15-18 Febr. 1965, Mr. H. M. B u r k i l l, Director of the Singapore Botanic Gardens, collected 85 numbers of marine algae at Cape Rochado, North Malacca Coast.

During 17-21 Sept. 1965, Mr. H. M. B u r k i l l, of Singapore, collected at Kuching and Bako National Park 29 numbers of marine algae and Trentepohlia for herbarium.

During 28 Febr. to 6 March 1965, Messrs H. S i n g h and A n g G e k C h o o of the Singapore Herbarium collected at Penang Hill, and on Maxwell's Hill in Perak 181 numbers for the Herbarium and orchids and other living plants for cultivation. During 5-16 Oct. 1965 they collected in Penang Hill and in the Cameron Highlands a few herbarium numbers, besides many living things for the Gardens.

The Botanists of the Forest Research Institute, Kepong, made during the last year short trips of about a week each to Central and East Pahang; North and East Johore; Upper Perak; G.Bunga Bua, Selangor; G.Bubu, Perak; Tapah, Perak; Kedah and Perlis; Malacca; East Johore; Penang.

New records and Extension of Range. Combretocarpus rotundatus (Rhizoph.) and Ailanthus triphyssa (Simaroub.) have been found new for Malaya. Of Ormosia penangensis (Legum.) the second collection was made, the first in fruit. Dacryodes longifolia (Burser.) is now known to be a very common species and not rare as was previously thought.

Sumatra

On 4 Dec. 1965, Dr. A. J. K o s t e r m a n s left Bogor together with Mr. J a h n, a German forester, for a short trip to Central Sumatra, where timber estimations were made with a team of Japanese foresters, southwest of Padang Sidempuan. After traversing large tracts of secondary vegetation, primary forest of mainly Shorea was found, open forest containing much Johannisteysmannia latifrons (Palmae), and also areas of highly dissected sandstone highlands (about 300 m. altitude) under kerangas forest.

L e s s e r S u n d a I s l a n d s

Flores. In the course of the preparations of a dictionary of languages in Flores, Father J. A. J. V e r h e i j e n, a missionary, collected in recent years an amount of 830 specimens, now at the Rijksherbarium. There are remarkable findings among them, the most conspicuous one being Drimys piperita, an unexpected genus in the Lesser Sunda Islands.

Timor. During 1964 and 1965 Father C. W. K o o y, a missionary, collected 266 numbers (from 1 onwards) in the southern central part for the Rijksherbarium.

S a r a w a k, B r u n e i

Kyoto Exploration, 1963/1964, led by Prof. Minoru H i r a n o, specialized in freshwater algae; members Mr. Mitsuru H o t t a, botanist, and Mr. Masatake M a t s u b a r a, student of ethnology. Here is their itinerary: arrival at Sandakan on 30 Sept. 1963, then by way of Brunei to Bintulu, thence SE.wards along the coast, to go up the Tatau River (staying at Minah Camp 12-25 Oct.), proceeding up the Kakus R. to the headwaters and Bukit Keyan (7-13 Nov.), returning and after Minah Camp going South up Sg.Anap to Bt.Kana (18-24 Nov.), on 30 Nov. back at Brunei. In western Brunei Seria and Bt.Puan were visited (5-7 Dec.), Sg.Tutong and Lake Merimbun (9-10 Dec.), Labi and Bt.Teraja (17-24 Dec.). Then explorations were made in eastern Brunei (18 Jan.-3 Febr. 1964), leaving Brunei town 18 Febr. again for Bintulu and Minah Camp (23 Febr.-4 March), leaving for Miri (12 March) and by way of Melinau (14 March) and the Sg.Mulu to Gunong Mulu (2000 m; 15-21 March), returning and on the way back collecting at Luban Payau; back at Miri on 25 March. Special attention was paid to aroids, Zingiberaceae, Musaceae, Cyperaceae, and other herbs.

The collections amount to about 10,000 sheets of phanerogams and ferns, numbered Hirano & Hotta from 1 onwards; also 1300 packs of mosses, and 350 tubes of freshwater algae. Complete or partial sets distributed to Tokyo National Science Museum, New York Botanical Garden, Herbarium of Tokyo University, Sarawak Forest Department, and perhaps others.

A report in Japanese under the title "Itinerary of the Borneo (Notes on the vegetation)" in Acta Phytotax.Geobot. 21 (1965) 153-160 gives 4 maps and the essentials in English.

S a r a w a k

In Febr. 1966, Dr. C h e w W e e L e k from Singapore visited the proposed Mulu National Park, together with Dr. J. A. R. A n d e r s o n for three weeks.

Dr. T. C. W h i t m o r e from Kepong worked in the Kuching Herbarium and visited the Arboretum during the period from 5 to 7 August 1966.

Mr. A. K a n i s came from Sandakan to study Ochnaceae, visiting Mt Matang, Semengoh Arboretum, and Bako National Park, for a brief period in August 1966.

On 3 March 1966 field work began, including much collecting of herbarium material, in Ulu Bakong, Baram (one month), and continued in the Lambir Hills, Miri (two months), Nyabau and Segan Forest Reserves, Bintulu (two months), till August.

B o r n e o - M a l a y a

Dr. Ding H o u who is doing the Anacardiaceae for the Flora Malesiana, made a trip to study the group in the field. He left by air on 5 April 1966 for Singapore, where he stayed for two weeks for orientation, under care of Dr. Hsuan K e n g, with whom he visited some nature reserves and mangroves. On the 20th he went to North Borneo and spent the first week in the surroundings of Sandakan, just at the right time to see cultivated mangoes in flower. On 28 April he went together with Mr. A. K a n i s to Lahad Datu by air, then by Landrover and Launch in company of the Forest Department's collecting team to work in Tawau, Mt Silam, Silabukan F.R., Mt Madai (limestone), and islands in the Darvel Bay: Sakar, Bohayan, Tabauan, Gaya; the Quoin Hill, Membalua (kerangas forest), Andrassy, and Hot Spring near Tawau. Back at Sandakan on 18 May. On the 25th, again with Mr. Kanis, to Jesselton by air, then by car to Mt Kinabalu, staying at the bungalow of the Forest Department at Sosopodon, ascending along the improved trails, now with aluminium huts with cooking stoves and beds, spaced along the route at 2½-3 hours distance. They stayed from 30 May to 1 June in the summit area, and on 3-7 June at the former Royal Society Camp at Mesilau, where Semecarpus was found in fruit and caused great trouble to one of the labourers; fortunately Dr. Ding Hou himself proved unallergic for the poisonous juices in the family of his choice. On 10 June he and Mr. Kanis made a quick trip to Ranau where three Rafflesia flowers were found. On 13 June he went (alone) to the Agricultural Experiment Station North of Jesselton to see cultivated Mangifera. On 15 June he left Sabah for Sarawak where Dr. P. S. A s h t o n met him at Kuching airport; on the 19th they went to Bintulu by air, where Mr. Ashton handed Ding Hou over to his 11 member forest club. From 20-28 June they worked at Nyabau Forest Reserve, and from 30 June to 6 July at Segan Forest Reserve, to leave by air for Sibu on the 7th, for visits to the peat swamp forests with Dr. J. A. R. A n d e r s o n. On the 9th he went up the Rajang River to Kapit and further to Bukit Raya where

many Anacardiaceae were found fertile; back at Sibu on the 12th and at Kuching on the 13th, to make a trip to Bako National Park; back on the 18th at Kuching, to deliver a talk on "Rengas Poisoning" to the Rotary Club. On 21 July, Dr. Ashton took him to the Arboretum, where 11 anacardiaceous genera induced Dr. Ding Hou to stay for a week.

At Nyabau, Dr. Hou had found a tree with flowers like a Salacia (formerly in the Hippocrateaceae) and vegetative characters like Celastraceae. Fortunately fruiting material collected from the same tree has been received from Dr. Ashton and it proves that a new genus is involved, linking the two former families so neatly, that Dr. Ashton delightedly proposed to name them "Celocrateaceae". When Dr. Ding Hou left Kuching on 10 August, all the Herbarium staff was present at the airport to see him off; the first time such a thing happened to a visiting botanist!

On his arrival at Kuala Lumpur in Malaya, he met equally perfect arrangements as in Borneo. On ~~12-19~~ August he visited G. Bubu in Perak together with Dr. T. C. W h i t m o r e, Dr. C h e w W e e L e k, and several tree climbers and workers. From 20-31 August he stayed at Kepong between short excursions, e.g. to Bukit Lagong, Ulu Gombah, Sungei Meryak, Batu Caves, and Telok swamp forest. From 1-6 Sept. he worked at the East Coast mainly in the lowland forest, accompanied by Mr. K. M. K o c h u m m e n and party, visiting Bentong, Kg. Menchali, and Beserah Forest Reserves in Pahang, and Kuala Dungun and Kuala Trengganu in Trengganu. On 8-18 Sept. a small party accompanied him to the West Coast, to visit Kedah Peak, Penang, and Cameron Highlands; between 19-24 Sept., amongst the packing, he made a one day trip to the mangrove, and studied material in the Kepong Herbarium. He left Malaya for Thailand, arriving at Bangkok on 25 Sept., to visit both the Herbaria and the Botanical Garden with Mr. T e m S m i t i n a n d, till 2 Oct., to arrive back in Holland on the 4th.

Since most of his former collections were made with his name as junior collector in other series, Dr. Ding Hou started his own series now, beginning with 115, and ending with 869, including Anacardiaceae, but also some mosses, fungi, etc. The material will be distributed as soon as possible.

S a b a h

Mr. A. K a n i s of the Rijksherbarium, arrived at Sandakan on 21 August 1965. He accompanied Dr. W. M e i j e r to Mt Kinabalu for inspection and demarcation of the National Park from 2 to 28 September.

During Dr. Meijer's leave, Mr. Kanis made a tour along the West coast, visiting the regions of Kudat, Kota Belud, Jesselton, Tenom, Keningau, Ranau, from 3 Febr. to 10 March 1966. He made a tour to the East coast with Dr. D i n g H o u, visit-

ing the regions of Lahad Datu Kunak, Semporna, Tawau, from 28 April to 18 May. He also accompanied Dr. Ding Hou on a Kinabalu tour from 25 May to 11 June.

He collected in the SAN-series.

P h i l i p p i n e s

April 2-10, 1966: Messrs R. M. d e l R o s a r i o, P. A. C o r d e r o, and R. E s p i r i t u made important collections of algae and bryophytes in Puerto Galera, Oriental Mindoro.

April 16 to May 19, 1966: Messrs H. G. G u t i e r r e z and E. J. R e y n o s o collected in Mt Guiting-guiting, Sibuyan Island, Romblon. They collected flowering plants with emphasis on the genus Hopea. Unfortunately Mr. Gutierrez met with an accident which resulted in broken wrist bones. He was operated on at the Philippine General Hospital.

May 10 to June 10, 1966: Messrs P. A. C o r d e r o and S. L. L o p e z collected seaweeds in Bolinao, Pangasinan, a province facing the China Sea. Of great interest is the collection of the genera Euchema, Gracilaria, and members of the Coralline family. The green, brown and red algae were all included in the collection.

May 10 to June 10, 1966: Mr. R. M. d e l R o s a r i o collected bryophytes in Guimaras Island, Iloilo Province. Hepatics are given special attention for Mr. del Rosario's "Checklist of Philippine Hepaticae".

May 17-20, 1966: Mr. D. R. M e n d o z a went to a rock shelter (a cave) about 3 km East-Northeast of Angono town, Rizal Province, for an ocular estimate of the vegetation of the cave site in co-operation with the integrated research on petroglyphs by the National Museum staff. The vegetation is composed of secondary forest interrupted with thickets and grasslands. Predominant genera are the Canthium, Flacourtia, Lagerstroemia, Syzygium, Psidium, Schizostachyum (climbers), and Ficus (erect and stranglers). An introduced ornamental, Lantana camara, dominates the ground shrubs forming an obnoxious pest.

N e w G u i n e a

West

In Sept. 1966, Dr. A. J. K o s t e r m a n s and Dr. S o e g e n g Reksodihardjo were back at Bogor from a two months' trip to West Irian, where they visited the Cycloop Mountains, slopes surrounding the Baliem Valley, the forest regions of Dozai West of Lake Sentani, and of Parieri NE. of

Biak. They collected about 950 numbers. At Morotai their plane made a sort of crash landing, but they came off unscathed.

East

In mid-1965, Miss Helen H e w s o n of Sydney University went to collect bryophytes, of which a set will be sent to the Rijksherbarium.

During Jan.-May 1966 Messrs R. S c h o d d e and L. A. C r a v e n of the CSIRO collected in the Kerema area (Gulf District, Papua), and the Aseki area (Morobe District, T.N.G.) a total amount of 1700 numbers.

During May-Sept. 1966 Dr. R. D. H o o g l a n d and Mr. L. A. C r a v e n of the CSIRO collected in the Ambunti area (Sepik District, T.N.G.), visiting i.a. the Hunstein Range and Mt Hunstein (1500 m), a total amount of about 1100 numbers in the area from which many Ledermann collections were made.

The Division of Botany, Lae, made extensive botanical collections in western New Britain in association with helicopter surveys of forest potential. Preliminary studies of these collections indicate that few unexpected novelties have turned up. Nothofagus is confirmed for the island, although by sterile collection only; several species of Rhododendron are represented increasing the known flora of this genus for New Britain. New records in Dendrobium, sect. Latourea and sect. Calyptrochilus have also appeared.

In the Ramu Valley, again associated with helicopter survey, Mr. J. S. W o m e r s l e y and Mr. E. E. H e n t y made considerable collections of forest trees, confirming existence of Koompassia and an unidentified leguminous tree, with bijugate leaves and a single-seeded fruit reminiscent of a succulent Inocarpus.

Mr. A. G i l l i s o n, in connection with work on Diospyros made a extensive visit to the islands of the Trobriand, d'Entrecasteaux and Conflict groups. General botanical collections were made as well as long series of Diospyros.

Mr. A. G i l l i s o n initiated the joint Leyden-Lae Expedition to the Doma Peaks with Dr. K a l k m a n and Mr. V i n k. Subsequently Mr. Gillison was replaced by Mr. D. G. F r o d i n. Total botanical collections for this expedition are 2,500 of which 846 numbers have been prepared in the NGF-series. Alcohol preservation of specimens in polythene tubes in the field was used throughout the expedition and the specimens shipped to Lae by aircraft for drying. The collections are generally of good quality, although few novelties have appeared in a preliminary review of the collections.

Botanical Expedition to Doma Peaks area, 1966. The Doma Peaks (Mts Ambua, Ne, and Kerewa) are the mountains East of Tari, Southern Highland District. The chief purpose of this expedition was the collection of high-mountain plants, in order to extend our knowledge of the distribution of these genera, which are predominantly from temperate origin. Members were Dr. C. K a l k m a n and Mr. W. V i n k of the Rijksherbarium, who arrived on 13 May at Lae, where they joined the other members, Mr. A. N. G i l l i s o n (who later was replaced by Mr. D. G. F r o d i n) and Mr. J. K a i b u a, all of the Botany Division. The expedition had a grant from the Netherlands Foundation for the Advancement of Tropical Research (WOTRO). Mr. J.S. Womersley, Chief of the Botany Division, gave generous co-operation.

Several times, the expedition was split into independently operating parties, who in the Doma Peaks area collected + 1975 numbers altogether, and, near Telefomin, on the mountain Andutakim (without Gillison, with Frodin) collected 329 numbers altogether. Dr. Kalkman collected in his own series the numbers 4601 to 5324; Mr. Vink collected in his own series the numbers 16801 to 17643; Messrs Frodin and Gillison collected in the NGF-series, a total amount of + 650 numbers. The materials taken by Kalkman and Vink, + 1550 numbers, are to be distributed by the Rijksherbarium.

The area visited near Tari consists of a plain at c. 2700 m altitude, covered with mixed forests and fire-induced grassland. The base-camp Ibiwara was situated on this plain of which Mt Kerewa marks the southern end and Mt Ambua the northern end. The less high Mt Ne forms a separate ridge between these mountains. Camps were made at the base and on the slope of both Mt Kerewa and Mt Ambua. Another camp was established at the margin of the cultivated area at c. 2100 m altitude, from where the Nothofagus forest was surveyed.

In the Telefomin area the c. 3000 m high mountain named Andutakim (+ 141°39'E, 5°15'S, the area having different names on different maps) was the most promising regarding the time and funds available. Two camps were made, but due to destruction of the vegetation by fire, the results were not as was expected.

N e w B r i t a i n

In the course of his stay at Lae, Mr. D. G. F r o d i n made two collecting trips to the western part of this island. The first in Nov. 1965, to Cape Gloucester, and to Mt Tangis (1700 m), which was climbed. The second in March-June 1966, to various localities between Long. 148 and 150 E., accompanied by Mr. E. E. H e n t y. Mt Tangis was climbed again, and also Mt Talawa (2000 m). Of particular interest were differences in vegetation above 1000 m: on Mt Tangis the common-

est species were Dacrydium elatum and Podocarpus cf. pilgeri, particularly in the more exposed parts; in addition, palm-bamboo thickets were common. On Mt Talawe, all these elements were absent; the forest consisted of mixed montane elements, with Weinmannia, Eugenia, and Guttiferae particularly noticeable. Cloud-forest development began at about 1100 m up on the ridges, gradually becoming more marked towards the summit. Both mountains are of volcanic origin, less than 16 km apart.

Collections were made in the NGF-series, over 800 numbers.

P a c i f i c

Dr. J. W. Dawson, senior lecturer in botany at Victoria University, Wellington, visited New Caledonia from mid-May to mid-July 1965; thereafter he worked for 2 weeks in rain-forests in Fiji; then during a month paid visits to primeval forests in Australia, from Queensland to Tasmania. Some observations on Nothofagus are in the press.

Having taken up interest in Metrosideros, he studied the 11 New Zealand species, but he hopes to extend his work. Metrosideros plays an important part in the rain-forest in New Zealand, the montane forests in New Caledonia, the New Hebrides, Hawaii and Fiji, comparable with that of Ficus in the tropical lowland forest; there are strangling epiphytes, trees, large root-climbing lianas, and among the shrubs some banyan-like ones. Dr. Dawson is also continuing his research on New Zealand Umbelliferae, Gingidium having been concluded.

The Royal Society Expedition to the Solomon Islands, led by Mr. E. J. H. Corner, was already reported in this Bulletin on page 1253. He wrote us, that work was done in the Solomons from the end of June till the middle of December 1965. "Most of the time was spent in the forest in Guadalcanal, San Cristoval, Kolombangara, Ysabel, and, at the special request of the Island Council, Malaita. The first part of the expedition was seriously impeded by the abnormally wet weather. A deluge of 112 inches in ten days was recorded at the Mission station Avu Avu on the south coast of Guadalcanal, where villages and gardens were swept away. The exploit to the high mountain Popomanasiu had to be postponed until October when, unfortunately, Dr. T. C. Whitmore had left the expedition to take up his new appointment in Malaya. Popomanasiu was a considerable contrast with Kolombangara where thick mossy forest was encountered from about 4000 ft. upwards to the rim of the old crater which stands about 5300 ft. On Popomanasiu the mossy forest did not begin until about 6500 ft. This was, of course, the greatest achievement of the expedition to reach the summit ridge of this highest mountain of the island. We managed to organise it so efficiently that

all members of the land party, four botanists and three zoologists, had about ten days at the upper camp at 5500 ft.; it took four days of walking to reach this camp from the road-head. But, Popomanasiu is not the highest mountain. We saw clearly, through glimpses in the clouds, another peak about 500 ft. higher and some five miles away to the south west, and unfortunately it was beyond our means to get there. It is doubtful, however, if this small extra elevation would have added a new biotic element to the mountains, whose characteristic flora begins about 3000 ft. and then, merely deteriorates upwards. We cannot say that we found any remarkable montane plants on Popomanasiu and it seems quite certain that Nothofagus does not occur in the Solomon Islands; and this was confirmed mycologically by the complete absence, apparently, of such genera as Amanita, Russula, Lactarius, Cortinari and Boletus which are abundant enough in New Guinea. On Kolombangara and Popomanasiu, Dr. B r a i t h w a i t e made a careful study of the tree-ferns and of Tmesipteris which seemed very particular in regard to its epiphytic habit. Dr. Whitmore and Mr. Corner made every effort to collect adequately the unwieldy megaphyllous plants, dicotyledon and monocotyledon, which are rather abundant. Thus, we met two species of pandanus with lateral inflorescences and three, if not four, species of Heliconia. About six new species of Ficus turned up, with none of the New Caledonian peculiarities. However, collections despatched in December did not begin to arrive at their destination until April and they are still in the phase of sorting. In retrospect, it is clear that we have made a representative sampling of the islands in nearly all their botanical aspects from seaweeds, lichens and fungi to trees, grasses and orchids, but there must be many rarities or locally restricted plants which escaped us. Thus, the palm Pelagodoxa was heard of on San Cristoval just before we left. Specimens have since been collected by the Agricultural Department and sent on to Dr. Harold Moore for his inspection at the Bailey Hortorium. Perhaps one of the really satisfactory aspects of the expedition was the great local interest aroused, and how those young Solomon islanders would like to become biologists! A natural history of the Solomon Islands, with their rugged mountains and fascinating coasts, must be made available for the schools."

The Pacific Ocean Biological Survey Program of the United States National Museum has completed field botanical investigations of the Hawaiian Leeward Line, Phoenix, northern Gilbert, eastern Marshall, Tongareva, Caroline, Vostok, and Tokelau Islands. Other collections have been made on all of the Oahu off-shore islands and Tutuila. Approximately 6048 specimens of vascular plants, lichens, mosses, and algae have been collected. Soils have been sampled. Specialists have

aided in the sorting and identifications. In co-operation with the Department of Botany, University of Hawaii, space has been provided for the temporary housing of these collections, for study.