

V. EXPEDITIONS AND OTHER EXPLORATION
(contd from p.990)

T h a i l a n d

Previous to the 4th UNESCO Expedition, Dr H. S l e u m e r of the Rijksherbarium made three trips together with Mr Tem S m i t i n a n d, first to Doi Chiengdao and Doi Suthep in the North (Aug.15-21, 1963), then to the Khao Yai National Park in Central Siam (Aug.28-29), then to Pha Nok Khao and Phu Krading South of Loie in NE.Siam (Sept.8-11).

The 4th UNESCO Training Expedition was conducted by Mr Tem S m i t i n a n d of the Royal Forest Department, Bangkok, and Dr H. S l e u m e r of the Rijksherbarium, the latter serving as only instructor. The 10 participants, from Viet-nam (1), the Philippines (1), Malaya (2), Singapore (1), Indonesia (2) and Thailand (3) started from a base camp 44 km from the highway from Suratthani to Takuapa in the Peninsula on Sept.19, 1963. They investigated the flora of 7 limestone hills in the region: Khao Phra Rahu, Khao Lek, Khao Wong, Khao Ne Dang, Khao Pak Chawng, Khao Lang Tao, Khao Dai Kuad, ranging in altitude from 180 to 500 m. Each of these hills had a few peculiar species which were not found on the other hills, although in general the flora, especially in the lower slopes, was the same; 156 herbarium numbers with duplicates were here collected.

On Sept.28 a visit was paid to Ko Prap, an island off Suratthani. On Sept.29 the party returned to Bangkok, and on Oct.1 set out for Muak Lek, a Forest Experiment Station N. of Saraburi and c. 130 km N. of Bangkok. From this base the limestone hills Muak Lek, Tap Kwang, and Khao Sawng Phi Nawng were climbed, varying in altitude from 350 to 400 m. Heavy rains hampered the work of the expedition; after a visit to the Arboretum at Phu Khae near Saraburi on Oct.5, the party returned to Bangkok the following day.

The limestone hills in the Peninsula near Suratthani are drier and their vegetation is remarkably different from that in Ulu Kelantan (Malaya) visited by the 3rd Training Expedition. The herbarium collections now made amount to c. 400

numbers; the material has been distributed to the Herbaria BKF, BO, K, L, SING, and to several specialists.

The flora on many of these (mostly Permian) limestone hills is suffering from human interference; this raises an additional urgency for botanical investigation. Knowledge on this subject is still very fragmentary. A better understanding would also make available the information necessary to provide the Thai Government with well-founded scientific advice which could lead to preservation of some of these hills as nature reserves.

If another limestone expedition is possible, this will go to the very North of Thailand, where there are extensive ranges in the vicinity of Chiangmai, Chiangrai, and Ngao, Lampang, all badly in need of exploration.

Numbering of collections made by Dr H. S l e u m e r. All materials during the just mentioned trips collected on limestone were numbered in the series T.Smitinand & H.Sleumer c. al. 1000-c.1400. Collections made with Mr Smitinand but not on limestone were numbered in the Royal Forest Department series RFD 8300-8387. A few Ericaceae and other groups of particular interest to Dr Sleumer have been numbered in his own series 4745-4792.

Prof. Kai L a r s e n of Aarhus, Denmark, was again in Siam in June-July 1963 for collecting Zingiberaceae in the rainy season. The work was concentrated on three areas: (i) the Chantaburi area in SE.Siam, (ii) the forests of Khao Yai National Park E. of Saraburi, and (iii) the old hunting grounds in the limestone hills of the Kwae Noi River Basin in western Siam. Besides gingers dry and in alcohol general collecting was done; a total of about 1000 numbers were brought to Copenhagen.

A map of the localities visited by Kai Larsen's Danish expedition to Kanchanaburi in SW.Siam is given in Dansk Bot. Ark. 23 (1963) 1, together with a survey of the numbers collected during this and previous expeditions since 1957 (1-9732).

N o r t h V i e t n a m

Dr Joseph J e a n p l o g, of the Botanical Institute at Gödöllő, Hungary, carried out geobotanical research work on the savannahs and evergreen hill forests, in Nov.-Dec. 1961; the results are to be published in 'Phyton'.

M a l a y a

During 1963 the Singapore Botanic Gardens organized regularly collecting drives, in and outside Malaya. In the provinces Penang, Kedah, Perlis, Perak, Pahang, and Johore collecting was done by Messrs A. G. A l p h o n s o, A n g G e k C h o o, H. M. B u r k i l l, C h e a n g K o h

C h o y (Superintendent of the Penang Gardens), C h e w W e e L e k, S a n u s i bin Sarih, Mohd S h a h, J. S i n c l a i r. On Singapore Island Mr Burkill with Kadim bin Tassim collected Sargassum (algae). The total harvest was 460 numbers dried and 414 numbers living for cultivation.

In June 1963 Dr H. S l e u m e r spent a few days collecting in the Cameron Highlands, mainly Ericaceae, in his own series 4661-4675.

J a v a

Dr A. J. G. H. K o s t e r m a n s with a few assistants climbed Mt Pangrango in Febr. 1964. *Primula imperialis* thrived well and flowered all along the path, which was partly impassable with fallen trees. The aloon-aloon had become a closed vegetation with *Anaphalis*. Docters van Leeuwen's hut was still represented by four styles and part of the roof. The strawberries were in fruit; new growth of trees obstructed the view on Mt Gede.

Mr N. W i r a w a n of the Bogor Herbarium made a collecting trip in the vicinity of Mt Pajung in the very SW. of Java, from Dec. 20, 1963 to Jan. 30, 1964, took 400 numbers.

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

Mr Anwari D i l m y of the Bogor Herbarium made an orientating trip to Mt Agung in Bali to study pioneerplants, accompanied by Dr T a r n a v s c h i from Rumenia and Prof. J a c o v l e v from Sovjet Russia (Oct. 1-17, 1963). They collected 89 numbers. The party also visited the Purwodadi Garden in East Java.

Mr Anwari D i l m y, accompanied by Mr Made Taman of the Forestry Service and Mr Nedi of the Herbarium Bogoriense, made an ecological study of the pioneerplants at the Mt Agung (Bali) and studied also the limestone hill Prapat-Agung (West Bali). Found a new Palaquium forest 40 km W. of Singaradja (Gn. Sangiang). Collected 120 numbers (March 9-April 9, 1964).

Mr S u n H o n g F a n, guestworker of the Herbarium Bogoriense, accompanied by mantris Idjan and Adi made a collecting trip on the island of Lombok (April-May 1964) and collected 550 numbers.

B o r n e o

Following the Kuching Symposium, Dr H. S l e u m e r of the Rijksherbarium made a trip to Mt Kinabalu from July 15-28 1963, and one to the Mesilau River up to 2250 m, from July 19-25, accompanied by Mrs C o l l e n e t t e, Dr H. P. F u c h s of the Shell Company, The Hague, and Dr W. M e i j e r. Between July 30 and Aug. 1 he visited Mt Mattang near Kuching.

Dr H. E. M o o r e, Director of the Bailey Hortorium, N.Y., collected palms in Borneo from Dec.29, 1963 to Jan.31, 1964. First he was in Sarawak (Bako, Mattang, Bintulu; there he collected Gigliola), then in Sabah, where he travelled with Dr W. M e i j e r from Jesselton to Tenom and afterwards to Kota Belud and Kudat. He took 75 numbers in Sarawak, 72 in Sabah; Orania was found! The BH will distribute duplicates.

Sarawak. -- Dr P. S. A s h t o n, Forest Botanist at Kuching, made a six weeks' collecting trip in March-April 1963 to the Similajau Forest Reserve, Bintulu, across the watershed to Ulu Belaga, and Sibü. A 10-days' collecting trip to Bako National Park was made in May. A 4 week's visit to the Tatau-Mukah area was made in Sept.-Oct. Priority was given to Dipterocarpaceae and palms throughout.

On March 10, 1964, the Forest Botanist with a party set out for a collecting trip in the Hose Mountains, seven weeks which yielded 850 numbers, and the first record of the new fagaceous genus Trigonobalanus for Sarawak. Live seedlings of it were successfully established at Kuching, where also montane Agathis is tried.

On May 29 Dr Ashton went for 2½ weeks to Santubong, collecting 200 numbers and training staff in ecological work.

In mid-June a party went to the Lambir hills for 2 weeks, obtaining 150 numbers while conducting a primary botanical survey for a proposed National Park.

On June 19 Dr J. A. R. A n d e r s o n went on a two week's trip to the Kelabit Highlands. He was based on Bario, and collected over 200 numbers in this unknown area, where Trigonobalanus was common, among many other Fagaceae.

Mr T. D. P e n n i n g t o n of Oxford collected Meliaceae at Bako National Park, Santubong, Lundu, and Bukit Raya, during Nov. 1963. He was accompanied for a week by Dr P. S. A s h t o n.

Dr C h e w W e e L e k of the Singapore Herbarium with a party of the Sarawak Forestry Department operated in the First Division at Bau and Tiang Bekap from Oct.11-29, 1963, and collected 200 numbers.

Kalimantan. -- Dr A. J. G. H. K o s t e r m a n s left Bogor on Sept.12, 1963, for a tour to the Berau region in NE. Borneo. From Tg Redeb he went to Long Lanuk on the Sungei Kelai (a 14 days' trip by boat). Base-bivouac was made at the base of Mt Njapa (Limestone), where his leg got penetrated by a thorn and poisoned; he went back to Tg Redeb for some time to recover, in the meantime Mr S i m, biologist of Bandung University, led the field operations. After recovery Dr Kostermans worked in a complex of lowland forest N. of Teluk Bujur and the swamp forest along the Sungei Segu. Over 700 field numbers were collected and 60 living plants; on Nov.14 he was back at Bogor.

Sabah. -- Dr W. M e i j e r, the Sandakan Forest Botanist, and his assistants collected during 1963 in various places 6160 numbers (4617 in 1962), of which 401 were Dipterocarps.

The Second Royal Society Expedition to Mt Kinabalu, North Borneo, was in the field Jan. 14 to May 23, 1964. The purpose of the expedition was to study the flora and fauna of the Pinosuk Plateau on the south side of the mountain. Zoologists were L o r d M e d w a y (Univ. of Malaya: vertebrates) and Dr J. S m a r t (Univ. of Cambridge: insects). Forest ecology was undertaken by Prof. M. E. D. P o o r e and his assistant H o C o y C h o k e (Univ. of Malaya). Mr G. P. A s k e w (Univ. of Newcastle) was soil-scientist, as in 1961. Dr C h e w W e e L e k (Botanic Gardens, Singapore) undertook most of the floristic collection of flowering plants. Mr E. J. H. C o r n e r (Univ. of Cambridge) was the leader, as in 1961, and specialised in the higher fungi of the oak-forest, which were in considerable abundance. Lord Medway and Mr Corner reached the east summit of Kinabalu, King George Peak, following the trail begun by Dr Fuchs, Mrs Collenette, and Dr Meijer in 1963. Mr Corner showed the first colour slides of the eastern summit at the 10th International Botanical Congress in Edinburgh, as part of a general lecture on Kinabalu. The National Park of Kinabalu was gazetted on Febr. 1, 1964, by the Government of Sabah as an area of c. 275 square miles.

The expedition enjoyed exceptionally good weather, yet several objectives were not reached, such as the upper waters of the Bembangan River which is so steep that it really needs a special expedition for its exploration. The base-camp of the expedition was set up by Mr G. L. C a r s o n, Conservator of Forests and Chairman of the National Parks Board of Trustees. It is at 5000 feet due north of Kundasan on the east branch of the Mesilau River, and it will be maintained as a camp in the National Park. The aluminium uniport-house, called "Burlington House" and used by the R.S. Expedition in 1961, was set up permanently at this new site by Mr Carson.

It is doubtful if any such spectacular discoveries as *Trigonobalanus* were made on this second expedition. Search for another ally of this genus lead to vast trees of *Myrica javanica* and to an *Engelhardia*! The Rafflesiaceous *Mitrastemon* was found at 4000 feet, as Prof. van Steenis had predicted in correspondence, and it is likely that several other new records of parasitic and saprophytic flowering plants were made. This, however, was the first really ecological expedition to the mountain and its value will lie in the accounts by Prof. Poore, Lord Medway, and Mr Askew. These two expeditions have given valuable impetus to the establishment and development of the Kinabalu National Park.

Philippines

In May 1964 Mr E. R e y n o s o of the Manila Herbarium collected on Mt Apo in Mindanao.

During April-June 1964 Messrs D. R. M e n d o z a, P. C o r d e r o, and R. E s p i r i t u of the Manila Herbarium collected in Palawan.

Dr H. M a c K o u g h a n, Linguist of Hawaii University collected and identified plants of Lanao del Sur with Maranao names.

In July 1964 Mr R. M. d e l R o s a r i o made collections, mostly of Hepatics, in Makiling National Park, Luzon.

Dr J. T. W i e b e s of the Rijksmuseum of Natural History, Leiden, left on Oct. 4, 1964, for a three month's collecting tour to the Philippines. He is a specialist in fig-wasps which he taxonomically found to tally with their hosts; see his paper in this Bulletin on p. 912-913.

New Guinea

Western part. -- Mr S u w a n d a Amongprawira of the Forest Research Institute at Bogor accompanied the Tjendrawasih Expedition to the Central Highlands from Inarutali to Byoga in Dec. 1963-Jan. 1964, collected c. 100 numbers.

Eastern part. -- On his trip round the world for herbarium and field study of the Santalaceae (also Loranthaceae and Olacales), Dr H. U. S t a u f f e r of Zürich spent the month of Dec. 1963 in New Guinea, collecting at Lae, Bulolo, Kainantu, going up from Keglsugl to the lakes E. of Mt Wilhelm, stayed at Port Moresby and made trips to Sogeri. He then proceeded to New Caledonia, Fiji, and Hawaii, returned to Switzerland in Aug. 1964.

Mr P. D a r b y s h i r e collected about 100 numbers in the Safia area, Northern District, Papua, during July and Aug. 1964. In the same district Mr R. P u l l e n is operating during Aug. and Sept.; he expects to join the British Museum expedition from Oct. to Dec.

Seventh Archbold Expedition. Under leadership of Dr H. M. v a n D e u s e n, mammalogist, field work started in the second half of April 1964 at Pindiu; other localities to be visited are Mt Rawlinson (June 3 to July 8), Mt Ulur (July 18 to Aug. 24), and Mt Salawaket (end of Aug. to Oct.), all in the Huon Peninsula N. of Lae. Botanist is Dr R. D. H o o g - l a n d of the CSIRO at Canberra. Collections will be distributed during 1965.

Kubor Range Expedition 1963. The CSIRO, Canberra, invited the Rijksherbarium, Leiden, to participate in an exploration

of the Kubor Range South of Minj, in the very centre of Eastern New Guinea. Thanks to funds supplied by the W.O.N.G. Foundation (since merged into W.O.T.R.O.) Mr W. V i n k of the Rijksherbarium could join. Leader of the expedition was Mr R. P u l l e n, another member was Mr W. H i t c h c o c k, also of the CSIRO, an ornithologist.

On June 7 the members were at Port Moresby, on June 16 they started from Minj. The weather was terrible throughout, notwithstanding success was complete. Mr Vink concentrated particularly on the small high-mountain flora (belly-plants); in all about 1000 botanical numbers were collected, the numbers 16001-16582 by Mr Vink, which will be distributed by the Rijksherbarium. On Sept. 21 the expedition proper was over; on Oct. 13 Mr Vink was back at Leiden.

British Museum-Newcastle Expedition. Mr A. C. J e r m y is the leader of an expedition to the Finisterre Range and the Saruwaged Range, NW. and NE. of Lae in New Guinea. The area is supposed to have been cut off from the main central range for a considerable time, and is biogeographically important being along the route from Malesia to the Solomons and New Zealand. Special emphasis will be laid on cryptogams: ferns, mosses, and lichens, by Mr Jermy and Mr A. E d d y, both of the BM, and Dr T. H. W a l k e r of the University of Newcastle-upon-Tyne. Living plants will be flown to Great Britain for cultivation, and for cytological studies by Dr Walker. Mr M. E. B a c c h u s of the BM will study and collect beetles and other insects.

There is cooperation from many sides; the government botanist of the CSIRO, Canberra, Dr Hoogland, will give part-time assistance, too. In mid-Sept. 1964 the personnel assembled at Lae. First the Finisterre Range is explored, late in Dec. there is a break at Lae, then the Saruwaged Range will be done, till the end of March 1965. In both ranges, some tops of nearly 4000 meters have been marked for climbing. The preserved collections will be deposited in the British Museum and at Kew, from where duplicates will be distributed to various other institutes.

Dr S. C a r l q u i s t of Claremont University, U.S.A., travelled for 14 months in the South Pacific and New Guinea, collecting 850 numbers of dried and spirit material for anatomical and morphological study, particularly of Scaevola.

S o l o m o n I s l a n d s

Dr T. C. W h i t m o r e left in Oct. 1964. It is planned by the Forestry Department that Mr G. F. C. D e n n i s, forester, will take charge of all botanical operations, and that collecting will continue, in conjunction with the Forest Survey, at a rate of a thousand numbers a year.

Visitors were Dr P. J. G r u b b of Cambridge, in Sept. 1963, Mr T. D. P e n n i n g t o n of Oxford, in Febr. 1964, and Dr H. A. L. M o o r e of Ithaca, N.Y., in March 1964. These three visitors assisted with the collecting of ferns, Meliaceae, and palms respectively. In June 1964 Mr E. J. H. C o r n e r spent 3 weeks in preparation for the 1965 Royal Society Expedition to the Solomons.

Much of the last year was spent on collecting expeditions. Several type localities were revisited, in all the main island groups; c. 3000 numbers were taken in all. The collecting concentrated on woody plants. The treeclimbers did so well that they could be sent out alone, under charge of a Melanesian forest guard to write the labels ("Whitmore's collectors").

Mr R. S c h o d d e of the CSIRO is collecting in Bougainville I. from July to October. He is accompanied by Mr L. C r a v e n, who recently succeeded Mr P. Darbyshire as a botanical collector.

End June 1963 Dr P. v a n R o y e n made an exploration towards the southern tip of Bougainville I. where the Forest Department is opening up an area.

The Royal Society of London is intending to send an expedition to the British Solomon Islands in 1965 from July to December, under the leadership of Mr E. J. H. C o r n e r. It will consist of a marine party of zoologists, algologist, shore-line geographer, and a land-party of botanists and zoologists. Zoology will be confined mainly to invertebrate groups and the botany will include, particularly ferns, lichens, fungi, and algae. The general tree-flora of the lowlands has already been studied by Dr T. C. W h i t m o r e, as Forest Botanist, during the last two years, and the land-party of the 1965 expedition will endeavour to reach some of the higher mountains. Mr Corner spent three weeks in the Solomon Islands in May-June 1964, in company with Prof. J. M o r t o n (University of Auckland), who will lead the marine-party.