TWO NEW MALAYSIAN LICHENS

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1. **Phaeographina maxima** Groenh., sp. nov. — *Fig. 1, 2, 3 A.*

Thallus epilithicus, crustaceus, uniformis, continuus, late expansus (usque ad 1 m latus), sat crassus, griseus, laevigatus, subnitidus, pseudocyphellis punctiformibus verruculiformibusque, albis, numerosis instructus, zona marginali laete viridi cinctus, K sordide aurantiacus, Ca et KCa immutatus; cortex chondroideus, decolor, 20—25μ crassus, ex hyphis intricatis horizontalibusque formatus; gonidia viridia, ad Trentepohliam pertinentia, zonam circ. 60 μ crassam formantia; medulla stuppea, ochroleuca, crystallos includens, J caerulescens.

Apothecia lirellina, semi-immersa, subrecta vel flexuosa, repetito-dichotomo-furcata, 0,2—0,3 mm lata, circ. 20 mm longa, radiatim ordinata, apicibus attenuatis; discus planus vel concavus, epruinosus, niger, opacus; margo tenuis, integer, discum leviter superans ad basin non aut leviter constrictus; hymenium 120 μ altum, decolor, purum, J-; hypothecium 40—45 μ crassum, laete coloratum; epithecium laete fuligineum; excipulum integrum, fuscofuligineum; labia divergentia, integra, omnino thallo vestita; asci 8-spori, cylindrici, membrana tenui, ad apicem incrassata, cincti; sporae uni- vel biseriales, muriformes, brunneae, ellipsoideae, 8—9 × 14—16 μ, septis transversalibus 3, septis verticalibus 1, membrana tenui cinctae; paraphyses simplices, filiformes, ad apicem non incrassatae, arcte cohaerentes.

SUMATRA. In the bed of the Sumani river (Batang Sumani) near Kajuaro, alt. 1000 m: *P. Groenhart 9453* (BO 8571), *holotype*, d.d. July 2, 1953 on rock.

As the species is represented only in the Herbarium Bogoriense by some scraps from the type specimen it is necessary to give some data about it.

It has been found on a rock in the bed of the Sumani river almost West of Kajuaro, a locality situated on the road from Padang to Solok.

The thallus covers about a square meter of the boulder on which it is living. The rather thick, grey, smooth thallus is bordered by a pale greenish zone and it shows no trace of black or brownish border lines, which are commonly formed when two thalli meet, even if they are of the same species. I therefore presume that this thallus represents only one single specimen of unusual largeness. (Fig. 1). It is perforated by

numerous white, very small pseudocyphellae, which often form small warts. These are shown on fig. 2 together with the apothecia. In a young stadium the lirellae are arranged radiately forming a round spot not unlike a stroma of some Chiodectonaceae. However, a special stroma tissue is absent. Afterwards the lirellae grow out centrifugally while dying out at

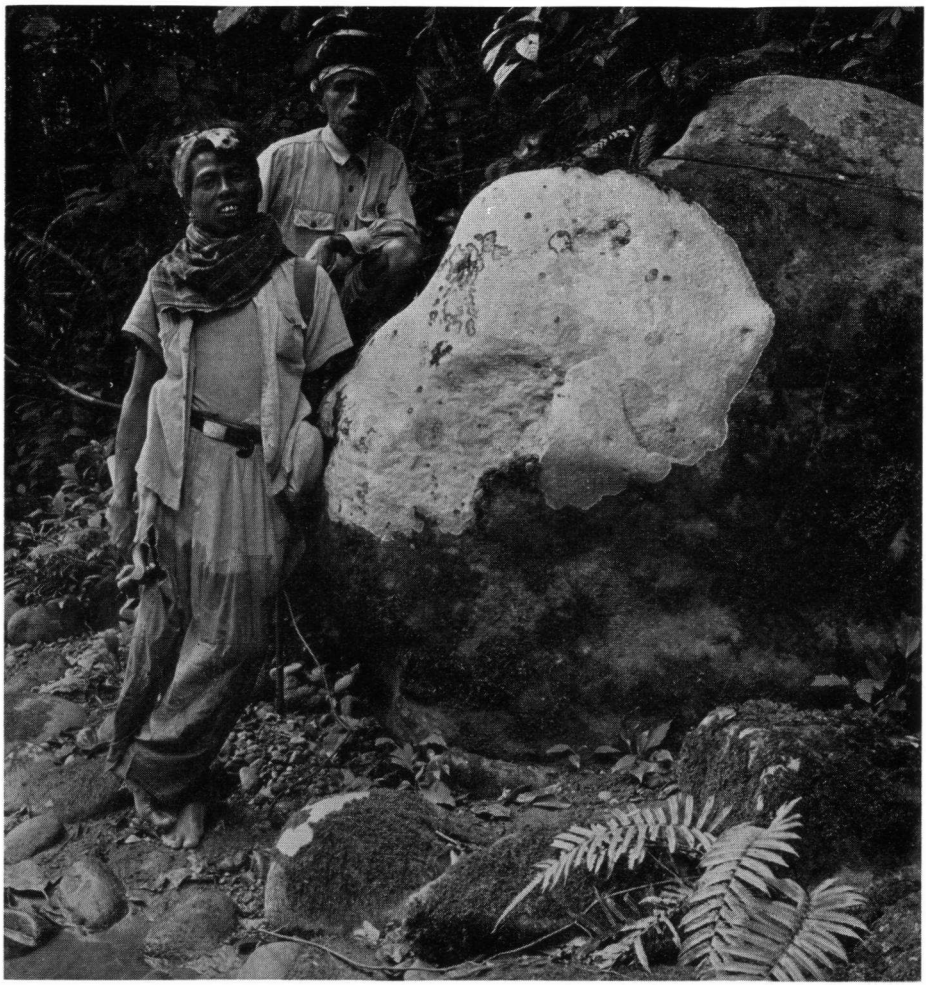

Fig. 1. *Phaeographina maxima*, Sumatra, in the bed of the Sumani river, holotype.

their centripetal ends, so that they become not or only a little longer than in their original stromatoid stadium. Because of the repeated dichotomous branching of the lirellae, the forward creeping more or less circular rows keep their density. Within the rows remnants of older lirellae can be found.

Though I often observed those stromatoid lirellae in tropical Graphidaceae, I never saw them developed in such way as is shown here.

Fig. 2. *Phaeographina maxima*, Sumatra, part of the holotype showing the apothecia and pseudocyphellae.

It was not possible to collect a piece of the rock with a representative part of the lichen. Smaller specimens growing on transportable stones were all sterile, so that I had to be content with some scrapings, with which the anatomical and chemical data given here can be controlled, and the reproduced photographs.

Nothing is known about the speed of growth of lichens in the tropics, but even if I assume that this is much more rapid than in Europe, the specimen must still be of a considerable and imposing age. It clearly has grown there undisturbed all the time and as the natural surroundings is not likely to be changed, a future interested lichenologist will easily trace the holotype with the help of the persons it is photographed with.

2. Bombyliospora lamii Groenh., sp. nov. — *Fig. 3 B.*

Thallus epiphloeodes, crustaceus, uniformis, continuus, circ. 100 μ crassus, albidus, griseo-isabellinus vel griseo-viridis, opacus vel subnitidus, laevigatus aut leviter verruculoso-inaequalis, interdum membranaceo-desquamens, sorediis et isidiis destitus, protothallo non praeditus, K-, Ca-, KCa-; medulla alba; gonidia globosa, viridia, 6—10 μ lata, protococcoidea.

Apothecia sessilia, sat numerosa, dispersa, vel approximata, orbicularia, crassa, 1—2 mm lata, ad basin bene constricta; discus concavus vel planus, cyaneus vel atro-cyaneus, nudus vel caeruleo-pruinosus, opacus; margo crassus, integer, persistens, disco concolor aut obscurior, basin versus brunnescens; epithecium sordide caeruleum aut interdum plus minusve fuligineum; hymenium 260—350 μ altum, decolor, hyalinum, spumoso-inspersum, J caeruleum; zona subhymenialis 40 μ crassa, decolor; asci 4—6-spori, clavati, membrana sat crassa in apice bene incrassata rotundataque; sporae biseriales, decolores, oblongae, curvatae, utrinque rotundatae, 26—25 × 100—140 μ, 9—12-septatae, cellulis rectangularibus; paraphyses simplices, 1 μ crassae, in apice non incrassatae, arcte cohaerentes; hypothecium ferrugineum vel purpureo-brunneum, K immutatum, ex hyphis horizontalibus conglutinatisque formatum; medulla excipuli hyphis sat laxe contextis, hypothecio concolor vel laetior; margo et cortex excipuli radiatim pseudoparenchymatici, cellulis sat leptodermaticis, 2—3 μ latis, laete flavidi sed precipue in margine et zona exteriore cortici sordide aeruginoso inspersi; extus zona hyalina, amorpha, 20—25 μ crassa pro parte vestiti.

Holotype: *Van Ooststroom no. 14340.*

MALAYA. Pahang: Fraser's Hill, alt. 3800′: *Allen 1185* (BO), March 23, 1953 on tree.

INDONESIA. Loc. acc. non indic.: *Zippel s.n.*, on tree (L).

WEST JAVA. Mt. Gede, Tjibodas, alt. 1400—1500 m: *Bruggeman & v. Overeem—de Haas 129* (BO) on Altingia exelsa Noronha; *v. Ooststroom 14335* and *14340* (L), April 14, 1950 on Turpinia pomifera in rain forest; *Groenhart 8685* (BO) on tree, Sept. 24, 1952; id. *8653* (BO), along the trail from Tjibodas to Tjibeureum on tree Sept. 20, 1952.

EAST JAVA. Mt. Andjasmoro, alt. 1800—2200 m: *Groenhart 4059* (L), on tree, Aug. 1937.

The new species is characterized by its blue and bluish pruinose apothecia. In older specimens the colour becomes almost black.

The apothecia represent quite distinctly Frey's protolecideoid type. A vertical cross section of the apothecium shows the following details. *(Fig. 3 B).*

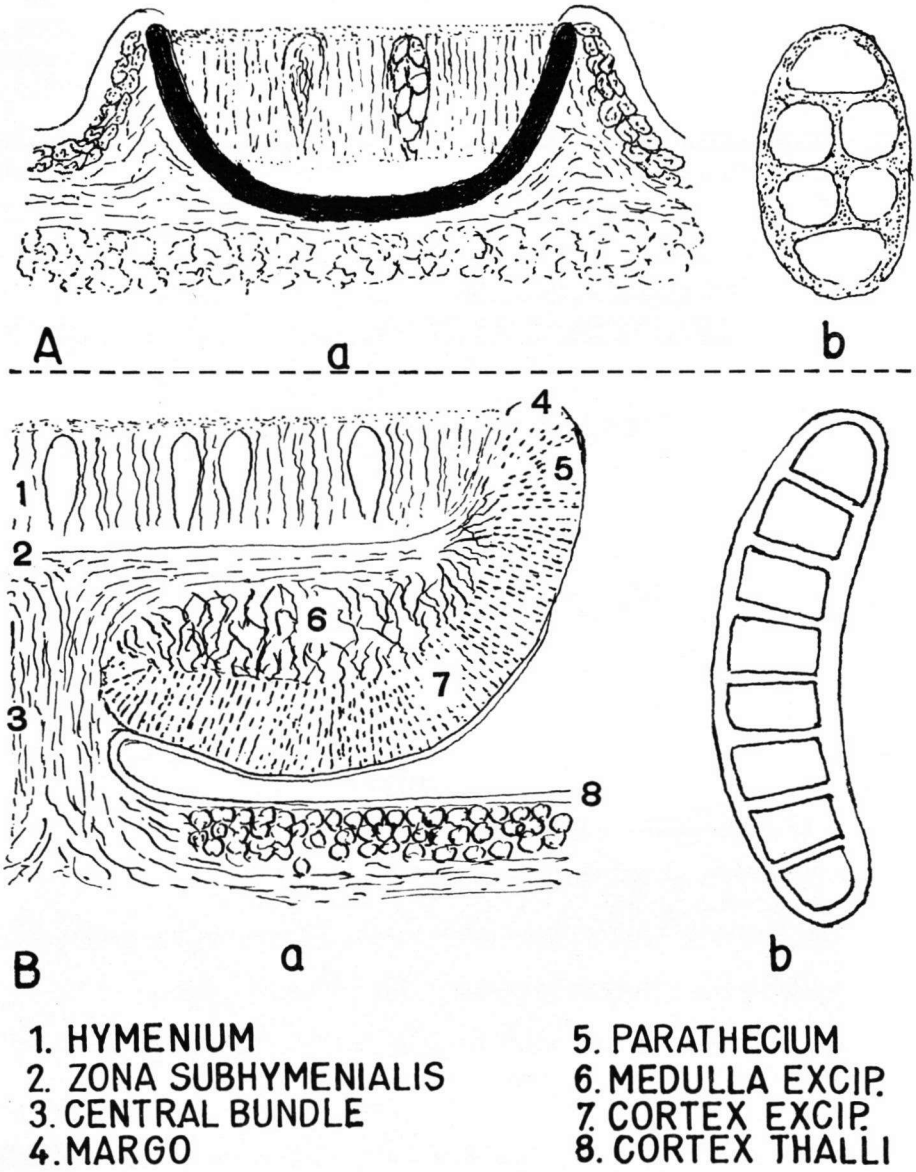

Fig. 3 A. *Phaeographina maxima,* a. schematical drawing of vertical section of apothecium, b. spore, holotype.

Fig. 3 B. *Bombyliospora lamii,* a. schematical drawing of vertical section of apothecium, b. spore, holotype.

In the central part of the section a bundle of hyphae goes upward from the medulla of the thallus. At the top of the bundle the hyphae spread in all directions in a horizontal plane. From this plane, the hyphothecium and all other structures recognizable in the apothecium arise. Upward growing hyphae directly constitute upon the hypothecium a clear, dense layer, the zona subhymenialis, which forms the basis of the hymenium, which is composed of the asci and paraphyses and strongly inspersed with oildrops. The coloured epithecium is no structure by itself. It is only the upper zone of the hymenium of no definite thickness.

In *Bombyliospora* sp. the zona subhymenialis is rather sharply limited against the hymenium. In other genera such a distinction cannot always be made.

All structures originating from the hypothecium with the exception of the hymenium and the zona subhymenialis form the excipulum. From the edge and the lower side of the hypothecium hyphae grow out upward, sideward and downward. The upward growing hyphae together with a part of the sideward growing hyphae straight away constitute a radiate pseudoparenchyma, the other hyphae become at first more or less densely intricate, forming the medulla excipuli. Towards the outside of the excipulum those hyphae become radiately directed, growing closely together and constitute the radiate, pseudoparenchymatic cortex excipuli. This cortex ends close to the central bundle of hyphae arising from the medulla thalli.

The outside of the excipulum is wholly or in its lower parts only, covered with a thin, more or less amorphous layer. This layer is a continuation of the cortex thalli.

The parathecium is the upper part of the excipulum alongside the hymenium. It is commonly so narrow, that there is no room for a medullar tissue so that it becomes the continuation of the pseudoparenchymatic cortex excipuli. The margin of the apothecium is the upper ridge of the parathecium c. q. the excipulum.

In *Bombyliospora lamii* the cortex and the medulla excipuli are both coloured yellowish. In the medulla this colour is hardly visible, the hyphae being covered with a brownish matter. In the cortex as well as in the epithecium a dark bluish pigment occurs. It is dense within both the margin and the parathecium and becomes gradually thinner towards the medulla where the yellow colour dominates.

This lichen is named in honour of Prof. Dr. H. J. Lam who has always been very much interested in lichenology and who has constantly promoted the study of this branch of botany.