

Some Taxonomic and Nomenclatural Notes on *Vateria copallifera* (Retz.) Alston*

by

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(With one text figure and one plate)

During fieldwork in Ceylon, summer 1970, I collected specimens of this Dipterocarp 3 miles east of Avissawella (Meijer 344 and 395), with almost ripe fruits. Immediately this species reminded me very strongly of *Vatica papuana*, a Dipterocarp which occurs from North Borneo throughout the Philippines, the Moluccas to New Guinea, or even more of the fruits of *Vatica subcordata* (Bl.) Hall. as illustrated (Fig. 1) by van Slooten in Bull. Bot. Garden Buitenz. III, Vol. 17: 232, 1942. The fruits have almost the same size and shape. The lobes of the fruiting calyx are shorter than the nut, which has several furrows (see Plate 1). Also the vegetative characters come very close; both have subulate stipules more or less persistent on the end of the twigs and rough petioles.

A search in the limited literature available to me in Lexington, Kentucky, showed me that *Vatica papuana* has been described by Dyer under the name *Vateria papuana* Dyer ex Hemsley, Voy. Challenger, Bot. I, 4, 123, 287, and 297. tab. 64B (1884-1885), obviously after he first described this species as *Vatica papuana* Dyer, J. of Bot. 16: 100, 1878. Also Beccari seemed to have been inclined to call *Vatica papuana* a species of *Vateria*. According to van Slooten in Bull. Gard. Bot. Buitenz. series III, Vol. 17: 117 he listed it in 1877 as *Vateria* spec. nov. in his Catalogue of the Plants of the Fly-river (S.E. New Guinea).

The Genus *Vateria* was first described by Linnaeus in his Genera Plantarum p. 153, 1735 and the starting point for nomenclatural purposes of this name is Species Plantarum: 515, 1753. Linnaeus however made no difference between *Vateria* as it occurs in India along the Malabar Coast and in Ceylon. He cited under *Vateria indica* L.:

"Flora zeylanica 204. Poenoe, Rheed. mal. 4., p. 33. t. 15. Habitat in India." Later on the Ceylon plant was described by the Swedish botanist Retzius as *Elaeocarpus copalliferus* Retz. Obs. 4: 27, 1786 (not seen by me). Retzius based the description of this species on a Koenig specimen from Ceylon as referred to by Roxburgh in his Flora Indica II, Carey Ed. p. 603, where he writes:

"Can Koenig's Ceylon tree with two bristles (on the anthers) be the same?" He mentions *Elaeocarpus copalliferus* Retz. as a synonym of *Vateria indica*.

The question is now, accepting that the Ceylonese plant and the Indian plant belong to two species, which of these two is the type of the genus *Vateria*? Have we to typify Linnaeus'

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description with a Ceylonese specimen as collected by Hermann and mentioned in his *Musaeum Zeylanicum* (1717) or should we consider the plate in Rheede, *Flora Malabarica* vol. 4, 1683 (see Stafleu, *Taxonomic Literature* : 390, 1967) cited by Linnaeus as type? Lack of original literature in my library at Lexington, Kentucky make it impossible to answer this question quite positively. However I got the kind assistance of Dr. R. Bakhuizen van den Brink, Rijksherbarium, Leiden, who informed me that Linnaeus based the genus *Vateria* on Rheede's illustration and definitely not on Hermann's Ceylon plant. He further informs me that :

"The following literature citations

Linné, *Flora Zeylanica* : 92 (1747) no. 204 bear this out :

Raj. Hist. 2 : 1482 (1688)

Pluk. Alm. : 28 (1696)

Comm. Malab. : 4, 196 (1696)

Rheede, Malab. : 4: 33, t. 15 (1673)".

The publications by Raius, Plukenet and Commelijn are all copied from Rheede. This makes it clear that *Vateria* L. is typified by the Indian species. Linné adds to his citations in *Flora Zeylanica* "Obs. Planta sicca in tomo quarto, sed mutilata, ut descriptio tradi nequeat", which is in translation : The dried mutilated plant (in part 4 of Hermann *Musaeum Zeylanicum*) and the description which belongs to it cannot be identified. Supposedly Linnaeus saw enough resemblance however to suppose that the Ceylonese and the Indian plant might belong together. In this case the plate of the Indian plant should be considered to be the type of *Vateria indica* L. and that species as the type of the genus."

Now the question has to be discussed in what way does *Vatica* differ from *Vateria*?

The genus *Vatica* goes back to Linnaeus' *Mantissa* II : 152, 1771 and is based on *Vatica chinensis* Linn., according to Ashton (msc) with as holotype a Hermann collection. sn. in the Linnaean Herbarium (London). That species now belongs to subgenus *Isauxis* (Arn). Brandis, J. Linn. Soc. 31 : 127, 1895. This subgenus was first published as a subgenus of *Vateria* by Arnott in Wight, Ill. Ind. Bot. 1, 88, 1840 (cited after van Slooten loc. cit. p. 96) but later on treated as a genus by King, J. Asiat. Soc. Beng. 62, ii (1893) 102 and as a subgenus of *Vatica* by Brandis (loc. cit.). As pointed out by Gilg and Brandis in Engler and Prantl, *Natürl. Pflanzenfam.* III, 6, 1894, the difference between *Vateria* and *Vatica* would be mainly the fact that *Vatica* has always 15 stamens and *Vateria* many, (how many?), while those of *Vatica* have short blunt anthers and *Vateria* linear, tapering into soft bristles.

However, so far I have not been able to reinvestigate flowers of *Vatica papuana* and the question arises: Does the number of stamens and the shape of their anthers really constitute a generic character? Within the genus *Shorea* species are allowed 15, 30, 45 and many stamens, anthers with or without filiform threads. Should the circumscription of *Vateria* not be as wide as that of *Shorea* or could it be possible that the subgenus *Isauxis* or *Vatica* (possibly together with *Pachynocarpus*) has to be united with *Vateria*?

In this context we may consult the interesting recent studies made of the wood anatomy of Dipterocarpaceae by Gottwald and Parameswaran in *Bot. Jahrb.* 85 : 410-508, 1966, and a special study on *Vatica* and *Vateria* in *Zeitschrift für Botanik* 52: 321-334, 1964. In the latter study it is pointed out that several species of *Vatica* subgenus *Isauxis* including *Vatica papuana* and the narrowly related *V. rassak* (Korth) Bl. and *V. subcordata* (Bl.) Hall, subgenus *Pachynocarpus* of *Vatica* and *Vateria copallifera* have a type of multiple vessel perforation which among Dipterocarpaceae only occurs in this group. They are completely absent in *Vatica* subgenus *Synaptea*. The only anatomical difference between *Vateria copallifera* and *Vatica papuana* is the thickness of the cell walls in the libriform fibres. *Vateria copallifera* has consequently lighter and softer wood than *Vatica papuana*. The air-dry density of *Vatica papuana* varies between 40-44.2 lbs. per cu. ft. in Sabah according to Burgess, *Timbers of Sabah* p. 229, 1966. I have no comparative figures for *Vateria copallifera* available but they can be obtained from the Ceylon Forest Department, I presume.

Gottwald and Parameswaran (1964) stated at the end of their paper that the anatomical similarity between *Vatica* and *Vateria* is so great when *Vateria copallifera* is considered that no differences can be pointed out and that it would be impossible to distinguish these taxa according to wood anatomical characters.

Whatever the final taxonomic decision is, it might be clear from the foregoing that *Vateria copallifera* is strongly related to a group of species in *Vatica* which might once have had more or less joint areas (See the map and article on continental drift in relation to floras by J. M. Schopf, *Taxon* 19 : 657-674, 1970).

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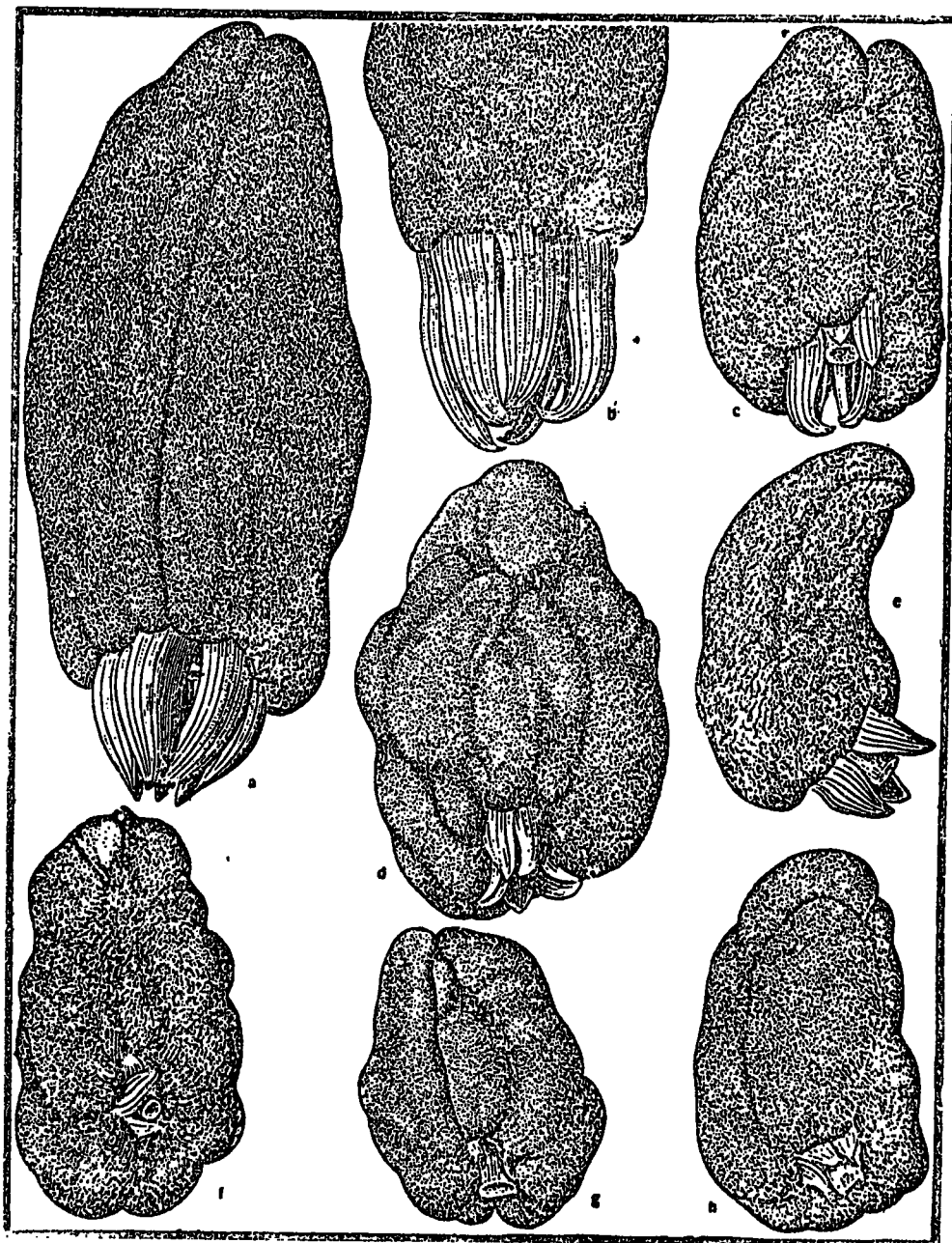
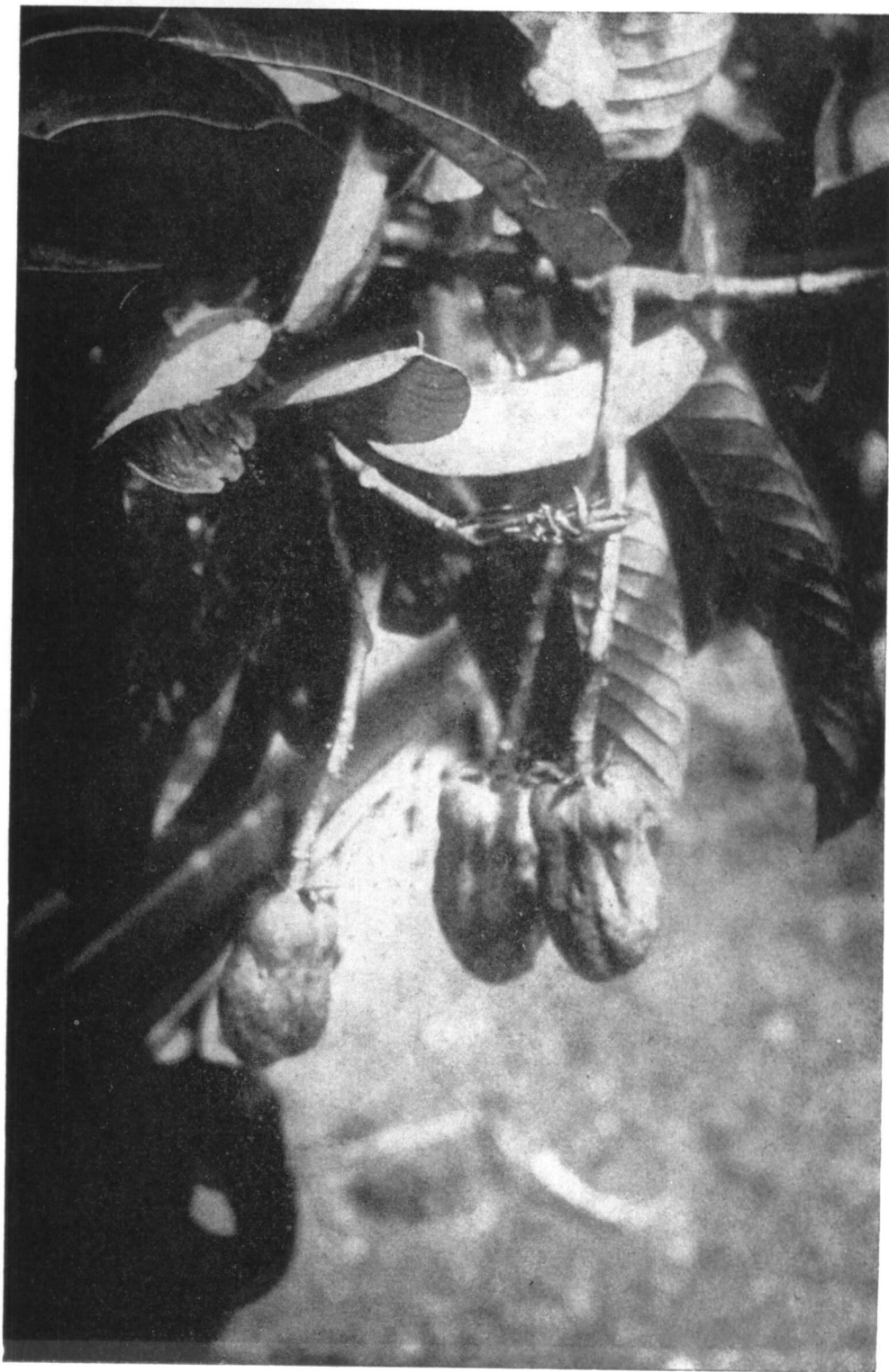


Fig. 1. Fruits of *Vatica subcordata* (Bl.) Hall. (after Van Slooten, 1942.)



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