

PALMÆ MALESICÆ.

VII.—Two new CALAMI from the Buitenzorg Gardens.

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Early this year (1936) I noticed cultivated in the Botanic Gardens, Buitenzorg, Java, two *Calami* showing some characters that are rather infrequent in the genus, and on further study both proved to be new. The one, *C. Steenisii*—named in honour to Dr. C. G. G. J. van Steenis of the Buitenzorg Herbarium, who had taken a great deal of trouble to facilitate my studies during my visit to the Gardens—is recorded to have been introduced from New Guinea, and possesses so many anomalous characters that it cannot be made to fit in any of the sixteen groups into which the genus *Calamus* has been divided by Beccari (*Ann. Roy. Bot. Gard., Calcutta*, XI, 1908, pp. 64–69), though it shows, at the same time, several marks of affinity to some of the New-Guinean species belonging to *Group V* (*vide infra*). The second, described here as *C. inopitatus*, is of unknown origin. It is a stemless palm and produces leaflets which are covered in the under surface with minute pinkish tomentum, both of which characters are not common in the genus. It is closely related to *C. Burckianus* Becc. from Java, a member of *Group II* of Beccari and possibly also stemless.

***Calamus Steenisii* Furtado spec. nov.** (*Planta fœminea tantum visa*). *Caudex* soboliferus, alte scandens, circ. 17 m. longus, cum vagina 2.5 cm. in diametro. *Vagina* frondium flagellifera, infra petiolum gibbosa, furfureo ferrugineo, deciduo, dense leprosa, aculeis numerosissimis, tenuibus, applanato-acicularibus, primum ferrugineis, mox lævigatis, stramineis per series transversales interruptas, 3–5 mm. inter se remotas dispositis, basi connatis, in partibus liberis fragilibus armata. *Ochrea* papyracea, exsuccosa, fibrosa, auriculo-lanceolata, circ. 50 cm. longa, e basi 2.5 cm. lata in apicem acuminatissimam interdum fissam transiens, intus lævigata, extus obscure bicarinata, deciduo fusco leprosa, spinis, flaccidis, laminaribus, exsuccosis, solitariis, vel basi connatis, ad 6 mm. longis prædita. *Petiulus* subtus convexus, usque geniculi basin inermis, supra applanatus, basin versus concavusculus, secus margines aculeis 3–4 mm. longis, rigidis per tres lineas dispositis armatus, furfureo fusco deciduo leprosus, 8–12 cm. longus, ad 1 cm. latus. *Lamina* circ. 1–1.20 longa, ecirrhifera vel interdum in

cirrhum abortivum, filiformem, inconspicuum, sæpe cum segmento terminali adnatum, ad 7 cm. longum exeuns, in rhachi eodemmodo leprosa, subtus secus rhacheos dorsum marginesque aculeis dispersis, reduncis, basi tumescentibus, apice atris, solitariis, interdum transverse connatis armata. *Segmenta* plura, untrinsecus circ. 50, alternantia vel subopposita, ad angulum 45° divergentia, lineariformia, maxima latitudine in media sita, circ. 20–23 cm. longa, 12–15 mm. lata, acuminata, basin versus attenuata et in marginibus crispata, infima subito oblique contracta, ad margines subtus secus costam mediam tantum et supra ad costas tres setulosa. *Inflorescentiæ fæminæ* foliis longiores, circ. 2 m. longæ, flagelliformes, in axi aculeis reduncis, solitariis vel digitatis, rigidis, ad 5 mm. longis armatæ, deciduo furfuraceæ, in ramos primarios 2–4 divisæ, pedunculo ancepiti, secus margines præsertim aculeis minutis prædito suffultæ. *Rami primarii* ad spatharum os orientes, statu juvenili in lobo spatharum libero obtecti, circ. 30 cm. longi, spiculas utinsecus 5–7 ferentes. *Spathæ: primariæ* basi tubulosæ, cylindricæ vel ancepites, aculeis dimensione variabilibus, ad 3 mm. longis rigidis, raro digitatis armatæ, apice in lobum, liberum, mox marcescentem, parce aculeolatum, in parte summa fere inermem, interdum fissum, in modo auris asini productæ; *secundariæ* perbreviores, circ. 2 cm. longæ, papyraceæ, infundibuliformes, in lobum acuminatum unilateraliter productæ, parce aculeolatæ. *Spiculæ* ad spantharum os secundarium orientes, axi flexuosæ, 8–12 cm. longæ, florum glomerulos distichos, alternatos gerentes. *Spathellæ* infundibuliformes, oblique truncatæ, acuminatæ, aculeolis perbrevissimis, rigidis, basi tumescentibus scabridæ. *Involucrophorum* cupulare. *Involucra* profunde cupularia, in singulo involucrophoro germinata, connata. *Flores* ad singula spathella germinati, ambo fæminei vel in parte spicularum apicali alter neuter (masculus?). *Perianthium* fructiferum pedicelliforme vel subpedicelliforme. *Fructus* immaturi tantum visi, ovoidei, circ. 12 mm. alti, 6–7 mm. crassi, squamis per series verticales 18–22 dispositis, concoloribus, stramineis. *Albumen* homogeneous.

PATRIA: Nova Guinea borealis.

The plant described here is cultivated in the Botanic Gardens, Buitenzorg, under the gardens' no. X.E. 2, and is said to have been introduced from the northern parts of New Guinea. The herbarium collection studied by me bears the Singapore Field No. 30840. The holotype is preserved in the Singapore herbarium, and the isotypes will be distributed to the herbaria of Buitenzorg, Leiden, Kew and Berlin.

The edges of the leaflets are slightly turned upwards. Judging from the marks of the fallen flowers and fruits, it

appears that the two female flowers are borne at each spathe except in the distal ends of the spikelets where one neuter (or male?) and a female occur at each spathe.

It is extremely difficult to make this species fit in any of the sixteen groups into which Beccari has subdivided the genus *Calamus*. If the presence of the long dilated, auriculiform, free apical extension of the primary spathes is disregarded, the species would certainly fall into the *Group V*. Further the scabridity on the spathes and spathelets would place *C. Steenisii* into the *Group V-A*, of which sub-division no species is known to occur in the part of the Indonesia lying to the east of Borneo. No member of this group is known to possess very long ocrea at the mouth of the leaf-sheaths, a character which, if one disregards the abovementioned scabridity, would put the species into the *Group V-B*, and precisely in the section which includes the species that occur in New Guinea alone.

But if the dilated ends of the primary spathes are taken into consideration, two *Groups VI and XVI* may partly lay claim to this species, though again no species belonging to both these groups are known to occur eastwards beyond Borneo. All the species of *Group VI* have spathes which split or open longitudinally almost down to the base into loriform laminae. The species of *Group XVI*, though have the primary spathes similar those in *C. Steenisii*, differ from the latter in that they all have very much compressed, short spadices and ruminant seeds (*C. Steenisii* has very long spadices and non-ruminant seeds).

All this suggests the necessity of redefining *Groups V, VI and XVI*, or of creating a new one so as to keep several of the New Guinea species together and to include such species which, together with *C. anomalus* Burret, *C. Lauterbachii* Becc., *C. nannostachys* Burret, and *C. Steenisii*, cannot be made to fit definitely into any of the sixteen groups of Beccari, though all of them show marked affinities to the species in the three groups referred to above.

***Calamus inopinatus* Furtado spec. nov.** (*Planta mascula tantum visa*). *Caudex* soboliferus, acaulis, interdum ad 35 cm. longus, 2.5 cm. crassus, per totam altitudinem radices aërias ad 8 mm. crassas solum attingentes gerens. *Vagina* frondium 10–15 cm. longa, haud flagellifera et non gibbosa, in latere ventrali ad basin usque vel fere aperta, in petiolum sensim transiens, aculeis laminaribus, elasticis, ad 5 cm. longis, acuminatis, basi ad 4 mm. latis, digitatis vel interdum per series obscuras dispositis armata. *Ochrea* in modo alæ secus margines vaginæ enata, apice truncata, haud in lobos liberos producta, in alis utraque 6–10 mm. lata, rigida, fragilis, aculeis rigidis, acicularibus, atris, ad 5 mm. longis, basi, per series transversales interruptas connatis prædita, basin versus sensim in vagina evanescens. *Petiolus* 20–30

cm. longus, circ. 6 mm. crassus, teretiusculus, supra anguste canaliculatus, sulcos aculeorum exhibens, aculeis acuminatis, laminaribus, elasticis, stramineis ad 2.5 cm. longis, basi ad 4 mm. latis, apicem petioli versus solitariis, basin versus sæpe digitatis vel oblique subverticillatis. *Lamina* ad 1 mm. longa, imparipinnata vel fere; secus rhacheos dorsum in duabus partibus inferioribus tantum aculeis solitariis laminaribus, distantibus prædita, signis aculeorum conspicuis impressa. *Segmenta* numerosissima, æquidistantia vel fere, alternantia vel subopposita, 3–3.5 cm. inter se remota, ad 35 cm. longa, ad 2 cm. lata, linearis ensiformis, in apicem filiformem, setulosam terminata, intermediaria longissima, subtus roseo-tomentellose, secus costas tres supra medium vel paulo infra setulosa, supra inermis, lævigata. *Inflorescentiæ masculæ* inermes, haud flagelliformes, frondibus breviores, ad 60 cm. longæ, in ramis primariis 3–4 divisæ, in rhachi spathisque deciduo fusco-furfuraceæ, pedunculo in vagina includente, nonnihil infra ochreæ apicem attigente. *Spathæ*: *primariæ* plus minusve striatæ, ad 6 cm. longæ, tubulosæ, apice oblique truncatæ, unilateraliter acuminatæ et in altero latere fissæ; *secundariæ* consimiles, æquilongæ vel minores; *tertiariæ* minores, infundibuliformes, acuminatæ, striatæ. *Spathellæ* consimiles, apiculatæ, in altero latere fissæ. *Rami primarii* 10–15 cm. longi, interdum ramus basalis ad 40 cm. longus, nonnihil infra os spatharum inserti, in ramos secundarios, interdum tertiarios, eodemmodo infra orificium spatharum orientes divisi. *Spiculæ* prope basin spatharum orientes; *primariæ* ad 9 cm. longæ, basin versus secundarias 2–3 cm. longas sæpe ferentes. *Flores* solitarii, alternati, confertissimi, ex spathellis usque duas partes exserti, in involucrio profundo cupulari insidentes, utrinsecus in speculis primariis ad 15, ac in secundariis 9–12, ad 4 mm. longi, petalis sesqui longioribus quam sepalis, ambobus striatis, ovato lanceolatis.

PATRIA: ignota.

The plant is cultivated in the Botanic Gardens, Buitenzorg, and bears the gardens' no. X.E. 24. The specimens described here were collected by me under the Singapore Field number 30919. The holotype is preserved in the Singapore herbarium. Duplicates will be distributed to the herbaria of Buitenzorg, Leiden, Kew and Berlin.

This peculiar species belongs evidently to the *Group II* of Beccari and seems to be closely related to *C. Burckianus* Becc. from Java, which is probably also a stemless species; but it is described to have its petiole unarmed, leaf rachis unarmed or armed with small claws beneath, and the primary (three) costæ of the leaflets setose above and sometimes also beneath, whereas *C. inopinatus* has its petiole and rachis of the leaves armed with

rather long, laminar spines, its leaflets quite smooth above but armed along the three ribs beneath, as well as covered with minute, pinkish tomentum in the lower surface. The only other stemless *Calamus* is *C. pygæus* Becc., a species belonging to the Group V of Beccari and, therefore, differing in its spikelets and spadix-branches being sessile, that is, arising at the mouth of their respective spathes.



Furtado, C. X. 1937. "Palmae Malesicae VII." *The Gardens' bulletin; Straits Settlements* 9(2), 182–186.

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