Notes on a Collection of Orchids from Ponape, Caroline Islands

ALEX D. HAWKES

THE CAROLINE ISLANDS of the Micronesian area of the Pacific, which extend in an approximately east-west direction for some 1,950 miles, between about 5° and 10° north latitude, are almost directly north of New Guinea, the Bismarck Archipelago, and the Solomon Islands, the center of distribution for the family Orchidaceae. It is, therefore, to be anticipated that the orchid flora of the Carolines is fairly extensive; such is indeed the case, though our knowledge of the flora of the area is still somewhat incomplete. The novelties incorporated in the present paper indicate that further exploration in the Carolines will doubtless increase the numbers known in the orchidaceous flora of the islands.

The present interesting collection of Orchidaceae from Ponape was assembled by Philip A. Adams, while engaged in entomological surveys of the island. The materials, consisting of both herbarium and living specimens, were sent to the Botanical Garden of the University of California at Berkeley at the instigation of Dr. T. Harper Goodspeed. The writer must thank him for permission to study the collection, and for reading and checking the paper in its final stages. His further thanks go to Dr. Lincoln Constance for assistance in taxonomic problems and for supervising the work in progress; and to Dr. Rimo Bacigalupi for assistance with the Latin diagnoses.

BULBOPHYLLUM Thouars


Eight or nine species of this gigantic and highly complex genus are now known from the Carolines. The group would greatly profit by critical revision in the area.


Mt. Sankaku, 1,100 ft. alt.: this species grows on tree trunks, fallen logs, mossy rocks and soil. Especially healthy plants were on rotten logs and bases of Bird’s Nest Ferns (Asplenium nidus L.). The flower is eggplant purple. The species was seen nowhere but on the summit of Mt. Sankaku. August, 1950, P. A. Adams 24.

This attractive dwarf epiphyte was originally described from specimens collected by C. Ledermann on the island of Babelthuap in the Palau group. Our plant is rather larger in all parts than the type material, and differs in floral color, the blossoms as described by Schlechter being noted as “rotbraun, mit braungelber Lippe.” It has not been reported previously from Ponape. The only other species of the section Scyphosepalum is the New Guinean B. nuruanum Schltr. Living material is in cultivation at the Botanical Garden of the University of California at Berkeley.


Mt. Beirut, 2,200 ft. alt.: epiphytic, common in primary forest from about 1,500 ft.

*Bulbophyllum micronesiacum* Schltr. is also known from Yap and Rota, and from Babelthuap in the Palaus. It is a very distinctive and handsome large-flowered species allied to *B. guamense* Ames from the Marianas. Living material is in cultivation at the Botanical Garden of the University of California at Berkeley.

*Bulbophyllum urceolatum* A. D. Hawkes, sp. nov. (Fig. 1)


Dwarf creeping epiphytic herb. Rhizome repent, 2–3 mm. in diameter, more or less covered with somewhat leathery, brown sheaths, giving off pseudobulbs at intervals, mostly cylindrical. Roots filiform, flexuose, brown or reddish-maroon, distinctly villous when young, later glabrous. Pseudobulbs produced at intervals, 2–12 mm. apart, ascending, somewhat arculate or semi-erect, ovoid to cylindrical-ovoid, often vaguely angular (especially when young), wrinkled when old, 12–15 mm. long, 6–8 mm. in diameter near base, narrowing above, diphyllous; basal sheaths usually geminate, caducous, scarious, triangular - lanceolate, acuminate, about 1 cm. long and about 8 mm. broad basally. Leaves 2 (one often caducous), the inner one much smaller and less developed, erect or arculate, leathery, light green, ovate-lanceolate to oblong-lanceolate, more or less carinately apiculate to obliquely bilobate, narrowed and conduplicate basally, 4–7.5 cm. long, 8.5–16 mm. broad at widest point; secondary leaf less coriaceous in texture, carinately apiculate, rather conduplicate, oblong-lanceolate to ovate-lanceolate, about 2.5–3 cm. long, about 5–7.5 mm. broad. Inflorescence apparently terminal, erect-arculate, 1-flowered, to about 4 cm. long; rachis vaguely angular, about 1 mm. in diameter, tinged with vermilion above the bract, green below; bract solitary, clasping basally, submembranaceous, triangular-lanceolate, long-acute, about 2 mm. long. Flower solitary, erect-arculate, urceolate, coriaceous, the sepals
and petals flaring somewhat in apical half, odorless, 11 mm. long, about 5 mm. broad, basal half vermilion, apical half canary yellow. Sepals similar, thick, coherent for about half of length (the laterals slightly more), flaring apically, triangular-lanceolate or ovate-triangular, acute, the margins of the free portion slightly introrse, about 10.5 X 3 mm.; laterals at base forming a round-truncate mentum about 3 mm. long, rather prominently carinate. Petals almost as long as sepals, about 1 mm. wide, linear-lanceolate, with a slight, rather abrupt expansion just below the middle, acute, the apex curved outward, truncate basally. Labellum very thin in texture, almost transparent, 8 X 3 mm., non-mobile, entire, obovate when expanded, unguiculate basally, acutish, expanded into a rather truncate sac near base which projects half-way under the unguicule, ecallose, with irregular, somewhat impressed longitudinal lines along the disc, lateral margins somewhat incurved.

Mr. Beirut, 2,200 ft. alt.: on trees with #9 (Bulbophyllum sp.). Flowers of this species not seen, but I am told that they are pale orange with green-tipped petals, arising singly from the tips of the pseudobulbs. August, 1950, P.A. Adams 10, TYPE, flowering under cultivation at the Botanical Garden of the University of California, and deposited as a pickled specimen in the Herbarium of this institution.

This handsome little epiphyte is not allied to any species of Bulbophyllum known to the writer. Its labellar structure, coupled with the unique conformation of the flowers, appears unique in the genus.

**Bulbophyllum sp.**

Mt. Beirut, 2,200 ft. alt.: on dwarf trees with #10 (Bulbophyllum sp.), #7 (Diplocaulobium carolinense A. D. Hawkes), #5 (Dendrobium nanarauticolum Fukuyama), #16 (Bulbophyllum micromosaicum Schltr.). Flower not seen. August, 1950, P. A. Adams 9. A sterile specimen, with living material in our collections.

**Dendrobium Adamsii** A. D. Hawkes, sp. nov. (§ Grastidium)

Herba epiphytica verisimiliter elongata. Caulis (in specimina mihi visa imperfectus) 12 cm. longus, 2.5–3.5 mm. latus, leviter arcuatus, luteus, vaginis foliorum arcte obsectus, complanatus. Folia numerosa, coriacea, 5–5.5 cm. longa, usque ad 8–10 mm. lata, oblongo-lanceolata, apicibus angustioribus ensiforme-linearibus, emarginatus vel oblique bilobatis, basi obscure conduplicata. Pedunculi abbreviati, ca. 3 mm. longi, bracteis paucis obtusi obtecti. Flores solitarii vel 2-ni, membranacei, 1.5 cm. longi, campanulati. Sepala linear-lanceolata, 12 mm. longa, 1.5 mm. lata, acuta, lateralia margine anteriore basi dilatata cum pede columnae mentum triangulum vel rotundo-triangulum obtusumque formantia. Petala sepalis lateralis similia linearis-lanceolata, apice obtusa. Labellum parvum, trilobatum, apice recurvatum; lobis lateralis erectis, triangularis, margine anteriore dentatis; lobo intermedio cuneato-oblongo, papilloso, apice acuminato quasi caudato. Columna brevis, quasi quadrata.

Epiphytic herb, in our specimen incompleta, apparently rather elongate. Stem (incomplete) 12 cm. long, 2.5–3.5 mm. thick, rather arcuate, yellowish, vaguely zigzag, virtually covered by persistent sheathing leaf bases, complanate, the leaf bases mostly about 1.5 cm. long, obscurely articulate. Leaves numerous, rather coriaceous, 5–5.5 cm. long, 8–10 mm. wide at broadest point, oblong-lanceolate, narrowing rather abruptly toward the much narrower ensiform-linear apical portion, which is deeply emarginate or obliquely bilobate, basally somewhat conuplicate. Peduncles abbreviated, about 3 mm. long, almost as broad, covered with a
few obtuse bracts. Flowers solitary or paired, rather membranaceous when dry, "pale green, petals pinkish inside, labellum with purplish-red median mark inside, very fragrant, wilt after about 6 hours" [fide collector], 1.5 cm. long, campanulate, borne on vaguely arcuate rather robust pedicellate ovaries about 8 mm. long. Dorsal sepal linear-lanceolate, acute, 12 mm. long and 1.5 mm. broad. Lateral sepals oblique, basally connate into a large, angular, compressed mentum that is triangular-rotund and obtuse in shape, about 6 mm. long and 3 mm. deep; lamina linear-ligulate or ovate-ligulate, truncate or obtuse, about 12 mm. long and 1 mm. wide. Petals similar in size and shape to lateral sepals but more lanceolate basally, obtuse apically. Lip small, the tip recurved, about 5 mm. long and 1.5 mm. broad, prominently trilobate; lateral lobes erect, triangular, forward-slanting, the anterior margin strongly dentate; midlobe cuneate-oblong, covered with a dense growth of apiculate papillae, the apex acuminate and almost caudate. Column 0.5 mm. long, almost as wide, semiquadrat; foot large.

Mt. Kubersoh, 2,000 ft. alt.: on dead tree trunk with Bird's Nest Fern. Flowers pale golden yellow with bright orange median mark on inside of white labellum. August, 1950, P. A. Adams 18. A very handsome epiphyte, known now from Kusaie, Truk, and Ponape, where it appears to be rather widespread in its occurrence.

Dendrobium implicatum Fukuyama, Bot. Mag. [Tokyo] 51: 901, fig. 2, 1937. ($Grastidiu$m) 


The type specimen of Dendrobium implicatum Fukuyama was collected by T. Hosokawa in the Palau Islands, with the comment "in parinatrietis." Our present material from Ponape is fragmentary, but the plants appear to be much smaller in all parts than the type (e.g., Adams 13 has flowers which measure only about 2 cm. long, whereas the lateral sepals of Hosokawa 7275 reach a length of 4–4.5 cm.). Living material is being grown in our collections.


Mr. Kubersoh, 2,100 ft. alt.: on mossy tree trunks, flowers pale green, petals pinkish inside, labellum with purplish-red median mark inside; blooms very fragrant, wilt after about 6 hours. August, 1950, P. A. Adams 19, TYPE, deposited in the Herbarium of the University of California at Berkeley (916873).

This is a rather handsome species of $Grastidiu$m, whose closest alliance in the Caroline orchid flora is with Dendrobium implicatum Fukuyama, D. patenti-filiforme Hosokawa, and D. ponapense Schltr.; it also exhibits some affinity with the Moluccan D. pruinosem Teijsm. & Binn. It differs from D. implicatum, its nearest relative, in its more plane lateral sepals, the dimensions of the mentum, the size and general aspect of the flowers, and the more robust vegetative habit. Living material of the novelty, which I take pleasure in naming for its collector, is in cultivation in the Botanical Garden of the University of California at Berkeley.


Mt. Kubersoh, 1,200 ft. alt.: on dead tree trunk with Bird’s Nest Fern. Flowers pale golden yellow with bright orange median mark on inside of white labellum. August, 1950, P. A. Adams 18. A very handsome epiphyte, known now from Kusaie, Truk, and Ponape, where it appears to be rather widespread in its occurrence.
distribution, with about 25 species native on that island; the present plant is apparently closest to D. coerulescens Schltr. The type specimen (Hosokawa 6003) was collected on the Ponapean Mt. Nanaraut (=Nanalaut) at an elevation of 680 meters.


Mt. Sankaku, 1,100 ft. alt.: on tree trunks, hanging from Bird’s Nest Ferns, etc. The older plants all had an accumulation of organic material in the roots; epiphytic; bloom white, inside of labellum violet with pale median orange stripe. The showiest *Dendrobium* encountered. August, 1950, P. A. Adams 29.

The type of this handsome epiphyte was collected by Ledermann on the island of Ponape, "ohne nähere Angaben." It is allied to the new *Dendrobium Adamsii* A. D. Hawkes (supra), *D. implicatum* Fukuyama and *D. pruinosum* Teijsm. & Binn. Our specimen, though incomplete, appears to match rather well the type description by Schlechter. Living material is in cultivation at the Botanical Garden of the University of California at Berkeley.


Mt. Tolotom, 2,100 ft. alt.: on trunk of *Hibiscus tiliaceus*, perianth blue, tip of lip brownish-orange; common throughout the primary forest from 1,300 ft. up; does best in open, sunny areas. August, 1950, P. A. Adams 1; Mt. Kubersoh, 2,000 ft. alt.: same sp. as #1, but flower white. August, 1950, P. A. Adams 21.

This, the second species of section *Oxyglossum* present in the collection, is a very handsome and unusual dwarf plant, reminiscent of a *Bulbophyllum* Thou. or *Eria* Ldl. in superficial vegetative habit. It is allied to *Dendrobium lapeyrousioides* Schltr. from Kaiser-Wilhelmsland, New Guinea. The type specimen (*C. Ledermann 13413*) was collected "in niedrigem Buschwald, bei Patapat (=Popot), auf Ponape, 200 bis 300 m ü. M." Living material is in our collections at this time.

**Dendrobium** spp.

Mt. Beirut, 2,200 ft. alt.: epiphyte, flowers not seen. August, 1950, P. A. Adams 12. This sterile specimen, of which living material is in cultivation at the Botanical Garden of the University of California, is perhaps referable to *Dendrobium implicatum* Fukuyama.


Forty-five minutes up trail from Nanpil to Tolenkiup: on fallen tree with #8 (*Sarcanthinae*, sterile), epiphytic, same sp. as #14 (*Dendrobium* sp.). August, 1950, P. A. Adams 15. Living material of this orchid is in the Botanical Garden of the University of California.

Mt. Sankaku, 1,100 ft. alt.: on bare tree trunks, blooms not seen. August, 1950, P. A. Adams 25. Only an indeterminable sterile fragment is present. Living material is in our collections.

**DIPLOCAULOBium** (Reichenbach filius) Kraenzlin


Three species of this very interesting dendroboid genus are now known from the Carolines, one of which is apparently new.

**Diplocaulobium carolinense** A. D. Hawkes, sp. nov.

Herba parva epiphytica, caespitosa. Rhizoma breve, repens, cataphyllis obtecta. Pseudobulbi erecti, in sicco lutei, 6–13 cm. longi, basi 3–5 mm. lati, apice 2.5–3 mm. lati, basi ovoido-attenuati, ad apicem versus elongato-
ligulati ancipitique, monophylli. Folium erectum, planum, coriaceum, ca. 6.5–8 cm. longum, 8–9.5 mm. latum, leviter undulatum, lineari-ligulatum usque ad oblongo-ligulatum, apice profunde emarginatum. Spatha ensiformis, scariosa, ca. 2 cm. longa, 2.5–3 mm. lata. Flores solitarii vel pauci, fugaces, ca. 4.5 cm. diametientes. Sepala lineari-lanceolata, longe-caudata, 5-nervosa, lateralia cum pede columnae mentum obtusum triangulum formantia. Petala filiformia, longe-caudata, basi paululum expansa. Labellum 9 mm. longum, 1.5–4.5 mm. latum, ad basim longe-unguiculatum; lobis lateralis erectis, elongato-triangulis, obtusis truncatisve, nervosis; lobo intermedio magno, basi oblongo, apice patente, ellipsoideo, margine undulato crispatoque, obscure 3-lamellato papillosoque. Columna brevis, obtusa.

Small epiphyte in sunny places of primary forest, clustered. Rhizome abbreviated, repent, covered with sheathing scarious cataphylls. Pseudobulbs erect, yellowish when dry, 6–13 cm. long, 3–5 mm. thick basally, narrowing to 2.5–3 mm. apically, ovoid-attenuate basally, narrowing above to an ancipitous ligulate prolongation, at or near the apex of which the solitary leaf and large floral sheath are produced. Leaf erect, plane, coriaceous, about 6.5–8 cm. long, 8–9.5 mm. wide, vaguely undulate, linear-ligulate to oblong-ligulate, distinctly and deeply emarginate at apex, slightly conduplicate at base. Floral sheath ensiform, scarious, about 2 cm. long, 2.5–3 mm. wide. Pedicellate ovary arculate, filiform, about 2.5 cm. long, less than 1 mm. thick. Flowers "greenish-white with pink on inside of tube" (fide collector), solitary, paired or few, successive, fugacious, about 4.5 cm. in diameter. Dorsal sepal about 2 cm. long, 1 mm. wide basally, narrowing to 0.25 mm. near apex, erect, twisted, 5-nervose. Lateral sepals similar in shape and size, about 2 mm. wide basally, spreading or downward, forming a triangular, obtuse mentum with the column-foot which is 4.5 mm. deep, the margins involute. Petals about 1 cm. long, 0.25 mm. or less wide, filiform, long-caudate, slightly broader basally. Lip 9 mm. long, 1.5–4.5 mm. broad when expanded, long unguiculate basally; lateral lobes erect at sides of column, deep purple when dry, elongate-triangular, obtuse or truncate, prominently nervous; midlobe very large, white suffused with pale yellow and with a deep purple area and venation near base which extends toward apex, basally oblong, enlarging into a spreading ellipsoidal portion with undulate and crisped margins at apex; median disc obscurely 3-lamellate and more or less furnished with clavellate papillae. Column 2.5 mm. long, blunt, with a foot; another yellow when dry.

Mt. Beirut, 2,200 ft. alt.: on tree trunks in open, sunny places; abundant throughout the primary forest; flowers greenish-white with pink on inside of tube. August, 1950, P. A. Adams 7, TYPE, deposited in the Herbarium of the University of California at Berkeley (916872); Mt. Sankaku, 1,100 ft. alt.: on tree trunk, same sp. as #7. August, 1950, P. A. Adams 30. A sterile specimen, with living material growing in the Botanical Garden collections, obviously referable to this species.

This attractive dwarf Diplocaulobium is apparently closest to D. nitidissimum (Rchb.f.) Kraenzl., the type species of the genus and a native of the Admiralty Islands, the Solomon Islands, and New Ireland. The present plant differs materially from that species, however, in its rather larger dimensions in all parts, the shape of the labellum and other floral parts, and vegetative characters. Living material of this interesting addition to the Caroline orchid flora is in cultivation at the University of California.

*Diplocaulobium elongaticolle* (Schltr.) A. D. Hawkes, comb. nov.


A native of Koror and Babelthuap Islands in the Palaus, and of Yap.
Diplocaulobium flavicolle (Scltr.) A. D. Hawkes, comb. nov.


Endemic on Ponape, having been discovered by Ledermann near Patapat (= Poto-pot) in 1913.

GEISSANTHERA Schlechter


The orchidaceous genus Geissanthera was established by Rudolph Schlechter in 1905 (op. cit.), the type species, G. papuana, having been collected in British New Guinea. In his revision of the Orchidaceae of New Guinea (1914) he reduced this genus to subgeneric status in Microtatorchis Schlr., making the type M. papuana (Scltr.) Schlr. Louis O. Williams reviewed certain species of the closely allied aggregation Taeniophyllum Bl. some years later (1939: 147) and came to the conclusion that Geissanthera should be placed in that polymorphic alliance, again as a subgenus. It is the opinion of the present writer that Geissanthera Scltr. constitutes a distinct generic entity, as was originally established by Schlechter.

P. A. Adams 4 is referable to Microtatorchis Hosokawae Fukuyama. The species was assigned by Fukuyama in his original diagnosis (1937: 903) to the section Geissanthera (Scltr.) Scltr. Inspection of this Ponapean endemic seems to indicate, however, that it is too aberrant in several diagnostic characters to warrant its retention in Microtatorchis Scltr.; it does, furthermore, agree in structure with Geissanthera Scltr., as it was initially described.

Microtatorchis Scltr. is a rather polymorphic group of predominantly epiphytic monopodial saccantha orchids with either leafy or aphyllous stems, very shortened inflorescences, and paired pollinia. Geissanthera Scltr. is distinguished with facility by the presence of large or small bracteoles on the inflorescence (virtually a unique character in the Orchidaceae), the proportionately large blossoms, and the bibrachiate clinandrium of the column. Taeniophyllum Bl., with which both of these entities have been confused, is now considered to include those totally aphyllous plants with four distinct pollinia and elongate, mostly filiform inflorescences, which are not bracteolate. The following dichotomous key will assist in the differentiation of the three genera involved:

1. Pollinia 4; plants totally aphyllous; inflorescences (at least the peduncles) proportionately elongate.

.............. Taeniophyllum Bl.

Pollinia 2; plants aphyllous or more or less leafy; inflorescences elongate or short.

.............. Geissanthera Scltr.

2. Inflorescences furnished with more or less prominent foliaceous bracteoles; clinandrium bibrachiate.

.............. Geissanthera Scltr.

Inflorescences bracteate, not furnished with bracteoles; clinandrium monobrachiate ....... Microtatorchis Scltr.

The Ponapean species must be transferred to Geissanthera.

Geissanthera Hosokawae (Fukuyama) A. D. Hawkes, comb. nov.


Mt. Tolotom, 2,100 ft. alt.: on mossy trees, associated with #1 (Dendrobium violaceominiatum Scltr.) and #5 (Dendrobium nanarauticum Fukuyama). August, 1950, P. A. Adams 4.

The original specimen was collected by T. Hosokawa on Mt. Nanaraut (= Nanalaut), at about 500 meters altitude. The species is apparently restricted to Ponape in its distribution.

Geissanthera Scltr. reaches its greatest de-
velopment in the montane regions of New Guinea, where about 14 species are known. Outlying representatives occur, in addition to the Caroline Island plant noted above, in Samoa and in the Philippines. All of the remaining species, except the typical Geissanthera papuana Schltr., have been described under Micrototorchis Schltr., and will need eventual transferral to the present group.

MOERENHOUTIA Blume

*Orch. Archip. Ind.* 99, tt. 28, 42, 1858.

The physurid genus *Moerenhoutia* Bl. is represented in the Carolines by four species, the present one being highly variable and with several apparently distinct varietal forms described.


The species is endemic on Ponape, and is closest in alliance with the New Guinean *Moerenhoutia constricta* J. J. Sm. and *M. lamellata* Schltr.

OBERONIA Lindley

*Gen. & Sp. Orch.*, Pl. 15, 1830.

An exceedingly technical and difficult genus of paleotropical epiphytes, with two species present in the Adams collections.


Mt. Sankaku, 1,100 ft. alt.: with #26 (*Phreatia ladronica* Tuyama), epiphytic, bloom not seen. August, 1950, *P. A. Adams* 27.

A member of the section *Scytoxiphium*, and one of the less attractive members of the genus, probably bearing pellucid-white or pale green flowers about 3 mm. in diameter.


An interesting dwarf member of section *Otoglossum*, apparently endemic on Ponape. The very numerous flowers measure 1 mm. or less in diameter, and when dry are an attractive orange hue.

PHAIUS Loureiro

*Fl. Cochinch.* 529, 1790.

A single species of this genus is known to date from the Carolines. The original material of the present species in the area was gathered by Ledermann on Ponape, near Patapat (= Potopot) and Paue (= Poaipoai).


A handsome species, of considerable horticultural value.

PHREATIA Lindley


With the interesting plant described here as new, the total number of Phreatias known to occur in the Caroline Islands reaches 10. The others are *Phreatia palawanensis* (Scltr.) Tuyama, *P. pseudo-Thompsonii* Tuyama, *P. kusaiensis* Tuyama, *P. pacifica* Fukuyama, *P. Kanehira* Fukuyama, *P. Thompsonii* Ames, *P. carolinensis* Schltr., *P. ladronica* Tuyama, and *P. ponapensis* Schltr. The genus is a large and exceedingly complex one, and stands sorely in need of critical revision.
Phreatia Goodspeediana A. D. Hawkes, sp. nov. (§ Euphreatia)

Herba parva epiphytica caespitosa, usque ad 6.5 cm. alta. Rhizoma abbreviatissima, cataphyllis scariosis obtecta. Caules fere deficientes. Folia parva, 4.5–6.5 cm. longa, 3–4.5 mm. lata, rigide erecta, coriacea, linear-ligulata, obtusa vel apiculata, inaequaliter bilobata, basi pseudopetiolata articulata, vagina ca. 6 mm. longa, 3–3.5 mm. lata, scariosa, conduplicata. Inflorescentia 5 cm. longa, lateralis, erecta, apice valde reflexa, secunda, apice racemosa. Bracteae erectae, 5 mm. longae, basi 1 mm. latae, lineari-ensiformae, longe-acuminatae, apice leviter tortuoseae. Flores 1 mm. longi, numerosi, fragili. Sepalum dorsale ovatum acuminatum, 1 mm. longum, 0.25 mm. latum. Sepala lateralia ovato-elliptica usque ad obovata, acuminata, 1 mm. longa, ca. 0.5 mm. lata. Petala ovata, acuto-acuminata, leviter inflecta, 0.25 mm. longa, insigniter minus lata. Petala ovata, 1 mm. longa, 0.25 mm. latum. Lip 1.25 mm. longum, 0.75 mm. latum exsanguineum, obscure trilobulatum, obtusely bilobate, acuminate, with a single median thickening on the disc.

Mt. Tolotom, 1,700 ft. alt.: on trunk of fallen hardwood, epiphytic. Flower translucent green. August, 1950, P. A. Adams 24. TYPE, deposited in the Herbarium of the University of California at Berkeley (916891). Living material is being grown in the collections of the Botanical Garden of the University of California at Berkeley.

Phreatia Goodspeediana is an unusual cluster-forming dwarf epiphyte of singular beauty. Its closest alliance is apparently with the Ponapean P. pseudo-Thompsonii Tuyama, though it differs from that species in its somewhat smaller size, the secund inflorescence, smaller flowers of a green instead of white color, the segments of which are of different shape. It is with pleasure that I dedicate this attractive novelty to Dr. T. Harper Goodspeed, Professor of Botany and Director of the Botanical Garden of the University of California at Berkeley, through whose efforts and kindness the present collection of Ponapean Orchidaceae came into my hands.


An unusually interesting species, the foliage of which, upon drying, becomes almost
transparent. It was originally described from material collected on Mt. Tappotyo, on the island of Saipan, in the Marianas group. Our present specimen, of which living material is being grown in our Botanical Garden, differs slightly in dimensions and in the green instead of white flowers.

**PSEUDERIA Schlechter**


Only a single species of this interesting and difficult genus is at present known from the Carolines. The type material was collected by Ledermann near Patapat (= Potopot) on Ponape in 1913; he also obtained additional specimens near Paué (= Poai poai), on the same island. The species is known also from Babelthuap in the Palau group.


Mt. Kuberosoh, 2,000 ft. alt.: on mossy tree trunks. Flowers pale green with brownish spots. This plant is common throughout the higher mountains, sometimes almost completely covering a whole tree. Base of stem always rooted in ground. August, 1950, *P. A. Adams* 20. The species is most closely allied with *Pseuderia frutex* Schltr., of New Guinea.

**STERILE MATERIAL**

Forty-five minutes up trail from Nanpil to Tolenkiup: on fallen tree. Abundant in primary forest from 1,000 ft. alt. (more or less) up. Flower not seen. August, 1950, *P. A. Adams* 8.

This plant, of which only a very fragmentary specimen is present in the collection, is probably referable to one of the sarcanthad genera (subtribe *Sarcacinidae*) which occur in these islands, viz., *Chiloschista* Ldl., *Thrixspermum* Lour., *Luisia* Gaud., *Vandopsis* Pfitz., *Trichoglottis* Bl., *Robiquetia* Gaud., *Saccolabium* Bl., or *Sarcanthus* Ldl.

**REFERENCES**


