

FURTHER NOTES ON LAOTIAN ORCHIDS

by

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Since the publication of the article "On a Collection of Orchids from Laos" in the Natural History Bulletin of the Siam Society, Volume 23, Nos 1 and 2, November 1969, pp 185-211, additional species have been either discovered or identified. A number of these additional species have not yet bloomed, and identification is based on vegetative characteristics and is therefore not definite. Descriptions of these plants and others not definitely identified are included.

Paphiopedilum cf. *villosum* (Lindl.) Pfitz. Phou Khao Khouai, 750 m, complete shade, low on tree trunk by side of stream. (ADK 2833)

Based on vegetative characteristics, flower not seen. Sympodial epiphyte, roots relatively short and hairy. Leaves to 7, to 28×4.2 cm, dark glossy green, reverse dull green; tip round, cleft, unequally bilobed, with one longer overlapping other; 4 lines each side of center.

Zeuxine cf. *strateumatica* (Linn.) Schltr. Vientiane Plain, rice fields, in direct sun. (ADK 2759)

Rhizome to 35×3.5 mm, with 6 or more nodes, 6 mm between nodes, gray white; roots from nodes, thin and short. Leaves 5, to 35×4 mm, on stem 75×1.5 mm; widest near base, grassy, with long, sharp point; 2 veins each side of center; alternating, 15 mm apart. Inflorescence 15 cm tall, covered with fine white hair; rachis 3 cm; 4 sterile leaf bracts, similar to leaves in shape, lowest 3 cm long, decreasing to highest, 6 mm long. Flower bracts 5×1.5 mm at base, narrowing to fine, hairlike point. Pedicel/ovary 4 mm; pedicel slender, 2 mm; ovary thickened, 2 mm; both covered densely with fine, white hair. Flower white, almost closed, 3 mm long, 2 mm wide, 1.5 mm high. Dorsal sepal hooded, 2.5×2 mm, covered with fine hair. Blooms in November.

1) Silver Spring, Md., USA

Note : An asterisk (*) precedes the name of species confirmed.

Coelogyne cf. *nitida* (Roxb.) Hk. f. Bolovens Plateau, 1000 m. (ADK 2755)

Sympodial epiphyte. Rhizome 9 mm thick, 8 mm between pseudobulbs, covered with brown-black sheaths; roots from rhizome. Pseudobulbs to 12×4 cm, irregular shape, small at base, widest $\frac{2}{3}$ up, then tapering to 8 mm at top, like inverted tenpin; cross section oval; smooth when young, wrinkled, 9 to 10 sections when old; gray green, yellow when old. 4 sheaths, overlapping, to 4 cm long, pointed, brown-black, papery. Leaves 2, to 14×5.5 cm, terminal, overlapping, stem 2.5 cm; plicate, 2 strong veins each side of center with many minor veins; tip short, sharp; widest above center; bright dark green, reverse dull green. Inflorescence erect, apical, proterantherous; based on new pseudobulb with 3 flowers; 7 cm long; scape 2 cm, covered with sheaths; based on old with 7 seed pods, 18 cm long, scape 6 cm, 3 mm thick, flowers to 2 cm apart; bright green when new, olive green when old; 4 sheaths, overlapping, to 2.5 cm, extending above pedicel of lowest flower; green, edged with brown. Flower bracts persistent, 2.7 cm long, 1.2 cm wide, widest above center; short sharp point, many longitudinal lines. Pedicel/ovary 12 mm, pedicel 7 mm, ovary 5 mm; pedicel smooth, light green; ovary ridged; bright green. Flower 7 cm wide, 5 cm high, 4 cm long, fully open; facing in all directions; opening several days apart. Dorsal sepal 4 cm long, 6 mm wide at base, 15 mm wide below tip; pale green; tip blunt with short point; 6 darker veins each side of central vein, which is thickened and raised, giving W-shape, flattened; hooded over column. Lateral sepals 3.5×1 cm, widest below center; curving forward and down; outer edge round, inner almost straight, forming bow, with tips close; 3 veins each side of center; very pale green, center vein thickened, bright green; sharply pointed. Petals 3.5×.4 cm, extending down close to pedicel, somewhat S-shaped; 1 vein each side of strong central vein; sharp point. Lip trilobed, curved forward and down, 3 cm long, 2 cm across sidelobes, 1.6 cm across midlobe. Sidelobes erect, 2 cm long, 7 mm high, sharp point pointing out; lined and edged with red brown on pale green; bright orange spot at base of lip. Midlobe almost round; short, sharp tip pointing down, pale green with orange-brown eyes, edged with brown, spot 4×3.5 mm at base each side, with terminal of side keel. 3 keels, outer 2 cm long, inner 1.5 cm long, smooth,

uninterrupted, straight, yellow green; interrupted brown lines between. Column 2 cm tall, curving forward, 2 mm wide at base, 6 mm wide below anther, pale green, with curved wings pointing diagonally forward from each upper side; rostellum round, 4 mm wide. Anther inset in front top of column, acorn-shaped, yellow, 3.5×3 mm; joined to column by filament at back. Pollinia 2 pair of 2, yellow, elastic caudicles, no disc. Blooming in early November; very fragrant, sweet, like vanilla.

Coelogyne cumingii Lindl. Bolovens Plateau, 1300 m, near Paksong. (ADK 2763) Blooming in April.

Coelogyne virescens Rolfe Bolovens Plateau, 1200 m, Paksong area. (ADK 2848) Blooming in April.

Oberonia sp. ADK 466. Vientiane Plain, dipterocarp forest.

Sympodial epiphyte. Stem very short. Leaves 4, spread as fan, varying in length, longest 8.5×2.2 cm; jointed; laterally compressed, 4 mm thick; widest below center; short, sharp point; overlapping at base. Inflorescence 14 cm long, lax; scape 4 cm, flattened, with several sterile bracts within 1 cm of bottom of rachis, 2 mm long, pale olive green, pointed; rachis 10 cm long. Flower bracts 2.5 mm long, light yellow green, ending in long, hairlike point. Pedicel/ovary 1 mm long, pale green, wider at top. Flowers 2.7×1.5 mm many, in circlets of five flowers, circlets 1.5 mm apart; facing in all directions; blooming first from tip; orange and yellow; sepals and petals somewhat reflexed. Dorsal sepal 1×1 mm, tip pointed; curving back at 30° ; widest near base; pale yellow. Lateral sepals 1×1 mm, triangular, reflexed close against pedicel tip pointed, widest near base. Petals $.8 \times .3$ mm, curving back at 45° , orange, slightly fringed, tip blunt. Lip trilobed, 1.6×1.5 mm across sidelobes, orange. Sidelobes .8 mm long, heavily fringed, flat. Midlobe $.8 \times 1.4$ mm, sides fringed, tip bilobed, cleft .5 mm deep, lobes narrow and rounded. Column short, stubby, light green. Anther pale, slightly beaked, joined to back of column. Pollinia 2 pair of 2, yellow, without caudicles. Blooming in October.



Lip
(not to
scale)

Oberonia sp. ADK 1135. Vientiane Plain.

Sympodial epiphyte. Stem very short. Leaves 6, spread in shape of fan, to 7×1.5 cm, unjointed, laterally compressed; broad, overlapping sheaths at base; widest below center; sharply pointed. Inflorescence apical to 5 cm; rachis 2 cm; emerald green; erect; flowers in whorls, 1.5 mm apart, blooming initially from tip. Bracts 1×1 mm, emerald green. Pedicel .5 mm long, squat; emerald green. Flowers 1.5×2 mm, many, facing in all directions, lip on top, pale yellow and green. Dorsal sepal 1×1 mm, almost triangular, curved backward, pale yellow. Lateral sepals 1×1 mm, rounded, curved under, pale yellow. Petals $.7 \times .7$ mm, rounded, curved back, olive yellow. Lip 1×1 mm, trilobed; olive yellow, green at base. Sidelobes heavily fringed, pointing out to side. Midlobe, edges lightly fringed, tip cleft. Column emerald green, short, stubby. Anther set in middle of top of column, creamy white. Pollinia 2 pair of 2, creamy white, no caudicles. Blooming in October.



Lip
(not to
scale)

Oberonia cf. *dubia* J.J.S. Open forest, north of Vang Vieng.
(ADK 2073.)

Sympodial epiphyte, stem very short. Leaves 4, varying in length, longest 9×1.2 cm; jointed, laterally compressed; widest below center; sharply pointed; overlapping at base. Inflorescence 11 cm, lax; scape 3.5 cm, flattened, emerald green, with several sterile bracts below rachis, 2 mm long, sharply pointed. Rachis 7.5 cm long, ridged. Flower bracts 2 mm long, yellow green, overlapping base of dorsal sepal, sharply pointed. Pedicel/ovary 1.5 mm, emerald green. Flowers 3×1.8 mm, many, in circlets of 4 flowers, circlets 3 mm apart; facing in all directions; blooming first from the tip; olive yellow and green; sepals and petals reflexed back tightly against pedicel, olive yellow, triangular, widest near base. Dorsal sepal 1.5×1 mm, tip round; lateral sepals 1×1 mm, tip pointed; petals $1 \times .5$ mm, tip pointed. Lip trilobed, 2×2.5 mm across sidelobes, light green at center, sidelobes olive green, midlobe olive yellow. Sidelobes 1 mm long, heavily fringed, flat. Midlobes 1×1.5 mm, edges fringed, tip bilobed, cleft .3 mm deep, lobes rounded. Column $.4 \times .5$ mm, emerald green. Anther olive yellow, round, joined to column top at rear. Pollinia 2 pair



Lip (not to
scale)

of 2, yellow, ovoid, without caudicles. Blooming in October.

Liparis cf. *gibbosa* Finet Open woods, Vang Vieng area. (ADK 2162.)

Sympodial epiphyte. Rhizome 1.5 mm thick, covered with sheaths, 3 sections, 14 mm between pseudobulbs. Roots from base of pseudobulbs. Pseudobulb 12×8 mm, somewhat flattened, 5 mm thick, cross-section oval, widest between center and base, light green; 3 mm wide at tip; covered with 4 overlapping sheaths, to 14 mm long, sharply pointed, heavily lined when old. Leaf 1, terminal, to 13×7 cm, tip pointed, half-folded; surface pebbly; jointed at base, no stem. Inflorescence terminal, 9 cm; scape 7.8 cm, flattened; rachis 1.2 cm, flat, similar to *Thrixspermum*; flowers very close together. Flower bracts 3×1.5 mm, sharply pointed. (Note: Inflorescence data from old, dry stalk; flower not available.)

Dendrobium thyrsoflorum Rehb. f. Phou Khao Khouai, 750 m, dense woods, full shade; blooming in February. (ADK 2799)

Dendrobium heterocarpum Lindl. Bolovens Plateau, Paksong area, 1000 m.

Dendrobium fimbriatum var. *oculatum*, Hk. f. Muong Cha area, southwest of the Plaine des Jarres, 1500 m; blooming in April.

Dendrobium cf. *brymerianum* Rehb. f. Phou Khao Khouai, open forest, 1800 m. (ADK 2477)

Identification based on vegetative characteristics. Sympodial epiphyte. Pseudobulbs 23 cm long, 3.5 mm thick at base, thickening to 15 mm at center, then thinning to pointed tip. Old pseudobulb heavily ridged, eight ridges, olive yellow, to about 12 sections. New pseudobulbs covered with sheaths. Leaves 4-5, from upper third of pseudobulb, 95×24 mm, sharply pointed, with 3 lighter veins on each side of center; alternating; twisting at base, so all leaves are facing in same plane. Flowers not seen.

Dendrobium cf. *crepidatum* Lindl. & Paxt. Area of Muong Cha, southwest of the Plaine des Jarres, 1500 m; blooming in March. (ADK 2864)

Sympodial epiphyte. Pseudobulbs fine, drooping, to 25 cm or more, 1.5 mm thick; leafy throughout; width same to tip, tip blunt; light green. Leaves 50×12 mm, thin and transparent; 5 lines each side of center; tip sharply pointed; bright green; twisted at base so all are in the same plane.

Flower single, from leaf node just below apex, on leafy pseudobulb. Bract very short, 1mm, blunt. Pedicel/ovary 25 mm, light green at base, pale violet to ovary, light yellow green to flower. Flower full open, 4 cm wide, 2.5 cm high, 2.5 cm long. Petals and sepals light mauve, short pointed tip. Inner part of lip yellow-orange, edge white. With mentum. Dorsal sepal 18×8 mm, widest just above base, center almost white, edges very pale mauve; angled forward at 45° over column. Lateral sepals 18×7 mm, widest at base, joined along column foot; mauve deepest along upper edge; angled down and out at 45° angle. Petals 19×8 mm, widest at center, mauve in center, edges white; edges finely serrate; angled forward and outward. Mentum 5mm long, pale mauve, straight line extension of lip; 4 darker lines; tip round and thick. Lip 16mm long, 18 mm across, round; joined to column foot; vaguely trilobed, with no distinction between sidelobe and midlobe. Sidelobes erect, partially covering column; 5 mm long, 4 mm high, yellow. Midlobe center orange-yellow with bright orange stripes; strong ridge from base to tip; edge completely fimbriate. Surface covered with thick, stubby hair. Column 5×3 mm, white; column foot 8×3 mm, pale mauve; anther white, grooved front to rear. Blooming in March.

Dendrobium parishii Rchb. f. Nam Khan river area, Luang Prabang. (ADK 2868)

Dendrobium parishii Rchb. f., var. *rosea*. Same distribution. (ADK 2878.)

Differs from the major variety in that the colors of the flower are pale mauve instead of deep purple.

Dendrobium findlayanum Par. & Rchb. f. Western edge of Plaine des Jarres. (ADK 2887) Blooming in early April.

Dendrobium infundibulum Lindl. Possibly from Phou Bia area, rim of Plaine des Jarres, 2500 m. (ADK 2760) Blooming in November

Dendrobium cf. *nathanielis* Rchb. f. Phou Khao Khouai, 750 m, open forest. (ADK 2803)

Identification based on vegetative characteristics, flowers not seen. Sympodial epiphyte. Pseudobulbs to 24 cm long, 1.5 mm thick at base, 4 mm at center, covered with leaf sheaths. Leaves entire length of

pseudobulb, alternating, laterally compressed, curving; to 5 cm long, 8 mm wide at base, widest at base, triangular, tapering to pointed tip. New leaves light green, reverse dotted with pale green; old leaves dark to black green, longitudinally ridged. Inflorescence as clusters of bracts, terminal or lateral.

Eria cf. *biflora* Griff. Bolovens Plateau, Paksong area, 1000 m. (ADK 2653)

Identification based on vegetative characteristics, flower not seen. Sympodial epiphyte. Pseudobulbs contiguous, rhizome extremely short; linear, to 10 cm long, 4 mm wide at base, enlarging to 12 mm wide at first leaf; 3 sections, vertically striped; with sheath at each node to 30 mm long, lined, pointed. Leaves 3, to 11.5×2 cm; green, reverse gray green; tips round with very short bilobing; 4 veins each side of center; top 2 leaves overlapping; widest above center; terminal and from top node. Inflorescence from cavities at top two leaf nodes.

**Porpax meirax* (Par. & Rehb.) King. & Pant. Phou Khou Khouai, 1500 m, shade.

Ceratostylis cf. *subulata* Bl. Phou Khao Khouai, 750 m, partial sun. (ADK 2772)

Identification based on vegetative characteristics, flower not seen. Sympodial epiphyte. Growing in tufts, stems touching at base, to 21.5 cm tall. 3-4 sheaths at base, to 3 cm long, papery, lined, pale brown, pointed. Pseudobulb to 20 cm tall, 3 mm thick, bright green, terete. Leaf apparent extension of pseudobulb, with small joint; to 3 cm long, 2 mm wide at base, tapering to sharp point; almost terete, with longitudinal groove from inflorescence to tip; bright green. Inflorescence at joint between stem and leaf, in tuft of bracts to 5 mm long.

Bulbophyllum cf. *haniffii* Carr. Phou Khao Khouai, 750 m, deep shade. (ADK 2819)

Identification based on vegetative characteristics, flower not seen. Sympodial epiphyte. Rhizome 2.5 mm thick, covered with sheaths, 2 cm between pseudobulbs; roots from base of pseudobulbs. Pseudobulbs 10×3.5 mm, 4-sided, older with grooves in center of each side; gray green;

growing at 45° angle, with lower section against rhizome; completely covered with papery, lined sheaths to 15 mm long, tips pointed. Leaves 1, 5×2 cm, green to gray-green; tip short, sharp point; edges curved down, appearing bowl-shaped from below; widest at center; no lines; strong central veins. Inflorescence from base of pseudobulb. Seed pod 15×6 mm on 3 mm stem, heavily ridged.

Bulbophyllum cf. *stenobulbon* Par. & Rehb. Vang Vieng area, vine-covered jungle. Phou Khao Khouai, heavy forest, 1000 m. (ADK 2151)

Identification based on vegetative characteristics, flower not seen. Sympodial epiphyte. Rhizome 1.5 mm. thick, to 5 cm between pseudobulbs; roots from base of pseudobulb. Pseudobulbs cylindrical, tapering slightly; to 32 mm tall, 5 mm thick at base, 3 mm at tip; one sheath, to 2 cm long, covering lower half of pseudobulb, tip round; slight ridging, heavy on old pseudobulbs. Leaves one, to 84×15 mm, elliptical, tip round with slight downward-curving point; 4-5 darker green lines each side of center; light green; twisted 90° at base.

Bulbophyllum sp. ADK 2707. nr. *B. dixonii* Rolfe Bolovens Plateau, 1000 m.

Sympodial epiphyte. Rhizome 4 mm diameter, 5 nodes, to 7 cm between pseudobulbs, covered with brown sheaths; roots from base of pseudobulb. Pseudobulbs conical; new ones rounded, old ridged with six sections; 4 cm tall, 3.5 cm diameter, reddish-brown; covered with brown sheaths above base of pseudobulb. Leaves one, terminal, 21×4 cm, smooth, glossy green, widest just above center, tip rounded with slight cleft; base narrowed to a 1 cm stalk. Inflorescence from base of pseudobulb, 14 cm long, scape 8 cm, rachis 6 cm, drooping. 5 sheaths green, striped with purple dots, covering 7 cm of scape, to 2.5×1.5 cm, encircling scape, sharply pointed. Scape green, almost completely covered with purple dots. Bracts 7×2 mm, extending halfway up dorsal sepal, pale lavender, sharply pointed. Pedicel/ovary 4 mm, .5 mm thick at base, 1 mm at tip; olive green with sparse purple dots. Flowers 8 mm long, 5 mm wide, 6 mm high, many, very densely packed in diagonal lines, each flower touching another at all points; olive green, speckled

with purple, lip mauve. Dorsal sepal 7×4.5 mm, olive green, thickly dotted with purple, hooded over column, tip sharp and turned up, widest below center. Lateral sepals 10×3 mm, joined together entire length, sharply pointed, forming cup under lip; grey white with purple dots larger at outer edge, small elsewhere; inside, grey white; widest at center; joined along column foot. Petals 3×2 mm, olive green, spotted with purple, sharply pointed, with short, .5 mm hairlike extension. Lip hinged to tip of column foot, bent at 90° angle 1.5 mm from base, mauve with purple ridges each side of center groove; under side white; pointed, erect, forward-pointing lobes on each side above bend; fleshy, tip round. Column 2.5×1.5 mm, white, curving forward, with horns pointing diagonally forward, 1 mm long, on each side of anther; short, square rostellum. Column foot 1.5×1 mm, at 90° forward from column, white. Anther bright green with yellow eyes, round, joined to rear of column at top, 2 chambers. Pollinia 2 pair of 2, globular, yellow. Blooming in October.

Bulbophyllum sp. ADK 27-7, Same location. (ADK 2736.)

Pseudobulb 6×4.5 cm; leaves 23×4.5 cm; inflorescence 18 cm, scape 11 cm, rachis 7 cm; scape light green, no dots; bracts white; dorsal sepal 6×3 mm, white, with sparse purple dots; lateral sepals white; with sparse purple dots on outer edge; petals white; lip white; anther yellow. Blooming in October.

Eulophia sp. nr. *E. bicarinata* Hk. f. Vientiane Plain, open woods, terrestrial. (ADK 2853)

Rhizome irregular, 8.5 cm long, 6 mm wide at flowering end, widening to 3 cm, then tapering to 1 cm at leaf-bearing end; top and sides partially covered by series of Y-shaped sheaths from base of leaves, branch of sheath to 3 cm long, 1 cm wide, with 3-4 strong veins, tight against surface of rhizome; rhizome white; roots from any point, but thickest close to leaf end. Leaves 2-3 to 87 cm long, to 6 mm wide (based on dead material), probably plicate, with three strong veins; tip long; sharp point; widest above center. 3 short basal leaves, 3, 6 and 15 cm long; papery, heavily lined sheaths, around base. Inflorescence 45 cm long, scape 30 cm, rachis 15 cm, 3 mm thick at base; 4 sterile bracts, at

base, 2 cm, 10 cm and 20 cm, 2 cm long, completely encircling stem, lined, sharply pointed. Flower bracts 7×1 mm, brown violet, sharply pointed. Pedicel/ovary 22×1.5 mm, twisted 90° near base, upper 16 mm ridged, dull violet. Flowers 6 or more, 3.2 cm tall, 4.4 cm wide, 2.2 cm long facing in all directions, irregularly spaced from 6 to 35 mm apart, wide open. Dorsal sepal 20×5 mm, pale purple at base, darkening to very dark purple near tip, inner surface much darker than outer; constriction 2 mm from tip; tip sharply pointed; 5 strong ridges; tip bent somewhat downward; widest at center. Lateral sepals identical to dorsal sepal, joined along column foot. Petals 19×8 mm, tip round, 6 mm wide at base, widest above center; 5 veins; young flower pale violet shading upward to violet at tip; old flower, back off-white with broken violet stripes and tip, with inner surface yellow, darker at tip; tip blunt. Lip trilobed, hinged to column foot; sidelobes green, midlobe bright violet; basal section white, with about 5 weak keels, descending 8 mm and forming small, round, pale violet mentum. 2 strong keels from mentum almost to tip of midlobe, forming pyramidal calli at base of midlobe. Lip sharply bent downward 90° at base of midlobe. 16 mm across sidelobes, 8 mm across end of sidelobes, 21 mm long. Sidelobes round, merging into midlobe, 10×6 mm, 4 lateral lines. Midlobe 9 mm long, tip round with slight cleft, edges slightly dentate. Column foot 3×5 mm, white, at 90° angle from base of column. Column 10 mm high, 5 mm at base, narrowing to 4 mm, widening to 6 mm at rostellum; white, tinged with purple, heaviest below rostellum. Rostellum in upward arc, pale green, over deep stigma; tip round, ending in short point. Anther brown, split, ending in two dark purple horns, set in top face of column. Pollinia 2, yellow, joined in "V" with short, wide stipes on broad disc. Blooming in February.

Schoenorchis gemmata (Lindl.) J.J.S. Bolovens Plateau, Paksong area, 1200 m, (ADK 2847)

Dendrobium unicum Seidenf. Seidenfaden noted in a personal communication that the plant listed as *D. arachnites*, found in southern Laos, may actually be *D. unicum*. This is being further investigated.