

**Tamotsu HASHIMOTO* : Contributions to the orchidology
of Andean countries (1). Bolivian novelties from the
collection of the Scientific Expedition to South
America, University of Tokyo,
Year 1971, Part 1****

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調査団採集のボリビア新産品, 第1部**

Orchids of Bolivia have been collected by many explorers, since Alcide D'Orbigny botanized in 1830 whose specimens were studied by H. G. Reichenbach. In 1922, R. Schlechter published 'Die Orchideenfloren der Südamerikanischen Kordillerenstaaten, V. Bolivia (Fedde, Repert. Spec. Nov., Beih. 10)' which included a list of all orchids known in the country at that time, *i. e.* 78 genera and 323 species. In 1958, C. Schweinfurth enumerated about 75 genera and 419 species in R. C. Foster's 'A catalogue of the ferns and flowering plants of Bolivia (Contr. Gray Herb. Harvard Univ. No. 184)'. After Schweinfurth's enumeration no taxonomic literature on Bolivian orchids was published before our expedition was sent. However, Schweinfurth's 'Orchids of Peru, 1-4 & suppl. (Fieldiana 30 & 33, 1958-'61 & '70)' and Dunsterville & Garay's 'Venezuelan orchids, illustrated, 1-5 (1959-'72)' attentively described the geographical distributions and the synonymy. These two works showed the modern scope of orchidology in tropical South America.

The expedition was composed under the leadership of the late Dr. Shuko Iwatsuka (geographer). Dr. Makoto Nishida and I pursued botanical researches in collaboration with Dr. Fumio Maekawa. I have examined most of the orchids by both living and dried materials. Without a few exceptions, they were cultivated in the greenhouse of the Botanical Gardens, Faculty of Science, University of Tokyo (popularly known as Koishikawa Botanical

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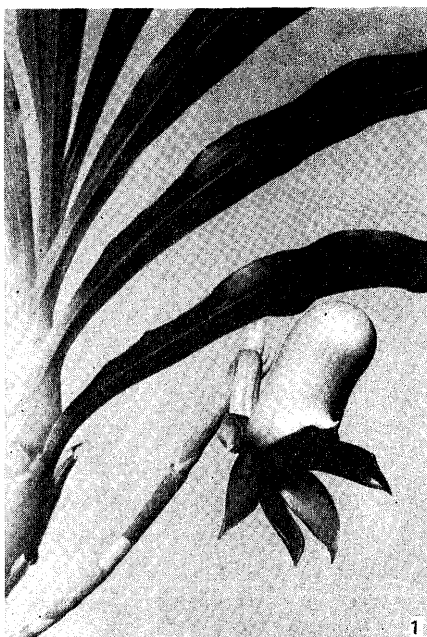


Fig. 1. *Catasetum saccatum*, female plant from Rurrenabaque in cultivation (\times ca. 0.5).

Fig. 2. *Cattleya violacea* in the garden of Mr. Rivero, Riberalta on Sept. 5, 1971.

Garden) which will be abbreviated in this paper as BGUT.

I am much obliged to Dr. Leslie A. Garay, curator of the Orchid Herbarium of Oakes Ames, Botanical Museum, Harvard University for his advice on the identification of certain species. And also, I as a member of the expedition express my appreciation to Mr. José Kawai, president of Toyota Boliviana Cía. Ltda. for his offering many facilities in Bolivia.

1. *Catasetum saccatum* Lindl., Bot. Reg. 26: Misc. p. 76, no. 179 (1840); Sert. Orch., pl. 41 (1840); Hoehne, Fl. Bras. fasc. 5: 92, tt. 52 & 53 (1942) (Fig. 1).

Beni: Retiro, Rurrenabaque, epiphyte on a tree in thick tropical forest, ca. 250 m alt., Sept. 17, 1971, Hashimoto, specimen made from the cultivated stock in BGUT (cult. as BOL-35) on Mar. 23, 1973.

Distribution: Venezuela, Guayana (type), Brazil and Bolivia, also Peru (var. *incurvum*).

This newly reported species from Bolivia produced a female flower in the greenhouse of BGUT. *Catasetum* species are usually identified by male flowers, but this is well agreeable with Hoehne's illustration (ibid. t. 53 is a female).

2. *Cattleya violacea* (H. B. K.)

Rolfe in Gard. Chron. ser. 3, 5: 802 (1889). *Cymbidium violaceum* H. B. K., Nov. Gen. et Sp. 1: 341 (1816). *Cattleya superba* Schomb. ex Lindl., Sert. Orch. t. 22 (1838) (Fig. 2).

Beni: Riberalta, ca. 180 m alt., cult. in the private garden of Mr. Napoleón Rivero, photographic record only.

Distribution: Colombia, Venezuela (Colombia-Venezuelan boundary; type of *Cymbidium violaceum*), Guiana (type of *Cattleya superba*), Peru, Brazil and Bolivia.

Two species of *Cattleya* have been recorded by C. Schweinfurth (1958), *i e.* *C. luteola* Lindl. and *C. Walkeriana* Gardn. This popular species in horticulture can be added as a third species of the genus in Bolivia. Mr. N. Rivero showed me the plant and told that it was brought by himself from rain-forest of Dept. Pando, the opposite riverside of Río Beni to his garden.

3. ***Cryptarrhena lunata*** R. Br., Bot. Reg. 2: t. 153 (1816).

Beni: Susi, Rurrenabaque, ca. 270 m alt., on a tree, Sept. 15, 1971, Hashimoto.

Distribution: Central America, West Indies (type from Jamaica) to northern South America, rare.

The genus *Cryptarrhena* has not been reported from Bolivia.

4. ***Dichaea*** (§ *Dichaeopsis*) ***boliviana*** Hashimoto, sp. nov. (Figs. 3 & 4).

Herba epiphytica, caespitosa, ascendens vel dependens, ca. 15 cm longa; pro genere mediocres. Caules simplices, foliorum basibus imbricatis omnino tecti. Folia numerosa, disticha, articulata, vaginae compressa; lamina elliptico-oblonga, acuta et minute apiculata, ad 25 mm longa, 6.5 mm lata, margine leviter recurvato. Flores viridi-albi cum violaceo-maculati, axillares; pedunculi breviores quam folia, basi vagina tubulosa



Fig. 3. *Dichaea boliviana*, sp. nov. in cultivation (\times ca. 2.6).

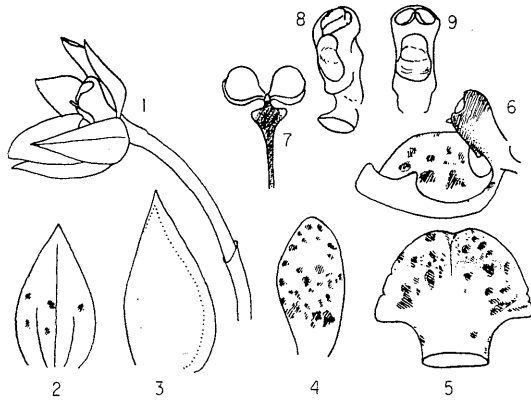


Fig. 4. Flower of *Dichaea boliviana*, sp. nov. 1, flower from side (\times ca. 2). 2, dorsal sepal, expanded (\times 3). 3, lateral sepal, expanded (dotted line shows natural position) (\times 3). 4, petal (\times 3). 5, lip, expanded (\times 3). 6, column and lip in vertical view (\times ca. 3). 7, pollinia and stipe; much enlarged. 8, column in front-side view (\times ca. 4). 9, column in front view (\times ca. 4).

pellucidi vestiti, apice bractea 1 majore ovata, acuminata, 2×2 mm, 1 minore lineari praedita, 2×0.5 mm. Ovarium glabrum. Sepalum dorsale cucullatum, expansum ovato-oblongum, acutum, trinervium, 6 mm longum, 3.5 mm latum, pauci-maculatum. Sepala lateralia ovato-oblonga, acuminata, subfalcata, expansa 8 mm longa et 4 mm lata, non maculata. Petala oblonga, obtusa, marginibus anterioribus paulo-undulatis, expansa 6 mm longa et 3 mm lata. Labellum basi angustum et cucullatum, antice rotundatum, obtusum vel retusum, totum labellum expansum 6 mm longum, 7 mm latum, quam sepala paulo exutum. Columna ca. 3 mm longa, antice rubro-violacea.

La Paz: Capaina, San Buenaventura, ca. 250 m alt., on a tree, Sept. 16, 1971, Hashimoto, flowers absent. Ibid., cult. in BGUT as BOL-25, July 18, 1972, Hashimoto—type in TI.

This species is recalling Peruvian *D. ancolaelabia* C. Schweinf. (Am. Orch. Soc. Bull. 16: 614, 1947) which produces 'simple or branched stems', but can be distinguished by the oblong and obtuse petals (ovate-elliptic and acute in *D. ancolaelabia*) and by the shape of lips. The leaves are about twice larger than those of Schweinfurth's species. The plant is growing well in BGUT but never fructiferous.

5. *Epidendrum anceps* Jacq. Select. Stirp. Amer. 224 (1763).

Pando: Opposite riverside (Río Beni) of Villa Bella (Dept. Beni), epiphyte on a tree in tropical forest, Sept. 7, 1971, specimen made from the cultivated stock in BGUT (BOL-13) on Dec. 28, 1972.

Distribution: Common in American tropics & subtropics.

This species has not been reported from Bolivia. The locality is neighbouring with Brazilian frontier.

6. **Epidendrum coronatum** Ruiz & Pavón, Syst. Veg. Fl. Peruv. et Chil. 1: 242 (1798), ~~fide~~ ~~Dunsterville~~ & Garay (1965). *E. moyobambae* Kränzl. in Fedde, Rep. 1: 85 (1905).

Beni: Susi, Rurrenabaque, ca. 270 m alt., epiphyte on a tree, Hashimoto, Sept. 15, 1971, specimen made from the cultivated stock in BGUT (BOL-23) on May 23, 1973.

Distribution: Widely distributed in American tropics, from Mexico to Bolivia and Brazil, also in Trinidad.

This species is newly reported from Bolivia.

7. **Epidendrum prostratum** (Lindl.) Reichb. f. in Gard. Chron. (1873) 289. *Physinga prostrata* Lindl., Bot. Reg. 24: Misc. p. 32, no. 45 (1838). (Figs. 5 & 6).

La Paz: Capaina, San Buenaventura, ca. 250 m alt., epiphyte on a tree in thick forest, Sept. 16, 1971, Hashimoto. Ibid., cult. in BGUT (BOL-29), Apr. 3, 1972, Hashimoto.

Distribution: Guayana (type), Colombia, Peru and Bolivia.

This species, new to Bolivia, was erroneously recorded from Mexico by C. Schweinfurth (Fieldiana 30: 496, 1959). I examined the Mexican specimen at Ames Orchid Herbarium that was believed the source of Schweinfurth's identification. The specimen was *E. physodes* Reichb. f. These two species are quite different from other Epidendrums by their basally connate sepals and conspicuous saccate menta.

8. **Epidendrum Vespa** Vell., Fl. Flum. Ic. 9: t. 27 (1827). *E. crassilabium* Poepp. & Endl., Nov. Gen. & Sp. 2: 1, t. 102 (1838).

Beni: Riberalta, ca. 180 m alt., cult. in the private garden of Mr. Napoleón Rivero, photographic record only.

Distribution: Common and variable throughout the American tropics from Costa Rica to Brazil (type) and Bolivia.

This newly reported species from Bolivia was transplanted from rain-

forest of Dept. Pando, the opposite side of Río Beni to Mr. N. Rivero's garden. The plant was a orbicular-pseudobulbous form.

9. *Lepanthes Garayi* Hashimoto, sp. nov. (Figs. 7 & 8).

Herba epiphytica, caespitosa. Caules graciles, variabiles, ad 8 cm longi, apice unifoliati. Folia patento-erecta, elliptico-ovata, ad apicem minute tridenticulatum sensim angustata, basi rotundata, 23 mm longa, 17 mm lata, subcoriacea. Inflorescentia axillaris, racemosa, quam folium brevior.

Flores membranacei, parvi, ca. 8.5×4.5 mm in diam. Sepalum dorsale flavum, rotundatum vel ovatum, minute apiculatum vel acuminatum, ciliolatum, 3-nerviium, nervo intermedio rubro. Sepala lateralia flava, obliqua, in laminam ovato-lanceolatam prope medium caudatam, basi connata, 5 mm longa, 1.5 mm lata. Petala perparva, transverse sub-rhomboida, sparse ciliolata, 1×1 mm. Labellum, ochraceum, trilobatum, ciliolatum; lobi laterales comparati magni, oblongi, 1×0.5 mm; lobus medius minutus. Columna parva, rubra, 1 mm longa.

Cochabamba: Siberia, 8.5 km from San Miguel, the road to Comarapa, epiphyte on a tree in céja forest, Oct. 12, 1971, Nishida, Hashimoto & Maekawa—type in TI. Ibid., cult. BGUT (BOL-126), Feb. 24, 1972, Hashimoto.

Specific epithet is dedicated to Dr. Leslie A. Garay, who suggested that the present

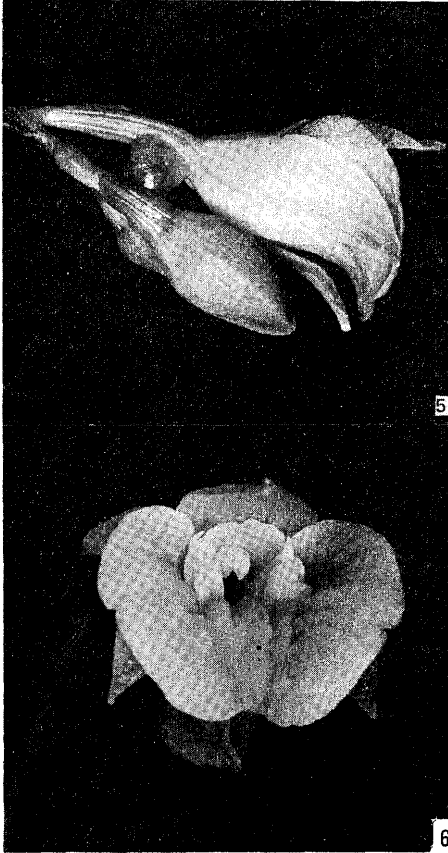


Fig. 5. Flowers of *Epidendrum prostratum* in lateral view (\times ca. 2.7).

Fig. 6. Flower of *Epidendrum prostratum* in front view (\times ca. 3.3).

species might be new to science.

10. *Lepanthes minutipetala* C. Schweinf. in Bot. Mus. Leaflet. Harvard Univ. 15: 81, t. 22 (1951).

Santa Cruz: Siberia, about 27 km from San Miguel (Dept. Cochabamba), 8.5 km to the division to 'Aserradera La Fortaleza', the way to Comarapa, Oct. 12, 1971, Nishida, Hashimoto & Maekawa, specimen made from the cultivated stock in BGUT (BOL-110), Feb. 17, 1972.

Distribution: Peru (type) and Bolivia.

This newly reported *Lepanthes* species from Bolivia has been known only from the type locality (Cordillera de Tres Cruces, Prov. Paucartambo, Dept. Cuzco, Peru).

11. *Macradenia lutescens* R. Br., Bot. Reg. 8: t. 612 (1822).

Pando: Opposite riverside (Río Beni) of Villa Bella (Dept. Beni), epiphyte on a tree in tropical forest, Sept. 7, 1971, Hashimoto, specimen made from the cultivated stock in BGUT (BOL-10), Sept. 16, 1972, Hashimoto. Ibid. (BOL-6), Oct. 6, 1972, Hashimoto.

Distribution: Florida of U.S.A., West Indies (type from Trinidad), Venezuela, Colombia, Surinam, Guayana and Bolivia.

This species is newly reported from Bolivia as its southernmost



Fig. 7. Leaf and inflorescence of *Lepanthes Garayi*, sp. nov. (\times ca. 2.9).

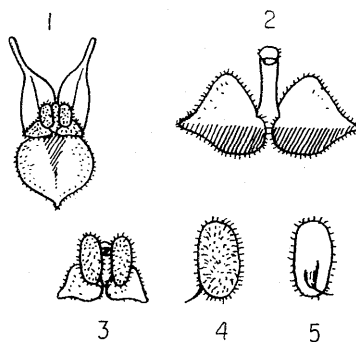


Fig. 8. Flower of *Lepanthes Garayi*, sp. nov. 1, flower from front (\times 1 2/3). 2, column and petals (\times 10). Oblique lines of petals indicate reddish areas instead of yellow superior halves. 3, lip and petals, column excluded (\times 4). 4, lateral lobe of lip from front (\times 10). 5, lateral lobe of lip from back (\times 10).

locality.

12. *Maxillaria floribunda* Lindl. in Benth. Pl. Hartweg. 154 (1845). (Fig. 9).

La Paz: About 4 km from Sacramento, the road to Unduavi, 2600 m alt., on rocky cliff in cēja forest, Sept. 27, 1971, Hashimoto.

Distribution: Peru (type) and Bolivia.

This is newly reported from the outside of Peru.

13. *Maxillaria nigrescens* Lindl., Orch. Linden. 20 (1846).

Cochabamba: Chapare Valley, epiphyte on a tree in upper subtropical cloud forest, Oct. 14, 1971, Nishida, Hashimoto & Maekawa.

Distribution: Venezuela, Colombia (type) and Bolivia.

This newly reported species from Bolivia is quite variable in the coloration of flowers.

14. *Maxillaria rotundilabia* C. Schweinf. in Amer. Orch. Soc. Bull. 13:

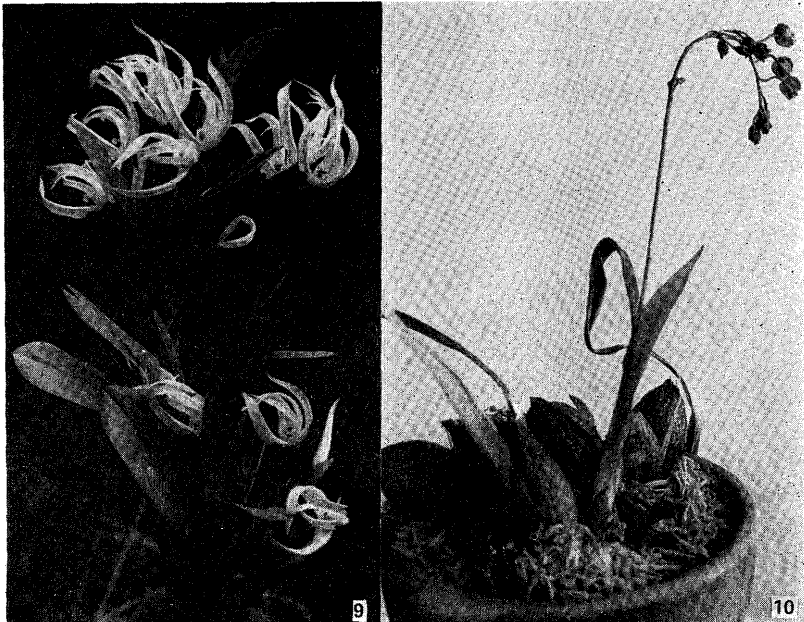


Fig. 9. *Maxillaria floribunda* in natural habitat (\times ca. 0.2).

Fig. 10. *Neodryas Jose-Kawai*, sp. nov. in cultivation (\times ca. 0.4).

232, t. (1944).

La Paz: About 4 km from Sacramento, the road to Unduavi, 2600 m alt., Sept. 27, 1971, Hashimoto.

Distribution: Peru (type) and Bolivia.

This species is newly reported from the outside of Peru.

15. **Neodryas Jose-Kawaii** Hashimoto, sp. nov. (Figs. 10 & 12).

Herba epiphytica. Rhizoma abbreviatum. Pseudobulbi aggregati, anguste pyriformes, ad 33×23 mm, complanati, 18 mm crassi, unifoliati. Folium impositum coriaceum, oblanceolato-lineare, acutum, basi attenuatum, 22.5×1.8 cm. Inflorescentia rubescens, ca. 16 cm alta, flexuosa, ca. 10-flora, superne paniculata, basi foliaceo vaginata. Sepalum dorsale late ovatum, minute apiculatum, ± carinatum, concavum, 5.5 mm longum, 4.5 mm latum. Sepala lateralia in laminam concavam suborbicularem, apice bidentatam connata, 6×6 mm. Petala valde obliqua, rotundato-ovata, minute apiculata, carinata, 6 mm longa, 5.5 mm lata. Labellum carnosum, in situ naturali recurvatum, petala subaequans; lobi basales ± erecti; lobus terminalis magnus; discus basi medio cum callo conspicuo apice 6(-7)-lobato ornatus. Columna conspicua, infra incrassata.

Santa Cruz: Siberia, about 27 km from San Miguel (Dept. Cochabamba), 8.5 km to the division to 'Aserradera La Fortaleza', the way to Comarapa (Dept. Santa Cruz), epiphyte on a tree in warm-temperate moss-forest, Oct.

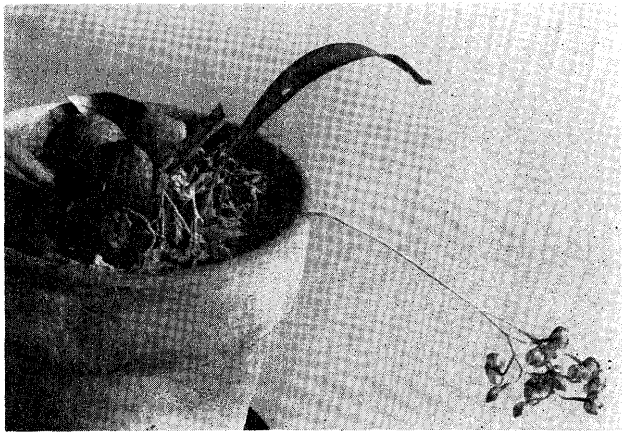


Fig. 11. *Neodryas Herzogii* in cultivation (×ca. 0.4).

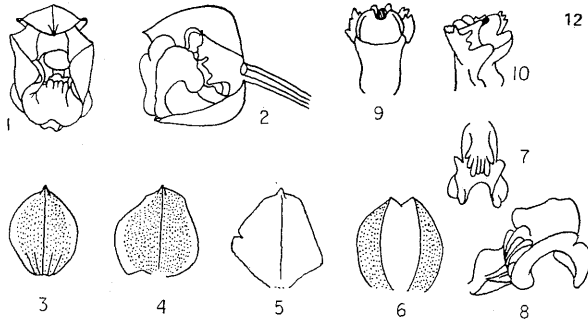


Fig. 12. Flower of *Neodryas Jose-Kawai*. 1, front view ($\times 2$). 2, side view, dorsal sepal and a petal excluded ($\times 2$). 3, dorsal sepal in natural position ($\times 2$). 4, petal in natural position ($\times 2$). 5, petal, spread out ($\times 2$). 6, connate lateral sepals, spread out ($\times 2$). 7, lip from above, natural position ($\times 2$). 8, lip in three quarters view, natural position ($\times 3$). 9, column from front. 10, column in front-side view.

12, 1971, Nishida, Hashimoto & Maekawa, specimen made from the cultivated stock in BGUT (BOL-101) on Feb. 18, 1972 by Hashimoto—type in TI.

This new species is apparently related to *Neodryas Herzogii* Schltr. (Figs. 11 & 13) but segregated by its callosity, rather erect side-lobes (folded in *N. Herzogii*), weakly recurved lip and the shape of the petals.

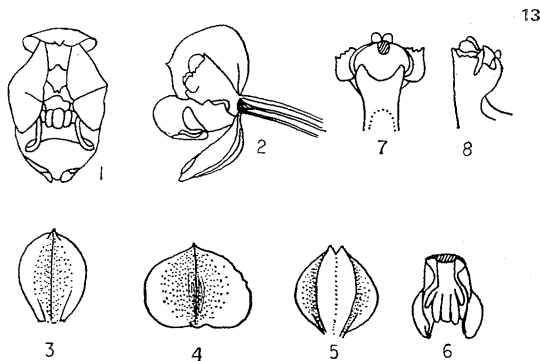


Fig. 13. Flower of *Neodryas Herzogii*. 1, front view ($\times 2$). 2, side view, dorsal sepal and a petal excluded ($\times 2$). 3, dorsal sepal in natural position ($\times 2$). 4, petal ($\times 2$). 5, connate lateral sepals, spread out ($\times 2$). 6, lip from above, natural position ($\times 2$). 7, column from front. 8, column from side.

Conspicuous leafy sheaths at the base of the scape and cylindric-pyriform pseudobulbs of the new species are also reliable characteristics when the segregation is needed without flowers. Specific epithet is dedicated to Mr. José Kawai of La Paz, Bolivia.

16. *Notylia laxa* Reichb. f. in Gard. Chron. n. s. 16: 620 (1881).

La Paz: Capaina, San Buenaventura, ca. 250 m alt., in heavy tropical forest, Sept. 16, 1971, Hashimoto, specimens made from the cultivated stock in BGUT (BOL-33) on Sept. 21, 1972, Oct. 4, 1972 & Oct. 16, 1972 by Hashimoto.

Distribution: Venezuela, Brazil (type) and Bolivia.

This species is newly reported from Bolivia.

* * * *

東京大学南米学術調査団員としてボリビアで採集した植物の中から、ラン科の新種 3, 新分布 13 を今回は記録する。新記録のほとんどは分布の南限である。

1. *Catasetum saccatum* Lindl. (Fig. 1) *Catasetum* 属の花は雌雄異型のものが多く、このため J. Lindley さえも別属として記載したほどである。原標本は雌株で、この度の採集品と同種であるかどうか判定し難かったが(原図および、Lindley Herbarium のマイクロフィッシュによる)、F. C. Hoehne は雌雄両株を図示しており、それによって本種と考えた。

2. *Cattleya violacea* (H. B. K.) Rolfe (Fig. 2) F. G. Brieger は Rudolf Schlechter: Die Orchideen, 3. Aufl., 3. Lief. (1971) で *Cattleya* 属の分布図を示し、本種がブラジルからパラグアイにわたって分布するとしている。分布域を横線で画いてあるが、その線はボリビア南東端を横切っている。しかし産地を明記した文献を私は知らない。同図に *C. nobilior* もボリビア東北部国境付近に分布するように示してあるが、これも記録は無いのではなからうか。

3. *Cryptarrhena lunata* R. Br. ボリビア新産の属である。熱帯アメリカに広く分布するが、めったに見付からない植物である。L. A. Garay 博士も一度しか野外で出会ったことがないといっておられた。生品は今も東大植物園で栽培している。

4. *Dichaea boliviana* Hashimoto (Figs. 3 & 4) 新種として記載したもので、*D. ancolaelabia* C. Schweinf. に似ている。しかし全体大形、花卉(側弁)と唇弁の形態で区別できる。これも栽培中である。

5. *Epidendrum anceps* (Lindl.) Reichb. f. 熱帯アメリカに普通の種であるが、今までボリビアには記録がなかった。

6. *Epidendrum coronatum* Ruiz & Pavón 熱帯アメリカに広く分布するが、ボ

リビアには未記録であった。

7. *Epidendrum prostratum* (Lindl.) Reichb. f. (Figs. 5 & 6) 合着した萼と、目立った距が特異で、*Physinga* として独立の属にするべきかも知れない。今まで生材料の入手が困難であったため深い論議がなされていないが、東大植物園ではよく生育するので、更に精細な研究を行う予定である。

8. *Epidendrum Vespa* Vell. この種も熱帯アメリカに普通に分布するが、今迄ボリビアには知られていなかった。東大植物園に栽培されているペルー産の株 (1960 年前川文夫博士採集, 1965~'66 年同博士他採集) は、偽鱗茎が細長く、ほとんどふくらまない型ばかりであるが、ボリビアで見たものは短く楕円形であった。

9. *Lepanthes Garayi* Hashimoto (Figs. 7 & 8) この属は花がないと *Pleurothallis* 属の *Lepanthiformes* 群と区別がつかない。小形であり観賞価値もないため、おそらく未知の種類が多数あると思われる。本種はシベリア (cf. 本誌 48: 29, 1973) の樹上のコケの間にはえていた。

10. *Lepanthes minutipetala* C. Schweinf. 1951 年ペルー産のものを記載されて以来、他の産地は知られていなかったものである。

11. *Macradenia lutescens* R. Br. 既知の産地と今回の記録との間には広大な地域が横たわっているが、これはおそらく調査が不十分であるからだと思う。

12. *Maxillaria floribunda* Lindl. (Fig. 9) 花径 10 cm 位で美しい種にもかかわらず、ペルー以外で採集されたことがなかった。いわゆるユンガス (Yungas) 地方の古くから多くの植物学者達が入っている地域の幹線道路傍に生育していたので不思議である。マイクロフィッシュによる Lindley Herbarium のタイプ標本以外は図が公表されていないので、生品の写真を添える。

13. *Maxillaria nigrescens* Lindl. 南アメリカ北部で知られていた種で、花は属として美しく目立つ方である。

14. *Maxillaria rotundilabia* C. Schweinf. ペルーで知られていた種で、さきの *M. floribunda* の近くで採集した。

15. *Neodryas Jose-Kawaii* Hashimoto (Figs. 10 & 12) ボリビア滞在中、ボリビア・トヨタ社長ホセ・カワイ氏に調査団の荷物の集積場所の提供をうけ、国内各地への連絡と便宜の供与その他、たいへんお世話になった。このため調査活動はきわめてスムーズに行われた。調査団の一員として敬意を表わすため氏の名を記念することにした。比較のために近似の *N. Herzogii* Schltr. の図も添えた。Schlechter の花の図は既に Fedde, Rep., Beih. 63: t. 56, No. 224 にあるが、非常にラフである。

16. *Notylia laxa* Reichb. f. この属の分類はやっかいである。観賞価値もあまりないため、ふつうは栽培されないからでもあろう。同定は Dunsterville & Garay: Venezuelan Orchids, Illustrated, 5: 192 & 193 (1972) によった。