

does not seem to belong in the *Spiranthinae*). Twelve of these segregate genera are found in Mexico.

So far as we know this is the first time that all or most all of the *Spiranthinae* have been placed into one genus, *Spiranthes*. It was with no little trepidation that this course was followed. An attempt was made to separate the species into the traditional genera, *Spiranthes*, *Pelexia*, *Sarcoglottis* and *Stenorhynchus*, — which could be done but a number of species would have had to be arbitrarily placed. To avoid the arbitrary placing of certain species one would either have to recognize additional genera, the course followed by Schlechter which really only complicates the case, or place all of them into one genus. The latter I have done. Such a course puts all of the "difficulties" in one place instead of putting a few of them in each of a number of places. *Spiranthes* in Mexico, as I have limited it, is exceedingly easy to recognize for all *Spiranthinae* belong in *Spiranthes*.

The species of *Spiranthes* in Mexico, with some exceptions, can be quite easily recognised after one becomes familiar with the group. Some of the species are separated by rather technical characters and for this reason a workable key is almost impossible to make. Although *Spiranthes* is not the largest orchid genus in Mexico it is the most difficult.

The arrangement of the species in this genus is not phylogenetic as I have not tried to work out a system. The species are arranged so that allied species come together (at least an attempt was made to do this) in the sequence, in many cases at least.

#### KEY TO THE SPECIES OF SPIRANTHES IN MEXICO

The rostellum emarginate at its apex.

Part I (Page 48)

The rostellum not emarginate or if appearing so then with a mucro in the sinus.

The rostellum truncate or essentially so.

Part II (Page 48)

The rostellum not truncate nor essentially so, with a long apical projection (as long as the rest of the rostellum or longer), the projection flat or subulate.

Projection of the rostellum flattened.

Part III (Page 48)

Projection of the rostellum rounded and subulate.

Part IV (Page 53)

### PART I

Lip with prominent retrorse caudae at the base.

Anther ovate to broadly ovate, obtuse.

5. *S. bicaudata*.

Anther at broadest ovate-lanceolate, acuminate or acute.

6. *S. costaricensis*.

Lip not long caudate at the base.

Lip orbicular to orbicular-obovate; plants with the aspect of *Habenaria*.

1. *S. sarcoglossa*.

Lip not orbicular nor orbicular-obovate; plants not like *Habenaria* in aspect.

Sepals and petals less than 1.5 mm. long.

7. *S. guyanensis*.

Sepals and petals more than 2 mm. long.

Inflorescence glabrous; sepals about 3 mm. long.

4. *S. affinis*.

Inflorescence pubescent; sepals mostly more than 3 mm. long.

Lip oblong, truncate.

2. *S. graminea*.

Lip narrowly ovate, apex rounded.

3. *S. vernalis*.

### PART II

Lip oblong, elliptic or oblong-oblancheolate, without basal auricles.

Lip with a spongy, cinnabar-red callus or calli on the disc, lanceolate or oblong-oblancheolate.

9. *S. minutiflora*.

Lip without a spongy cinnabar-red callus or calli.

Lip elliptic to lanceolate, acute.

8. *S. polyantha*.

Lip oblong, obtuse, sometimes slightly pandurate.

10. *S. tenuissima*.

Lip ovate, constricted toward the apex, with basal auricles.

7. *S. guyanensis*.

### PART III

A. The lip bicaudate at the base or with prominent retrorse auricles.

B. Flowers with a conspicuously produced, saccate or spur-like mentum.

C. Mentum saccate and rounded; leaves not ovate to ovate-lanceolate.

- D. Broad terminal lobe of the lip not trilobulate; petioles of the leaves slender and as long as the lamina.  
39. *S. gutturosa*.
- DD. Broad terminal lobe of the lip trilobulate; lamina of the leaves gradually narrowed into a broad petiole.  
40. *S. cerina*.
- CC. Mentum saccate and acute or retrorse, the tip usually free; leaves ovate to ovate-lanceolate.
- E. Dorsal sepal 3 mm. or less long.  
43. *S. adnata*.
- EE. Dorsal sepal 10 mm. or more long.
- F. Lamina of the mature leaves mostly less than 13 mm. long; lateral sepals strongly recurved and the terminal part broadened.  
47. *S. Funckiana*.
- FF. Lamina of the mature leaves more than 13 cm. long; lateral sepals not strongly recurved (but recurved) and usually not conspicuously broadened in the terminal part.  
47a. *S. Funckiana*  
var. *olivacea*.
- BB Flowers without a conspicuously produced, saccate or spur-like mentum, mentum present but inconspicuous, not swollen.
- G. Caudae at the base of the lip slender and terete; flowers comparatively large, the dorsal sepal 15 mm. or more long.
- H. Flowers mostly straight, not arcuate; rachis densely yellow pubescent and scape pubescent nearly to the base; plants usually leafless at flowering time.  
33. *S. pauciflora*.
- HH. Flowers mostly arcuate; rachis pubescent but the scape glabrous at least below; plants usually with leaves at flowering time.
- I. Leaves oblong to ovate to orbicular, usually explanate.  
37. *S. rosulata*.
- II. Leaves elliptic to oblanceolate to obovate, usually erect or spreading.  
36. *S. acaulis*.
- GG. Caudae at the base of the lip flat, thin and more or less rounded; flowers comparatively small, the dorsal sepal 15 mm. or less (mostly less than 10 mm.) long.
- J. Lip 3 mm. or less long, triangular to ovate-triangular.
- K. Sepals obtuse; petals about 3 mm. long and 0.6 mm. broad.  
16. *S. Gonzalezii*.
- KK. Sepals acute; petals about 1.5 mm. long and 0.6 mm. broad.  
15. *S. pseudogoodyerioides*.
- JJ. Lip much more than 3 mm. long, variously shaped.
- L. Dorsal sepal pubescent on the back.

- M. Lip with callus thickenings near the basal auricles.  
12. *S. elata*.
- MM. Lip without callus thickenings near the basal auricles.  
N. Sepals more than 10 mm. long.  
45. *S. Nagelii*.
- NN. Sepals less than 10 mm. long.  
46. *S. Schaffneri*.
- LL. Dorsal sepal glabrous on the back.
- O. Lip with callus thickenings near the basal auricles or near the middle.
- P. Calli near the basal auricles of the lip.  
12. *S. elata*.
- PP. Calli near the middle of the lip.  
13. *S. saccata*.
- OO. Lip without callus thickenings near the basal auricles or near the middle.
- Q. Lateral sepals obtuse or rarely acute; plants typically less than 15 cm. tall; the inflorescence short and few-flowered.
- R. Terminal lobe of the lip not crenulate.  
42a. *S. trilineata*  
var. *thelymitra*.
- RR. Terminal lobe of the lip crenulate.  
42. *S. trilineata*  
var. *crenulata*.
- QQ. Lateral sepals acute or usually acuminate; plants typically more than 15 cm. tall; the inflorescence several-many-flowered.  
17 and 17a. *S. Llaveana* and  
var. *violacea*.
- AA. The lip neither bicaudate at the base nor with prominent retrorse auricles.
- S. Lip 3 mm. long or less, triangular to triangular-ovate.
- T. Sepals obtuse; petals about 3 mm. long and 0.6 mm. broad.  
16. *S. Gonzalezii*.
- TT. Sepals acute; petals about 1.5 mm. long and 0.6 mm. broad.  
15. *S. pseudogoodyerioides*.
- SS. Lip much more than 3 mm. long, variously shaped.
- U. The dorsal sepals pubescent to the middle or beyond.
- V. Lip rhombic, elliptic to oblanceolate or ovate-triangular, not constricted toward the apex, middle nor base.
- W. Lip ovate-triangular.
- X. Lip less than 10 mm. long; floral bracts glabrous or nearly so.  
23. *S. densiflora*.
- XX. Lip more than 10 mm. long; floral bracts crisped-pubescent to the apex or nearly so.  
35. *S. michuacana*.

- WW. Lip rhombic to elliptic or oblanceolate.  
 Y. Inflorescence subcapitate; lip elliptic to oblanceolate.  
 33. *S. chloraeformis*.
- YY. Inflorescence elongated; lip rhombic.  
 34. *S. Arseniana*.
- VV. Lip not rhombic, elliptic, oblanceolate nor ovate-triangular; pandurate or constricted at least one point.
- Z. Bracts of the inflorescence and stem whitish, translucent.  
 a. Lip more than 12 mm. long.  
 22. *S. eriophora*.
- aa. Lip less than 10 mm. long.  
 25. *S. albovaginata*.
- ZZ. Bracts of the inflorescence neither whitish nor translucent.  
 b. Terminal part of the lip transverse, the basal angles of the lip usually with mammillate calli.  
 12. *S. elata*.
- bb. Terminal portion of the lip not transverse, the basal angles of the lip without mammillate calli.
- c. Lip broadest below the middle.
- d. Lip less than 8 mm. long, the base subgibbous and sharply recurved.  
 18. *S. pyramidalis*.
- dd. Lip more than 10 mm. long, the base neither subgibbous nor sharply recurved.
- e. Sepals and petals acuminate, very slender, mostly less than 2 cm. long.  
 52. *S. cinnabarina*.
- ee. Sepals and petals obtuse to acute, fairly broad, mostly 2 mm. or more long.  
 53. *S. aurantiaca*.
- cc. Lip broadest at the middle or above or the two halves equally broad.
- f. Lip constricted at the middle and equally broad above and below the constriction.
- g. Lateral sepals more than 12 mm. long.  
 44. *S. durangensis*.
- gg. Lateral sepals less than 8 mm. long.  
 28. *S. pubicaulis*.
- ff. Lip constricted at or below the middle but broadest at or above the middle.
- h. Inflorescence a rather lax or unilateral raceme.  
 30. *S. seminuda*.
- hh. Inflorescence a dense, cylindrical raceme.  
 32. *S. ramentacea*.
- UU. The dorsal sepals glabrous except rarely somewhat pubescent at the very base.
- i. Disc of the lip with a spongy cinnabar-red callus.

3. SPIRANTHES VERNALIS Engelmann & Gray in Boston Journ. Nat. Hist. 5: 236. 1845.

Range: Eastern and central United States to Mexico (Hidalgo) and Guatemala.

4. SPIRANTHES AFFINIS C. Schweinfurth in Bot. Mus. Leaflet. Harv. Univ. 4: 101. 1937.

Range: Mexico (Morelos and Michoacan).

*Spiranthes affinis* is quite closely allied to *S. Beckii* Lindl.

5. SPIRANTHES BICAUDATA Ames, Orch. 7: 126. 1922.

Range: Mexico (Tamaulipas, Vera Cruz and Jalisco), Guatemala, Honduras, Costa Rica and the West Indies.

*Spiranthes bicaudata* is very closely allied to *S. costaricensis* Reichb. f. but it may be distinguished by having the lip slightly differently shaped and nearly twice as broad, in comparison to its length, as in *S. costaricensis*. The other perianth parts are usually somewhat shorter, broader and more obtuse than in *S. costaricensis*. Some differences are to be noted in the leaves and in the anther also.

6. SPIRANTHES COSTARICENSIS Reichenbach filius in Bonplandia 3: 214. 1855; Beitrage Orch. Centr. Am. 46. 1866; Xenia Orch. 2: 185. t. 179, f. I, 1-3b. 1873; Ames, Sched. Orch. 9: 7. 1825.

*Gyrostachys costaricensis* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

*Beloglottis costaricensis* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 365. 1920.

*Spiranthes subpandurata* Ames & Schweinfurth, Sched. Orch. 8: 4, f. 1. 1925.

Range: Mexico (San Luis Potosí, Vera Cruz, Hidalgo and Oaxaca), Guatemala, Honduras, Costa Rica and Panama.

*Spiranthes costaricensis* is one of the two species of which Schlechter's genus *Beloglottis* is composed.

7. SPIRANTHES GUYANENSIS (Lindl.) Cogniaux in Mart., Fl. Bras. 3, pars 4: 209, t. 47, f. II. 1895.

*Goodyera guyanensis* Lindley, Gen. & Sp. Orch. Pl. 494. 1840.

*Brachystele guyanensis* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 373. 1920.

*Spiranthes aguacatensis* Reichenbach filius in Bonplandia 3: 214. 1855; Ames, Sched. Orch. 2: 7. 1923.

*Gyrostachys aguacatensis* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

*Brachystele aguacatensis* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 371. 1920.

Range: Mexico (Vera Cruz and Chiapas), Guatemala, Honduras, Costa Rica, Panama, Trinidad, the Guianas, Colombia and Bolivia.

This species has not been previously reported from Mexico.

8. *SPIRANTHES POLYANTHA* Reichenbach filius in Linnaea 18: 408. 1844; Ames & Schweinfurth in Bot. Mus. Leafl. Harv. Univ. 3: 132. 1935.

*Spiranthes Galeottiana* A. Richard in Ann. Sci. Nat. ser. 3, 3: 32. 1845.

*Gyrostachys polyantha* O. Kuntze Rev. Gen. Pl. 2: 664. 1891.

*Mesadenus polyanthus* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 369. 1920.

*Mesadenus Galeottianus* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 368. 1920.

Range: Florida (U.S.A.), the West Indies, Mexico (Tamaulipas, Nuevo Leon, San Luis Potosí, Vera Cruz, Hidalgo, Queretaro, Mexico, Distrito Federal, Puebla, Oaxaca and Yucatan) and Guatemala.

9. *SPIRANTHES MINUTIFLORA* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 32. 1845; Ames & Schweinfurth in Bot. Mus. Leafl. Harv. Univ. 3: 130. 1935.

*Mesadenus minutiflorus* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 368. 1920.

Range: Mexico (San Luis Potosí, Distrito Federal, Hidalgo and Chiapas), Guatemala and Costa Rica.

A curious little species which it is difficult to delimit. In most specimens examined the disc of the lip is somewhat thickened and this thickening is red; this condition is some-

what similar to that in *Spiranthes parasitica* Rich. & Gal. but is less pronounced.

10. SPIRANTHES TENUISSIMA L. O. Williams in Bot. Mus. Leafl. Harv. Univ. 12: 235, t. 33. 1946.

Range: Mexico (Morelos).

11. SPIRANTHES RUBRICALLOSA Robinson & Greenman in Am. Journ. Sci. 50: 165. 1895; Ames, Sched. Orch. 2: 15. 1923.

*Spiranthes porphyricola* Schlechter in Fedde Repert. 3: 18. 1906.

Range: Mexico (Nuevo Leon, Chihuahua, Coahuila, Mexico and Puebla).

Robinson and Greenman did not indicate which of two Pringle collections cited they considered to be the type. Number 1373, which Ames apparently considered to be the type, is a specimen well advanced in fruit while the other specimen, number 5326 is in better condition. Perhaps, for this reason, the latter should be considered the type even though it is the second specimen cited. It is quite obvious that both specimens were carefully considered in preparing the original description.

12. SPIRANTHES ELATA (Sw.) L. C. Richard in Mem. Mus. Par. 4: 59. 1818.

*Satyrium elatum* Swartz, Nov. Gen. & Sp. Prodr. 119. 1788.

*Neottia elata* Swartz in K. Vet. Acad. Handl. 21: 226. 1800; Sims, Bot. Mag. 45: t. 2026. 1818.

*Spiranthes comosa* Reichenbach filius in Linnaea 18: 408. 1844.

*Sauroglossum Richardii* Ames, Orch. 1: 44. 1905.

*Cyclopogon elatus* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 387. 1920.

*Cyclopogon miradorensis* Schlechter in Fedde Repert. 21: 332. 1925.

Range: Florida (U.S.A.), the West Indies and Mexico (Vera Cruz, Morelos, Guerrero and Oaxaca) through Central America except Panama, and most of temperate and tropical South America to Argentina.



*Spiranthes elata* is the most variable and widely distributed species of this genus which occurs in Mexico. A large number of segregate species have been proposed for plants of varying aspects but many or most of these are of dubious worth.

13. SPIRANTHES SACCATA Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 32. 1845.

*Spiranthes Pringlei* S. Watson in Proc. Am. Acad. 26: 153. 1891.

*Gyrostachys saccata* O. Kuntze Rev. Gen. Pl. 2: 664. 1891.

*Spiranthes Pringlei* var. *minor* Greenman in Proc. Am. Acad. 35: 307. 1900.

*Cyclopogon saccatus* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 394. 1920.

Range: Mexico (Puebla, Mexico, Morelos, Jalisco and Vera Cruz).

*Spiranthes saccata* is closely allied to *S. elata* but can usually be distinguished by its lack of leaves, at flowering time, as well as by other differences.

14. SPIRANTHES SPARSIFLORA C. Schweinfurth in Bot. Mus. Leaf. Harv. Univ. 4: 108. 1937.

Range: Mexico (Morelos).

A species which is easily distinguished by the shape of the lip. *Spiranthes sparsiflora* is allied to *S. elata* but differs from that, and most of the other allied species, by having the leaves precede the flowering period.

15. SPIRANTHES PSEUDOGOODYERIOIDES L. O. Williams in Bot. Mus. Leaf. Harv. Univ. 12: 231, t. 33. 1946.

Range: Mexico (San Luis Potosí).

Allied to the Cuban *Spiranthes Wrightii* (Reichb. f.) Schltr., a species which has been placed in *Goodyera* and which was later made the type of a monotypic genus *Pseudogoodyera*.

16. SPIRANTHES GONZALEZII L. O. Williams Bot. Mus. Leaf. Harv. Univ. 12: 229, t. 33. 1946.

Range: Mexico (Nayarit).

A small flowered species known only from one collection. It is named for Juan González, a keen Mexican collector who worked for Erik Ostlund.

17. *SPIRANTHES LLAVEANA* Lindley in Bentham, Pl. Hartw. 72. 1842.

*Neottia micrantha* Llave & Lexarza Nov. Veg. Descr. 2: 5. 1825, non *Spiranthes micrantha* Rodr.

*Spiranthes transversalis* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 32. 1845.

*Schiedeella Llaveana* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 380. 1920.

*Schiedeella transversalis* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 381. 1920.

Range: Mexico (Vera Cruz, Hidalgo, Jalisco, Puebla, Mexico, Distrito Federal, Morelos, Michoacan and Oaxaca), Guatemala and Honduras.

The name *Spiranthes Llaveana* of Lindley is based on *Neottia micrantha* of Llave & Lexarza and apparently was intended for a new name. The name *Spiranthes micrantha* has since been used by Rodríguez for another plant.

It is not possible to say with certainty that the plant that Llave & Lexarza had is the same as the one Lindley thought it to be but we have followed Lindley's lead. Our concept of the species is based on a specimen in Lindley's herbarium on which he wrote "*Spiranthes Llaveana* m." The concept adopted by Lindley and followed by me also agrees with the type of *Spiranthes transversalis* Richard & Galeotti.

17a. *SPIRANTHES LLAVEANA* var. *VIOLACEA* (Rich. & Gal.) Ames & Correll in Bot. Mus. Leafl. Harv. Univ. 10: 67. 1942.

*Spiranthes violacea* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 32. 1845.

*Spiranthes luteo-alba* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 32. 1845.

*Cyclopogon violaceus* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 396. 1920.

*Cyclopogon luteo-albus* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 390. 1920, as *C. luteo-alba*.

Range: Mexico (Vera Cruz, Mexico, Morelos, Guerrero, Oaxaca and Chiapas) and Guatemala.

*Spiranthes luteo-alba* is represented in the Ames Herbarium only by a photograph of the type and a sketch prepared by Richard. On the basis of these records it seems probable that the name is referable to *S. Llaveana* var. *violacea*.

Although Schlechter in his revision of the *Spiranthes* group placed *Spiranthes Llaveana* var. *violacea* in a different genus than *S. Llaveana* Lindl. it would be quite possible to confuse the two.

18. SPIRANTHES PYRAMIDALIS Lindley, Gen. & Sp. Orch. Pl. 472. 1840; Ames, Sched. Orch. 2: 15. 1923.

*Gyrostachys pyramidalis* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

*Schiedeella pyramidalis* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 381. 1920.

Range: Mexico (Vera Cruz, Mexico, Distrito Federal, Morelos, Jalisco, Michoacan and Oaxaca), Guatemala and El Salvador.

*Spiranthes pyramidalis* is not uncommon in Central Mexico but does not seem to have been collected often until recent years.

19. SPIRANTHES PSEUDOPYRAMIDALIS L. O. Williams in Bot. Mus. Leaflet Harv. Univ. 12: 232, t. 33. 1946.

Range: Mexico (Mexico, Guerrero and Oaxaca).

20. SPIRANTHES PARASITICA Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 32. 1845.

*Schiedeella parasitica* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 381. 1920, as *S. paratica*.

Range: Texas and Arizona (U.S.A.), Mexico, (Chihuahua, Nuevo Leon, Puebla, Hidalgo, Mexico, Distrito Federal, Oaxaca and Chiapas) and Guatemala.

In addition to the range given above Ames [in Standley, Fl. Costa Rica (Bot. Series Field Mus. Nat. Hist. Vol. 18: 294. 1937)] cites *S. parasitica* from Costa Rica basing the record on *S. Valerioi* A. & S. which he treats as a synonym. It seems doubtful that *S. Valerioi* is conspecific with *S. parasitica* although it is very nearly allied to it.

21. *SPIRANTHES VELATA* Robinson & Fernald in Proc. Am. Acad. 30: 122. 1894.

*Schiedeella velata* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 382. 1920.

Range: Mexico (Chihuahua).

22. *SPIRANTHES ERIOPHORA* Robinson & Geenman in Am. Journ. Sci. ser. 3, 50: 165. 1895.

*Schiedeella eriophora* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 380. 1920.

Range: Mexico (Vera Cruz, Puebla, Distrito Federal, Morelos and Oaxaca) and Guatemala.

23. *SPIRANTHES DENSIFLORA* C. Schweinfurth in Bot. Mus. Leaf. Harv. Univ. 4: 104. 1937.

Range: Mexico (San Luis Potosí, Hidalgo, Morelos, Michoacan and possibly Oaxaca).

24. *SPIRANTHES CHARTACEA* L. O. Williams in Bot. Mus. Leaf. Harv. Univ. 12: 226, t. 32. 1946.

Range: Mexico (Jalisco).

An interesting species with translucent, paper-like floral and cauline bracts.

25. *SPIRANTHES ALBOVAGINATA* C. Schweinfurth in Bot. Mus. Leaf. Harv. Univ. 4: 103. 1937.

Range: Mexico (Mexico).

26. *SPIRANTHES FALCATA* L. O. Williams in Bot. Mus. Leaf. Harv. Univ. 12: 228, t. 32. 1946.

Range: Mexico (Durango and Chihuahua).

27. *SPIRANTHES TENELLA* L. O. Williams in Bot. Mus. Leaf. Harv. Univ. 12: 235, t. 32. 1946.

Range: Mexico (Chihuahua and Durango).

28. *SPIRANTHES PUBICAILIS* L. O. Williams in Bot. Mus. Leaf. Harv. Univ. 12: 234, t. 32. 1946.

Range: Mexico (Vera Cruz).

29. *SPIRANTHES TENUIFLORA* Greenman in Proc. Am. Acad. 35: 308. 1900.

*Gamosepalum tenuiflorum* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 430. 1920.

Range: Mexico (Morelos, Guerrero and Chiapas).

*Spiranthes tenuiflora* is the basis of the monotypic genus *Gamosepalum* Schltr.

The type collection, Pringle 6995, may be found to be mixed on some specimens. The specimen in the Ames Herbarium is a mixture of *S. tenuiflora* and a young plant of a very different but unrecognizable species.

30. *SPIRANTHES SEMINUDA* Schlechter in Fedde Repert. 3: 18. 1906.

Range: Mexico (Hidalgo, Puebla, Guerrero and Oaxaca).

A peculiar species which seems to be quite variable even though but few specimens of it are at hand.

31. *SPIRANTHES HEMICHREA* Lindley, Gen. & Sp. Orch. 473. 1840.

*Spiranthes Nelsonii* Greenman in Proc. Am. Acad. 35: 307. 1900.

*Spiranthes pulchra* Schlechter in Fedde Repert. 15: 198. 1918.

*Diregyne hemicrea* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 427. 1920.

*Diregyne pulchra* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 428. 1920.

*Sarcoglottis hemicrea* Ames, Sched. Orch. 2: 9. 1923.

*Gyrostachys hemicrea* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

Range: Mexico (Chiapas), Guatemala and El Salvador. A rather uncommon species. Schlechter did not account for *Spiranthes Nelsonii* in his account of the *Spiranthinae*.

32. *SPIRANTHES RAMENTACEA* Lindley in Ann. Nat. Hist. 4: 384. 1840; Lindley, Gen. & Sp. Orch. Pl. 473. 1840.

*Gyrostachys ramentacea* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

*Dieregyne chloraeformis* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 428. 1920.

Range: Mexico (San Luis Potosí).

33. *SPIRANTHES CHLORAEFORMIS* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 33. 1845.

*Spiranthes oaxacana* Robinson & Greenman in Proc. Am. Acad. 32: 34. 1897.

*Dieregyne chloreaformis* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 427. 1920.

Range: Mexico (Oaxaca).

34. *SPIRANTHES ARSENIANA* Kränzlin in Ark. Bot. 14: 6. 1915.

Range: Mexico (Mexico, Puebla, Morelos, Michoacan, Jalisco and Oaxaca).

The lip of *Spiranthes Arseniana* is rather variable, from oblong and obtuse to narrowly rhombic and more or less acute.

35. *SPIRANTHES MICHUACANA* (Llave & Lex.) Hemsley in Godman & Salvin Biol. Centr.-Am. Bot. 3: 301. 1884, as *S. mechoacana*; Ames & Schweinfurth in Bot. Mus. Leaflet. Harv. Univ. 3: 128. 1935.

*Neottia michuacana* Llave & Lexarza Nov. Veg. Descr. 2: 3. 1825.

*Neottia sulphurea* Llave & Lexarza Nov. Veg. Descr. 2: 4. 1825.

*Stenorhynchus sulphureus* Lindley, Gen. & Sp. Orch. Pl. 478. 1840.

*Stenorhynchus michuacanus* Lindley, Gen. & Sp. Orch. Pl. 480. 1840.

*Stenorhynchus madrensis* Reichenbach filius in Bonplandia 3: 177. 1855.

*Spiranthes madrensis* Hemsley in Godman & Salvin Biol. Centr.-Am. Bot. 3: 301. 1844.

*Spiranthes sulphurea* Hemsley in Godman & Salvin, Biol. Centr.-Am. Bot. 3: 302. 1884.

*Gyrostachys madrensis* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

*Gyrostachys sulphurea* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

*Spiranthes bracteolaris* Kränzlin in Ark. Bot. 14: 7. 1915.  
Range: Arizona (U.S.A.) and Mexico (Sonora, Chihuahua, Durango, Vera Cruz, Puebla, Mexico, Jalisco, Michoacan, Morelos, Guerrero, Oaxaca and Chiapas).

36. SPIRANTHES ACAULIS (J. E. Sm.) Cogniaux in Martius, Fl. Bras. 3, pars 4: 221. 1895.

*Neottia acaulis* J. E. Smith Exot. Bot. 2: 91, t. 105. 1806.

*Arethusa picta* Anderson in Trans. Soc. Arts 25. 1807.

*Neottia picta* R. Brown in Aiton, Hort. Kew. ed. 2, 5: 199. 1813; Sims in Bot. Mag. 37: t. 1562. 1813.

*Sarcoglottis picta* Klotzsch in Allgem. Gartenz. 10: 106. 1842; Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 419. 1920.

*Gyrostachys picta* O. Kuntze Rev. Gen. Pl. 2: 664. 1891.

*Sarcoglottis Purpurorum* Schlechter in Fedde Repert. 21: 333. 1925.

Range: Mexico (San Luis Potosí, Nayarit, Vera Cruz, Morelos, Tabasco and Yucatan), British Honduras, Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, the West Indies and in South America to Argentina.

One of the largest species of the genus. The flowers vary greatly in size as does the plant.

37. SPIRANTHES ROSULATA Lindley in Bot. Reg. 29: Misc. p. 60. 1843.

*Spiranthes ochracea* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 33. 1845.

*Sarcoglottis ochracea* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 418. 1920.

*Sarcoglottis orbiculata* Ames, Sched. Orch. 2: 10. 1923.

Range: Mexico (Jalisco and Vera Cruz), Guatemala and Honduras.

Very nearly allied to *Spiranthes acaulis* from which it seems to differ in the shorter, broader and somewhat thicker leaves. The inflorescence also seems to be more congested and fewer flowered.

38. SPIRANTHES PAUCIFLORA Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 32. 1845.

*Gyrostachys pauciflora* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

*Sarcoglottis pauciflora* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 418. 1920.

Range: Mexico (Chihuahua, Mexico, Jalisco and Chiapas) and Honduras.

This is the largest flowered of the Mexican species of *Spiranthes*.

39. *SPIRANTHES GUTTUROSA* Reichenbach filius Beitrage Orch. Centr.-Am. 67. 1866; Reichenbach f., Xenia Orch. 2: 187, t. 179, fig. III. 1873.

*Sarcoglottis guttuosa* Ames in Donn.-Smith, Enum. Pl. Guat. 7: 49. 1905.

Range: Mexico (San Luis Potosí) and El Salvador.

40. *SPIRANTHES CERINA* Lindley in Bot. Reg. 28: Misc. p. 20. 1842.

*Sarcoglottis cerina* W. Baxter in Loud. Hort. Brit. Suppl. 3: 634. 1839.

*Sarcoglottis lobata* W. Baxter in Loud. Hort. Brit. Suppl. 3: 634. 1839.

*Spiranthes lobata* Lindley in Bot. Reg. 30: Misc. p. 11. 1844; Booth in Bot. Reg. 31: Misc. p. 34. 1845.

Range: Mexico (Durango and Hidalgo) and Guatemala.

Curiously enough Lindley's names published under *Spiranthes* do not go back to the names published by Baxter under *Sarcoglottis* but were independently published as novelties.

41. *SPIRANTHES CONGESTIFLORA* L. O. Williams in Bot. Mus. Leafl. Univ. 12: 227, t. 32. 1946.

Range: Mexico (Michoacan).

A plant about the size of *Spiranthes trilineata* but with much larger flowers. There seem to be no closer allies than this species.

42. *SPIRANTHES TRILINEATA* Lindl. var. *CRENULATA* L. O. Williams in Bot. Mus. Leafl. Harv. Univ. 12: 236. 1946.

Range: Mexico (Puebla).



The variety *crenulata* is closely allied to the variety *thelymitra* (Reichb. f.) L. Wms. and is perhaps only a minor variation. The collection is the northmost station for the species.

42a. *SPIRANTHES TRILINEATA* Lindley var. *THELYMITRA* (Reichb. f.) L. O. Williams in *Lloydia* 10: 209. 1947.

*Spiranthes thelymitra* Reichenbach filius in *Beitrag. Orch. Cent.-Am.* 66. 1866.

*Gyrostachys thelymitra* O. Kuntze, *Rev. Gen. Pl.* 2: 664. 1891.

*Deiregyne thelymitra* Schlechter in *Beihefte Bot. Centralbl.* 37, Abt. 2: 428. 1920.

*Sarcoglottis thelymitra* Ames in *Bot. Mus. Leafl. Harv. Univ.* 2: 76, 84. 1934.

Range: Mexico (Chiapas), Guatemala, El Salvador, Honduras and Costa Rica.

The variety *thelymitra* differs from the typical variety mainly in the lobation of the lip. It is probably more wide spread than the species.

43. *SPIRANTHES HYEMALIS* Richard & Galeotti in *Ann. Sci. Nat.* ser. 3, 3: 32. 1845.

*Stenorrhynchus pauciflorus* Reichenbach filius in *Bonplandia* 4: 211. 1856, not *Spiranthes pauciflora* Rich & Gal.

*Funkiella hyemalis* Schlechter in *Beihefte Bot. Centralbl.* 37, Abt. 2: 431. 1920.

Range: Mexico (Chihuahua, Distrito Federal, Mexico, Michoacan, Guerrero, Tlaxcala, Puebla and Oaxaca), Guatemala and Honduras.

Much material of this species has been distributed as *Spiranthes pauciflora* Rich. & Gal., a very different thing.

44. *SPIRANTHES DURANGENSIS* Ames & Schweinfurth in *Bot. Mus. Leafl. Harv. Univ.* 3: 128. 1935.

*Spiranthes saltensis* Ames, *Orch.* 2: 258. 1908, non Grisebach. 1879.

*Schiedeella saltensis* Schlechter in *Beihefte Bot. Centralbl.* 37, Abt. 2: 381. 1920.

Range: Texas (U.S.A.) and Mexico (Nuevo Leon, Durango, San Luis Potosí and Distrito Federal).

A rather striking species which seems to have been first collected by Dr. J. G. Schaffner in 1876 and distributed by him with an unpublished name honoring Asa Gray.

45. *SPIRANTHES NAGELII* L. O. Williams in Bot. Mus. Leaflet. Harv. Univ. 12: 230, t. 32. 1946.

Range: Mexico (San Luis Potosí).

*Spiranthes Nagelii* is allied to *S. durangensis* A. & S. but is easily distinguished by the large basal leaves.

46. *SPIRANTHES SCHAFFNERI* Reichenbach filius in Linnaea 28: 382. 1856.

*Spiranthes latifolia* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 32. 1845, non Torrey ex Lindley, 1840.

*Gyrostachys latifolia* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

*Gyrostachys Schaffneri* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

*Sarcoglottis Schaffneri* Ames in Donn.-Smith, Enum. Pl. Guat. 7: 50. 1905; C. Schweinfurth in Bot. Mus. Leaflet. Harv. Univ. 3: 111. 1935.

*Spiranthes Richardiana* Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2: 435. 1918.

*Sarcoglottis latifolia* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 417. 1920.

*Sarcoglottis pubilabia* Ames, Sched. Orch. 2: 11. 1923.

*Sarcoglottis Zamororae* Ames, Sched. Orch. 2: 13. 1923.

Range: Mexico (Nuevo Leon, Durango, Sinaloa, San Luis Potosí, Vera Cruz, Puebla, Mexico, Distrito Federal, Morelos, Jalisco, Colima and Oaxaca) and Guatemala.

47. *SPIRANTHES FUNCKIANA* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 32. 1845.

*Pelexia Pringlei* Fernald in Proc. Am. Acad. 35: 562. 1900.

*Pelexia Funckiana* Schlechter in Fedde Repert. 15: 197. 1918, as *P. Funkiana*; Ames & Schweinfurth, Sched. Orch. 8: 3. 1925.

*Pelexia guatemalensis* Schlechter in Fedde Repert. 15: 197. 1918.

*Pelexia congesta* Ames & Schweinfurth, Sched. Orch. 10: 5. 1930.

Range: Mexico (Vera Cruz and Chiapas), Guatemala, Honduras, Panama and possibly also South America.

47a. SPIRANTHES FUNCKIANA Rich. & Gal. var. OLIVACEA (Rolfe) Ames & Correll in Bot. Mus. Leaflet. Harv. Univ. 10: 66. 1942.

*Pelexia olivacea* Rolfe in Kew Bull. 200. 1891.

*Pelexia hondurensis* Ames, Sched. Orch. 2: 4. 1923.

*Pelexia subaequalis* Ames, Sched. Orch. 2: 5. 1923.

\* *Pelexia callosa* Ames, Sched. Orch. 7: 15. 1924.

Range: Mexico (San Luis Potosí, Vera Cruz and Oaxaca), Guatemala, Honduras, Nicaragua and in South America.

The variety *olivacea* differs from the species in having larger leaves and in having the lateral sepals broadened toward the apex.

48. SPIRANTHES ADNATA (Sw.) Bentham ex Fawcett, Flow. Pl. Jamaica 40. 1893.

*Satyrium adnatum* Swartz, Nov. Gen. & Sp. Pl. Prodr. 118. 1788.

*Pelexia adnata* Poiteau ex L. C. Richard in Mem. Mus. Par. 4: 59. 1818; Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 407. 1920.

*Pelexia spiranthoides* Lindley in Bot. Reg. 12: t. 985. 1826.

Range: Mexico (San Luis Potosí and Tamaulipas), British Honduras, the West Indies and Venezuela.

This species seems not to have been recorded from Mexico previously.

49. SPIRANTHES TONDUZII Schlechter in Fedde Repert. 9: 26. 1912.

*Stenorrhynchus Tonduzii* Schlechter in Beihefte Bot. Centralbl. 37, Abt. 2: 448. 1920.

Range: Mexico (Vera Cruz and Campeche), Guatemala, Honduras and Costa Rica.

This is the first report of the species in Mexico although it is to be expected in others of the southern states.

50. *SPIRANTHES SPECIOSA* (J. F. Gmelin) A. Richard in La Sagra, Fl. Cub. Fan. 11: 252. 1853.

*Satyrium plantagineum* Linnaeus Syst. Veg. ed. 10: 1244. 1758-59, not *Spiranthes plantaginea* Lindley, Spreng. or Torrey.

*Serapias speciosa* J. F. Gmelin Syst. 59. 1791.

*Neottia speciosa* Jacquin, Ic. Pl. Rar. 3: t. 600. 1793; Sims, Bot. Mag. 33: t. 1374. 1811; Hooker, Exot. Fl. 1: t. 3, 4. 1823.

*Stenorrhynchus speciosus* L. C. Richard in Mem. Mus. Par. 4: 59. 1818.

*Spiranthes colorata* N. E. Brown in Gard. Chron. n.s. 19: 210. 1883.

*Spiranthes colorans* "N. E. Brown" ex Hemsley, in Godman & Salvin Biol. Centr.-Am. Bot. 3: 300. 1884.

Range: West Indies, Mexico (Vera Cruz, Puebla and Chiapas), Guatemala, Honduras, Costa Rica and Panama. Also in South America.

This species is most often found as an epiphyte in wet forests.

51. *SPIRANTHES ORCHIOIDES* (Sw.) A. Richard in La Sagra, Fl. Cub. Fan. 11: 252. 1853.

*Satyrium orchioides* Swartz, Nov. Gen. & Sp. Prodr. 118. 1788.

*Neottia orchioides* Swartz, Fl. Ind. Occ. 1411. 1799; Sims in Bot. Mag. 25: t. 1036. 1807; Edwards, Bot. Reg. 9: t. 701. 1823.

*Stenorrhynchus orchioides* L. C. Richard in Mem. Mus. Par. 4: 59. 1818.

*Spiranthes jaliscana* S. Watson in Proc. Am. Acad. 26: 153. 1891.

*Stenorrhynchus jaliscanus* Nash in Bull. Torr. Bot. Club 22: 158. 1895.

Range: Florida (U.S.A.), the West Indies, Mexico (Chihuahua, Tamaulipas, San Luis Potosí, Vera Cruz, Jalisco, Nayarit, Morelos, Michoacan, Oaxaca and Yucatan) to Panama and in South America south to Paraguay and Argentina.

*Spiranthes orchioides* is not uncommon on dry hillsides

throughout its range. The leaves usually follow the flowering stalks hence specimens with leaves are not common.

52. *SPIRANTHES CINNABARINA* (Llave & Lex.) Hemsley in Godman & Salvin Biol. Centr.-Am. Bot. 3: 300. 1885.

*Neottia cinnabarina* Llave & Lexarza Nov. Veg. Descr. 2: 3. 1825.

*Stenorrhynchus cinnabarinus* Lindley, Gen. & Sp. Orch. Pl. 479. 1840; Lindley in Bot. Reg. 33: t. 65. 1847.

*Stenorrhynchus montanus* Lindley in Bentham, Pl. Hartw. 95. 1842.

*Spiranthes montana* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 32. 1845.

*Spiranthes montana* Hemsley in Godman & Salvin Biol. Centr.-Am. Bot. 3: 301. 1884.

*Gyrostachys montana* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

*Stenorrhynchus Galeottianus* Schlechter in Beihefte Bot. Centralbl. 36: 432. 1918.

Range: Mexico (Coahuila, Nuevo Leon, Hidalgo, Mexico, Distrito Federal, Puebla, Morelos, Guerrero, Oaxaca and Chiapas) and Guatemala.

Widely distributed through Mexico but apparently not too common. The nearest ally seems to be *S. aurantiaca* (Llave & Lex.) Hemsl.

53. *SPIRANTHES AURANTIACA* (Llave & Lex.) Hemsley in Godman & Salvin Biol. Centr.-Am. Bot. 3: 300. 1885.

*Neottia aurantiaca* Llave & Lexarza, Nov. Veg. Descr. 2: 2. 1825.

*Stenorrhynchus aurantiacus* Lindley, Gen. & Sp. Orch. Pl. 479. 1840.

*Gyrostachys aurantiaca* O. Kuntze, Rev. Gen. Pl. 2: 664. 1891.

*Spiranthes aurantiaca* var. *acuminata* Robinson & Seaton in Proc. Am. Acad. 28: 115. 1893.

?*Spiranthes pubens* Richard & Galeotti in Ann. Sc. Nat. ser. 3, 3: 33. 1845.

?*Stenorrhynchus pubens* Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2: 433. 1918.

?*Spiranthes lanuginosa* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 33. 1845.

?*Stenorrhynchus lanuginosus* Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2: 372. 1918.

?*Stenorrhynchus lupulinus* Lindley, Gen. & Sp. Orch. Pl. 479. 1840.

?*Spiranthes lupulina* Hemsley in Godman & Salvin Biol. Centr.-Am. Bot. 3: 301. 1885.

?*Gyrostachys lupulina* O. Kuntze Rev. Gen. Pl. 2: 664. 1891.

Range: Mexico (Chihuahua, Durango, Hidalgo, Jalisco, Vera Cruz, Mexico, Distrito Federal, Morelos, Michoacan, Colima, Guerrero, Oaxaca and Chiapas), Guatemala and Honduras.

A large and rather beautiful species which is quite variable. It is found over much of Mexico.

No material of *Spiranthes pubens* Rich. & Gal., *Spiranthes lanuginosa* Rich. & Gal. nor of *Stenorrhynchus lupulinus* Lindl. has been seen. It seems quite possible that all three may belong here but if not then they are closely allied.

‡

13. GOODYERA R. Brown in Aiton Hort. Kew., ed. 2: 197. 1813.

Terrestrial herbs with basal or semi-basal leaves. Sepals free, similar, subequal in length, erect or spreading; the dorsal sepal often coherent with the petals and with them forming a galea. Petals usually lightly attached toward their apices. Lip sessile at the base of and somewhat adnate to the column, simple, resupinate; base gibbous or subsaccate, provided with hairs, fimbriate processes or callus-like thickenings. Column short, terete. Anther erect or incumbent. Pollinia sec-tile. (Epipactis of authors). A small genus occurring in the tropics and cooler regions of both hemispheres.

Lip about 4.5 mm. long.

Sac of the lip with many hair-like processes; margin of the lip ciliate.

1. *G. dolabripetala*.

Sac of the lip without hair-like processes; margin of the lip eciliate.

3. *G. decipiens*.

Lip about 2.5-3 mm. long.

2. *G. striata*.

1. *GOODYERA DOLABRIPETALA* (Ames) Schlechter in Engl. Bot. Jahrb. 45: 391. 1911.

*Epipactis dolabripetala* Ames, Orch. 2: 262. 1908.

Range: Mexico (Vera Cruz and Chiapas).

2. *GOODYERA STRIATA* Reichenbach filius in Linnaea 18: 409. 1844.

*Physurus brachyceras* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 33. 1845.

*Epipactis striata* A. A. Eaton in Proc. Biol. Soc. Wash. 21: 66. 1908.

Range: Mexico (Vera Cruz, Morelos, Guerrero, Oaxaca and Chiapas) and Guatemala.

*Goodyera striata* is variable as to the processes at the base of the lip. In one specimen examined the base of the lip was merely provided with a callus plate. In other specimens the callus plate was partly broken up into hairs and in still another no trace of the callus plate remained but in its place there were many hair-like processes.

3. *GOODYERA DECIPIENS* (Hook.) Hubbard in Standardized Plant Names 328. 1923.

*Spiranthes decipiens* Hooker, Fl. Bor.-Am. 2: 203, t. 204. 1839.

*Orchiodes decipiens* O. Kuntze, Rev. Gen. Pl. 2: 675. 1891.

*Peramium decipiens* Piper in Contr. U. S. Nat. Herb. 11: 208. 1906.

*Epipactis decipiens* Ames, Orch. 2: 261. 1908.

Range: Canada, United States and Mexico (Nuevo Leon).

*Goodyera decipiens* is new to the flora of Mexico.

14. *ERYTHRODES* Blume, Bijdr. 410, t. 72. 1825.

Terrestrial herbs with semi-basal or cauline leaves. Sepals free, nearly equal, erect or spreading. Petals connate toward their apices and usually coherent to the dorsal sepal and with it forming a galea. Lip simple or lobed; lightly adnate to the column for a short way; extended into a simple or didymous spur at the base which usually contains four or more mammillate

calluses or callus-like structures at the base. Column short. Pollinia sectile or granular. (*Physurus* L. C. Richard in Mem. Mus. Par. 4: 55. 1818. *nomen*).

A genus found in the tropics or subtropics of both hemispheres. The species are difficult to interpret.

Apex of the lip entire or crenate.

Inflorescence secund; apex of the lip crisped.

1. *E. secunda*.

Inflorescence not secund; apex of the lip not crisped.

2. *E. ovatilabia*.

Apex of the lip two or three lobed.

Apex of the lip two-lobed, sometimes obscurely mucronate.

Dorsal sepal about 5.5 mm. long.

2. *E. vesicifera*.

Dorsal sepal about 4 mm. long.

3. *E. lunifera*.

Apex of the lip three-lobed, the terminal lobe strongly reflexed in natural position.

4. *E. quercetica*.

1. ERYTHRODES SECUNDA Ames, Orch. 5: 28. 1915.

*Physurus secundus* Ames, Orch. 2: 260. 1908.

Range: Mexico (Oaxaca).

*Erythrodes secunda* is the most distinctive species of the Mexican *Erythrodes*, lacking any prominent lobes at the apex of the lip.

2. ERYTHRODES OVATILABIA Ames & Correll in Bot. Mus. Leaf. Harv. Univ. 10: 70, t. 5, 1942.

Range: Mexico (Oaxaca) and Guatemala.

Very closely allied to *Erythrodes secunda* Ames.

3. ERYTHRODES VESICIFERA (Reichb. f.) Ames, Orch. 7: 78. 1922.

*Physurus vesicifera* Reichenbach filius in Beitr. Orch. Centr.-Am. 63. 1866.

*Erythrodes mexicana* Ames, Orch. 7: 72. 1922.

Range: Mexico (Chiapas), Guatemala, Costa Rica and Panama.

4. ERYTHRODES LUNIFERA (Schltr.) Ames, Orch. 7: 71. 1922.



*Physurus luniferus* Schlechter in Fedde Repert. 15: 199. 1918.

*Erythrodes chiharrasensis* Ames, Orch. 7: 68. 1922.

Range: Mexico (Vera Cruz and Chiapas), Guatemala, Honduras and Costa Rica.

In addition to the synonyms given above there would seem to be several others which probably belong here.

5. ERYTHRODES QUERCETICOLA (Lindl.) Ames, Orch. 5: 29. 1915.

*Physurus querceticola* Lindley, Gen. & Sp. Orch. Pl. 505. 1840.

*Goodyera querceticola* Chapman, Fl. Southern U. S., ed. 1: 463. 1860.

*Physurus vaginatus* Hooker, Ic. Pl. t. 449. 1842.

*Erythrodes vaginata* Ames, Orch. 5: 29. 1915; Ames, Orch. 7: 77. 1922.

*Physurus Sagraeanus* A. Richard in Sagra Hist. Isla Cuba, Segunda Parte; Hist. Nat. 11: 253, t. 88. 1850.

*Physurus humidicola* Schlechter in Fedde Repert. 15: 198. 1918.

Range: Florida, Louisiana and Texas (U.S.A.) Mexico (Vera Cruz, Jalisco and Nayarit), Guatemala, Honduras, British Honduras, Costa Rica and the West Indies.

In addition to the synonyms given above *Physurus parviflorus* Schlechter may well belong here. There is a record (drawing from the type) in the Ames Herbarium and a specimen in the Gray Herbarium collected by Purpus in the type locality. Unfortunately neither of these permit of definite determination.

*Erythrodes querceticola* is somewhat variable over its range but seems best considered as one species rather than two or several.

#### OBSCURE OR EXCLUDED SPECIES

ERYTHRODES CLAVIGERA (Reichb. f.) Ames, Orch. 7: 70. 1922.

*Physurus claviger* Reichenbach filius in Bonplandia 4: 211. 1856.

PHYSURUS PARVIFLORUS Schlechter in Fedde Repert. 21: 334. 1925.

For discussion of this plant see under *Erythrodes querceticola*, above.

15. TROPIDIA Lindley in Wall. Cat. No. 7386. 1832; Lindley in Bot. Reg. 19: sub t. 1618. 1833.

Slender terrestrial herbs with large plicate leaves. Sepals subequal or the laterals slightly larger, more or less connivent; the laterals forming an inconspicuous mentum. Petals similar to the dorsal sepal. Lip entire, sessile, canaliculate, concave at the base. Column short, straight; rostellum long, erect; pollinia 2, granular. (*Cnemidia* Lindley in Bot. Reg. 19: sub t. 1618. 1833).

A small genus found in the tropics or subtropics of both hemispheres.

1. TROPIDIA POLYSTACHYA (Sw.) Ames, Orch. 2: 262. 1908; Fawcett & Rendle, Fl. Jam. 1: 41, t. 5, f. 15. 1910; Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2: 437. 1918.

*Serapias polystachya* Swartz, Fl. Ind. Occ. 1415. 1799.

*Chloidia vernalis* Lindley, Gen. & Sp. Orch. Pl. 484. 1840.

*Polystachya membranacea* A. Richard in Sagra Hist. Isla de Cuba, Historia Natural, segunda parte, 11: 248. 1853.

*Chloidia polystachya* Reichenbach filius in Walp. Ann. 6: 644. 1863.

*Corymborchis polystachya* O. Kuntze, Rev. Gen. Pl. 2: 658. 1891.

*Tropidia Eatonii* Ames, Contr. Knowl. Orch. So. Florida 14, t. 5. 1904.

Range: Florida (U.S.A.), Mexico (Vera Cruz and San Luis Potosí), Guatemala, Costa Rica, the West Indies and the Galapagos Islands.

Schlechter reports this species from Guatemala and Costa Rica. There are no specimens in the Ames Herbarium from these countries. The species is new to Mexico.

16. CORYMBORCHIS Thouars, Orch. Iles Afr. t. 37, 38. 1822.

Terrestrial herbs with plicate or subplicate leaves and often with branched stems. Sepals and petals connivent into a tube

at the base, usually linear with the petals dilated at the apex. Lip canaliculate, erect from the base of the column and free from it, apex usually dilated and recurved. Column erect, slender, the apex clavate, bilobed; anther erect, acuminate, subequal to the rostellum; pollinia two, granular. (*Corymbis* Thouars, Orch. Iles Afr. t. 37, 38. 1822, is *Coryborchis* by elision).

The Thouars plates, upon which this genus is based, are poorly drawn. Both plates show specimens in fruit and the column is tremendously elongated. The perianth segments are shown as intact but are very short and have the appearance of bracts. In the "Primer Tableau des Espèces" under "m" the name is spelled as *Corcuborchis* and in the same line the name *Corymbis* appears. In the "Tableau des Genres" the name is spelled *Corymborchis*. Again on plate 37 *Corymborchis* and *Corymbis* both appear while on plate 38 there is but the name *Corymbis*. We have accepted the spelling *Corymborchis* because it is in that form that it appears in the "Tableau des Genres" where it is partly characterized.

1. *CORYMBORCHIS FORCIPIGERA* (Reichb. f.) L. O. Williams in Bot. Mus. Leaflet. Harv. Univ. 12: 237. 1946.

*Macrostylis forcipigera* Reichenbach filius in Bonplandia 2: 96. 1854.

*Corymborchis cubensis* Acuña in Bol. Tec. 60, Est. Exp. Agron. Santiago de Las Vegas 51. 1939; emend. Correll in Bot. Mus. Leaflet. Harv. Univ. 8: 125. 1940.

Range: Mexico (Vera Cruz), Guatemala, British Honduras, El Salvador, Costa Rica, the West Indies and Venezuela.

17. *STELIS* Swartz in Schrader, Journ. 2: 239. 1799; Swartz, in Vet.-Akad. Nya Handl. 21: 248. 1800. Conserved name.

Small epiphytic herbs with caespitose or repent stems; secondary stems terminated by a single, usually fleshy and often petiolate leaf. Sepals subequal or the dorsal largest, more or less connate at the base, the laterals sometimes connate to their tips or nearly so. Petals much smaller than the sepals, broad, often flabellate, anterior margin usually thickened. Lip sessile, simple or three-lobed, usually fleshy and about as long as the column. Column short, footless; stigmas confluent or separated. Anther terminal, operculate, incumbent, biloculate;

pollinia two, ceraceous. (*Humboldtia* Ruiz & Pavón, Fl. peruv. et chil. prodr. 121. 1794, non Vahl.).

Column about twice as long as the petals.

7. *S. ovatilabia*.

Column about equal to the petals in length.

Lateral sepals connate to their tips.

1. *S. guatemalensis*.

Lateral sepals not connate to their tips.

Inner surface of the sepals pubescent, pubescence usually short.

Base of the lip with a tuft of hair on either side of the attachment.

6. *S. tenuissima*.

Base of the lip without tufts of hair.

Apex of the lip provided with a short cusp.

5. *S. Endresii*.

Apex of the lip not provided with a cusp.

Anterior half of the lip acuminate or acute; sepals 1-1.5 mm. long.

3. *S. rubens*.

Anterior half of the lip rounded; sepals 2-3 mm. long.

4. *S. ciliaris*.

Inner surface of the sepals glabrous.

Base of the lip provided with a small tuft of hair on either side of the attachment.

6. *S. tenuissima*.

Base of the lip without tufts of hairs.

Anterior half of the lip acute or acuminate.

2. *S. hymenantha*.

Anterior half of the lip rounded, not acute nor acuminate.

Sepals small, mostly about 1 mm. long; leaves less than 4 cm. long, mostly 1-2 cm. long.

8. *S. rufobrunnea*.

Sepals mostly 2 mm. or more long; leaves usually more than 4 cm. long.

9. *S. bidentata*\*

10. *S. purpurascens*\*

11. *S. gracilis*\*

\* These species, which seem to be distinct from an examination of the specimens, do not seem to offer any sharp characters which might be used in a key. *Stelis bidentata* has, usually, linear or linear-oblong leaves and purplish flowers which dry dark brown or black. *Stelis gracilis* usually has the leaves lanceolate or oblanceolate but in some specimens they approach those of *S. bidentata*; the flowers are white or green which usually dry green or straw-colored. *Stelis purpurascens* is usually much the largest of these three species with much larger and broader leaves but in some specimens the leaves approach those of *S. gracilis* in size; the flowers are purple and usually dry brown or black.

1. *STELIS GUATEMALENSIS* Schlechter in Bull. Herb. Boiss. 7: 541. 1899.

*Stelis patula* Schlechter in Fedde Repert. 10: 359. 1912.  
Range: Mexico (Chiapas), Guatemala and Costa Rica.

*Stelis guatemalensis* is new to the flora of Mexico. The lateral sepals of this species are coherent from the base to the tip.

2. *STELIS HYMENANTHA* Schlechter in Fedde Repert. 10: 291. 1912.

Range: Mexico (Guerrero and Chiapas), Guatemala, Costa Rica and Panama.

3. *STELIS RUBENS* Schlechter in Fedde Repert. 8: 564. 1910; Ames in Bot. Mus. Leafl. Harv. Univ. 2: 19, fig. on p. 3. 1934.

*Stelis Liebmannii* Reichenbach filius ex Hemsley in Gard. Chron. ser. 2, 12: 108. 1879, nomen; Reichenbach filius ex Hemsley in Godman & Salvin Biol. Centr.-Am. Bot. 3: 203. 1883.

*Stelis Turckheimii* Schlechter in Fedde Repert. 8: 564. 1910.

Range: Mexico (Vera Cruz and Oaxaca), Guatemala and British Honduras.

4. *STELIS CILIARIS* Lindley in Comp. Bot. Mag. 2: 353. 1836; Ames in Bot. Mus. Leafl. Harv. Univ. 3: 166. 1935, figs. on pp. 166, 167, 169.

*Stelis atropurpurea* Hooker in Bot. Mag. 69: t. 3975. 1842.

*Stelis Bruckmulleri* Reichenbach filius ex Hooker in Bot. Mag. 106; t. 6521. 1880.

*Stelis confusa* Schlechter in Beihefte Bot. Centralbl. 6, Abt. 2: 386, 444. 1918.

*Stelis Jimenezii* Schlechter in Beihefte Bot. Centralbl. 6, Abt. 2: 389, 445. 1918.

Range: Mexico (Vera Cruz), Guatemala, Honduras, British Honduras and Costa Rica.

The plate of *Stelis Bruckmulleri* in the Botanical Magazine seems to indicate that the species belongs here as a synonym.

5. *STELIS ENDRESII* Reichenbach filius in Gard. Chron. 1373. 1870; Ames in Bot. Mus. Leafl. Harv. Univ. 1, No. 9: fig. on p. 9. 1933.

Range: Mexico (Guerrero and Oaxaca), Guatemala (?) and Costa Rica.

*Stelis Endresii* is new to the flora of Mexico.

*Stelis Bernoullii* Schlechter (Fedde Repert. 15: 201. 1918), a species described from Guatemala, is possibly a synonym of *S. Endresii*. If this should prove not to be true then the range extension is from Costa Rica to Mexico.

6. *STELIS TENUISSIMA* Schlechter in Fedde Repert. 15: 204. 1918.

Range: Mexico (Chiapas) and Guatemala.

New to Mexico. There is a small tuft of hairs at either side of the base of the lip; this character is not seen in any other Mexican species.

7. *STELIS OVATILABIA* Schlechter in Fedde Repert. 15: 211. 1918; Ames in Bot. Mus. Leafl. 3: 159, 1935, figs. on pp. 161, 163, 165.

*Stelis cyclopetala* Schlechter in Fedde Repert. Beihefte 19: 279. 1923.

Range: Mexico (Chiapas), Guatemala and Costa Rica.

*Stelis ovatilabia* is unique, among the Mexican species of *Stelis*, in having the column noticeably longer than the petals.

8. *STELIS RUFOBRUNNEA* (Lindl.) L. O. Williams in Bot. Mus. Leafl. Harv. Univ. 7: 188. 1939.

*Pleurothallis rufobrunnea* Lindley. Fol. Orch. Pleurothallis 36. 1859.

Range: Mexico (Jalisco, Michoacán and Oaxaca).

*Stelis rufobrunnea* is the smallest *Stelis* of Mexico and its range is extended farthest to the northwest of any of the Mexican species. It is allied to *Stelis ovatilabia* Schltr.

9. *STELIS BIDENTATA* Schlechter in Fedde Repert. 10: 358. 1912.

Range: Mexico (Vera Cruz and Chiapas), Guatemala and Honduras.

*Stelis bidentata* has not been reported from Mexico or Honduras previously. The species is closely allied to *Stelis parvula* Lindl.

10. *STELIS PURPURASCENS* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 18. 1845.

*Stelis thecoglossa* Reichenbach filius Beitr. Orch. Centr.-Am. 93. 1866.

*Stelis Bourgeavii* Schlechter in Fedde Repert. 9: 284. 1911.

*Stelis curvata* Schlechter in Fedde Repert. 10: 358. 1912.

*Stelis Purpusii* Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2: 391. 1918.

*Stelis Carioi* Schlechter in Fedde Repert. 15: 202. 1918.

*Stelis fulva* Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2: 388. 1918.

Range: Mexico (Vera Cruz, Puebla, Oaxaca and Chiapas), Guatemala, Honduras, El Salvador and Costa Rica.

*Stelis purpurascens* is a wide spread and variable species which has received several specific names. Those names which have been applied to Mexican or Guatemala specimens are given above. The nervation of the sepals is quite variable; they have been observed with three, four, five and six nerves.

11. *STELIS GRACILIS* Ames, Orch. 2: 266. 1908.

Range: Mexico (Oaxaca), Guatemala, Honduras, Nicaragua and Costa Rica.

*Stelis gracilis* is new to Mexico.

18. *PHYSOSIPHON* Lindley Bot. Reg. 21: sub. t. 1797. 1836.

Small epiphytic herbs, the secondary stems terminated by a single leaf. Sepals connate at the base into an (usually) inflated tube, free above and spreading, not caudate. Petals very small compared to the sepals, in the base of the tube of the calyx. Lip small, articulated to the base (or foot) of the column, entire or three-lobed (in ours), fleshy. Column small, subterete, slightly arcuate; clinandrium short, three-lobed. Anther terminal, incumbent, operculate; pollinia two, ceraceous.

*Physosiphon* is closely allied to *Masdevallia* and a little less so to *Stelis*. Summerhayes (Bot. Mag. 156: t. 9325. 1933) has suggested that "As constituted at present *Physosiphon* is an assemblage of very diverse elements, some of which should probably be separated as distinct genera". Our species is the type of the genus.

1. *PHYSOSIPHON TUBATUS* (Lodd.) Reichenbach filius in Walp. Ann. 6: 18. 1861.

*Stelis tubatus* Loddiges, Bot. Cab. t. 1601. 1830.

*Physosiphon Loddigesii* Lindley, Bot. Reg. 21: sub t. 1797. 1835; Hooker in Bot. Mag. 81: t. 4869. 1855.

*Physosiphon carinatus* Lindley, Bot. Reg. 24: misc. p. 72. 1838.

*Physosiphon ochracea* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 17. 1845.

*Physosiphon Lindley* Rolfe in Kew Bull. 61. 1893; Summerhayes in Bot. Mag. 156; t. 9325. 1933.

*Physosiphon Moorei* Hort. in Kew Hand List Orch. Pl. ed. 1, 189. 1896; Rolfe in Orch. Rev. 5: 133. 1897; Rolfe in Orch. Rev. 17: 266. 1909.

Range: Mexico (Vera Cruz, Puebla, Mexico, Michoacan, Colima, Guerrero, Oaxaca and Chiapas) and Guatemala.

*Physosiphon tubatus* is a rather variable species and one in which it does not seem possible to find solid distinctions whereby one may maintain the several species which have been proposed. The color of the flowers varies from greenish to brick-red. The petals vary from cuneate-truncate to oblanceolate-acute and to forms which are distinctly three-lobed. The lip varies but little and this is mainly minor variation in the mid-lobe which may have the margin entire to sublacerate and the surface smooth or papillose. The calyx varies from 6-22 mm. in length.

19. *MASDEVALLIA* Ruiz & Pavon, Fl. Peru. & Chil. Prodr. ed. 1: 122, t. 27. 1794; and ed. 2: 110, t. 27. 1797.

Epiphytic herbs, the secondary stems terminated by a single leaf. Sepals connate or connivent into a tube at the base for considerable distance, the free portions often spreading, the tips usually caudate but sometimes not or only



obscurely so. Petals very much smaller than the sepals, usually narrow. Lip small, articulated to the column-foot, about as produced into a short foot. Anther terminal, operculate, incumbent, 1-celled; pollinia two, ceraceous.

A rather large genus occurring in Central and South America with but one species known to Mexico; other species may be expected in Chiapas or adjacent states. Once very popular with orchid fanciers, some of the rare or more beautiful species commanded fabulous prices.

1. *MASDEVALLIA FLORIBUNDA* Lindley Bot. Reg. 29: Misc. p. 72. 1843; Kränzlin in Fedde Repert. Beih. 34: 97. 1925; Woolward, *Masdevallia* 133, t. 1893.

*Masdevallia Galeottiana* A. Richard in Ann. Sci. Nat. ser. 3, 3: 17. 1845.

*Masdevallia Lindeniana* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 17. 1845.

*Masdevallia myriostigma* Morren in Belg. Hort. 23: 361. 1873, t. 23, as *myriostigma*.

*Masdevallia Tuerckheimii* Ames, Orch. 2: 265. 1908. Range: Mexico (Vera Cruz), Guatemala and Honduras.

Miss Woolward was of the opinion that Lindley described *Masdevallia floribunda* from material collected in Mexico by Galeotti and grown in Mexico.

20. *LEPANTHES* Swartz in Nova Acta Soc. Sci. Upsal. 6: 85. 1799; in Svensk. Vet.-Acad. Handl. 21: 249. 1800.

Small repent or caespitose epiphytic herbs. Stems (secondary stems) generally unifoliate, with several loose, often ciliate and pubescent, sheaths below. Leaves coriaceous. Inflorescence terminal, 1 or few from the base of the leaves, the flowers small, often distichous. Sepals subequal, often more or less connate at the bases or the laterals connate nearly to their apices. Petals shorter than the sepals, bipartite or transversely bilobed, usually short-unguiculate and adnate to the column. Lip bilobed or sometimes trilobed, with the midlobe small and inconspicuous, adnate to the column, the lobes usually appearing as wings. Column short, footless, wingless, dilated at the apex; anther terminal, operculate, incumbent; pollinia 2, waxy.

An easily distinguished genus with many closely allied and poorly defined species.

Dr. Richard E. Schultes and Gordon W. Dillon have had a treatment of the Mexican species of *Lepanthes* in manuscript for several years. They have distinguished ten species of the genus for Mexico, of which five are said to be new. In the following list we give five species, indicating the other five without names. A key to the species is difficult to make because half of the entities are without published names; in place of the key a list of exsiccatae is given by collector and number.

1. *LEPANTHES AVIS* Reichb. f., *Xenia Orch.* 1: 144, t. 50, II, 5-7. 1856.

Range: Mexico (Vera Cruz).

Exsiccatae: Von Kirchmar s.n.; Purpus 1355.

2. *LEPANTHES OREOCHARIS* Schlechter in Fedde *Repert.* 10: 483. 1912.

Range: Mexico (Chiapas and Guerrero) and Guatemala.

Exsiccatae: Hinton 1744; Juan González 1060; Matuda 1688; Wend s.n.

3. *LEPANTHES PRISTIDIS* Reichb. f. in *Linnaea* 22: 820. 1849; *Xenia Orch.* 1: 151, t. 50, figs. IV, 11-14.

Range: Mexico (Vera Cruz) and perhaps Cuba.

Exsiccatae: Leibold s.n.; Sartorius s.n.; Schaffner 51.

4. *LEPANTHES REKOI* R. E. Schultes in *Bot. Mus. Leaflet.* Harv. Univ. 6: 193. 1938.

Range: Mexico (Puebla and Oaxaca).

Exsiccatae: Juan González 2415; Schultes 817; Schultes & Reko 336.

5. *LEPANTHES SCHIEDEI* Reichb. f. in *Linnaea* 22: 820. 1849; *Xenia Orch.* 1: 144, t. 50, figs. I, 1-4. 1856.

Range: Mexico (Vera Cruz and Chiapas).

Exsiccatae: Matuda 1595; Schiede s.n.; Schultes 1012.

6. *LEPANTHES* SP.

Range: Mexico (Vera Cruz).

Exsiccata: Müller s.n.

## 7. LEPANTHES SP.

Range: Mexico (Chiapas).

Exsiccata: Matuda 1595 in part.

## 8. LEPANTHES SP.

Range: Mexico (Vera Cruz).

Exsiccata: Nagel 2657.

The manuscript name applied to the entity honors Mr. Ostlund.

## 9. LEPANTHES SP.

Range: Mexico (Chiapas).

Exsiccata: Nagel &amp; Monzón 6754.

## 10. LEPANTHES SP.

Range: Mexico (Oaxaca).

Exsiccata: Nagel &amp; Juan González 6441.

21. PLEUROTHALLIS R. Brown in Aiton, Hort. Kew. ed. 2, 5: 211. 1813; Lindley, Folia Orch. Pleurothallis 1859.

Small to medium sized epiphytic herbs with caespitose or repent primary stems. Inflorescence terminal or rarely pseudoradical. Sepals subequal, erect or spreading; dorsal sepal free or connate with the lateral sepals for a short distance, apex sometimes clavellate; lateral sepals from nearly free to connate to their tips, often gibbous at the base. Petals usually shorter and narrower than the sepals, apices plain or clavellate. Lip simple or three-lobed, shorter or about as long as or sometimes longer than the petals, often unguiculate. Column about as long as or shorter than the lip, winged or wingless, produced into a foot or footless at the base; column-foot, when present, from short to as long as the column. Anther terminal, operculate, incumbent; pollinia two or four, ceraceous. (*Restrepia* Humboldt, Bonpland & Kunth, Nov. Gen. ac Sp. Pl. 1: 366, t. 94. 1816; *Kraenzlinella* O. Kuntze in Post & Kuntze Gen. Phan. 310. 1904; *Platystele* Schlechter in Fedde Repert. 8: 565. 1910.)

Pleurothallis is a large new world genus with many diverse forms. The division of the genus most often used is that which was proposed by Pfitzer (In Engler & Prantl, Naturl. Pflanz.

zenf., Nachtrage zu Teil II-IV (1897) 105) but that is wholly artificial and quite impossible to use. The separations used here are quite as artificial as those of Pfitzer and have nothing to recommend them except, as far as the Mexican species are concerned, they are convenient even though they are not absolute in one or two cases. Further, it may cause closely allied species to be widely separated.

A. Column with a distinct foot.

W. Apices of the petals or of the dorsal sepal not clavellate.

X. Sheaths not appressed to the stems, ciliate.

I. Series LEPANTHIFORMES

XX. Sheaths appressed to the stems and the margins glabrous or if not appressed to the stems then the margins glabrous.

Y. Inflorescence exceeded by the subtending leaf, 1-flowered, fasciculated or racemose.

II. Series BRACHYSTACHYEA

YY. Inflorescence exceeding the subtending leaf, 1-flowered or racemose.

III. Series ELONGATAE

WW. Apices of the petals and of the dorsal sepal clavellate.

V. Series RESTREPIAE

AA. Column footless.

IV. Series PLATYSTELE

I. Series LEPANTHIFORMES. A small group of species which are easily distinguished by the sheaths not being appressed to the stems and they are ciliate. The inflorescence in our species is racemose and either exceeds or is exceeded by the subtending leaf. The secondary stem of *P. Broadwayi* Ames may bear more than one leaf at a time.

A. Inflorescence surpassing the subtending leaf.

B. Secondary stems elongated, usually bearing more than one leaf.

1. *P. Broadwayi*.

BB. Secondary stems short, with only one leaf.

2. *P. Pringlei*.

AA. Inflorescence shorter than the subtending leaf.

C. Lip with a furcate callus-thickening extending from near the base to beyond the middle; arms of the cup-shaped rostellum short, blunt; leaves narrowly elliptic to lanceolate; stems fractiflex.

3. *P. ciliaris*.

CC. Lip thin, callused only at the base; arms of the cup-shaped rostellum long, rounded; leaves elliptic-lanceolate to narrowly oval; stems straight.

4. *P. Blaisdellii*.

II. Series BRACHYSTACHYEA. Plants in which the inflorescence is exceeded by the subtending leaf and with the sheaths of the stems not ciliate. Inflorescence a single flower, a fascicle of flowers, a raceme

or a fascicle of racemes. A series which, possibly, has no phylogenetic value but one of value in separating and keying species of this vast genus.

A. Pollinia 4 (plants with, usually, a single large flower).

5. *P. ophiocéphala*.

AA. Pollinia 2.

B. Leaves cordate; flowers usually one or few, fasciculate.

C. Lip with two long ciliate lateral lobes; pedicel 2 cm. or more long.

6. *P. Nelsonii*.

CC. Lip without long ciliate lateral lobes; pedicel mostly less than 1 cm. long.

D. Sepals about 10 mm. or more long.

9. *P. cardiothallis*.

DD. Sepals less than 8 mm. long.

E. Lateral sepals adnate to their tips.

7. *P. pansamalae*.

EE. Lateral sepals free for a short distance at their tips.

8. *P. Matudiana*.

BB. Leaves not cordate; flowers one, a few-flowered fascicle or a raceme.

F. Flower fascicled, one or few.

G. Ovary echinate.

13. *P. tribuloides*.

GG. Ovary not echinate.

H. Plants repent.

I. Leaves lanceolate to lanceolate-elliptic; secondary stems about as long as the leaves.

10. *P. Carioi*.

II. Leaves linear-lanceolate; secondary stem much shorter than the leaves.

12. *P. sertularioides*.

HH. Plants caespitose.

J. Secondary stems much shorter than the leaves.

K. Petals abruptly acuminate, entire or only minutely serrulate.

11. *P. oblancoolata*.

KK. Petals not acuminate, serrulate.

14. *P. minutalis*.

JJ. Secondary stems about as long or longer than the leaves.

\*. Disc of the lip concave.

17. *P. saccatilabia*.

\*\* . Disc of the lip not concave.

L. Leaves usually less than 15 mm. broad.

16. *P. obscura*.

LL. Leaves usually more than 20 mm. broad.

15. *P. octomerioides*.

- FF. Inflorescence racemose, few-several-flowered.
- M. Blade of the lip cordate, more or less constricted toward the middle; claw about as long as the blade.
- N. Dorsal sepal 10 mm. or more long; sepals striated.  
19. *P. aristocratica*.
- NN. Dorsal sepal usually less than 7 mm. long.  
18. *P. hieroglyphica*.
- MM. Blade of the lip not cordate; claw not about as long as the blade.
- O. Blade of the lip sagittate, with a single median callus at the base.  
21. *P. violacea*.
- OO. Blade of the lip not sagittate; calluses various.
- P. Sepals pubescent externally.
- Q. Rachis of the inflorescence adnate to the leaf.  
22. *P. circumplexa*.
- QQ. Rachis of the inflorescence free from the leaf.
- R. Lip with a pair of small lobules toward the base.  
23. *P. vittata*.
- RR. Lip without lobules toward the base.
- S. Petals serrulate.  
24. *P. chrysantha*.
- SS. Petals entire.  
25. *P. breviflora*.
- PP. Sepals glabrous externally.
- T. Secondary stems much shorter than the leaves; flowers very small.
- U. Lip linear, with two membranaceous auricles at the base.  
11. *P. oblancoolata*.
- UU. Lip oval or oblong, without membranaceous auricles at the base.
- V. Lip with marginal calluses; sepals 3-4 mm. long; flowers almost black.  
29. *P. nigriflora*.
- VV. Lip without marginal calluses; sepals mostly about 2 mm. long; flowers orange or yellow.  
30. *P. stenostachya*.
- TT. Secondary stems not much shorter than the leaves, usually nearly as long or longer.
- W. Lip with a single callus near the attachment of the claw, often obscure.
- X. Lip subquadrate, surface not echinate.  
27. *P. unguicallosa*.
- XX. Lip broadly lanceolate, upper surface minutely echinate.  
28. *P. eximia*.

WW. Lip with more than one or without calluses, none alone near the claw.

Y Petals oblong, oblique; one raceme from the axis of each leaf.

26. *P. xerophila*.

YY. Petals obovate or broadly clavate, oblique; racemes 1-5 from the axis of each leaf.

20. *P. Oestlundiana*.

III. Series ELONGATAE. Plants in which the inflorescence exceeds the subtending leaves in length. Inflorescence is a single flower to a many-flowered raceme. Leaf sheaths not ciliate. A series of species having the character of the elongated inflorescence in common but not necessarily closely allied one to another.

A. Leaves at least twice as long as the secondary stems, usually many times longer.

B. Lateral lobes of the lip large, parallel to the mid-lobe.

39. *P. segoviensis*.

BB. Lateral lobes of the lip none or small, if present then not parallel to the mid-lobe.

C. Sepals with long hyaline, clavellate pubescence on the margins.

40. *P. Schiedeii*.

CC. Sepals without hyaline, clavellate pubescence on the margins.

a. Leaves terete; ovaries echinate.

43a. *P. Hintonii*.

aa. Leaves not terete; ovaries not echinate.

D. Leaves more than 15 mm. broad; plant relatively large.

F. Lateral sepals adnate for more than half their length.

44. *P. immersa*.

FF. Lateral sepals free nearly to their bases.

G. Ovary muricate.

42. *P. muricata*.

GG. Ovary smooth.

H. Raceme strongly fractiflex.

41. *P. Pjavii*.

HH. Raceme not strongly fractiflex.

43. *P. crenata*.

DD. Leaves less than 10 mm. broad; plant relatively small.

I. Lip hastate.

36. *P. hastata*.

II. Lip not hastate.

J. Dorsal sepal saccate at the tip.

31. *P. calyptrosepala*.

JJ. Dorsal sepal not saccate at the tip.

K. Leaves linear.

37. *P. glandulosa*.

- KK. Leaves not linear, broader.
- L. Lateral sepals free nearly to the base, or at least more than half way.
  - M. Lip ciliate; petals subrhombic. 33. *P. involuta*.
  - MM. Lip eciliate; petals linear-lanceolate. 35. *P. yucatanensis*.
  - LL. Lateral sepals connate to their tips or nearly so, usually emarginate.
  - O. Lip ciliate. 32. *P. abjecta*.
  - OO. Lip eciliate.
    - P. Petals obtuse; inflorescence usually a few-flowered raceme. 34. *P. Grobyi*.
    - PP. Petals acute; inflorescence usually 1-flowered. 38. *P. corniculata*.
- AA. Leaves much less than twice as long as the secondary stems, usually about the same length or a little longer or shorter.
- b. Lateral sepals long hirsute on the inner surface. 45. *P. hirsuta*.
  - bb. Lateral sepals not hirsute on the inner surface.
    - c. Lateral sepals free about half or more than half way to their bases.
      - d. Petals acute; lateral sepals free nearly to their bases. 47. *P. dolichopus*.
    - dd. Petals obtuse; lateral sepals free about half way to their bases.
      - e. Petals 1-nerved; lip distinctly 3-lobed. 49. *P. longispicata*.
      - ee. Petals 3-nerved; lip not distinctly 3-lobed. 48. *P. platystylis*.
  - cc. Lateral sepals connate to their tips or nearly to their tips.
    - f. Lip with membranaceous basal auricles; sepals mostly about 15 mm. or more long.
      - g. Spathe subtending the inflorescence very large, mostly more than 3 cm. long. 53. *P. Turckheimii*.
      - gg. Spathe subtending the inflorescence small, mostly less than 1 cm. long. 52. *P. pachyglossa*.
    - ff. Lip lacking membranaceous auricles at the base; sepals mostly less than 10 mm. long.
      - h. Leaves mostly less than 5 cm. long; sepals purple maculated. 46. *P. resupinata*.
      - hh. Leaves mostly more than 7 cm. long; sepals not purple maculated.
        - i. Petals oblong-obovate, apices crenulate; flowers maroon. 50. *P. Liebmanniana*.



- ii. Petals lanceolate-ovate, apices entire; flowers yellow or yellowish-green.
- j. Clinandrium entire or merely crenate; flowers not cleistogamous.

51. *P. Ghiesbreghtiana*.

- jj. Clinandrium deeply 3-lobed; flowers cleistogamous.

51a. *P. Ghiesbreghtiana*  
var. *cleistogama*.

IV. Series PLATYSTELE. Two species in Mexico and but one or two others. They are distinguished by the short footless column and, among the Mexican *Pleurothallis*, by the truly repent habit.

Petals elliptic, obtuse or acute.

54. *P. Halbingeriana*.

Petals linear-lanceolate, acuminate.

55. *P. lancilabris*.

V. Series RESTREPIAE. A single species in Mexico but with several others distributed as far south as Argentina. The group is distinguished by the petals and the dorsal sepal usually being clavellate. Sheaths of the secondary stems usually maculate.

A single species in Mexico.

56. *P. xanthophthalma*.

1. PLEUROTHALLIS BROADWAYI Ames, Orch. 2: 267, fig. 1908.

*Pleurothallis guadalupensis* Cogniaux in Urban Symb. Antill. 6: 432. 1909.

*Pleurothallis Williamsii* Ames, Orch. 7: 120. 1922; Ames, Sched. Orch. 7: 31, t. 15. 1924, in part.

Range: Mexico (Oaxaca), Honduras, Costa Rica, Panama, the West Indies and Venezuela (Island of Margarita).

*Pleurothallis Broadwayi* is new to the flora of Mexico. It is one of the comparatively few species of the genus which bear more than one leaf on the secondary stems at one time and hence is quite distinctive.

2. PLEUROTHALLIS PRINGLEI Schlechter in Fedde Repert. 3: 20. 1906.

Range: Mexico (Oaxaca, Guerrero).

*Pleurothallis Pringlei* is a rare plant.

3. PLEUROTHALLIS CILIARIS (Lindl.) L. O. Williams in *Caldasia* No. 5: 14. 1942.

*Specklinia ciliaris* Lindley in Bot. Reg. 24: Misc. p. 31. 1839.

*Pleurothallis lepanthiformis* Reichenbach filius in Linnaea 18: 398. 1844.

*Pleurothallis Purpusii* Schlechter in Orchis 9: 49, t. 4, f. 1-6. 1915.

Range: Mexico (Vera Cruz, San Luis Potosí, Guerrero an Oaxaca), Guatemala, Honduras and Costa Rica.

*Pleurothallis ciliaris* has been generally treated as a synonym of *Pleurothallis villosa* Knowles & Westcott and Lindley treated it thus in Folia Orchidacea. However, the description of *P. villosa* would seem to exclude *P. ciliaris*. I have been able to secure no authentic drawing of *P. villosa* and until the plant can be definitely identified it is better not to apply the name in a dubious connection. I have studied no Mexican *Pleurothallis* which seems to answer the description of *P. villosa*.

4. PLEUROTHALLIS BLAISDELLII S. Watson in Proc. Am. Acad. 23: 284. 1888; Schweinfurth in Bot. Mus. Leaf. Harv. Univ. 3: 43. 1934.

*Pleurothallis peraltensis* Ames, Sched. Orch. 6: 65. 1923.

Range: Mexico (Vera Cruz and Guerrero), Guatemala, British Honduras, Honduras and Costa Rica.

*Pleurothallis Blaisdellii* is new to Mexico.

5. PLEUROTHALLIS OPHIOCEPHALA Lindley in Bot. Reg. 24: Misc. p. 34. 1838; Lindley, Fol. Orch. Pleurothallis p. 17. 1859; Stapf in Bot. Mag. 152: t. 9128. 1928.

*Pleurothallis puberula* Klotzsch in Allgem. Gartenz. 22: 393. 1854.

*Restrepia ophiocephala* Reichenbach filius in Bonplandia 2: 88. 1854.

*Pleurothallis stigmatoglossa* Reichenbach filius ex Lindley, Fol. Orch. Pleurothallis p. 18, 1859. *nomen*.

Range: Mexico (Vera Cruz, Guerrero, Oaxaca and Chiapas), Guatemala and Costa Rica.

A curious species with, usually, a single-flowered inflorescence, the flower rather large. The plant has four pollinia, a rather unusual condition but one which should not be used to exclude the species from *Pleurothallis*.

6. *PLEUROTHALLIS NELSONII* Ames, Sched. Orch. 4: 22. 1923; Sched. Orch. 7: 29, t. 16. 1924.

Range: Mexico (Chiapas).

A rather rare but distinctive species allied to *P. arietina* Ames.

7. *PLEUROTHALLIS PANSAMALAE* Schlechter in Fedde. Repert. 10: 354. 1912.

*Pleurothallis pansamalae* var. *triangulabia* Correll in Lloydia 10: 210. 1947.

Range: Mexico (Guerrero and Chiapas), British Honduras, Guatemala and Honduras.

The lip of this species varies from ovate to transversely oval or subtriangular.

8. *PLEUROTHALLIS MATUDIANA* C. Schweinfurth in Bot. Mus. Leafl. Harv. Univ. 5: 102. 1938.

Range: Mexico (Chiapas) and Guatemala.

9. *PLEUROTHALLIS CARDIOTHALLIS* Reichenbach filius in Bot. Zeit. 15: 158. 1857.

*Pleurothallis acutipetala* Schlechter in Fedde Repert. 10: 353. 1912.

*Pleurothallis costaricensis* Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2: 395. 1918, non Rolfe.

*Pleurothallis Schlechteriana* Ames, Sched. Orch. 2: 24. 1923.

Range: Mexico (Chiapas), Guatemala, Honduras, Nicaragua and Costa Rica.

*Pleurothallis cardiorthallis* is new to the flora of Mexico.

10. *PLEUROTHALLIS CARIOI* Schlechter in Fedde Repert. 15: 205. 1918.

Range: Mexico (Tamaulipas and Vera Cruz), Guatemala, British Honduras, Honduras.

*Pleurothallis Carioi* is new to the flora of Mexico.

11. *PLEUROTHALLIS OBLANCEOLATA* L. O. Williams in Bot. Mus. Leafl. Harv. Univ. 12: 241. 1946.

Range: Mexico (Chiapas).

*Pleurothallis oblanceolata* is a small species allied to *P. minutalis* Lindley.

12. PLEUROTHALLIS SERTULARIOIDES (Sw.) Sprengel, Syst. Veg. 3: 721. 1826.

*Epidendrum sertularioides* Swartz, Nov. Gen. & Sp. Pl. Prodr. 122. 1788.

?*Pleurothallis tenuissima* Reichenbach filius in Linnaea 18: 399. 1844; Lindley, Folia Orch. Pleurothallis p. 42. 1859.

Range: Mexico (Oaxaca), Guatemala, Honduras and the West Indies.

No material of *Pleurothallis tenuissima* Reichb. f., except the records from Reichenbach's herbarium, has been seen. These records are not satisfactory for certainty as to the species' proper disposal. Lindley remarked that "This is very near *P. sertularioides*, if not a narrow leaved form of the same".

13. PLEUROTHALLIS TRIBULOIDES (Sw.) Lindley, Gen. & Sp. Orch. Pl. 6: 1830, Folia Orch. Pleurothallis p. 39. 1859; Kränzlin in Xenia Orch. 3: 131, t. 275, f. III, 14-19. 1894.

*Epidendrum tribuloides* Swartz, Nov. Gen. & Sp. Prodr. 123. 1788.

*Dendrobium tribuloides* Swartz, Fl. Ind. Occ. 1535. 1799.

*Pleurothallis fallax* Reichenbach filius in Bonplandia 3: 244. 1855.

*Pleurothallis spathulata* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 17. 1845, fide Lindley.

*Cryptophoranthus acaulis* Kränzlin in Fedde Repert. Beihefte 34: 232. 1925.

Range: Mexico (Vera Cruz and San Luis Potosí), British Honduras, Guatemala, Honduras, Costa Rica, Panama and the West Indies.

*Pleurothallis tribuloides* is the only small species of Pleurothallis occurring in Mexico which has echinate ovaries.

14. PLEUROTHALLIS MINUTALIS Lindley, Fol. Orch. Pleurothallis p. 40. 1859.

*Pleurothallis crassifolia* Reichenbach filius in Linnaea 22: 832. 1849; Reichenbach filius, Xenia Orch. 1: 174.

1856, t. 60, f. VI, 10-12, non Focke.

Range: Mexico (Guerrero and Jalisco).

One of the smallest of the Mexican species of *Pleurothallis*. Although Lindley indicated that the species is caespitose, and Reichenbach's figure shows it thus, both of the specimens at hand indicate that it is repent. A specimen from Jalisco, *Nagel & Monzón 6338* differs from the other specimens in having several 1-flowered peduncles from the axis of the leaf instead of but one.

15. *PLEUROTHALLIS OCTOMERIOIDES* Lindley in *Comp. Bot. Mag.* 2: 354. 1836.

Range: Mexico (Guerrero).

A rare species of which specimens collected by Nagel and Nagel and Juan G. were the first representatives of the species in the Ames Herbarium. They correspond well with Lindley's original.

16. *PLEUROTHALLIS OBSCURA* Richard & Galeotti in *Ann. Sci. Nat.* ser. 3, 3: 17. 1845.

*Pleurothallis bilamellata* Reichenbach filius in *Linnaea* 22: 830. 1849; Reichenbach filius in *Saund. Ref. Bot.* 2: t. 95. 1869.

*Pleurothallis rufa* Rolfe in *Kew Bull.* 192. 1898.

Range: Mexico (Vera Cruz and San Luis Potosí).

The discussion by Reichenbach in Saunders' *Ref. Bot.* leaves but little doubt that his *P. bilamellata* is the same as *P. obscura*.

*Pleurothallis rufa* Rolfe, according to a record of the type in Ames Herbarium, must certainly belong here. Although Rolfe indicated that the plant belongs in the section *Aggregatae* he compared it with a species which should be placed in another section according to the system that he used for the grouping of the genus.

17. *PLEUROTHALLIS SACCATILABIA* C. Schweinfurth in *Bot. Mus. Leafl. Harv. Univ.* 8: 43, fig. on p. 59. 1940.

Range: Mexico (Chiapas).

*Pleurothallis saccatilabia* is allied to *P. leucantha* Schltr., a Guatemalan species. The type is a poor specimen, however the single dissectable flower shows a peculiar lip form not

known in any other species of Mexican or Central American *Pleurothallis*.

18. *PLEUROTHALLIS HIEROGLYPHICA* Ames, Orch, 2: 269, fig. 1908.

Range: Mexico (Mexico, Morelos, Michoacan and Guerrero).

The type of this species is from specimens sent by Pringle to Ames who grew them in his greenhouse and described the species from living material. The state of origin of the species is not indicated.

19. *PLEUROTHALLIS ARISTOCRATICA* L. O. Williams in Bot. Mus. Leafl. 12: 237. 1946.

Range: Mexico (Guerrero).

*Pleurothallis aristocratica* is similar to *P. hieroglyphica* except that the flowers are about twice as large in all parts, the disk of the lip has four calluses instead of two and the sepals are striated instead of mottled.

20. *PLEUROTHALLIS OESTLUNDIANA* L. O. Williams in Bot. Mus. Leafl. Harv. Univ. 12: 243. 1946.

Range: Mexico (Morelos and Guerrero).

21. *PLEUROTHALLIS VIOLACEA* Richard & Galeotti in Ann. Sci. Nat. ser. 2, 2: 16. 1845; Lindley, Folia Orch. Pleurothallis p. 39. 1859.

*Pleurothallis rhynchoglossa* Schlechter in Orchis 9: 91, t. 6, f. 8-15. 1915.

Range: Mexico (Vera Cruz) and Guatemala.

*Pleurothallis violacea* is an easily distinguished species because of the sagittate lip with one plate-like callus at the base.

22. *PLEUROTHALLIS CIRCUMPLEXA* Lindley, Bot. Reg. 24: Misc. p. 24. 1838.

*Pleurothallis mesophylla* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 16. 1845.

Range: Mexico (Vera Cruz, Guerrero and Oaxaca), Guatemala and Costa Rica.

*Pleurothallis circumplexa* is allied to *P. vittata* Lindl. in floral structure. The rachis of the inflorescence is adnate to the surface of the leaf, sometimes to near the middle of the leaf; it is the only Mexican species showing this character. The inflorescence is a short few-flowered raceme.

23. PLEUROTHALLIS VITTATA Lindley in Bot. Reg. 24: Misc. p. 73. 1838.

*Pleurothallis polystachya* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 16. 1845; Finet in Not. Syst. 22: 23. 1911.

*Pleurothallis mandibularis* Kränzlin in Saertryk. af Vid. Medd. Naturh. foren. 71: 169. 1920.

*Pleurothallis Bourgeaui* Kränzlin in Ark. Bot. 16: 15. 1920.

Range: Mexico (Vera Cruz), Honduras, Panama and (?) Venezuela.

Through the kindness of Dr. O. Hagerup, Universitetets Botaniske Museum, Copenhagen, the type of *Pleurothallis mandibularis* was loaned for study. The type is a specimen in liquid.

An isotype of *Pleurothallis Bourgeaui* in the Gray Herbarium is immature but leaves little doubt that the species belongs here.

24. PLEUROTHALLIS CHRYSANTHA Lindley, Folia Orch. Pleurothallis p. 14. 1859.

*Pleurothallis hartwegiaefolia* Wendland & Kränzlin in Xenia Orch. 3: 165, t. 296, figs. I, II, 1-6. 1900.

Range: Mexico (Mexico, Michoacan, Guerrero and Oaxaca).

A distinctive species with very thick leaves and a very short racemose inflorescence which sometimes appears to be fasciated. The species is as yet known only from the Pacific slope of Mexico.

25. PLEUROTHALLIS BREVIFLORA Lindley in Bot. Reg. 27: p. 59. 1841.

Range: Mexico (state not known).

No specimens of this species have been seen and we have only a photograph of the type and of Lindley's drawing. The species would seem to be allied to *P. chrysantha* Lindley.

26. *PLEUROTHALLIS XEROPHILA* Schlechter in Beihefte Bot. Centralbl. 36, Abt. 2: 398. 1918.

Range: Mexico (Chihuahua ?).

An analytical drawing and a sketch of the habit of this species is all that has been at our disposal. The plant seems to be allied to *P. unguicallosa* Ames & Schweinfurth.

27. *PLEUROTHALLIS UNGUICALLOSA* Ames & Schweinfurth in Proc. Biol. Soc. Wash. 43: 195. 1930.

Range: Mexico (Revillagigedo Islands).

*Pleurothallis unguicallosa* is probably the westernmost species of the genus. It was collected approximately 400 miles from the nearest know station for the genus. Although the plant is described as having the callus on the claw and derives its name from that most unusual character, the callus seems actually to be on the base of the lip.

28. *PLEUROTHALLIS EXIMIA* L. O. Williams in Am. Orch. Soc. Bull. 11: 168, t. 5. 1942.

Range: Mexico (Oaxaca).

29. *PLEUROTHALLIS NIGRIFLORA* L. O. Williams in Am. Orch. Soc. Bull. 11: 166, t. 5. 1942.

Range: Mexico (Morelos).

The flowers of this species come nearest to being black of those of any orchid which we know.

30. *PLEUROTHALLIS STENOSTACHYA* Reichenbach filius in Linnaea 18: 399. 1844; Lindley, Folia Orch. Pleurothallis p. 25. 1859.

*Pleurothallis dubia* Richard & Galeotti in Ann. Sci. Nat. ser. 3, 3: 16. 1845; Lindley, Folia Orch. Pleurothallis p. 39. 1859.

*Pleurothallis minutiflora* S. Watson in Proc. Am. Acad. 23: 286. 1888.

*Pleurothallis myriantha* Lehmann & Kränzlin in Engl. Bot. Jahrb. 26: 445. 1899.

Range: Mexico (Vera Cruz), British Honduras, Guatemala, Honduras, Costa Rica and Panama.

Although this species should be found in some of the



southern states of Mexico all of the specimens that have been seen have been collected in Vera Cruz.

31. *PLEUROTHALLIS CALYPTROSEPALA* L. O. Williams in Am. Orch. Soc. Bull. 11: 65, t. 2. 1942.

Range: Mexico (Chiapas).

*Pleurothallis calyptrorsepala* is distinguished from all of the Mexican species of the genus by having the tip of the dorsal sepal calyptriform.

32. *PLEUROTHALLIS ABJECTA* Ames, Sched. Orch. 2: 17. 1923; Ames, Sched. Orch. 7: 25, t. 5. 1924, in part.

Range: Mexico ? (Nayarit), Guatemala, Honduras and Costa Rica.

There is a note in the Ames Herbarium, made by Schweinfurth, that this species occurs in Mexico but that "it differs from the typical form in having more elliptic leaves, less congested flowers and more fimbriated petals". These comments seem to indicate that another species may have been in hand.

33. *PLEUROTHALLIS INVOLUTA* L. O. Williams in Bot. Mus. Leafl. Harv. Univ. 12: 239. 1946.

Range: Mexico (Michoacan).

A minute plant allied to *P. abjecta* Ames but distinguished by smaller flowers, differently shaped petals and in smaller, differently shaped leaves.

34. *PLEUROTHALLIS GROBYI* Bateman ex Lindley in Bot. Reg. 21: t. 1797. 1835; Hooker in Bot. Mag. 65: t. 3682. 1838.

*Pleurothallis picta* Lindley in Bot. Reg. 21: sub t. 1797. 1835; and 21: t. 1825. 1836.

*Pleurothallis marginata* Lindley in Bot. Reg. 24: Misc. p. 42. 1838; Schweinfurth in Bot. Mus. Leafl. Harv. Univ. 3: 43. 1934.

*Pleurothallis choconiana* S. Watson in Proc. Am. Acad. 23: 285. 1888.

*Pleurothallis pergracilis* Rolfe in Kew Bull. 334. 1893.

*Pleurothallis panamensis* Schlechter in Fedde Repert. 17: 140. 1921.

Range: Mexico (Vera Cruz, Tabasco, Campeche, Oaxaca and Chiapas), British Honduras, Guatemala, Honduras, Costa Rica, Panama, the West Indies, Dutch Guiana and Brazil.

*Pleurothallis Grobyi* is a widespread and variable species. The leaves vary from orbicular to spatulate.

35. PLEUROTHALLIS YUCATANENSIS Ames & Schweinfurth in Bot. Mus. Leaflet. Harv. Univ. vol. 1, No. 2: p. 4. 1932.

Range: Mexico (Campeche), Guatemala and British Honduras.

36. PLEUROTHALLIS HASTATA Ames, Orch. 2: 264. 1908, fig.; Ames, Sched. Orch. 7: 28, t. 5. 1924, *in part*.

*Pleurothallis scopula* Schlechter in Fedde Repert. 9: 28. 1910.

*Restrepia Liebmanniana* Kränzlin in Saertryk. af Vidensk. Medd. Nat. Foren. 71: 171, fig. 1920.

Range: Mexico (Vera Cruz), Guatemala, Honduras and Costa Rica.

37. PLEUROTHALLIS GLANDULOSA Ames, Sched. Orch. 6: 60. Nov. 3, 1923; Ames, Sched. Orch. 7: 28, t. 6. 1924, *in part*.

*Pleurothallis vittariaefolia* Schlechter in Fedde Repert. Beihefte 19: 26, 198. Nov. 25, 1923.

Range: Mexico (Chiapas), Guatemala, Costa Rica and Panama.

*Pleurothallis glandulosa* is new to the flora of Mexico. There seems to be no essential difference between *P. glandulosa* and *P. vittariaefolia*.

(To be continued).