

# STUDIES OF MEXICAN AND CENTRAL AMERICAN PLANTS—NO. 4.

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## INTRODUCTORY NOTES.

These studies, continued from page 55 of this volume, consist chiefly of descriptions of new Mexican plants, most of which have been on hand several years, but a few of which are from collections made during the past season. None have been described until all the known Mexican species related to them were studied and in most cases a synopsis of the genus prepared. So many questions in nomenclature require further investigation and so many citations must be verified that there are many of our Mexican genera of which it seems impossible as yet to present a synopsis. As some of the species described below have long been named and distributed to our larger herbaria, it is important that these at least should be published.

Since my last paper of this series was published I have made a fourth journey to Mexico, this time in company with Mr. Joseph H. Painter, who proved himself a most earnest and valuable assistant. The time spent in Mexico was about two and a half months (August 7 to October 20, 1903).

Considerable work was done about the City of Mexico, especially on the high mountains which form the rim of the valley of Mexico. From here we made excursions, spending several days at Cuernavaca, two at Pachuca, one at Toluca, two at Yautepec, one at Tultenango Canyon, and one at Aguas Calientes. A number of these trips were made to find long-lost species of Humboldt, Hartweg, and other collectors and to look for Crassulaceae and Cacti. On some of these trips I had as my companion Mr. C. G. Pringle, whose knowledge of the plants of central Mexico made his services most valuable to me. The last of August we all moved to Guadalajara, where extensive work was done in the great barranca of the Santiago, at Rio Blanco, where Dr. E. Palmer collected so many new species in 1887—several days about Lake Chapala and one at Etzatlan. At Guadalajara we were joined by Mr. E. W. D. Holway, who later accompanied us in the ascent of

the Volcano of Toluca. Two days were spent on the slope of the volcano, where many interesting plants were obtained. Our stay in the crater was marked by a cold rain and snow storm, which made collecting nearly impossible and cut off what must be one of the most glorious views in all America.

The following table will show in detail the places visited, the date of each visit, and the number of miles traveled in 1903:

|                           |   | Miles. |
|---------------------------|---|--------|
| Washington to Laredo..... |   | 1, 976 |
| Aug.                      | 17. Laredo to City of Mexico.....                         | 840    |
|                           | 20. City of Mexico to Tlalpan and return.....             | 15     |
|                           | 21. City of Mexico to San Angel and return.....           | 10     |
|                           | 22. City of Mexico to Sante Fé and return.....            | 20     |
|                           | 23. City of Mexico to Sante Fé and return.....            | 20     |
|                           | 24. City of Mexico to Sierra Guadalupe and return.....    | 10     |
|                           | 26. City of Mexico to Yautepec.....                       | 98     |
|                           | 26, 27. Yautepec to local stations.....                   | 16     |
|                           | 28. Yautepec to City of Mexico.....                       | 98     |
|                           | 30. City of Mexico to Tequixquiac and return.....         | 74     |
|                           | 31. City of Mexico to Pachuca.....                        | 94     |
|                           | 31. Pachuca to Real del Monte.....                        | 10     |
| Sept.                     | 1. Pachuca to mountains and return.....                   | 10     |
|                           | 2. Pachuca to City of Mexico.....                         | 94     |
|                           | 3, 4. City of Mexico to Toluca and return.....            | 90     |
|                           | 6. City of Mexico to Guadalupe and return.....            | 10     |
|                           | 8-10. City of Mexico to Cuernavaca and return.....        | 148    |
|                           | 9, 10. Cuernavaca to the pedregal (twice) and return..... | 32     |
|                           | 14. City of Mexico to Salazar and return.....             | 50     |
|                           | 16. City of Mexico to El Salto and return.....            | 80     |
|                           | 17. City of Mexico to Eslava and return.....              | 39     |
|                           | 19. City of Mexico to Cima and return.....                | 75     |
|                           | 21. City of Mexico to El Parque and return.....           | 115    |
|                           | 23. City of Mexico to Sierra Guadalupe and return.....    | 20     |
|                           | 25. City of Mexico to Guadalajara.....                    | 381    |
|                           | 28. Guadalajara to the barranca and return.....           | 15     |
|                           | 29. Guadalajara to the barranca and return.....           | 12     |
|                           | 30. Guadalajara to Sierra de San Esteban and return.....  | 20     |
| Oct.                      | 1-3. Guadalajara to Etzatlan and return.....              | 128    |
|                           | 4-6. Guadalajara to Chapala and return.....               | 70     |
|                           | 7. Guadalajara to City of Mexico.....                     | 381    |
|                           | 8-11. City of Mexico to Aguas Calientes and return.....   | 728    |
|                           | 13. City of Mexico to Tultenango and return.....          | 202    |
|                           | 14. City of Mexico to Toluca.....                         | 45     |
|                           | 15, 16. Toluca to Calamaya.....                           | 24     |
|                           | 16. Calamaya to the crater of Toluca and return.....      | 30     |
|                           | 17. Toluca to City of Mexico.....                         | 45     |
|                           | 18. City of Mexico to Santa Fé and return.....            | 20     |
|                           | 20. City of Mexico to Eagle Pass.....                     | 1, 089 |
|                           | Eagle Pass to Washington.....                             | 1, 991 |
| Total miles traveled..... |   | 9, 225 |

In September and October the plant life was at its best, at which time plain and mountain are covered with flowers, in strong contrast with the desolation of May and June. It is not surprising, therefore, that we reaped an abundant harvest. The herbarium material collected embraces about 2,000 numbers (nos. 6451-8221). The collection is a general one, embracing nearly all groups, but especially those in which I have been carrying on particular work, such as the Crassulaceae, Cactaceae, Umbelliferae, etc.

Besides this herbarium material more than two hundred species of bulbs, roots, and succulents were sent to Washington. Many of these have flowered, and most of the others are now in good condition. Many have been distributed to other institutions, and a considerable number of the succulents can still be obtained by applying to the Department of Agriculture. The accompanying list, while it consists mostly of my introductions of 1903, also includes some obtained previously, but not heretofore reported, or in which the names have been corrected.

It is not claimed that all these plants are new introductions, but many of them are. In many cases my material came from the type localities of rare species, while not a few, especially of the succulents, are entirely new to science.

*Mexican plants recently introduced by J. N. Rose.—No. 3.*

| Name.                                    | Catalogue number.    | Remarks.                               |
|--|----------------------|--|
| CRASSULACEAE.                            |                      |  |
| <i>Echeveria glauca</i> Baker .....      | { 920<br>705         | } Leaves broader than in common forms. |
| <i>Echeveria elegans</i> Rose, ined .... | 737                  |  |
| <i>Echeveria secunda</i> Lindl .....     | { 757<br>835         | } Sends out many offshoots.            |
| <i>Echeveria</i> sp .....                | 789                  |  |
| <i>Echeveria</i> sp .....                | 790                  | Not yet flowered.                      |
| <i>Echeveria maculata</i> Rose .....     | { 817, 910, &<br>923 | } Has frequently flowered.             |
| <i>Echeveria mucronata</i> Schlecht ...  | 834                  |  |
| <i>Echeveria pringlei</i> Rose .....     | 870                  | Has beautiful red flowering stems.     |
| <i>Echeveria</i> sp .....                | 903                  | Has flowered once.                     |
| <i>Echeveria subrigida</i> Rose .....    | 909                  | Has not flowered.                      |
| <i>Echeveria</i> sp. nov .....           | 918                  | A most beautiful foliage plant.        |
| <i>Echeveria</i> sp. nov .....           | 767                  | Not yet flowered.                      |
| <i>Echeveria nuda</i> .....              | 930 & 936            | Sent by Mr. C. G. Pringle.             |
| <i>Echeveria cuspidata</i> Rose .....    | 509                  | Sent by Doctor Purpus.                 |
| <i>Echeveria</i> sp. nov .....           | 11005                | Sent by Dr. E. Palmer.                 |
|  |                      | Sent by E. A. Goldman.                 |

Mexican plants recently introduced by J. N. Rose.—No. 3—Continued.

| Name.                                      | Catalogue number. | Remarks.                                     |
|--|-------------------|--|
| CRASSULACEAE—continued.                    |                   |  |
| <i>Echeveria subsessile</i> Rose sp. nov.  | 11018             | Sent by Dr. Wm. Trelease. Beautiful foliage. |
| <i>Echeveria pubescens</i> Hook.           | 11061             | Sent by Mr. Pringle.                         |
| <i>Echeveria pulverulenta</i> Rose         | 4994              | A beautiful species; has often flowered.     |
| <i>Echeveria nodulosa</i> Baker            | 6391              | Has frequently flowered.                     |
| <i>Echeveria coccinea</i> Cav              | 87                | Has frequently flowered.                     |
| <i>Echeveria minutiflora</i> Rose          | 4704              | Flowered in 1899.                            |
| <i>Echeveria platyphylla</i> Rose          | 9393              | Often flowered.                              |
| <i>Echeveria lozani</i> Rose               | 969               | Sent by Mr. Pringle.                         |
| <i>Echeveria multicaulis</i> Rose          | 628               | Sent by Nelson & Goldman.                    |
| <i>Echeveria obtusifolia</i> Rose          | 653               | Sent by Mr. Goldman and Mr. Pringle.         |
| <i>Echeveria palmeri</i> Rose              | 471               | Sent by Doctor Palmer.                       |
| <i>Echeveria racemosa</i> Cham. & Schlecht | 316               | From type locality.                          |
| <i>Echeveria strictiflora</i> Gray         | 943               | Sent by Doctor Palmer.                       |
| <i>Echeveria teretifolia</i> DC.?          | 952               | Sent by Doctor Purpus.                       |
| <i>Echeveria walpoleana</i> Rose           | 506               | Sent by Doctor Palmer.                       |
| <i>Altamiranoa batesii</i> Rose            | 711               | Flowered in 1904.                            |
| <i>Altamiranoa elongata</i> Rose           | 738               | Flowered in 1903.                            |
| <i>Altamiranoa goldmani</i> Rose           |                   | Flowered in 1903.                            |
| <i>Altamiranoa scopulorum</i> Rose         |                   | Living material now only at Kew.             |
| <i>Sedum oxypetalum</i> H. B. K.           | 851, 755          | A tall compact shrub.                        |
| <i>Sedum prealtum</i> DC.?                 | 751, 752, 736     | Often cultivated, sometimes 6 feet high.     |
| <i>Sedum moranense</i> H. B. K.            | 744, 735, & 754   | Leaves very short, compact.                  |
| <i>Sedum guadalajaranum</i> S. Wats.       | 881               | Leaves linear, sage green.                   |
| <i>Sedum longipes</i> Rose                 | 839               | Low trailing plant.                          |
| <i>Sedum heterophyllum</i> Rose            | 921               | Delicate little plant with compact rosette.  |
| <i>Sedum insertum</i> Hemsley              | 775               | Valley of Mexico.                            |
| <i>Sedum retusum</i> Hemsley               | 477               | Sent by Doctor Palmer from type locality.    |
| <i>Sedum palmeri</i> S. Wats.              | 766               | Sent by Doctor Palmer.                       |
| <i>Sedum</i> sp.                           | 845               | Has not yet flowered.                        |
| <i>Tillaea connata</i> Ruiz & Pav.         | 775               | Flowered in cultivation.                     |
| <i>Tillaeastrum pringlei</i> Rose          | 837               | Flowered in cultivation.                     |
| <i>Villadia parviflora</i> Rose            | 712               |  |
| <i>Villadia</i> sp.                        | 820               |  |
| <i>Villadia painteri</i> Rose              | 879               | Flowered in cultivation.                     |

Mexican plants recently introduced by J. N. Rose.—No. 3—Continued.

| Name.  | Catalogue number. | Remarks.                          |
|--|-------------------|-----------------------------------|
| CRASSULACEAE—continued.                      |                   |                                   |
| <i>Villadia cucullata</i> Rose .....         |                   | Flowered in cultivation.          |
| <i>Villadia stricta</i> Rose .....           | 512               | Flowered in cultivation.          |
| <i>Villadia nelsoni</i> Rose .....           | 691               | Flowered in cultivation.          |
| <i>Villadia ramosissima</i> Rose .....       | 692               | Flowered in cultivation.          |
| CACTACEAE.                                   |                   |                                   |
| <i>Cereus</i> sp. ....                       | 785               |                                   |
| <i>Cereus</i> sp. ....                       | 893               |                                   |
| <i>Cereus</i> sp. ....                       | 872               |                                   |
| <i>Echinocactus</i> sp. ....                 |                   |                                   |
| <i>Echinocactus</i> sp. ....                 | 495               |                                   |
| <i>Echinocactus</i> sp. ....                 | 908               |                                   |
| <i>Echinocactus</i> sp. ....                 | 740               |                                   |
| <i>Mamillaria</i> sp. ....                   | 821               |                                   |
| <i>Mamillaria</i> sp. ....                   | 822               |                                   |
| <i>Mamillaria</i> sp. ....                   | 830               |                                   |
| <i>Mamillaria pringlei</i> (Coult.) ....     | 855               |                                   |
| <i>Mamillaria</i> sp. ....                   | 858               |                                   |
| <i>Mamillaria</i> sp. ....                   | 225               |                                   |
| <i>Mamillaria conimamma</i> Link. ....       | 203               | June, 1901.                       |
| <i>Mamillaria carnea</i> Zucc. ....          | 977               | Flowered in 1904.                 |
| MISCELLANEOUS SPECIES.                       |                   |                                   |
| <i>Agave</i> sp. ....                        | 778               |                                   |
| <i>Agave intrepida</i> Greenm. ....          | 849               |                                   |
| <i>Furcraea</i> sp. ....                     | 749               |                                   |
| <i>Prochnyanthes virescens</i> S. Wats. .... | 874               | Flowered in September, 1904.      |
| <i>Heeria elegans</i> Schlecht. ....         |                   | Flowered in April, 1904.          |
| <i>Sprekelia formosissima</i> Herb. ....     | 813               | Flowered in April, 1904 and 1905. |
| <i>Polyanthes geminiflora</i> Rose .....     | 913               | Flowered in July, 1904.           |
| <i>Tradescantia crassifolia</i> var. ....    | 891               | Flowered in October, 1904.        |
| <i>Isochalis linearis</i> R. Br.? .....      | 312               | Flowered in October, 1904.        |

Among these introduced plants attention is called to the following:

(1) The species of Crassulaceae. For the past three years I have given a good part of my time to the study of the Crassulaceae, during which period there has been gathered in Washington probably the choicest collection of this kind ever brought together. The total number of pots on hand in September, 1904, was 1,075. This does not, of course, show the richness but the size of the collection. At one time in 1904 ten of the twelve species of *Stylophyllum* were in bloom

together; six of the seven species of *Sedastrum* and all three of the Mexican species of *Lenophyllum* have been grown; nearly fifty species of *Dudleya* have been under observation, besides many of the species of *Sedum*, *Altamiranoa*, *Villadia*, and other smaller genera.

It is among the *Echeverias*, however, that I have had the finest representatives of this family, some of which promise to be of considerable horticultural value. Of the forty-five species of this genus recognized as distinct, I have forty now in cultivation. Among these the most promising are the following:

*Echeveria elegans*, of steel-green color, forming dense rosettes of thick leaves sometimes becoming tinged with red.

*Echeveria subsessilis* and *E. cuspidata*, good bedding plants, both forming very compact rosettes, the first of a pale bluish color, the other of a bronze color.

*Echeveria palmeri* and *E. subrigida*, large species with broad, highly tinted leaves. The latter is an especially desirable plant for cultivation. In the City of Mexico it is used in beds as corner pieces, often forming heads a foot in diameter.

*Echeveria multicaulis* is a tall species with shining leaves, which are often tinted.

The genus *Oliverella*, named for Mr. George W. Oliver, of Washington, has proved to be one of my most valuable introductions. It is easily propagated and grows rapidly, flowering the first season after cuttings are taken. It often forms large plants with weak, sometimes hanging, branches, and very large red flowers. All of my living plants have been cared for by the Bureau of Plant Industry of the Department of Agriculture. A great many plants have been distributed and others will be sent out on application.

(2) *Heeria elegans*. I wish to call attention once more to *Heeria elegans*, or, as we should now call it, *Schizocentron elegans*. As I have stated before, *Heeria elegans* is not congeneric with the other so-called species of *Heeria*, and since it is the type of the genus the other species must be taken up under the name *Heterocentron*.<sup>a</sup> This species was in flower for nearly two months in Washington during the summer of 1904. It makes a good carpet plant, growing as well in the shade as in the sunlight. Living material can be sent to a limited number of growers who wish to experiment with it.

The drawings for plate 63 were made by Dr. Theodor Holm. Plates 66, 69, 71, and 72, and figure 14 were drawn by Miss Anna Snyder; figures 17, 18, and 19 were made by Miss Juliet C. Patten, from tracings by Miss Smith, of London. The remaining drawings, plates 64, 65, 67, 68, 70, were made by the late Frederick A. Walpole. The illustrations, with the exception of figure 14, represent new

<sup>a</sup>For full description of the species and reasons for change of name see p. 326.

species and are made from the type sheets. That there may be no confusion as to the specimens used, all necessary data regarding them, are brought together in the following table:

*Data concerning specimens used for illustrations.*

| Plate.  | Name of species.                    | Locality.                      | Collector.        | No.  | Date. | Herbarium No. |
|---------|-------------------------------------|--------------------------------|-------------------|------|-------|---------------|
| LXIII   | <i>Carex peucophila</i> .....       | Popocatepetl, Mexico.          | Rose and Hay ..   | 6994 | 1901  | 395788        |
| LXIV    | <i>Ornithocarpa fimbriata</i> ..... | Constancian, Jalisco .         | Pringle.....      | 8654 | 1902  | 396774        |
| LXV     | <i>Synthlipsis lepidota</i> .....   | Tula, Hidalgo.....             | Pringle.....      | 6899 | 1898  | 396772        |
| LXVI    | <i>Ribes rugosum</i> .....          | Santa Fe, Valley of Mexico.    | Pringle.....      | 6999 | 1899  | 461280        |
| LXVII   | <i>Kosteletzkya malvariscana</i> .  | Los Cuevas, Mexico ..          | Hartman .....     | 165  | 1894  | 306138        |
| LXVIII  | <i>Kosteletzkya violacea</i> .....  | Jojutla, Morelos.....          | Pringle.....      | 8663 | 1902  | 396718        |
| LXIX    | <i>Taonabo oocarpa</i> .....        | Near Ocuilapa, Guerrero.       | Nelson .....      | 2994 | 1895  | 234474        |
| LXX     | <i>Begonia unifolia</i> .....       | Jojutla, Morelos.....          | Pringle.....      | 8690 | 1902  | 396783        |
| LXXI    | <i>Conostegia minutiflora</i> ..... | Plunía, Oaxaca .....           | Nelson .....      | 2493 | 1895  | 347475        |
| LXXII   | <i>Monochaetum pringlei</i> .....   | Sierra de Tepoxlan, Morelos.   | Nelson .....      | 8359 | 1890  | 371918        |
| Fig. 14 | <i>Taonabo sylvatica</i> .....      | San Miguel Solledo, Vera Cruz. | Pringle.....      | 8169 | 1899  | 342858        |
| 16      | <i>Eryngium grande</i> .....        | Nevada de Toluca....           | Rose and Painter. | 7938 | 1903  | 451556        |
| 17      | <i>Eryngium painteri</i> .....      | Sierra de Pachuca, Hidalgo.    | Rose and Painter. | 6723 | 1903  | 450279        |
| 18      | <i>Eryngium piluarioides</i> ....   | Hidalgo .....                  | Pringle.....      | 8948 | 1904  | 469281        |
| 19      | <i>Eryngium pringlei</i> .....      | State of San Luis Potosí.      | Pringle.....      | 3759 | 1891  | 461279        |

## POACEAE.

### SOME GRASSES FROM POPOCATEPETL.

In 1901 I made two trips to Popocatepetl, which lies on the southeastern rim of the mountains bordering the Valley of Mexico. On August 8 and 9 I made my first trip, spending one night at the timber line and going the next day up to the base of the snow cap, which was then at about 14,600 feet. On August 21 I made a second trip, confining my labors to the base of the mountain and not going higher than about 10,000 feet. During the trip I collected among many other things 15 species of grasses, which have been named by Mr. Elmer D. Merrill, formerly connected with the United States Department of Agriculture, but now botanist in the government laboratories of the Philippine Islands. I wish to call especial attention to two or three of these grasses, as they are of considerable interest.

*Sporobolus wolffi*, a species heretofore only known from one station in Colorado, was found on Popocatepetl just below timber line growing under pine trees (*Pinus hartwegiana*). This is one of the smallest

of the grasses, never over 4 cm. high and sometimes so small that it has to be taken up on the blade of a penknife.

*Trisetum rosci*, here described as new, holds the distinction of growing at a higher altitude than any other flowering plant on the North American continent except *Festuca livida*. In fact I found it at 13,500 feet, the exact altitude at which *F. livida* had been reported from Mount Orizaba, where Linden speaks of it as the "last phanogamous plant." *Festuca livida* was also found on Popocatepetl, my highest point being 13,600 feet. These two species were found together at about 13,400 feet, and it is doubtless a mere question of chance which of them is found at the highest point. Both grow in and under the melting snow, pushing up along the tongues of exposed sand soon to be buried under a fresh fall of snow.

The following critical notes and descriptions were furnished by Mr. Merrill:

***Stipa mucronata*** H. B. K. Nov. Gen. & Sp. Pl. 1: 125. 1815.

Collected at an altitude of 3,390 meters, August 7 and 8, 1901 (no. 6035).

***Muhlenbergia quadridentata*** (H. B. K.) Trin. Uniflor. 194. 1824.

*Podosaemum quadridentatum* H. B. K. Nov. Gen. & Sp. Pl. 1: 130. pl. 682. 1815.

Collected at an altitude of 3,000 meters, August 22, 1901 (no. 6261).

***Sporobolus wolffi*** Vasey, Bull. Torr. Bot. Club. 10: 52. 1883.

*Vilfa minima* Vasey in Monthly Rept. U. S. Dept. Agr. March 155. 1874; U. S. Geog. Surv. W. 100th Merid. 6: 282. pl. 27. f. 7-9. 1878, non Trin.

Collected at an altitude of 3,600 meters, August 7 and 8, 1901 (no. 6014).

This is a very remarkable species, not only in its minute size but also in its distribution. The only locality previously known is Twin Lakes, Colorado, where it was collected on sandy shores (no. 1077, John Wolf, 1873). There is also a specimen in the United States National Herbarium from the same locality collected by C. W. Derry in 1875. The specimen from Popocatepetl matches Vasey's type even to the most minute characters, and we do not hesitate in pronouncing them to be identical. That this species should be found in only two stations and so far apart as Twin Lakes, Colorado, and Mount Popocatepetl, Mexico, is certainly remarkable, although it is very probable that it occurs at intermediate points,<sup>a</sup> but has been overlooked by collectors, owing to its diminutive size. It has been suggested that *Sporobolus wolffi* is only a depauperate form of *S. filiformis* (Thurb.) Vasey, but the great disparity in size between the two and the much smaller spikelets of the former lead us to believe that it is a valid species.

***Cinna poaeformis*** (H. B. K.) Scribn. & Merrill, U. S. Dept. Agr. Div. Agros. Bull. 24: 31. 1901.

*Depueria poaeformis* H. B. K. Nov. Gen. & Sp. Pl. 1: 146. 1815.

<sup>a</sup>Collected in 1903 by J. N. Rose and Jos. H. Painter on Nevada de Toluca (no. 6433) and at Cima, State of Mexico (no. 8062).



*Poa subnitida* Kunth, Rev. Gram. 1: 115, 339. pl. 83. 1830.

*Cinnastrum poaeforme* Fourn. Mex. Pl. 2: 91. 1881.

Collected at an altitude of 3,240 meters, August 7 and 8, 1901 (no. 6025).

**Agrostis toluensis** H. B. K. Nov. Gen. & Sp. 1: 135. 1819.

*Agrilus mexicanus* Presl, Rel. Haenk. 1: 236. 1830.

Collected at an altitude of 3,240 meters, August 22, 1901 (no. 6296a).

**Calamagrostis toluensis** (H. B. K.) Trin. in Steud. Nom. II, 1: 250. 1840.

*Degenxia toluensis* H. B. K. Nov. Gen. & Sp. Pl. 1: 148. 1815.

*Calamagrostis sesquitriflora* Steud. l. c.

Collected at an altitude of 3,940 and 3,580 meters, August 22, 1901 (nos. 6298 and 6298a).

**Trisetum toluense** (H. B. K.) Kunth, Rev. Gram. 1: 101, 297. pl. 60. 1830.

*Arena toluensis* H. B. K. Nov. Gen. & Sp. Pl. 1: 148. 1815.

Collected at an altitude of 3,550 meters, August 22, 1901 (no. 6299).

**Trisetum rosei** Scribn. & Merrill sp. nov.

A densely tufted, nearly glabrous, green or purplish perennial, 20 to 45 cm. high, with numerous firm leaves, dense spike-like panicles, and very strongly pilose flowering glumes; culms rather stout, densely puberulent above; sheaths exceeding the internodes, overlapping, minutely puberulent; ligule about 2 mm. long, truncate; leaf-blades plane or becoming involute in drying, glabrous beneath, prominently striate and minutely pubescent above, those of the culm one or two, 3 to 5 mm. wide, 5 to 7 cm. long, erect, the basal ones numerous, 5 to 12 cm. long; panicle purplish, 6 to 10 cm. long, 10 to 15 mm. in diameter, rather densely flowered, the branches 1 to 3 cm. long, appressed, flower-bearing throughout, the axils and branches densely and softly pubescent, spikelets about 6 mm. long, 2-flowered; empty glumes ovate-lanceolate, the first 4 mm., the second 5 mm. in length, glabrous, except on the ciliate margins above, with appressed or spreading white hairs, the first 5 mm., the second 4.5 mm. in length, ovate-lanceolate, acute and slightly cleft at the apex, bearing a slender, somewhat reflexed ciliate awn just above the middle, about 4 mm. in length; palea equaling the glume, hyaline, ovate-lanceolate, sparingly ciliate on the margins.

Collected by J. N. Rose on Mount Popocatepetl, at an altitude of 3,600 meters, August 7 and 8, 1901 (no. 6016, type); also Rose no. 5979, from the same locality but higher altitude (alt. 4,115 meters), is referred here, it being a lower, more caespitose form. This species is very similar in aspect to *Trisetum toluense* (H. B. K.) Benth., but is at once distinguished from that species by its very strongly pilose flowering glume, ciliate awns, and puberulent sheaths and leaves.

**Trisetum rosei tenerum** Scribn. & Merrill, var. nov.

A slenderer form 20 to 40 cm. high, with long-exserted panicle, much shorter leaves, and smaller spikelets than in the species; culms very slender; culm leaves one or two, 2 to 3 cm. long, the basal ones very narrow, 5 to 7 cm. long; panicles densely flowered, 4 to 7 cm. long; spikes 4.5 to 5 mm. long, otherwise as in the species.

Collected by J. N. Rose on Mount Popocatepetl at an altitude of 3,160 meters, August 7 and 8, 1901 (no. 6016, type); also another specimen from the same locality without number, collected August 22, 1901, is referred here; also collected on Mount Orizaba, by J. N. Rose and Robert Hay, July 25, 26, 1901 (no. 6348).

**Poa conglomerata** Rupr. Bul. Acad. Brux. 9<sup>2</sup>: 235. 1842. nom. nud. ex Peyr. in Linnaea 30: 8. 1859.

Collected at an altitude of 3,390 meters, August 7 and 8, 1901, by J. N. Rose (no. 6026a); also at the same station and date, altitude 3,540 meters (no. 6026).

**Poa infirma** H. B. K. Nov. Gen. & Sp. Pl. 1: 158. 1815.

Collected at an altitude of 3,210 meters, August 22, 1901 (no. 6246).

This specimen is very small, none of the plants exceeding 7 cm. in height, but there is little doubt as to the identity of our plant with the form described by Kunth as *Poa infirma*, a species closely related to *Poa annua* L.

**Festuca livida** (H. B. K.) Willd. in Spreng. Syst. 1: 253. 1825.

*Bromus lividus* H. B. K. Nov. Gen. & Sp. Pl. 1: 150. *pl.* 689. 1815.

*Schedonorus lividus* R. & S. Syst. 2: 707. 1817.

*Festuca grandiflora* Steud. Syn. Pl. Glum. 1: 311. 1854.

*Helleria livida* Fourn. Mex. Pl. 2: 129. 1881.

A very distinct and interesting species, badly figured by H. B. K., but finely illustrated by Hemsley.<sup>a</sup> The type of this species was collected on Mount Toluca. It is reported from Mount Orizaba, at an altitude of 13,000 to 13,500 feet, "the last phanogamous plant" (Linden), "the limits of vegetation" (Galeotti).

Collected at an altitude of 4,125 meters, August, 1901 (no. 5978).

**Festuca amplissima** Rupr. Bul. Acad. Brux. 9<sup>2</sup>: 236. 1842, nom. nud. ex Fourn. Mex. Pl. 2: 125. 1881.

Collected at an altitude of 2,970 meters, August 22, 1901 (no. 6262).

**Festuca aequipaleata** Fourn. Mex. Pl. 2: 125. 1881.

Collected at an altitude of 3,575 meters, August 8, 1901 (no. 6297).

## CYPERACEAE.

### NOTES ON CAREX MADRENSIS AND THE CAREX PINETORUM OF LIEBMANN.

**Carex madrensis** Bailey, Bot. Gaz. 25: 270. 1898.

Collected by J. N. Rose, August 16, 1897 (no. 2357), near the top of the Sierra Madre, in the extreme southern end of the State of Durango. No exact station can be given for the reason that it was found in the uninhabited parts of the mountains many miles from any town or village.

The original description of Dr. L. H. Bailey follows:

One of the Indicae, and, with *C. schiedeana* Kunze, making a well-marked section of that group: slender, a foot to 18 inches high, with short and flattish leaves; spikes about four, aggregated, or the lowest one or two remote and long-peduncled from sheaths, a half inch long, and ovate or nearly globular, the apical staminate part very short; perigynium obovoid and slightly excurved, distinctly and abruptly beaked, the orifice slightly toothed, the body trigonous and strongly few-nerved, somewhat scarious, but not hairy or pubescent; scales broad and blunt, with a short cusp, brown, with a dorsal nerve, shorter than the light-colored perigynium.

Differs from *C. schiedeana*, its nearest relative, in its much laxer habit and softer leaves, the absence of long bracts subtending the upper spikes, the more scattered spikes, the long peduncles of the lower spikes, the glabrous less-nerved perigynium, and the broader and blunter scales.

**Carex peucophila** Holm, nom. nov.

PLATE LXIII.

*Carex pinetorum* Liebm. Vidensk. Selsk. Skr. V. 2: 263. 1851, not Willd. Linnaea 10: 265. 1836.

Collected by J. N. Rose, August 7 and 8, 1901 (no. 6994), on Mount Popocatepetl just below timber line under pines (*P. hartwegiana*), where it is quite common. The type of this species came from Mount Orizaba at about the altitude of my plants. It has heretofore been resting in *C. festiva* Dewey, a very different plant. This species has only been collected a few times, has never before been reported from Mount Popocatepetl, and has not heretofore been represented in the National Herbarium. The material was referred to Dr. Theodor Holm, who has prepared the accompanying note and illustration.

<sup>a</sup> Biol. Centr. Am. 3: *pl.* 102 b.



CAREX PEUCOPHILA HOLM.

NOTE BY DR. HOLM.

Among the Mexican Cyperaceae collected and described by Liebmann in the Royal Danish Academy of Sciences (1851) is a species of *Carex* which he named *pinetorum* on account of its occurrence in pine woods. It was found on the volcano Orizaba at an altitude of about 12,000 feet. This species is also represented in Mr. Rose's collection from Popocatepetl, Mexico (1901), from the same elevation, and the specimens agree well with the diagnosis as drawn by Liebmann. It seems, however, as if the species has been somewhat misunderstood by various authors, hence I take the opportunity to call attention to some of its characteristics besides giving some data as to its supposed synonymy. Mr. Rose's specimens show a horizontally creeping rhizoma (fig. a) and the perigynia (fig. e) exhibit a narrow wing along the upper half of the margins besides a few faintly visible veins at the base, characters that have also been pointed out by Liebmann (l. c.), and by which it seems well distinguished from *C. orizabae* Liebm.

Nevertheless, our plant has been confused with *Carex festiva* Dew. and *C. straminea* Schk., besides having been considered identical with *C. orizabae* Liebm. The supposed synonymy may be summarized as follows:

*Carex festiva* Dew. forma *humilis* (Bockeler, Engler's Bot. Jahrb. 1: 364. 1881).

*Carex festiva* Dew., *C. propinqua* Nees, *C. oreades* C. A. Mey. (Hemsley, Biol. Centr. Am. 3: 473. 1885).

*Carex straminea* Willd. var. *australis* Bailey (Bailey, Mem. Torr. Club 1: 23. 1889).

That our plant is distinct from *C. festiva* Dew. is readily to be seen from the horizontally creeping rhizome and the narrowly winged and faintly nerved perigynium. In *C. festiva* the rhizome is, as far as known, always cespitose and the perigynium prominently winged and nerved through the whole of its length, a structure which is very conspicuous not only in typical *C. festiva* (fig. f), but also in its varieties *haydeniana* (Olney) Boott (fig. g) and *decumbens* Holm (fig. h). It seems also very strange that *C. pinetorum* could be referred to *C. straminea*, of which the perigynium (fig. i) does not show the narrow, elliptical outline observable in *C. pinetorum*, but is broadly ovate, winged, conspicuously nerved, and bidentate at the apex, while in *C. pinetorum* the orifice of the beak is obliquely cut and only slit on the outer convex face.

*Carex pinetorum* Liebm. is no doubt a good species, but it is very unfortunate that Liebmann, as it seems, overlooked the fact that the name had been applied before by Willdenow to another species, which by Kunth is considered identical with Schkuhr's *Carex muhlenbergii*. If it, therefore, be deemed necessary to change the name proposed by Liebmann, I suggest *Carex peucophila*.

EXPLANATION OF PLATE LXIII.—Fig. a, entire plant; b, inflorescence of the same; c, scale of staminate spike of *C. peucophila*; d, scale of pistillate spike of the same; e, perigynium of the same; f, perigynium of *C. festiva* Dew.; g, perigynium of *C. festiva haydeniana* (Olney) Boott; h, perigynium of *C. festiva decumbens* Holm; i, perigynium of *C. straminea* Schkuhr. Figs. a and b, natural size; c to i, much magnified.

## BETULACEAE.

### NOTES ON OSTRYA,<sup>a</sup> WITH TWO NEW SPECIES.

Before 1888 only two species of *Ostrya* were known—one of them *O. ostrya* (*O. carpinifolia*) of the Old World, and the other *O. virginiana* of the new. Since then two species have been described—*O. knowltoni*, from Arizona, and *O. japonica*, from Japan. Our com-

<sup>a</sup>The generic name can be clearly traced back to the Romans, among whom it was used by Pliny and others. Our present method of citing it would be as follows:

*Ostrya* (Micheli) Scop. Fl. Carn. 414. 1760.

Type species, *Carpinus ostrya* L. Sp. Pl. 2: 998. 1753.

mon *O. virginiana* ranges from Nova Scotia to eastern Texas. It has also been reported from South Mexico and Central America, but I have long been convinced that such a reference of the material from those regions is not correct. Mr. E. W. Nelson recently collected additional specimens from the State of Guerrero, which has enabled me to reexamine the Mexican material, and I now have no hesitancy in proposing it as a new species. In addition to this, Mr. Vernon Bailey has collected in the mountain gulches of western Texas a very peculiar species quite distinct from both *O. knowltoni* and *O. virginiana*.

About the time I was submitting my manuscript for publication Herbert Winkler's handsome monograph of the Betulaceae appeared.<sup>a</sup> In this he recognizes only two species, *O. italica* and *O. knowltoni*. He reduces our common *O. virginiana* to a subspecies of the European species *O. italica*, and publishes as a new variety our Mexican and Central American forms. This treatment of *virginiana* I do not believe will be acceptable to American botanists. The Central Mexican form I had already taken up as a good species, naming it *O. mexicana*, while the Guatemalan material I had excluded from both *virginiana* and *mexicana*. I am still of this opinion, but must of course use Winkler's varietal name, though raising it to specific rank.

***Ostrya guatemalensis* (Winkler) Rose.**

*Ostrya italica guatemalensis* Winkler in Engler, Pflanzenreich 19: 22, 1904, in part.

I quite agree with Winkler that the Guatemalan material deserves a name, but I am convinced that it has nothing to do with *O. italica* and little with *O. virginiana*, to which it has usually been referred. It comes nearest to what I here describe as *O. mexicana*, but differs in having somewhat broader leaves, not so strongly nerved, and with denser, softer, more persistent pubescence. The bracts of the male catkins seem to be more pointed, etc.

The species has been reported several times from Guatemala and may be found in southern Mexico, but does not seem to go beyond the Isthmus of Tehuantepec.

***Ostrya mexicana* Rose, sp. nov.**

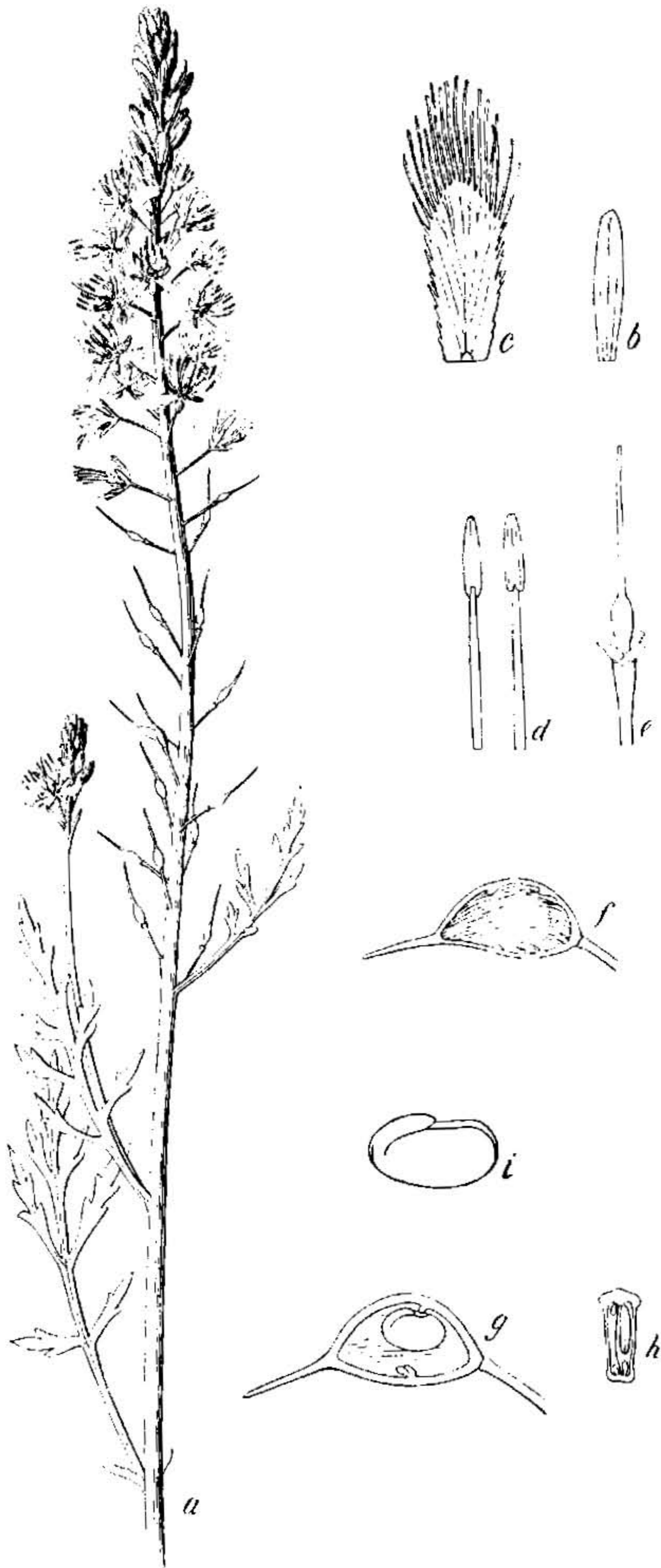
A small tree, 12 to 15 meters high; bark of twigs one and two years old of a dull dark grayish brown color; twigs of the current season greenish brown and somewhat pubescent and bearing prominent brown lenticels, not at all glandular; petioles 5 to 10 mm. long; blade narrowly lanceolate, 5 to 10 cm. long by 2.5 to 4 cm. broad, sharply and somewhat doubly serrate, slightly cordate at base, acuminate but not abruptly so, with soft, rather scanty pubescence on both surfaces, beneath pale, dull, and strongly reticulated; fruiting spikes 4 to 5 cm. long.

Collected by E. W. Nelson at Omilteme, Guerrero, May 25, 1903 (no. 7050).

To this species also belong Botteri's Orizaba specimen (no. 284) and Pringle's no. 8188 from Jalapa, both of which have been referred to *O. virginiana*.

The only two Mexican localities given by Hemsley in the Biologia for *Ostrya virginiana* were Orizaba and Jalapa, from both of which I have seen specimens. This species is much more like *O. virginiana* than either *O. knowltoni* or *O. baileyi*, and Dr. Sargent's suggestion in the Sylva of North America that the Mexican and Central

<sup>a</sup> Engler, Das Pflanzenreich, Heft 19, 1904.



ORNITHOCARPA FIMBRIATA ROSE.

American species may possibly be referred to *O. knowltoni* is not borne out by the specimens.

***Ostrya baileyi* Rose, sp. nov.**

Tree 12 meters high with trunk 15 cm. in diameter; bark of twigs one or two years old dark grayish brown, those of the current season brown and pubescent with both glandular and simple hairs; petioles 2 to 5 mm. long, with pubescence like that of young branches; blade oblong, 4 to 5 cm. long, distinctly cordate at base, obtuse or acutish at apex, somewhat doubly and sharply serrate, pale beneath but not shining, somewhat softly pubescent on both surfaces; scales subtending the stamens acute.

Collected by Vernon Bailey in Guadalupe Mountains, Texas, August 19, 1901 (no. 435).

This species differs from *Ostrya virginiana* in the shape and tothing of the leaves, the more glandular branches and petioles, different tips to bracts of male flowers, etc. From *O. knowltoni* in the color of the bark of the one and two year old branches, the cordate base of the leaf blades, the thickly set stipitate glands on branches and petioles, the sharper teeth of the leaves, etc.

This species is somewhat intermediate in characters between *O. virginiana* and *O. knowltoni* and also occupies an intermediate geographical position. *O. virginiana's* western limit is eastern Texas, while *O. knowltoni* comes only from the Grand Canyon region of Arizona.

Mr. Bailey furnishes me the following statement regarding his specimens:

The tree from which the type specimen was taken stands in the head of Dog Canyon on the west slope of the Guadalupe Mountains, Texas, about 2 miles south of the Texas and New Mexico line at approximately 2,160 meters altitude. It is in the lower end of the gulch half a mile east of the spring where the wagon road ends. Other trees of the species are fairly common in the shaded gulches of Dog and McKitterick canyons at from 2,100 to 2,530 meters altitude in transition zone, in company with yellow pines, Douglas spruce, oaks, and a maple.

## BRASSICACEAE.

### A NEW GENUS, ORNITHOCARPA.

***Ornithocarpa* gen. nov.**

PLATE LXIV.

Calyx rather long-cylindrical in bud; sepals narrowly oblong, obtuse, in anthesis spreading, purplish. Petals oblong, the upper part of margin fimbriate, the lower part lacerate or toothed, broad at base, white. Filaments filiform, elongated; anthers linear, oblong. Style much longer than the ovary, rigid, filiform, apiculate at apex; stigma minute, terminal. Ovary shortly stipitate, flattened parallel with the broad partition, 2-celled, each cell 2-ovuled. Ovules attached at the margin near the middle. Fruit obliquely ovate, the lower edge slightly rounded, the upper strongly so, indehiscent, wingless, crustaceous, tipped by a long beak-like persistent style; seed 1 (the other 3 ovules abortive). Cotyledons broad, accumbent.

***Ornithocarpa fimbriata* Rose sp. nov.**

Stems simple or nearly so, 60 to 90 cm. high; racemes 10 to 30 cm. long; leaflets strongly toothed or cleft; style 6 mm. long; ovary and fruit glabrous.

An annual, glabrous, growing in shallow water. Leaves pinnate. Inflorescence an elongated raceme.

Collected by C. G. Pringle at Constancia Station, east of Guadalajara, Jalisco, August 19, 1902 (no. 8634).

EXPLANATION OF PLATE LXIV.—Fig. *a*, upper part of stem; *b*, sepal; *c*, petal; *d*, two views of stamen; *e*, ovary and disk; *f*, pod; *g*, section of pod showing ovules and seed; *h*, cross section of pod; *i*, seed with covering removed, showing cotyledons. Fig. *a*, natural size; *b* to *e*, scale 4; *f*, *g*, and *h*, scale 2; *i*, scale 4.

## THREE SPECIES OF OLD GENERA.

**Synthlipsis lepidota** Rose, sp. nov.

PLATE LXV.

Annual, 50 to 60 cm. broad, with many spreading stems from the base, glabrous except for the copious minute scales; basal leaves in a rosette, oblanceolate, 7 to 10 cm. long, obtuse, entire or with a somewhat undulating margin with or without a few teeth, on both sides clothed with closely set scales, tapering into a slender petiole; stem leaves shorter, often with distinct teeth or even lobes; racemes 10 to 15 cm. long; pedicels 8 to 12 mm. long; sepals oblong, covered without with minute scales, 4 mm. long; corolla pale yellow, in age becoming somewhat purplish, 7 mm. long; pods thin-walled, 12 to 14 mm. long, rounded at base and apex, covered with small scales, especially when young; style slender, 1.5 to 2 mm. long.

Collected by C. G. Pringle near Dublin, State of Hidalgo, July 13, 1898 (no. 6899).

EXPLANATION OF PLATE LXV:—Fig. *a*, one of the ascending branches; *b*, stellate scale from foliage; *c*, sepal; *d*, petal; *e*, stamen, two views; *f*, ovary; *g*, longitudinal section showing ovules; *h*, cross section of same; *i*, cotyledons and plumule. Fig. *a*, natural size; *b*, scale 40; *c* to *f* and *i*, scale 4; *g* and *h*, scale 1 $\frac{1}{2}$ .

**Thelypodium pallidum** Rose, sp. nov.

Biennial, tall (80 to 150 cm. high), more or less branched, glabrous and of a pale-green color; basal leaves 4 to 6 cm. long, lyrate, the terminal lobe rounded and obtuse, the other lobes very small, the petiole and under surface somewhat pubescent; stem leaves sessile and clasping, glabrous, the margin denticulate; inflorescence elongated, sometimes 50 cm. long; flowering pedicels spreading, in fruit a little ascending; sepals oblong, obtuse, purplish, 2.5 mm. long; petals narrow; anthers sagittate at base; receptacle swollen; stigma circular; ovary stipitate; pod ascending, 12 to 20 mm. long; seeds rugose.

Collected by J. N. Rose and Jos. H. Painter near Tres Marias, Morelos, September 21, 1903 (no. 7209).

**Lepidium granulare** Rose, sp. nov.

Slender, erect, annual or biennial, 40 cm. tall, more or less branched throughout, not at all pubescent, but somewhat granular; stem leaves pinnatifid, the lobes more or less lobed or sharply-toothed; upper leaves often linear and entire; racemes 5 to 8 cm. long, erect; pedicels ascending, 2.5 mm. long; sepals with scarious margins; stamens 2; fruit 2 mm. long, distinctly notched at apex, glabrous; style very short; seed with cotyledons incumbent.

Collected by C. G. Pringle in alkaline meadows, City of Mexico, June and July, 1901 (no. 8488).

Nearest *L. sordidum* of north Mexico, but with 2 stamens instead of 4, less granular herbage, different fruit, etc.

## CRASSULACEAE.

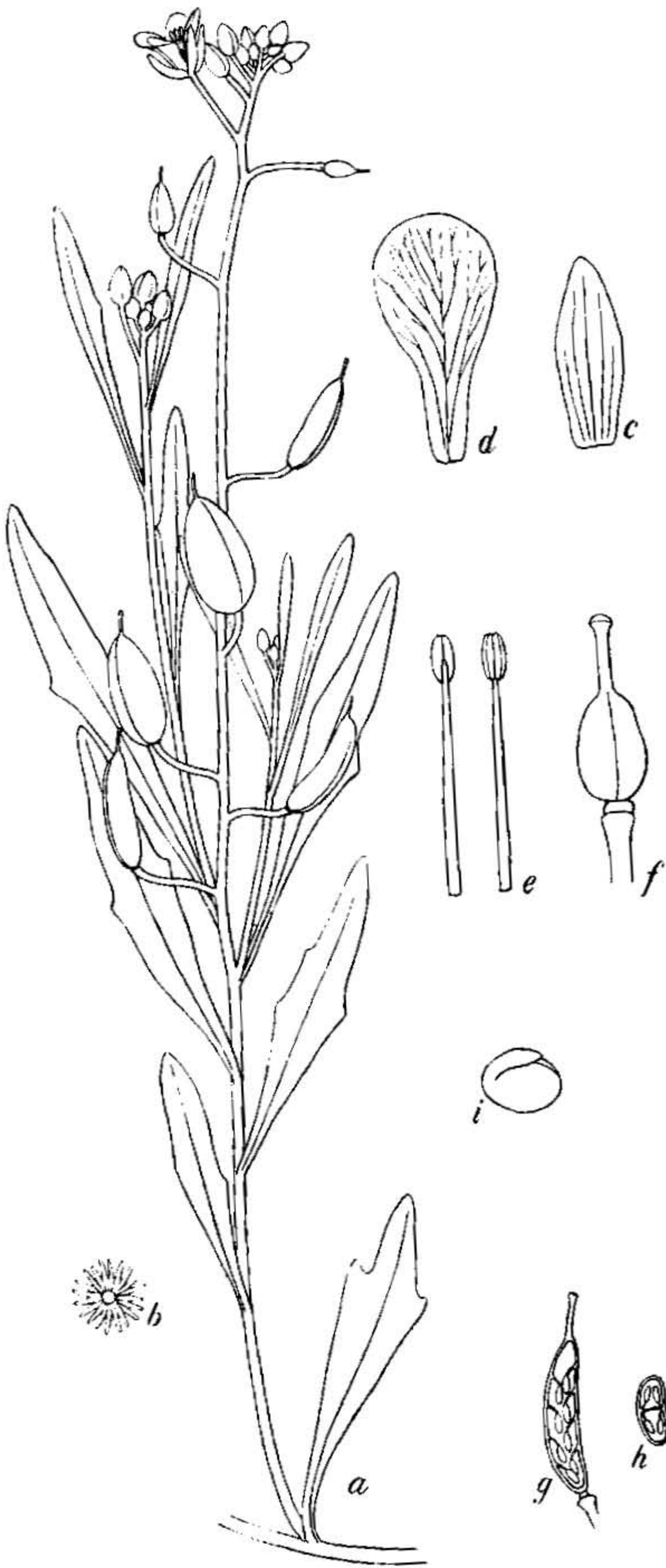
## TWO NEW SPECIES OF ECHEVERIA.

**Echeveria multicaulis** Rose, sp. nov.

Caulescent, the stem roughened below, naked, crowned near the top by a rosette of obovate or spatulate leaves, the whole plant including flowering branches 20 cm. high in cultivation but said to reach 90 to 120 cm. high in the wild state; leaves 3 to 4 cm. long, 12 to 20 mm. broad at widest point, flattened, mucronately tipped, glabrous, the margin and face more or less brightly colored; flowering branches bright-colored, bearing scattered oblanceolate leaves; inflorescence a short compact equilateral raceme; flowers subtended by small bright-colored bracts; pedicels very short but distinct; calyx lobes narrow, acute, ascending, about one-half as long as the corolla; corolla buds acute, angled; corolla reddish without, yellowish within.

Collected by E. W. Nelson and E. A. Goldman near Omilteme, State of Guerrero, May, 1903 (Rose's no. 628) and flowered in Washington, December, 1903.





SYNTHLIPSIS LEPIDOTA ROSE.

**Echeveria walpoleana** Rose, sp. nov.

Acaulescent or becoming in age shortly caulescent; leaves forming a dense rosette, at first pale green with reddish margins but becoming deeply tinged with red throughout, thickish, rounded on the back, boat-shaped above, sharply acute, 6 to 8 cm. long, 2 to 2.5 cm. broad, glabrous; flowering stem 30 to 40 cm. long, its leaves thickish, acute; inflorescence two-branched, each branch a second raceme of 8 to 10 flowers; pedicels very short; sepals spreading, ovate, acute, green; corolla about 14 mm. long, deeply orange-colored, the lobes erect, very thick, triangular in cross section, acute; stamens about half the length of the corolla lobes and attached near the top of the corolla tube; carpels erect.

Collected by Dr. E. Palmer near Las Canoas, San Luis Potosí, November, 1903, and flowered in Washington in August, 1903 (Rose's no. 506, Walpole's drawing no. 116 ined.).

This species is named for the talented botanical artist Frederick A. Walpole, who died at Santa Barbara, Cal., May 11, 1904, at the age of 43. Mr. Walpole was not only an artist of great promise, but was no mean botanist. In 1896 he was appointed artist in the Department of Agriculture, where he was employed continuously until his death, excepting one year when he served as artist of this Division. He was a prodigious worker and had prepared more than 1,000 botanical drawings, most of which are unpublished. He had prepared for the writer 125 drawings, many of them in color, and about 200 lead-pencil sketches. Good examples of his work may be found in this publication, in the Proceedings of the Washington Academy of Sciences, and in the narrative of the Harriman Alaskan expedition.

**GROSSULARIACEAE.****A SYNOPSIS OF THE MEXICAN SPECIES OF RIBES. <sup>a</sup>**

No synopsis of the Mexican species of *Ribes* has ever been published, but a bare list was given by Mr. Hemsley in the *Biologia* in 1880. Only 6 species were mentioned, one of these being without specific name. Of these 5 named species 4 had been collected by Humboldt. In this list was not included the old *R. tortuosum* from Lower California. Since Mr. Hemsley's list appeared the following species have been published: *R. viburnifolium* Gray in 1882, *R. quercetorum* Greene in 1885, and *R. dugesii* Greenman in 1903. If to these we add the 7 species proposed here, we have a total of 16 species. Two of these, viz, *R. quercetorum* and *R. longiflorum*, are United States species extending just into the northern border of Mexico. The two Lower Californian species, *R. viburnifolium* and *R. tortuosum*, may yet be found in southern California, although it is doubtful. *R. nelsoni* and *R. ceriferum* should be looked for in the mountain ranges of southern Arizona. A species has been found in Costa Rica, but its identification is uncertain.

The facilities for preparing this synopsis have been the very best. I have had before me the largest series of Mexican *Ribes* ever brought together. In the National Herbarium we have 53 sheets, and in addition to these I have examined 29 sheets from the Gray Herbarium, including the types of *R. viburnifolium* and *R. dugesii*. I have also seen the type of *R. quercetorum* in Doctor Greene's herbarium and examined material of *R. tortuosum* from San Quintin, its type locality.

<sup>a</sup> For an extension of this paper see p. 338.

## KEY TO MEXICAN SPECIES OF RIBES.

- Leaves thick, Viburnum-like; racemes several in the axils of the leaves; calyx with a prominent horizontal disk ..... 1. *R. viburnifolium*.
- Leaves thin, of the ordinary type; racemes solitary in the axils of the leaves; calyx tubular; disk wanting.
- Stems more or less prickly.
- Petioles about the length of the blades, pilose; blades strongly nerved; Central Mexican species..... 2. *R. microphyllum*.
- Petioles more or less elongated, pubescent but not pilose; blades not strongly nerved; United States species ranging into Lower California..... 3. *R. querectorum*.
- Stems not at all prickly.
- Flowers yellow; calyx tube much elongated..... 4. *R. longiflorum*.
- Flowers generally not yellow; calyx tube much shorter than the last.
- Anthers not tipped with a depressed gland.
- Calyx elongated; leaves glandular; fruit black..... 5. *R. welsoni*.
- Calyx short; leaves not glandular; fruit red..... 6. *R. tortuosum*.
- Anthers tipped with a depressed gland.
- Ovary glandular-pubescent.
- Pedicels with scanty hairs; ovary very glandular..... 7. *R. pringlei*.
- Pedicels with dense pubescence; ovary not very glandular... 8. *R. neglectum*.
- Ovary glabrous.
- Calyx tube shorter than the lobes.
- Lobes of leaves acute.
- Leaves glabrous above, the margin with glandular hairs..... 8a. *R. arizabae*.
- Leaves pubescent above, the margin without glandular hairs.
- Bracts scattered on pedicels..... 9. *R. kunthii*.
- Bracts at top of pedicels..... 9a. *R. affine*.
- Lobes of leaves obtuse..... 10. *R. dugesii*.
- Calyx tube longer than the lobes.
- Young branches often very glandular-pubescent; leaves with long-stalked glands..... 11. *R. ciliatum*.
- Young branches not glandular-pubescent; leaves eglandular or with a few short-stalked glands.
- Leaves glabrous above, nearly so beneath..... 12. *R. ceriferum*.
- Leaves pubescent on both sides, often densely so beneath.
- Branches short and stout, becoming light brown, soon glabrate..... 13. *R. rugosum*.
- Branches elongated, slender, becoming a dark purple, puberulent..... 14. *R. grande*.

**Ribes viburnifolium** Gray, Proc. Am. Acad. 17: 202, 1882.

*Ribes viburnifolium* differs from *Ribes* proper in having several racemes in a cluster, in the peculiar foliage, the rotate calyx, and the well-developed horizontal disk on which are borne the stamens and petals. It is confined chiefly to Lower California and its neighboring islands, but has been reported once from Sonora.

**Ribes microphyllum** H. B. K. Nov. Gen. & Sp. 6: 62, 1823.

A bush, 1.5 to 3 meters high; bark of old wood nearly black, of first-year branches light-colored; spines stout, usually single; petioles slender, longer than the blade,

softly pubescent; leaves somewhat pubescent, deeply 3-cleft, the lobes more or less toothed or cleft, the teeth obtuse; bracts broad and obtuse; calyx 10 to 12 mm. long.

This is the only gooseberry known in all Mexico proper and it has long been a desideratum in American herbaria. It was collected first by Humboldt and Bonpland on their journey through Mexico during the last part of the eighteenth century, but we now have four recent collections of it to report:

Mr. E. W. Nelson's no. 268 from Mount Orizaba collected March 18, 1894.

Mr. C. G. Pringle's no. 6303 (1896).

Mr. C. G. Pringle's no. 6788 (1898).

J. N. Rose's no. 5399, from Tlaupujahua, Michoacan, collected July 12, 1901.

The second and third collectings were made at the type locality, "El Guarda," Serrania de Ajusco, in the Federal District, where I have also seen the plant, but without obtaining specimens.

The type locality El Guarda is on the old wagon road running over the mountains from the City of Mexico to Cuernavaca, and was the place where the soldiers were stationed to guard the road. Here Humboldt probably spent the night, going down the next day to the City of Mexico.

**Ribes quercetorum** Greene, Bull. Cal. Acad. 1: 83. 1885.

We have referred to *Ribes quercetorum* certain Lower Californian material collected by Mr. C. G. Pringle, heretofore passing as *R. leptanthum* var. Mr. Pringle's specimens differ from that species in having the bark on first-year shoots redder, in their being glabrous and shining, and in having slightly differently shaped leaves, longer peduncles, and less pubescent pedicels.

**Ribes longiflorum** Nutt. Bot. Reg. 2: under *pl.* 125. 1816.

This currant was collected in northern Mexico in the State of Chihuahua by C. C. Parry and Charles Wright in 1851 and 1852 (no. 1093). Wright's material was distributed as *R. tenuiflorum*, but in the Mexican Boundary Report it is referred to *R. aureum* var. *tenuiflorum*. Mr. Hemsley in the *Biologia* refers it to true *R. aureum*. A careful examination of this material leads me to the conclusion that it is neither typical *R. longiflorum* nor *R. aureum*.

**Ribes nelsoni** Coville & Rose, sp. nov.

Shrub 1 to 2 meters high with strong vigorous branches; old branches grayish, glabrate but with yellow persistent sessile glands (as also found on both surfaces of the leaves, petioles, and bracts); young branches pubescent; leaves broadly ovate, 3.5 to 7 cm. broad, 3-lobed, the lobes acute, with a broad nearly truncate base, glabrous and shining above, paler and pubescent on the veins beneath, coarsely serrate; racemes somewhat drooping, shorter than the leaves, 6 to 10-flowered; bracts linear, longer than the pedicels; flowers "pale yellow"; calyx 10 mm. long, pubescent without; tube 4 mm. long; lobes narrowly oblong, 6 mm. long; petals oblong, obtuse, 3 mm. long, longer than the stamens; anthers not tipped with a depressed gland; ovary glabrous.

Collected by C. H. T. Townsend and C. M. Baker near Colonia Garcia, in the Sierra Madre of Chihuahua, May 30, 1899 (no. 2, type) and at the same station by E. W. Nelson, August 25, 1899 (no. 6132).

Closely related to *R. americanum* Mill. (*R. floridum* L'Hér.), but with yellow flowers, more pubescent calyx tube, etc.

**Ribes tortuosum** Benth. Bot. Voy. Sulph. 17. 1844.

*Ribes palmeri* Vasey & Rose, Proc. U. S. Nat. Mus. 11: 529. 1898.

A bush 90 to 120 cm. high; young branches clothed with a short close pubescence; leaves orbicular, 1.5 to 3 cm. in diameter, slightly 5-lobed, lobes rounded, puberulent; racemes short, few-flowered; calyx tube 2 to 3 mm. long, slightly longer than the sepals; ovary glandular pubescent; fruit red, smooth.

Type locality: San Quintin, Lower California.

*Specimens examined:*

Lower California: San Quintin, Palmer, 1898 (no. 741); San Julia Canyon and Las Huevitas, Brandegee, 1889; Euseñada, Anthony, 1897 (no. 182).

**Ribes pringlei** Rose, sp. nov.

? *Ribes campanulatum* H. & B. in Roem. & Schult. Syst. 5: 500. 1819, not Moench. 1794.

A bush 15 to 30 cm. high, unarmed; branches reddish, glabrous and shining; leaves small, 2 cm. long, 3-lobed, the lobes acute, doubly toothed, above becoming nearly glabrous but with some fine pubescence and more or less thickly studded with short glandular hairs; beneath pale, strongly nerved, becoming glabrate, but more or less thickly set with nearly sessile glands; petioles glandular and pubescent, broadened at base, shorter than the blade; racemes solitary in the axils, 2.5 to 5 cm. long, somewhat curved, bracteate; lower bracts more or less leaf-like, more or less glandular; pedicels 3 to 4 mm. long, jointed just below the flower; calyx glandular without, tubular, the tubes 8 mm. long, the lobes about 4 mm. long, acute or acuminate; petals much shorter than the lobes of the calyx, nearly as broad as long; stamens included; anthers glandular at tip; ovary glandular-pubescent; mature fruit not seen.

Collected by Mr. C. G. Pringle on the Sierra de Ajusco, altitude 3,000 meters, April 16, 1898 (no. 6811, type); at the same station, J. N. Rose, June 18, 1901 (no. 5522), in the Valley of Mexico by C. G. Pringle, 1897 (no. 7210a); and by J. N. Rose and Jos. H. Painter near Eslava, Valley of Mexico, September 17, 1903 (no. 7122).

**Ribes neglectum** Rose, sp. nov.

A bush 120 to 150 cm. high, unarmed; branches dull, grayish; young branches bearing stalked glands and a short close pubescence; leaves nearly orbicular in outline, 3 to 5-lobed, the lobes obtuse, doubly toothed, paler beneath, the pubescence on the nerves of soft interspersed with gland-tipped hairs, slightly cordate at base with a broad open sinus; petiole with stiff gland-tipped hairs and soft pubescence; racemes 5 to 12-flowered, erect or ascending at first, drooping in fruit; bracts rather conspicuous, ovate, toothed or entire; pedicels 3 to 6 mm. long, bibracteolate at base of flower; flower 15 mm. long; ovary bearing some gland-tipped hairs, otherwise glabrous; calyx tube hairy without, slightly longer than the lobes; lobes broadly ovate, obtuse; petals broad, crenately toothed; fruit said to be black when ripe, edible.

Collected by Dr. Edward Palmer at Alvarez, near San Luis Potosi, September 5 to 10, 1902 (no. 113, type), also in 1904 (no. 190), and at the same place by Parry and Palmer 24 years before (no. 232). The latter specimen has since remained as an undetermined *Ribes*. Mr. Hemsley in the *Biologia* so listed it, associating it with Bourgeau's no. 302 taken up elsewhere in this paper as *R. rugosum*. The sheet in the Gray Herbarium of Parry and Palmer's no. 232 contains two specimens, the fruiting one being the above species, while the flowering one suggests *R. pringlei*; but whether it is that species or still another undescribed one is hard to determine with the material in hand.

**Ribes ceriferum** Coville & Rose, sp. nov.

A bush, 1 to 3 meters high; bark of old branches dark brown, of young branches light brown, the latter somewhat pubescent and more or less glandular; leaves orbicular in outline, 2 to 4 cm. in diameter, slightly 3-lobed, the lobes broad and usually rounded, pale and somewhat puberulent on the veins beneath, dark green, somewhat shining and nearly glabrous above, both surfaces abundantly provided with sessile exuding glands, somewhat doubly serrate, each tooth tipped by a large gland; raceme few-flowered (probably); calyx tube somewhat pubescent; anthers tipped by a depressed gland; fruiting pedicels 5 mm. long; fruit black, glabrous.

Collected by E. W. Nelson on Mount Mohinora, southwest Chihuahua, altitude 2,550 meters, September 1, 1898 (no. 4870). It was collected along with species of *Zygadenus*, *Ligusticum*, *Washingtonia* (*Osmorrhiza*), etc.

It is very unlike the other Mexican currants, being perhaps more closely related to the *R. viscosissimum* of the United States.

**Ribes kunthii** Berland. Mem. Soc. Phys. Genev. II. 3<sup>2</sup>: 60. 1826.

*Ribes multiflorum* H. B. K. Nov. Gen. & Sp. 6: 60. 1823, not Willd. nor Kit.

*Ribes mexicanum* Spreng. Syst. 4: Cur. Post. 100. 1827.

**Ribes affine** H. B. K. Nov. Gen. & Sp. 6: 60. 1823.

A rather large spreading bush, 1 to 3 meters high, unarmed; leaves ovate in outline, extremely variable in size, either clustered near the top of stunted branches or single and distant, then larger, on the new branches; blade 1 to 5 cm. long, mostly 3-lobed, sometimes somewhat 5-lobed, usually acute but sometimes obtusish, slightly pubescent becoming nearly glabrate above, pale and somewhat pubescent especially along the veins beneath, doubly serrate; petioles slender; stipules ciliate-glandular; racemes usually drooping, 6 to 12-flowered; bracts pubescent and glandular, longer than the hairy pedicels; ovary glabrous; calyx tube 2 to 3 mm. long, slightly pubescent without; sepals somewhat longer than the tube (3 to 4 mm. long) somewhat purplish; petals minute (1.5 mm. long), nearly orbicular; fruit smooth, bluish black, small, rather dry.

Type collected "prope Moran" in the State of Hidalgo.

*Specimens examined:*

State of Hidalgo: Sierra de Pachuca, altitude 2,700 to 2,900 meters, C. G. Pringle, July 17, 1898 (no. 6904) and February 20, 1899 (no. 6996); J. N. Rose, July 21 and 22, 1901 (no. 5557).

Real del Monte, Rose and Hough, June 2, 1899 (no. 482).

This species is nearest *R. rugosum* but has less pubescence, and has the leaves less rugose and more strongly and sharply lobed, the flowers smaller and purplish, and the sepals longer than the calyx tube.

Humboldt collected near Moran, near the City of Pachuca, Hidalgo, two species of *Ribes* which were described as *R. multiflorum* and *R. affine*. In 1899 and again in 1901 and 1903 I visited the mountains about Pachuca with the hope of re-collecting these two species. I found, however, but one species, which was quite common on the mountain ranges both on the east and west of Pachuca. This one shows considerable variation in its foliage and inflorescence and this led me at first to the conclusion that Humboldt had obtained but one species, which seemed confirmed by Kunth's own doubt as to whether he had more than one species before him. In spite of my failure to find a second species I am now inclined to believe that Humboldt had two distinct species.

Hemsley in the *Biologia* uses for them the names *R. multiflorum* and *R. affine*, while the Kew Index calls them *R. kunthii* and *R. campanulatum*. In the first couplet *R. multiflorum* is a homonym, as also *R. campanulatum* in the second, so that the proper names for these species, if there be two, are *R. kunthii* and *R. affine*, as above.

**Ribes dugesii** Greenman, Proc. Am. Acad. 39: 78. 1903.

Type locality: Mountains of Santa Rosa near City of Guanajuata.

**Ribes ciliatum** H. & B. in Roem. & Schult. Syst. 5: 500. 1819.

*Ribes jorullense* H. B. K. Nov. Gen. & Sp. 6: 61. 1823.

Forming large bushes 3 to 5 meters high; stems 7 to 13 cm. in diameter; bark on old branches dark, on new branches light brown or sometimes reddish, softly pubescent and slightly glandular but on vigorous shoots bearing numerous stout glandular hairs; leaves either clustered at the ends of short spurs or scattered along the sterile shoots, somewhat variable in size, 2 to 8 cm. long by 3 to 9 cm. broad, 3 to 5-lobed, the lobes ovate, acute, doubly serrate, the upper surface somewhat glossy, glabrate or with

some fine pubescence towards the base and with scattered glandular hairs, beneath very pale, rugose and more pubescent than above, deeply cordate at base; racemes rather short and compact, 4 to 8 cm. long, many-flowered, nodding; bracts large, longer than the pedicels, pubescent both with soft and glandular hairs; bractlets minute, deciduous; pedicels pilose, 4 to 7 mm. long; calyx 8 to 9 mm. long, greenish white, the lobes acute, shorter than the tube, softly pubescent without, persistent on the fruit; ovary and fruit smooth, the latter shining, rather dry.

Common on all the high mountains of Mexico ranging from 3,000 to 3,900 meters.

*Specimens examined:*

Orizaba: Rose and Hay, July 25 and 26, 1901 (no. 6375).

Ixtaccihuatl: C. A. Purpus, January, 1903 (no. 53).

Popocatepetl: Rose and Hay, August 7 and 8, 1901 (no. 6009).

Toluca: C. G. Pringle, September 6, 1892 (no. 4253); Rose and Painter, October 15, 1903 (no. 7934).

Tancitaro: E. W. Nelson, February 24, 1904 (no. 6896).

Colima: M. E. Jones, July 13, 1892 (no. 140).

**Ribes rugosum** Coville & Rose, sp. nov.

PLATE LXVI.

A large bush, unarmed; leaves orbicular, 2.5 to 3.5 cm. in diameter, 3-lobed, the lobes obtuse, doubly crenate, above glabrous, beneath pale, somewhat rugose and pubescent; petioles shorter than the blade, pubescent; stipules broad, usually ciliate but nearly hidden by the large bud scales; racemes drooping, 7 to 12-flowered; bracts longer than the pedicels; ovary 2 mm. long, glabrous; calyx tube broad, 4 mm. long, pubescent without; sepals greenish, 2 to 3 mm. long, oblong, rounded and apiculate; petals nearly orbicular, scant 2 mm. long, narrowed at base into a short claw; style 2 or 3-lobed, scarcely exerted.

Collected by Bourgeau near Santa Fé in the Valley of Mexico in July, 1865-66 (no. 302) and at the same locality by Mr. C. G. Pringle, 1899 (no. 6999, type).

EXPLANATION OF PLATE LXVI.—Flowering branch, natural size.

**Ribes orizabae** Rose, sp. nov. For description see p. 339.

**Ribes grande** Rose, sp. nov. For description see p. 339.

## MIMOSACEAE.

### A NEW SPECIES AND A NEW NAME.

**Neptunia microcarpa** Rose, sp. nov.

A delicate plant with perennial and much branched base, glabrous and smooth except for a few glandular protuberances; stem 30 to 50 cm. long; leaves bright green, glabrous or sometimes with a few short hairs on rachis and leaflets; stipules at first green, becoming brown and scarious, broadly ovate, acuminate, 5 mm. long; pinnae 3 pairs or occasionally 4; leaflets 7 to 13 pairs, linear-oblong, 4 to 5 mm. long, obtuse; peduncles slender 4 to 6 cm. long; heads globular, small, few-flowered; bracts subtending the flowers persistent, ovate, acuminate; calyx lobes small, slightly pubescent on the margin; corolla greenish; stamens 10, in the lower flowers petaloid; ovary glabrous; pod sessile, orbicular to shortly oblong, .8 to 1.5 cm. long, 8 mm. broad, 2 to 4-seeded.

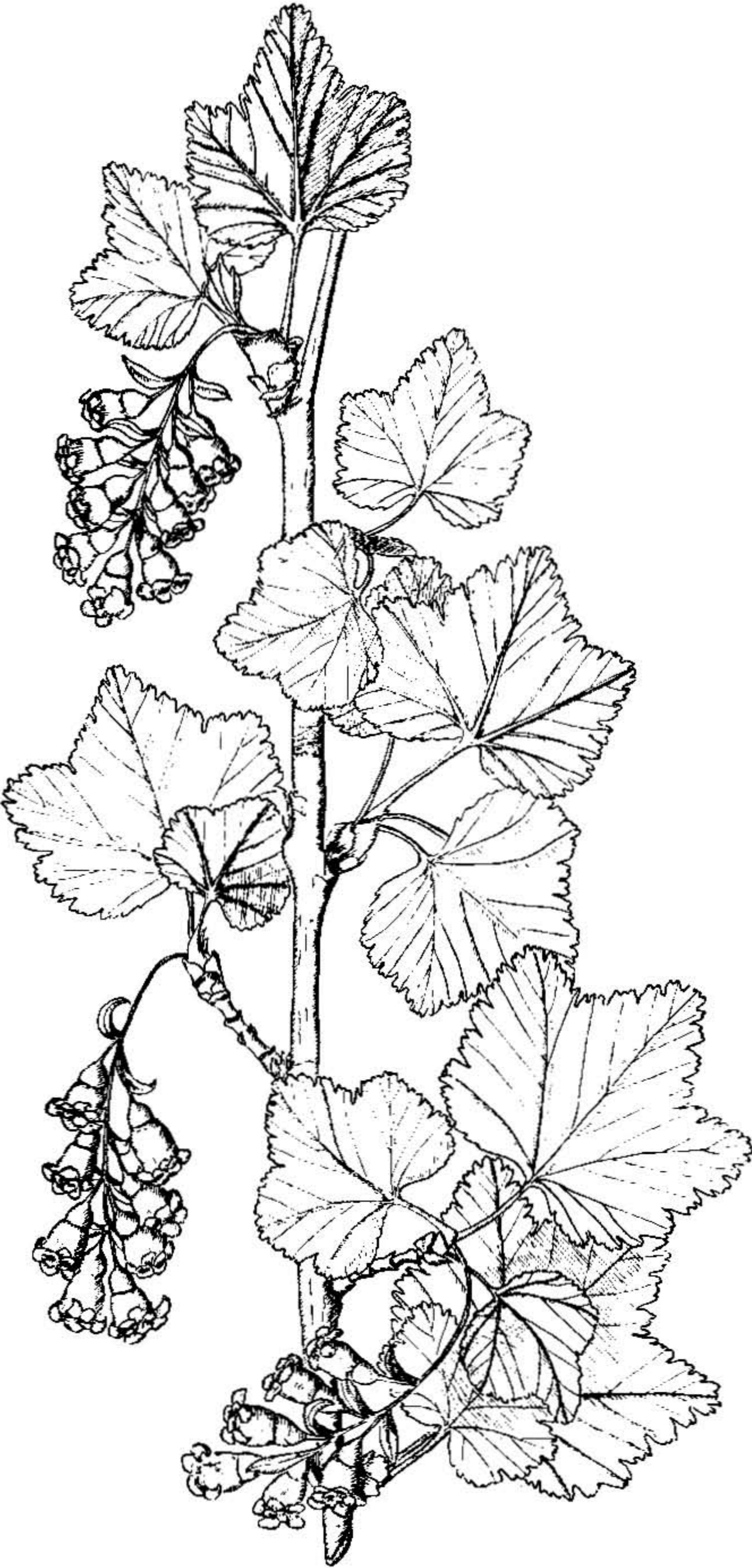
Collected by Mr. C. G. Pringle near Guadalajara, Jalisco in 1902 (no. 8626).

Very different from *N. lutea* in its pods, heads, and pubescence.

**Acacia sericocarpa** Rose.

*Acacia ambigua* Rose, Contr. Nat. Herb. 8: 31, 1903, not Hoffm. 1826.

Miss Mary A. Day has called my attention to the fact that my *A. ambigua* is a homonym.



RIBES RUGOSUM COVILLE AND ROSE.



## CAESALPINIACEAE.

THREE NEW SPECIES OF CERCIDIUM.<sup>a</sup>

Until recently only three species of *Cercidium* have been known from North America, viz, *C. floridum* Benth, *C. texanum* A. Gray, and *C. torreyana* S. Wats. In 1903 Micheli described *C. pleurifolia* from western Mexico and now I am adding three which have been discovered in our rich Mexican accessions.

***Cercidium peninsulare* Rose, sp. nov.**

A low tree much branched at top; young branches very green and pubescent; spines short and stiff, solitary; leaves several from each axil, pubescent; pinnae 1 pair; leaflets 2 or 3 pairs, oblong, rounded at base and apex, 10 to 12 mm. long; inflorescence 3 to 5-flowered; flowers yellow; ovary flattened, glabrous; pod 2.5 to 3.5 cm. long, 1 or 2-seeded, often constricted near the middle.

Collected by Dr. E. Palmer at La Paz, Lower California in 1890 (no. 112); at the same station by J. N. Rose, June 14, 1897 (no. 1320) and again by E. A. Goldman April, 1899 (no. 388, type); and by A. W. Anthony at San Jose del Cabo in 1897 (no. 363).

This species has been distributed both as *Parkinsonia microphylla* and as *P. torreyana*, but though we know little about it it seems quite distinct from either.

***Cercidium goldmani* Rose, sp. nov.**

Tree 7 to 12 meters high, the bark somewhat greenish; infrastipular spines single, straight; leaves small; peduncle and rachis a little pubescent; pinnae 2 pairs; leaflets 3 to 5 pairs, oblong, 3 to 5 mm. long, glabrous on both sides; inflorescence a few-flowered raceme, the petiole and branches pubescent; flower-buds at first puberulent, soon glabrate; petals yellow; stamens very hairy below; ovary glabrous; pod oblong, 5 to 9 cm. long, acute, cuneate at base.

Collected by E. A. Goldman at San Geronimo, Oaxaca, February 14, 1904 (no. 735).

***Cercidium unijuga* Rose, sp. nov.**

Tree 4.5 to 9 meters high with greenish bark; infrastipular spines single, short, straight, stiff; common petioles short (5 mm. or so long), pubescent; pinnae 1 pair, divergent; leaflets 5 to 8 pairs, linear-oblong, 5 to 7 mm. long, obtuse or retuse, pubescent, soon glabrate above; inflorescence few-flowered, pubescent; flowers yellow, about 15 mm. broad; stamens hairy at base; pod flattened, linear-oblong, 3 to 6 cm. long, 8 mm. broad, rounded or obtuse at apex, narrowly wedge-shaped at base, hardly stipitate, glabrous, few-seeded.

Collected by E. W. Nelson, near Cuicatlan, Oaxaca, October 8 to 24, 1894 (no. 1696).

## NEW NAME FOR A CASSIA.

***Cassia holwayana* Rose.**

*Cassia multiflora* Mart. & Gal. Bull. Acad. Brux. 10<sup>2</sup>: 305. 1843, not Schlecht. 1843, nor Vogel 1837.

This is a very beautiful flowering species with much larger flowers and fewer leaflets than the so called *C. biflora*.

<sup>a</sup>*Cercidium* Tulasne, Arch. Mus. Par. 4: 133. 1844. Type species *C. spinosa* Tulasne, loc. cit. 134.

## VICIACEAE.

THE PEDICELED SPECIES OF *PAROSELA* IN MEXICO.

The genus *Dalea* was first described by Linnaeus in 1737, in his *Hortus Cliffortianus* and also in his *Genera Plantarum* of the same year. In his *Species Plantarum* of 1753 it was reduced to *Psoralea*, where it remained until revived by Jussieu in 1789 (although he included in it what we now know as *Kuhnistera*). It was again taken up by Ventenat in 1799, by Cramer in 1803, and by Willdenow also in 1803. The last author and date are usually quoted as authority and beginning of the restored *Dalea*.

If this were the full history of *Dalea* we should have little trouble, for the only question would then be as to authority and date of restoration.

In the meantime, however, two other authors used the name *Dalea* for other genera, viz, P. Brown in 1756 and Gaertner in 1788, on account of which, according to our usage regarding homonyms, the restored *Dalea* of Linnaeus can not be used.

This is assuming that we begin our generic and specific nomenclature with 1753, which date has received the sanction of two influential bodies of American botanists the past year, which thus reaffirm the decision of the international botanical congress of 1892. If, however, we go back of 1753 for our starting point with genera, as some able botanists hold firmly that we ought to do and as in some cases there is good ground for doing, then the *Dalea* of Linnaeus should still stand. The Berlin botanists hold to the name *Dalea* on the ground that it has been long in use. There is still a third way in which *Dalea* L. can be maintained and this purely on the principle of priority, viz, because Linnaeus published *Dalea* as a homonym of *Psoralea dalea*. This technical ground might be resorted to for the preservation of the name were it not that a careful examination of other similar cases in Linnaeus's *Species Plantarum* shows that many of our well-known genera would be thrown into confusion by a like procedure.

After a careful consideration of all the arguments both for and against *Dalea*, I have come to the conclusion that the name should be given up. This will require the use of *Parosela* of Cavanilles, which name has already been used by several American botanists.

For several years past I have been studying the Mexican species of *Parosela* and collecting a large amount of material, with the intention of presenting a synopsis of the genus at an early date. There has long been a feeling among botanists that this genus was badly in need of a revision. The late Mr. Walpole was preparing for me drawings of the foliage and of dissections of the flowers, and had already thus figured 167 species. Although there is a great amount of material on hand

there are still a number of species which need to be more carefully studied, and for this reason I shall postpone for the present a full synopsis of the genus; but, owing to the fact that a number of new species have been distributed, especially by Mr. Pringle, and that others have proved to be the hosts of new fungi, I feel compelled to put out a partial synopsis of the genus.

The old genus *Dalea* has been divided into two subgenera. The larger one, *Eudalea*, is again easily divided into two groups, one having pediceled flowers and the other sessile ones. Below are presented practically all the known Mexican species of the first group, that is the *Paroselas*, with pediceled flowers. The species are arranged according to their relationships.

***Parosela unifoliata*** (Rob. & Greenm.) Rose.

*Dalea unifoliata* Rob. & Greenm. Proc. Am. Acad. **29**: 383. 1894.

***Parosela greenmaniana*** Rose, sp. nov.

Somewhat diffuse, slender, annual, glabrous, 30 to 40 cm. high; leaves normally with 3 leaflets; terminal leaflet much the largest, orbicular, 10 to 12 mm. in diameter, with glandular-dotted margin; racemes dense, spike-like, 2 to 4 cm. long; calyx tube a little over 1 mm. long, 10-angled, pubescent on the angles, the lobes ovate, shorter than the tube; petals purplish; keel and wings attached to the stamen tube near its middle; stamens 10; ovule one.

Collected by C. G. Pringle on dry soil at Las Sedas, Oaxaca, altitude 2400 meters, September 29, 1994 (no. 4924).

This species was distributed as *Dalea unifoliata*, but differs in the number of leaflets, small calyx, different calyx lobes, etc.

***Parosela fliciformis*** (Rob. & Greenm.) Rose.

*Dalea fliciformis* Rob. & Greenm. Proc. Am. Acad. **29**: 382. 1894.

***Parosela calycosa*** (A. Gray) Heller, Cat. N. A. Pl. ed. 2. 5. 1890.

*Dalea calycosa* A. Gray, Pl. Wright. **2**: 40. 1853.

***Parosela frutescens*** (A. Gray) Vail, comb. nov.

*Dalea frutescens* A. Gray, Bost. Journ. Nat. Hist. **6**: 175. 1850.

***Parosela spiciformis*** Rose, sp. nov.

Annual, 20 to 30 cm. high, erect and somewhat branching; stem and branches glabrous (at least below), purplish, glandular; leaflets 5 to 9, glabrous, oblong, 6 to 15 mm. long; rounded at apex, bearing small glands beneath, the margins crenulate; stipules setaceous; inflorescence a spike-like raceme 2 to 3 cm. long, terminal, on a slender peduncle (2 to 3 cm. long); bracts lanceolate, acuminate; calyx tube 1½ mm. long, strongly 10-angled, slightly hairy, glandular between the ribs; the lobes about as long as the calyx tube, green except the purplish tips.

Collected by C. G. Pringle near Iguala, Guerrero, October 3, 1900 (no. 9255).

***Parosela vernicia*** Rose, sp. nov.

Annual, 60 to 90 cm. high, slender, glabrous; leaves sessile or nearly so, narrow; stipules setaceous; leaflets 21 to 41, narrowly oblong, 5 to 7 mm. long, glabrous on both sides, glandular-dotted beneath and especially on the margin, obtuse; peduncles slender, 5 to 8 cm. long; spike densely flowered, 1 to 3 cm. long; calyx tube covered with long glossy silky hairs, the tube 10-angled, 2 mm. long, the teeth unequal; corolla deep purple.

Collected by C. G. Pringle on lava fields near Yautepec, Morelos, October 26, 1902 (no. 868).

**Parosela delicata** Rose, sp. nov.

Annual; stems erect, very delicate, somewhat branched, glabrous; leaves narrow; leaflets 7 to 15 pairs, minute (2 mm. long), narrowly oblong, glabrous, retuse; stipules minute; rachis slightly winged; racemes slender, axillary, 3 to 6 cm. long (including the petiole), 4 to 9-flowered; bracts ovate, glabrous, infolding the flower buds, glandular-dotted and glandular-serrate, caducous; pedicels short but distinct (1 mm. or less long); calyx strongly 5-angled, the angles cinerous-pubescent, the spaces between glabrous and bearing a few large brown glands, 5 mm. long, cleft to near the middle; lobes ovate, acute, serrulate; corolla purplish, the longer petals 7 mm. long.

Collected by C. G. Pringle on dry hills near Iguala, Guerrero, altitude 780 meters, September 14, 1900 (no. 8442).

A very delicate little plant suggesting *P. diffusa*, but with pubescent calyx, sepals, etc., and otherwise very different.

**Parosela palmeri** Rose, sp. nov.

Shrubby, about one meter high with long weak branches, glabrous or nearly so; leaflets about 25 pairs, oblong, 2 mm. long, retuse at apex, glabrous, somewhat glandular beneath; inflorescence an elongated loose-flowered raceme; rachis and bracts glabrous; calyx tube turbinate, strongly 10-angled, pubescent on the angles; corolla purplish.

Collected by Dr. E. Palmer near Alamos, Sonora, September, 1890 (no. 739).

This species was distributed as *Dalea parryi*, but although similar in some respects it is abundantly distinct.

**Parosela neglecta** (Robinson) Rose.

*Dalea neglecta* Robinson, Proc. Am. Acad. **29**: 329. 1894.

**Parosela procumbens** (DC.) Rose.

*Dalea procumbens* DC. Prod. **2**: 246. 1825.

**Parosela holwayi** Rose, sp. nov.

Probably biennial, but sometimes appearing as though perennial, diffuse and perhaps prostrate; branches many, slender, glabrous or slightly hairy towards the tips, purplish; leaflets 4 to 11 pairs, oblong, glabrous or nearly so, glandless; rachis slender, sometimes slightly pubescent; peduncles slender; flowers clustered near the top of the peduncle in a head-like cluster, but distinctly pediceled; calyx strongly 10-angled, hairy on the angles, bearing one row of glands between every two ribs; calyx lobes 1 mm. long, half as long as the tube, obtuse, green, ciliate; wings obtuse, violet-colored, 4 mm. long; keel violet-colored except a yellow patch on the lower side; both wings and keel attached to stamen tube a short distance above its base; banner small, mostly yellowish.

Collected by E. W. D. Holway near Iguala, Guerrero, November 3, 1903 (nos. 48, type, & 5139) and near Cuantla, Morelos, October 23, 1903 (no. 18).

This species is perhaps nearest *P. procumbens*, but certainly very distinct.

It gives me great pleasure to name this beautiful little *Parosela* for Mr. Holway, not only as a reminder of our association in Mexican work but also in recognition of his most unselfish devotion to botanical research.

**Parosela chrysorrhiza** (A. Gray) Rose.

*Dalea chrysorrhiza* A. Gray, Proc. Am. Acad. **5**: 156. 1861.

**Parosela maritima** (Brandege) Rose.

*Dalea maritima* Brandege, Proc. Cal. Acad. II. **2**: 125. 1891.

**Parosela parryi** (T. & G.) Heller, Cat. N. A. Pl. ed. 2. 6. 1900.

*Dalea parryi* T. & G. Proc. Am. Acad. **7**: 397. 1868.

**Parosela peninsulare** Rose.

*Dalea canescens* Benth. Bot. Sulph. 12. 1844, not Mart. & Gal. 1843.

Type locality: "Bay of Magdalena," Lower California.

Annual, diffuse, 20 to 25 cm. broad; stems somewhat glandular, clothed (as also the leaves, peduncle, calyx, bracts, etc.) with short white spreading hairs; leaflets 11 to 15, obovate-oblong, obtuse or retuse, 2 to 4 mm. long, somewhat glandular on the under surface; inflorescence a short spike-like raceme, terminal; peduncle slender, 1 to 15 cm. long; bracts lanceolate; calyx tube 2 mm. long; teeth ovate, acute, about the length of the calyx tube; keel and banner attached low down on stamen tube.

Described from specimens collected at type locality of *Dalea canescens* by T. S. Brandegee.

**Parosela goldmani** Rose, sp. nov.

Probably a perennial; branches with spreading hairs becoming glabrate, glandular; leaves slender; leaflets 15 to 18 pairs, shortly oblong, obtuse, 3 to 4 mm. long, pubescent on both sides; racemes spike-like, 2 to 4 cm. long, on short peduncles; pedicels short, subtended by narrow bracts; calyx hairy, the lower lobe a little longer than the other four; wings and keel purplish, banner yellowish; stamens 10.

Collected by E. A. Goldman on Sierra de Choix, Sinaloa, October 17, 1898 (no. 267).

**Parosela viridiflora** (S. Wats.) Rose.

*Dalea viridiflora* S. Wats. Proc. Am. Acad. 21: 448. 1886.

**Parosela lasiostoma** Rose, sp. nov.

Annual with long prostrate branches, glabrous and very glandular; leaflets 13 to 25, glabrous, obtuse or retuse, 2 to 5 mm. long, bearing large glands beneath; glandless above; stipules setaceous; peduncles very short; racemes very dense and spike-like; pedicels distinct but very short; bracts ovate, glabrous or slightly ciliate; calyx 2 to 2.5 mm. long, 10-nerved, glabrous without, bearing one or two large glands between the ribs; the teeth very short and broad, hairy within; petals purplish; wings and keel attached rather low on the long-exserted stamen tube.

Collected by C. G. Pringle on chalky bluffs near Tula, Hidalgo, 1902 (no. 8723, type) and at Cieneguilla, Oaxaca, November 1, 1894 (no. 5657); and by J. N. Rose and Jos. H. Painter at Tequixquiac, Hidalgo, August 30, 1903 (no. 6623).

The Oaxaca specimen was distributed as *Dalea nutans*, from which it must be quite different.

**Parosela radicans** (S. Wats.) Rose.

*Dalea radicans* S. Wats. Proc. Am. Acad. 17: 341. 1882.

**Parosela divaricata** (Benth.) Rose.

*Dalea divaricata* Benth. Bot. Sulph. 12. 1843.

**Parosela minor** Rose, sp. nov.

Perennial, probably procumbent, branched at base and with long slender stems, glabrous; leaflets 10 to 20 pairs, glabrous, oblong, 4 mm. long, rounded or retuse at apex, thin, glandular beneath; inflorescence a slender many-flowered, spike-like raceme, including the petiole 6 to 10 cm. long; bracts linear, shorter than the calyx; calyx turbinate, strongly 10-angled, glabrous, glandular above; the lobes lanceolate, acute, a little shorter than the tube, hairy on the inner face and margins; corolla violet.

Collected by Dr. E. Palmer at Lodiago, Sinaloa, October 9 to 15, 1891 (no. 1624).

Perhaps most closely related to *P. anthonyi* of Lower California, but with glabrous leaves, different calyx, etc. It differs from *P. palmeri* in its larger and glabrous calyx tube, etc.

**Parosela gracillima** (S. Wats.) Rose.

*Dalea gracillima* S. Wats. Proc. Am. Acad. 22: 404. 1887.

This rare species was collected by Rose & Painter at Rio Blanco near Guadalajara, September 30, 1903 (no. 7495).

**Parosela diffusa** (Moric.) Rose.

*Dalea diffusa* Moric. Mem. Geneve 6: 536. pl. 6. 1833.

Under the name of *Dalea diffusa* have been aggregated many of the species with pediceled flowers, including such very distinct types as *D. nutans*, *D. submontana*, etc. I have examined much herbarium material labeled *D. diffusa*, but very little if any of it seems typical. With Moricand's good figure as a guide this species ought some time to be clearly made out.

**Parosela nutans** (Cav.) Rose.

*Psoralea nutans* Cav. Ic. 3: 1. pl. 201. 1794.

*Dalea nutans* Willd. Sp. Pl. 3: 1339. 1801.

**Parosela minutiflora** Rose, sp. nov.

A delicate erect little annual, much branched, glabrous and somewhat glandular; leaflets 6 to 14 pairs, oblong to linear-oblong, 3 to 7 mm. long, truncate or retuse, glabrous, glandular on both sides especially at or near the margins; rachis winged between the leaflets; stipules scarious, filiform; inflorescence a small raceme of 2 or 3 flowers, pedicels very distinct; calyx including the lobes 2 mm. long, glabrous, angled, bearing large glands between the ribs; keel and wings borne near the middle of the stamen tube; stamens 10; style slender; ovary glandular.

Collected by Mr. C. G. Pringle near Yautepec, Morelos, 1902 (no. 8721).

A species of the so called *P. diffusa* group, but quite distinct from any known to the writer.

**Parosela submontana** Rose, sp. nov.

Herbaceous and probably an annual, about one meter high with long and slender branches, more or less purplish, glabrous; leaves slender; leaflets usually 15 to 20 pairs, sometimes fewer, glabrous, linear-oblong, the margin somewhat glandular; rachis not winged; inflorescence a broad leafy panicle of racemes; racemes elongated; somewhat rigid, 8 to 10 cm. long, many-flowered, pedicels very distinct; calyx tube glabrous, 2 to 2½ mm. long, its teeth ovate, acute, serrulate on the margins; corolla violet, 10 to 11 mm. long.

Collected by J. N. Rose near Plateado, Zacatecas, September 2, 1897 (no. 2744). Other specimens of this species have been seen in herbaria and the species is apparently common in the Sierra Madre of Northern Mexico.

The species is clearly of the *P. diffusa* and *P. nutans* type, but very distinct from either.

**Parosela elongata** Rose, sp. nov.

Perhaps a perennial but lower part of stem not seen; branches elongated, glabrous, purplish, glandular; leaflets 3 to 7 pairs, oblong, obtuse, 7 to 12 mm. long, glabrous, the margin bearing large glands and the under surface small ones; inflorescence an elongated stiff spike-like raceme, often 20 cm. long including the pedicel; panicles very distinct; calyx strongly 10-angled, glabrous, bearing a row of large glands between the ribs, its tube 1.5 mm. long; calyx teeth about as long as the tube, green, slightly serrulate; flowers purple; stamens 10.

Collected by Mr. C. G. Pringle at Jojutla, Morelos, August 30, 1902 (no. 11,365).

**Parosela crenulata** (Hook. & Arn.) Rose.

*Dalea crenulata* Hook. & Arn. Bot. Beech. 285. 1840.

*D. crenulata*, referred in *Biologia Centrali-Americana* and *Kew Index* to *D. nutans*, should be restored to specific rank. Hooker and Arnott have well characterized it, assigning to it a shrubby habit, purplish stems, short dense racemes, and few leaflets. To these may be added a terete leaf rachis and serrulate calyx lobes.

This species has been repeatedly collected in western Mexico in recent years.

### A FASCICLE OF NEW LUPINES.

**Lupinus compactiflorus** Rose, sp. nov.

Perennial, simple, erect, 30 to 40 cm. high; pubescence of stems of two kinds, one of rather close short hairs, the other of long, more or less spreading hairs; leaflets 8

to 10, oblong, 2 to 3 cm. long, densely hairy beneath; stipules linear with pubescence like that of the stem; racemes subsessile, compact; bracts linear, much longer than the very short pedicels; calyx 2-lipped, the lower lip only a little longer than the upper; upper lip notched; keel not ciliate; fruit not seen.

Collected by J. N. Rose near Tultenango Canyon, State of Mexico, July 13, 1901 (no. 5430).

**Lupinus geophilus** Rose, sp. nov.

Perennial, the stems prostrate on the ground often forming a dense mat, densely pilose-pubescent; stipules small, united with the petiole for one-third their length, the free parts linear to narrowly lanceolate, green; petioles pilose; leaflets 7 or 8, glabrous above, slightly pilose beneath, 1 to 2 cm. long, obtuse; inflorescence a very short spike-like raceme, 10 cm. or less long, sessile or subsessile; bracts narrow, conspicuous in the young raceme, longer than the pedicels but not extending beyond the developed calyx; calyx pubescent, 2-lipped; upper lip 3 mm. long, deeply notched, lower lip entire, 6 mm. long; banner 10 to 12 mm. long; pods spreading, pubescent with long yellowish hairs.

Collected by J. N. Rose and Jos. H. Painter at Cima, in the State of Mexico, September 19, 1903 (no. 7160, type), and in the upper slopes of Nevada de Toluca, October 15 and 16, 1903 (nos. 7908, 7967, and 7969).

In habit very unlike any other species of central Mexico.

**Lupinus chiapensis** Rose, sp. nov.

Perennial, 120 to 180 cm. high, more or less branching, glabrous or at least glabrate below, with short, somewhat scanty appressed pubescence above; leaflets 4 to 7, oblong, 1.5 to 3.5 cm. long, obtuse, shortly mucronate, green and glabrous above, but with scanty appressed pubescence beneath; stipules small, free nearly to the base; racemes elongated, 10 to 20 cm. long; flowers subverticillate; bracts setaceous, small; pedicels short, 2 to 3 mm. long; calyx appressed-pubescent, 2-lipped; lower lip 4 mm. long, twice as long as the upper; upper lip short, 2-toothed; bractlets at base of calyx; pods narrowly oblong, 3 to 4 cm. long, in the immature state hairy.

Collected by E. W. Nelson near San Cristobal, Chiapas, September 18, 1895 (no. 3199).

**Lupinus confusus** Rose, sp. nov.

A low rather spreading plant, nearly glabrous; leaflets 6 to 8, linear, somewhat narrowed at base, obtuse, green and glabrate above, only slightly hairy beneath, 2.5 to 6 cm. long, at most 5 mm. wide; petioles elongated, longer than the leaflets; stipules small, united with the petiole for more than half their length, free parts setaceous; bracts narrowly lanceolate, long-acuminate, caducous; flowers in subverticillate racemes; calyx with scanty appressed pubescence, two-lipped; lower lip acute, entire, 5 mm. long, upper strongly 2-toothed, 4 mm. long; bractlets minute, borne at the mouth of the calyx; keel ciliate; pods narrow; 3 cm. long, 3 to 5-seeded, cuneate at base, acuminate.

Collected by C. G. Pringle in the Sierra Madre, State of Chihuahua, October 5, 1887 (no. 1205) and distributed as *L. chrenbergii*. It differs considerably, however, from that species, especially in leaflets, pubescence, calyx, etc.

**Lupinus giganteus** Rose, sp. nov.

Perennial with tall branching stems with only scant appressed pubescence; stipules small, united with the petiole for half their length, the free parts setaceous; leaflets 6 to 8, oblong, green and slightly hairy above; racemes subsessile, elongated, 60 to 80 cm. high, many-flowered; pedicels slender, 1 cm. long, with 2 branchlets near the middle; bracts lanceolate, long-attenuate, much longer than the buds, early deciduous; calyx 2-lipped, both lips entire; lower lip narrow, 9 mm. long, strongly nerved; upper lip 6 to 7 mm. long, broad, acute; ovary densely pubescent; old pods nearly glabrous.

Collected by J. N. Rose and Jos. H. Painter at a siding on the Mexican National Railroad on the rim of the Valley of Mexico above Dos Rios, September 4, 1903 (no. 6813).

**Lupinus glabrior** (S. Wats.) Rose.

*Lupinus montanus glabrior* S. Wats. Proc. Am. Acad. **23**: 270. 1888.

Stems nearly glabrous; stipules longer and inflated, 4 to 5 cm. long, united with the petiole except at the tip; petioles slender, 10 to 12 cm. long; leaflets 12 to 14, lanceolate-linear, narrowed at base, acute, 8 to 10 cm. long, nearly glabrous; inflorescence slender-peduncled, 10 to 12 cm. long; bracts 10 to 15 mm. long, oblong, obtuse, thin; pods spreading, narrowly oblong, only slightly hairy in age, 5 cm. long.

Collected by C. G. Pringle on a cool wooded slope of the summit of the Sierra Madre, altitude 2,910 meters, Chihuahua, October 7, 1887 (no. 1206).

**Lupinus grandis** Rose, sp. nov.

Stems tall and branching, lanate-pubescent above, nearly glabrous below; leaflets 5, oblong, obtuse, 4 to 6 cm. long, 1 to 2 cm. broad, green and glabrous above, pale and slightly pubescent beneath; stipules minute, free nearly to the base; racemes subsessile, in specimens seen not over 10 cm. long even in fruit; bracts small, caducous; pedicels about 2 mm. long; calyx 2-lipped; upper lip entire, 2 mm. long; lower lip 4 to 5 mm. long; pods spreading, hairy.

Collected by J. N. Rose in the lower belts of the pine forest of Mount Popocatepetl, altitude 2,700 meters, August 22, 1901 (no. 6320).

**Lupinus macranthus** Rose, sp. nov.

Probably tall and branching; the branches, petals, and rachis clothed with a dense matted pubescence; stipules narrow; leaflets 7 to 9, oblanceolate, 3 to 6 cm. long, 10 to 14 mm. broad at widest point, more or less obtusish at apex, apiculate, pale on both sides; peduncle 10 cm. or more long; inflorescence 10 to 15 cm. long, the flowers arranged in distant verticillate clusters; pedicels 7 to 10 mm. long; bracts very narrow; calyx appressed-pubescent, strongly 2-lipped, the lower lip only a little longer than the upper, obtuse; upper lip slightly notched, 7 mm. long; bractlets at mouth of calyx 3 to 4 mm. long; keel glabrous; banner 15 mm. long.

Collected by E. W. Nelson near Reyes, Oaxaca, altitude 2,250 to 3,120 meters, October 17, 1894 (no. 1749).

**Lupinus neglectus** Rose, sp. nov.

Perennial, much branched; stems with pubescence of two kinds, one short and close, the other of long coarse hairs, somewhat spreading; stipules small, the free parts setaceous; leaflets 6 to 8, oblong to oblanceolate, bright green and slightly hairy above, paler and more hairy beneath; peduncle 10 or more cm. long; racemes rather open; pedicels short; calyx deeply 2-lipped; lower lip 5 mm. long; upper lip retuse, 3 mm. long; keel glabrous; pods oblong, hairy, spreading.

Collected by Dr. E. Palmer at Alvarez, State of San Luis Potosi, September 5 to 10, 1904 (no. 134) and in 1878 (no. 130½, type).

The latter number was distributed as Parry and Palmer's, but without specific name.

**Lupinus nelsoni** Rose, sp. nov.

Large coarse plants 120 to 180 cm. high, pubescent throughout; leaflets 12 to 15, lanceolate, acute, 8 to 12 cm. long, glabrous above, but with long soft hairs beneath; stipules sometimes 8 to 10 mm. long, the free parts long-acuminate; bracts long-acuminate, much longer than the flowers; pods narrow, in age glabrate.

Collected by E. W. Nelson on Cerro San Felipe, Oaxaca, in 1894 (no. 1145).

This species is near *L. montanus*, but has very different stipules, narrower pods, etc.

**Lupinus persistens** Rose, sp. nov.

Perennial, simple or sometimes developing short lateral branches, erect, about 40 cm. high, with a short appressed pubescence containing some longer hairs; leaflets



6 or 8, oblong, 3 to 5 cm. long, green or nearly glabrous above, pubescent beneath; stipules linear; raceme short-peduncled; bracts persistent even after the flowers have fallen; pedicels very short; calyx 2-lipped; the lips nearly equal, the upper one broad and barely notched.

Collected by J. N. Rose and Walter Hough on mountains above Real del Monte, Hidalgo, June 2, 1899 (no. 4476).

This species has the habit of *L. compactiflorus* Rose, but has different pubescence, more persistent bracts, etc.

**Lupinus potosinus** Rose, sp. nov.

Stems perhaps tall, branching, the branches ascending, slender, somewhat pubescent with upwardly appressed hairs; stipules small, the free tips linear; petioles slender, 3 to 5 cm. long; leaflets 6 to 9, oblong to broadly spatulate, 2 to 3.5 cm. long, obtuse, green and only slightly hairy above, pale and somewhat hairy beneath; inflorescence on a slender peduncle, 10 to 15 cm. long, rather open and the flowers somewhat verticillate; bracts ovate, acute; pedicels rather slender; calyx 2-lipped; the upper lip 2-toothed, erect, 3 mm. long; the lower lip spreading, entire; pods spreading, 3 cm. long; seeds mottled.

Collected by Dr. E. Palmer at Alvarez, State of San Luis Potosi, September 28 to October 3, 1902 (no. 191, type) and in 1878 (no. 130).

The latter number distributed as Parry and Palmer's no. 130 was mentioned by Mr. Hemsley in the *Biologia* as a doubtful *L. cytisoides*.

**Lupinus pringlei** Rose, sp. nov.

Perennial, erect, herbarium specimen 30 cm. long, but entire plant doubtless much taller; pubescence of two kinds, one of short soft somewhat matted hairs, the other of long silky spreading hairs; petioles slender, longer than the leaflets; stipules 1.5 to 2 cm. long, somewhat inflated at base, united with the petiole for about one-third its length, the free parts attenuate and spreading from the petiole; leaflets 6 to 8, oblanceolate, broadest just below the apex, acute, 3 to 5 cm. long, glabrous above, silky beneath; inflorescence short, loosely flowered; pedicels very short (1 to 2 mm. long); bracts setaceous, 8 to 10 mm. long; calyx 2-lipped; upper lip 5 mm. long, deeply notched; lower lip entire, 8 mm. long; pods ascending, hairy.

Collected by C. G. Pringle at Eslava, Valley of Mexico, May 21, 1901 (no. 9538, type) and by Bourgeau at San Angel, same valley, 1865-6 (no. 88).

**Lupinus reflexus** Rose, sp. nov.

Undoubtedly perennial and probably branching; branches closely pubescent and slightly pilose; stipules rather prominent, 2 cm. long, the free parts elongated; leaflets 7 to 9 oblong, 3 to 4 cm. long, mucronate, nearly glabrous above, hairy beneath; inflorescence at first a very dense sessile raceme; bracts lanceolate, acuminate, strongly reflexed even among the flower buds, tardily deciduous; pedicels densely lanate; calyx deeply 2-lipped; the upper lip broad, slightly notched, 7 mm. long; lower lip narrower than the upper, 8 mm. long, entire; calyx tube bearing 2 bractlets near the base; keel slightly ciliate; pods hairy; seeds dark, mottled.

Collected by M. E. Jones on the Volcano of Colima, Jalisco, July 13, 1892 (no. 204).

**Lupinus splendens** Rose, sp. nov.

Perennial, tall and much branched, softly pubescent; petioles (of the upper leaves at least) shorter than the leaflets; stipules filiform, 10 to 12 mm. long; leaflets oblong, 2 to 4 cm. long, acute and apiculate, nearly glabrous above, silky-pubescent beneath; peduncles either wanting or 3 to 5 cm. long; racemes 10 to 15 cm. long, in fruit even longer; bracts very conspicuous in the bud, elongated, filiform; pedicels very pubescent; calyx strongly 2-lipped; lower lip 9 mm. long; upper lip rather broad, 6 mm. long, faintly retuse at apex; keel very slightly ciliate; pods 3 to 3.5 cm. long, yellowish-pubescent; seeds dark, mottled.

Apparently common on the high mountains bordering the Valley of Mexico, ranging from 3,000 to 3,600 meters in altitude.

*Specimens examined:*

Mexico: Mt. Popocatepetl, Rose and Hay's nos. 6305, 6318 (type), August 22, 1901.

Morelos: Mr. Holway's no. 5208 from near Amecameca, 1903; Rose and Painter's no. 7222, September 29, 1903, from El Parque.

**Lupinus simulans** Rose, sp. nov.

Stems low, branching, with short somewhat spreading pubescence, very scant below; leaflets 3 to 6, oblanceolate, 1 to 3 cm. long, obtuse, shortly mucronate, cuneate at base, green and with scanty long upwardly appressed hairs, paler and more hairy beneath; petioles shorter than the leaflets; stipules minute, on the upper leaves at least 1 to 3 mm. long; flowering racemes short, 5 to 10 cm. long, with few scattered flowers; bracts setaceous, 2 to 3 mm. long; pedicels 5 to 6 mm. long; calyx with scanty appressed pubescence, 2-lipped; lower lip a little longer than the upper, 7 to 8 mm. long, acute; upper lip 6 to 7 mm. long, 2-toothed at apex; keel ciliate; immature pods very hairy.

Collected by E. W. Nelson, 18 miles southwest of Oaxaca City, September, 1894, (no. 1357, type) and by Charles L. Smith on Sierra de Clavellinas, Oaxaca, October, 1894 (no. 330).

This species is quite unlike any of the other Mexican species. It very much resembles in habit *Crotalaria lupulina* H. B. K.

**Lupinus vernicius** Rose, sp. nov.

Perennial, 50 to 60 cm. high, softly pubescent and slightly pilose; stipules small, linear; leaflets 5 to 7, oblong, 2 to 4 cm. long, nearly glabrous above, a little hairy beneath; raceme very short-peduncled; flowers verticillate; verticels distant; bracts caducous, silky; pedicels 2 or 3 mm. long; calyx 2-lipped; upper lip 3 mm. long, retuse; lower lip entire, 6 to 7 mm. long; keel ciliate; pods ascending, silky.

Collected by J. N. Rose and Jos. H. Painter on side of barranca above Santa Fé, Valley of Mexico, August 22, 1902 (no. 6509).

**FOUR NEW SPECIES OF INDIGOFERA.****Indigofera micheliana** Rose, sp. nov.

Stems herbaceous; leaflets 15 to 17, opposite, oblong, rounded at apex and cuspidate, somewhat cuneate at base, appressed-pubescent on both sides, 10 to 20 mm. long; racemes shorter than the leaves; pods reflexed, straight, 10 to 12 mm. long, flattened, pubescent, few-seeded.

Collected by Enrique Th. Heyde in Guatemala, 1892 (no. 198), and perhaps also no. 3755 of Heyde & Lux as distributed by Capt. John Donnell Smith. This latter plant Micheli states is probably new, but he does not describe it on account of the poor quality of his material.

**Indigofera jaliscensis** Rose, sp. nov.

Probably shrubby; branches channelled, clothed with an appressed whitish pubescence; leaflets about 21, oblong, rounded at base and apex, appressed-pubescent on both sides, 8 to 15 mm. long, mucronate; stipules filiform, 4 to 6 mm. long; leaf rachis strongly channelled; racemes much elongated, 20 cm. long, much longer than the leaves; flowers not seen; fruit small, spherical, one-seeded.

Collected by Dr. E. Palmer near Rio Blanco, State of Jalisco, 1896 (no. 596), and distributed as *I. sphaerocarpa*, from which it differs in having the leaflets more numerous, pubescent upon the upper surface, rounded and not cuneate at base, the racemes much more elongated, the fruit smaller, etc.

**Indigofera konzattii** Rose, sp. nov.

Low shrubby plant; branches covered with closely appressed hairs, some brown and some white; leaflets 4 to 8 pairs, opposite, pubescent on both sides, greener above, 10 to 15 mm. long, oblong, rounded and apiculate at apex, rounded or broadly

cuneate at base; racemes usually shorter than the leaves, 3 to 4 cm. long, becoming sometimes 6 cm. in fruit; calyx campanulate, 1 mm. long, brownish-pubescent, its teeth minute; banner of corolla 6 mm. long, densely covered with brownish hairs; wings and keel glabrous, pinkish or light violet; pods whitish-pubescent, reflexed, 2 to 2.5 cm. long, slightly flattened.

Only known from Monte Alban near Oaxaca City, but here found by several collectors. Specimens have been distributed as *I. palmeri*, but it is certainly quite distinct.

*Specimens examined:*

Oaxaca: Monte Alban, Rose and Hough, June, 1899 (no. 4583, type); Charles L. Smith, September 5, 1894 (no. 336); Lucius C. Smith, 1894 (no. 309); Conzatti and Gonzales, July and August, 1900 (no. 1027).

Named for my good friend Prof. C. Conzatti, who guided me to Monte Alban and who in many ways assisted me while in Oaxaca in 1899.

**Indigofera montana** Rose, sp. nov.

Herbaceous or perhaps shrubby at base, 60 to 120 cm. high; leaflets 21 to 31, opposite, oblong, 10 to 20 mm. long, obtuse or retuse, mucronate, more or less tapering at base, appressed-pubescent on both sides; racemes blackish-pubescent, elongated but shorter than the leaves; calyx broad, clothed with blackish appressed hairs, 5-toothed, 1 mm. high; teeth small, acute, shorter than the calyx tube, not thickened, the two upper ones widely separated, the 3 lower approximate; banner blackish-pubescent without, 4 mm. long, folded and somewhat hooded at top, sessile; keel retuse at apex; ovary curved, 3 or 4-ovuled, covered with blackish hairs; pods probably curved, those seen immature. Perhaps nearest *I. lindheimeri*, but with different pubescence, calyx, leaflets, etc. It is probably also found at higher altitudes.

Collected by J. N. Rose between Mesquitec and Monte Escobado, August 26, 1897 (no. 2607, type), near Monte Escobado, August 28 (no. 2666); and on mountain side in southern part of State of Durango, August 16 (no. 2339). Also by Dr. E. Palmer on the west side of "Iron mountain" near the City of Durango, 1896 (no. 703).

**THREE NEW SPECIES OF PHASEOLUS.**

**Phaseolus** (Leptospron) **cuernavacanus** Rose, sp. nov.

A tall climbing vine; stems slender with pubescence usually spreading; leaflets 3, ovate, 3 to 6 cm. long, acute at base, somewhat hairy on both surfaces; peduncles 7 to 12 cm. long, projecting above the leaves; flowers few, clustered near the top of the peduncle; pedicels very short; bractlets at base of calyx ovate to lanceolate; calyx tube broad; upper lip very broad and short; lower lip 3-lobed, the lobes equal, about as long as the calyx tube; banner broad, purplish, glabrous; wings 2 cm. long; immature pods slightly pubescent.

Collected by J. N. Rose and Jos. H. Painter on the border of the pedregal near Cuernavaca, Morelos, September 9, 1903 (no. 6911, type), and near the same place by C. G. Pringle, 1896 (no. 7214), 1900 (no. 9244), and September 9, 1903 (no. 11,864).

**Phaseolus** (Leptospron) **elongata** Rose, sp. nov.

A low vine climbing for 30 to 60 cm. or suberect, often much branched and slender, somewhat hirsute but often becoming glabrate; leaflets much elongated, oblong-linear, 4 to 10 cm. long, 5 to 10 mm. broad, rounded or even cordate at base, rounded but mucronate at apex, glabrous except for a few hairs on the margin and midrib, strongly reticulated; petioles more or less hirsute, much shorter than the leaflets; stipules ovate, many-nerved; peduncle elongated bearing a few flowers near the apex; flowers short-pedicel, jointed on to a receptacle-like protuberance; bracts subtending the flowers ovate, acute, 4 mm. long, strongly-nerved; calyx tube broad, somewhat hairy, 4 mm. high; the lower and two lateral lobes ovate, long-acuminate,

8 mm. long, the lateral lobes somewhat falcate, the upper lobe broad and retuse, much shorter than the others; corolla large, 2.5 cm. long, "dark purple;" ovary glabrous or nearly so, linear.

*Specimens examined:*

Oaxaca: Near Santo Domingo, altitude 480 meters, E. W. Nelson, June 18, 1895 (no. 2692), and Santa Efigenia, altitude 150 meters, E. W. Nelson, July 18, 1895 (no. 2848, type).

**Phaseolus occidentalis** Rose, sp. nov.

A high-climbing vine; branches becoming glabrate; leaflets broadly ovate to orbicular, 5 to 10 cm. long, round at base and apex, slightly hairy on both sides, prominently veined beneath; racemes including the peduncle elongated, often more than 3 dm. long, bearing mature pods, flowers, and young buds at the same time; pedicels short; bracts subtending the flowers ovate, obtuse, glabrous, nerved; calyx reticulated, nearly glabrous; calyx tube 4 mm. long; the lateral and lower sepals about the length of the tube, narrow; upper lobe broad and retuse; corolla violet, 2.5 cm. or more long, glabrous; pods 7 to 10 cm. long, narrow; seeds 6 mm. in diameter, tan-colored mottled with black.

Collected by J. N. Rose in canyons near the little town of Acaponeta, Territorio de Tepic, June 25, 1897 (no. 1468).

This species differs from the original description of *P. truncillensis* in the shape of the leaflets, and from all our named herbarium material, in its glabrous banner, in size and color of seeds, etc.

Palmer's no. 158 from Acapulco must be near this species, but the leaflets are often linear.

Frank Lamb's no. 499 is much nearer to it and, coming as it does from near the same locality, is probably to be definitely referred here. It was distributed as *P. speciosus*.

**NEW SPECIES OF SEVERAL GENERA.**

**Aeschynomene pringlei** Rose, sp. nov.

A slender shrub 2.5 to 3.5 meters high; bark of old branches nearly black and glabrous, of young branches light-colored and densely silky-pubescent; leaves narrow and elongated; stipules caducous, not seen even on flowering branches; leaflets 5 to 12 pairs, narrowly to broadly oblong, obtuse or rounded at apex but with a decided mucro, silky pubescent on both sides when young, glabrate above in age, paler and reticulated beneath; inflorescence paniculate, more or less leafy; branches few-flowered, pubescent; bracts at base of calyx orbicular, rounded at apex; calyx two-lipped, the upper lip retuse, the lower 3-lobed, the lateral lobes obtuse and shorter than the middle one; banner orbicular, purplish; stamens divided into two clusters of 5 each; ovary stipitate, clothed with long silky hairs; stipe slender, 5 to 7 mm. long; pods 2 or 3-jointed; joints oblong, 7 mm. long, pubescent, dull, slightly reticulated, the lower one curved at base, the other rounded.

Collected by C. G. Pringle at Jojutla, Morelos, August 30 and October 28, 1902 (no. 8709).

**Cologania<sup>a</sup> congesta** Rose, sp. nov.

Climbing vine; stems clothed with coarse brownish hairs, reflexed, but a little spreading; leaflets pale greenish yellow, broadly ovate, 4 to 5 cm. long, 2 to 3 cm. broad, obtuse but apiculate, with scanty rough hairs on both surfaces; perfect flowers 4 or 5 in axillary clusters; pedicels slender, 10 mm. long, hairy; bractlets at base of flowers linear; calyx tube 7 mm. long, covered with long spreading hairs, the lower lobe linear, elongated, the upper one retuse; female flowers also clustered; pods from female flowers straight, oblong, 3 to 4 cm. long, densely covered with long brown spreading hairs.

<sup>a</sup> For a synopsis of the species see p. 34.

Type collected by J. N. Rose and Jos. H. Painter at Toluca, September 4, 1903 (no. 6778).

This species seems to be common in Central Mexico, as several specimens collected or seen by the writer in the Valley of Mexico and elsewhere seem referable here.

**Crotalaria gracilenta** Rose, sp. nov.

Perennial with frutescent base, much branched, 30 to 40 cm. high, pubescent; leaflets 3, linear to oblong-linear, 2 to 6 cm. long, 2 to 5 mm. broad, glabrous above, pubescent beneath; racemes 1 to 2 cm. long, rather few-flowered; pedicels slender, 5 to 6 cm. long, minutely bi-bracteolate near the middle; calyx 6 mm. long; banner 8 mm. long; wings 7 mm. long, oblong; keel strongly beaked; pods appressed-pubescent, stipitate.

Collected by J. N. Rose and Jos. H. Painter near Etzatlan, Jalisco, October 2, 1903 (no. 4570, type) and by C. G. Pringle, same station, October 23, 1903 (no. 11893).

Close to *C. tenuissima*, but leaves not nearly so attenuate, flowers smaller, pubescence of pedicels and calyx softer, racemes laxer, etc.

**Harpelyce<sup>a</sup> goldmani** Rose, sp. nov.

Probably a low shrub; bark of second-year twigs light-colored, glabrous; young branches densely pubescent; stipules linear, caducous; leaflets opposite, 5 to 9 pairs and an odd one, oblong, obtuse, glabrous above, densely pubescent and glandular beneath; inflorescence dense-flowered, 10 cm. or more long, the short peduncle and rachis densely pubescent with short brown spreading hairs; calyx deeply 2-lipped, densely reddish-pubescent; young pods and long styles glabrous.

Collected by E. A. Goldman at Canjob, Chiapas, March 27, 1904 (no. 787).

This species is near *H. pringlei*, but the leaflets, even the very youngest, are glabrous.

**Rhynchosia cuernavacana** Rose.

*Rhynchosia australis* Rose, Contr. Nat. Herb. 8: 48. 1903, not Benth. 1864.

**Willardia parviflora** Rose, sp. nov.

Small shrubs, 3 to 4 meters high, much branched; stipules broadly ovate, minute (1 mm. or less long), caducous; leaves when young densely pubescent, in age glabrate above, slightly pubescent, beneath, 5 to 10 pairs, oblong, 8 to 16 mm. long, rounded at apex, thickish, the margin revolute; flowers borne in slender racemes, usually appearing before the leaves; racemes at first clustered in the axils of old leaf scars but really borne on the young branches and in age somewhat separated; pedicels short, bracteate; calyx pubescent, broadly tubular, short (2 mm. long), the three lower teeth small, approximate, the dorsal lobe broad, truncate or barely retuse; flowers 6 to 7 mm. long; banner orbicular, retuse; keel broad; stamens 10, united almost to the apex into a closed tube; ventral stamen free at base; ovary and style glabrous, the latter hooked; pods very flat, oblong to elliptical, cuneate at base, generally acute at apex, 3 to 7 cm. long, 1 or 2-seeded, tardily dehiscing; valves thin, with no internal partitions; seed 11 mm. broad, kidney-shaped.

Collected only at Yautepec, Morelos, by C. G. Pringle in 1901 (no. 8470, type) and October 3, 1902 (no. 11347), and by J. N. Rose, July 5, 1901 and in 1903 (no. 6576).

In foliage, flowers, and pods closely resembling *W. mexicana*.

## ERYTHROXYLACEAE.

### DESCRIPTIONS OF FOUR SPECIES OF ERYTHROXYLON.

**Erythroxylon compactum** Rose, sp. nov.

Shrubs 1.5 to 3 meters high, glabrous; branches short and often spurlike, usually elongating slowly from year to year, often covered with the imbricating bases of old stipules; old bark very dark, the young bark reddish brown rather thickly set with

<sup>a</sup> For a review of the species of *Harpelyce* see p. 42.

small lenticels; leaves 10 to 15 mm. long, obovate, retuse, somewhat cuneate at base; petioles 2 to 3 mm. long; stipules ovate, with scarious margins, persisting even after the leaves have fallen; flowers axillary, solitary but appearing as if clustered on account of the very short internodes; peduncles 1 to 2 mm. long; calyx teeth ovate; fruit 6 mm. long.

Collected by C. G. Pringle on rocky hills near Tehuacan, Puebla, August 3, 1897 (no. 6771).

It was distributed as a doubtful *E. brevipes* DC., a species of Porto Rico, from which it is certainly distinct.

**Erythroxyton mexicanum** H. B. K. Nov. Gen. & Sp. 5: 178. 1821.

I have not seen the type of *E. mexicanum*, which came from Chilpancingo, South Mexico, but among the several species which have recently been collected in Mexico my no. 1477 seems to answer the description best. My specimens are characterized by thickish leaves, finely reticulated above, and very short petioles hardly longer than the stipule. It comes from near sea level, having been collected at Acaponeta, Tepic, June 26, 1897.

**Erythroxyton pallidum** Rose, sp. nov.

Shrubs, glabrous; branches slender, dark brown; leaves oblong, 2 to 3 cm. long, 12 to 20 mm. broad, rounded or barely retuse at apex, rounded or slightly narrowed at base, pale on both sides; petioles 4 to 6 mm. long; stipules ovate, scarious on the margins; peduncles 2 or 3 mm. long; calyx lobes ovate, obtuse.

Collected by J. N. Rose on the hacienda of San Juan Capistrano, Zacatecas, August 18, 1897 (no. 2416, type) and August 22, 1897 (no. 2481).

**Erythroxyton pringlei** Rose, sp. nov.

Shrub, 3 meters or more high, glabrous; branches slender, dark, densely covered with small lenticels; leaves 1.5 to 3 cm. long, 10 to 17 mm. broad, obtuse or sometimes slightly retuse, cuneate at base; petioles 4 to 7 mm. long, terete; stipules ovate, acute; fruit axillary, solitary, on reflexed peduncles, oblong, 7 mm. long, red, slightly glaucous.

Collected by C. G. Pringle on mountains about Iguala, Guerrero, October 5, 1900 (no. 8406).

While probably near *E. mexicana* H. B. K., it appears to be specifically distinct.

## MELIACEAE.

### A NEW SPANISH CEDAR<sup>a</sup> FROM CENTRAL MEXICO.

**Cedrela saxatilis** Rose, sp. nov.

A small tree, 4 to 7 meters high, with slender trunk and smooth reddish bark; bark of the first-year branches brown, glabrous; bud scales hairy; leaves large, the upper ones with rachis 20 to 30 cm. long; leaflets 10 to 14, broadly lanceolate, 10 to 15 cm. long, 5 to 6 cm. broad at widest point, rounded at base, strongly acuminate, very slightly pubescent; inflorescence a large branching panicle, 30 cm. or more long, bearing many flowers; pedicels short and stiff about 1 mm. long, glabrous; calyx glabrous, its lobes short and obtuse; corolla 6 mm. long, densely appressed-pubescent without, glabrous or nearly so within, the lobes somewhat purplish, column about 2 mm. long, reddish, much longer than the ovary; stamens 5, the filaments slender, 2 mm. long; style 3 mm. long; stigma projecting from the mouth of the corolla; fruit 2 cm. long, 5-celled, filled with winged seeds.

Collected on the pedregal near Cuernavaca, Morelos, September 10, 1903, by J. N. Rose and Jos. H. Painter (no. 6950, type) and by C. G. Pringle (no. 11805).

The two collections here referred to came from the same tree. The tree was found

<sup>a</sup> For a revision of *Cedrela* see Contr. Nat. Herb. 5: 189-191, 1899.

growing among the volcanic rock along the trail which crosses the pedregal. Only one tree was seen during a whole day spent in this region, although others are doubtless to be found. It is a quite different species from my *C. occidentalis*, which grows in the low land along the west coast of Mexico.

## POLYGALACEÆ.

### A NEW POLYGALA.

***Polygala compacta*** Rose, sp. nov.

Shrubby at base, the stems numerous, erect or ascending, very slender, 10 to 12 cm. long, pubescent; leaves lanceolate to elliptical, obtuse, narrowed at base into a very slender petiole, puberulent, 1 to 2 cm. long; sepals lanceolate, acute, ciliate on the margin; wings broad; capsule puberulent, a little longer than broad, rounded at base, notched at apex; aril umbonate, the margin 3-lobed. Near but hardly identical with the *P. pubescens* of Chodat's Monograph, but in any case Chodat's name is to be rejected.

Collected by C. G. Pringle in Valley of Mexico, August 25, 1896 (no. 6425).

## VITACEÆ.

### A NEW GRAPE FROM EASTERN MEXICO.

***Vitis biformis*** Rose, sp. nov.

Tall vines; bark shredding, without distinct lenticels; young shoots and leaves densely covered with a brown tomentum hiding a short close pubescence; old leaves still pubescent above and with a more or less distinct cobwebby covering beneath, broadly ovate in outline, sometimes 3-lobed, shortly acuminate, with very small sharp teeth, and with a broad U-shaped sinus (rounded at its base); clusters rather small, 5 to 7 cm. long, but densely fruited; rachis pubescent; pedicels warty, stout; fruit blue-black, small, about 6 mm. in diameter.

Collected near Las Canoas by J. N. Rose, July 15, 1899 (no. 4882, type) and near the same locality by Dr. E. Palmer, 1902 (no. 232).

This species is near *V. berlandieri*, but the leaves are of duller color, the teeth smaller, etc.

## TILIACEÆ.

### NOTES ON HELIOCARPUS, WITH NEW SPECIES.

In 1897 I published a synopsis of the species of *Heliocarpus*,<sup>a</sup> describing 5 species as new, restoring 6 old ones, and taking up the 3 recent ones of Dr. S. Watson. Dr. K. Schumann had previously studied the genus, reducing all the named species to *H. americanus*.

In 1898 Mr. E. G. Baker published a short but very important review<sup>b</sup> of my paper, accepting my expansion of the genus and differing from me only in a few details; he described two new varieties and reduced to varietal rank, under *H. popayanensis*, *H. trichopodus*, a species which I had doubtfully restored after a study of the description only.

As I have pointed out, the type of the genus is *H. americanus* L., which is figured in the *Hortus Cliffortianus*, a species which I was not able to make out after a study of a large suite of specimens. Mr. Baker

<sup>a</sup>Contr. Nat. Herb. 5: 125-129.

<sup>b</sup>Journ. Bot. 36: 130-132.

finds a fragment of Clifford's plant in the herbarium of the British Museum, which he identifies as the same as *H. tomentosus*, our most common species. This conclusion is really surprising, for our very abundant Mexican material does not at all resemble Linnaeus's figure. This difference is due, Mr. Baker thinks, to the fact that Clifford's plant was evidently young. While of course I am willing to accept Mr. Baker's conclusion, still I wish to keep in sight the possibility of *H. tomentosus* being a distinct species. It is possible that Houston's herbarium specimen (prepared probably in Mexico) may be different from the plant grown by Clifford even if the seed was sent by Houston. In fact, I have myself found *H. tomentosus* and *H. appendiculatus* growing side by side. Again, *H. americanus* is said to have come from Vera Cruz, while *H. tomentosus* probably does not grow at such low elevations. I have collected it myself at an altitude of 3,500 to 4,000 feet. In the light of Mr. Baker's review and my recent studies of the genus, I wish to make the following changes and additions to my paper:

***Heliocarpus americanus*** L. Sp. Pl. 1: 448. 1753.

*H. tomentosus* Turcz. Bull. Soc. Nat. Mosc. 31<sup>1</sup>: 225. 1858.

***Heliocarpus donnellsmithii*** Rose, Bot. Gaz. 31: 110. *pl. 1*. 1901.

Mature leaves nearly orbicular, not lobed, rounded at base, shortly acuminate (tips mostly broken), glabrous and shining above, nearly glabrous beneath, palmately 3 to 5-veined from the base, somewhat glandular-toothed especially at base; inflorescence a large spreading panicle; sepals not appendaged; stipe slender, 5 mm. long; body of fruit oblong, 5 mm. long; the seeds somewhat hairy, becoming glabrate and rugose in age.

Collected by Capt. John Donnell Smith near Arenal, Department Alta Verapaz, Guatemala, altitude 967 meters, April, 1889 (no. 1722, type); and by Charles L. Smith at Coatzacoalcos, Isthmus of Tehuantepec, State of Vera Cruz, 1895 (no. 1002).

This species is very different from the numerous Mexican species but is near *H. americanus schumannii* Baker, from which it differs in its more glabrous leaves and in the absence of hairs both from the leaves and inflorescence.

***Heliocarpus microcarpus*** Rose, sp. nov.

A small tree, 3 to 5 meters high; young branches densely stellate; leaves broadly ovate, 5 to 12 cm. long, 3 to 8 cm. broad, acuminate, cordate at base but with a rather shallow sinus, pubescent on both surfaces, the pubescence on under surface white and matted; inflorescence a very open panicle; flowers not seen; fruit sessile, orbicular or a little elongated, the body 3 mm. in diameter, fringed with a row of plumose hairs.

Collected by J. N. Rose and Walter Hough near Cuernavaca, May 27-30, 1899 (no. 4335), and at the same place by C. G. Pringle, November 23, 1902 (no. 8719, type).

Resembling *H. nelsoni* but with fruit smaller, without plumose hairs on the faces of the fruit, with much shallower sinuses at base of leaves, etc.

Here should probably be referred material collected at Cuernavaca and included in *H. nelsoni*.

***Heliocarpus popayanensis purdiei*** Baker, Journ. Bot. 36: 132. 1898.

This variety is based on Purdie's specimen in the Kew Herbarium collected near Velez, New Granada.



**Heliocarpus popayanensis trichopodus** (Turcz.) Baker, Journ. Bot. **36**: 132. 1898.

*Heliocarpus trichopodus* Turcz. Bull. Soc. Nat. Mosc. **31**<sup>1</sup>: 225. 1858.

**Heliocarpus laevis** Rose, sp. nov.

Small tree; old branches reddish, glabrous; young branches densely stellate; leaves lanceolate, mostly rounded at base, acuminate, thin, with scattered stellate hairs above, softly and densely stellate beneath, 3 or 5-nerved at base; inflorescence a small open panicle; sepals 4 or 5, each with a small appendage near the tip; fruit sessile, orbicular.

Collected by J. N. Rose west of Bolaños River near Bolaños, September 17, 1897 (no. 2860).

This species is near *H. polyandrus*, but with much smaller appendages to the sepals, leaves not cordate at base, and leaves not glabrate.

**Heliocarpus polyandrus** S. Wats. Proc. Am. Acad. **21**: 420. 1886.

This species has recently been collected in fruit from near the type locality by Mr. E. A. Goldman (no. 226). The fruit is orbicular and sessile and it therefore belongs to my second section and near *H. palmeri*.

**Heliocarpus velutinus** Rose sp. nov.

Undoubtedly a tree, but size not known, branches light brown, densely stellate-pubescent especially when young; leaves (only upper ones seen) nearly as broad as long, 13 cm. long on petioles 6 cm. long, above green and somewhat stellate, beneath very pale, densely and finely stellate-pubescent and reticulated, slightly 3-lobed, the lobes shortly acuminate; inflorescence a large terminal panicle; pedicels 2 to 4 mm. long; sepals minute, densely stellate-pubescent, 2½ mm. long, not appendaged at tip; petals and stamens not seen; fruit sessile, small, oblong, the body 5 mm. long by 2 mm. broad, stellate-pubescent on the faces, the margin of plumose hairs narrower than the breadth of carpel.

A very distinct species easily recognized by the white velvety under surface of the leaves and small oblong fruits. When keyed out in the synopsis above referred to it comes nearest *H. glanduliferus*, but is of course abundantly distinct from that species.

Collected by Mr. C. G. Pringle near Yautepec, Morelos, in 1902 (no. 8694).

## TWO NEW BASSWOODS.

Mr. Hemsley in the *Biologia Centrali-Americana* credits two species of *Tilia* to Mexico, but unfortunately gives them both the same name, viz, *T. mexicana*. He seems to have seen no specimens of his second species, the *T. mexicana* Schlecht. Under his first species the "*T. mexicana* Benth," he records all the Kew material, which must embrace more than one form and a part of which doubtless belongs with the true *T. mexicana*. Below I present the description of the two new species:

**Tilia occidentalis** Rose, sp. nov.

Tree; bark on old branches dark brown and glabrous; young branches densely lanate; leaves broadly ovate to nearly orbicular, 10 cm. or less long, green and glabrous above, densely and rather coarsely tomentose beneath when young but becoming glabrate in age and then only slightly paler than the upper surface, the margin sharply toothed, strongly oblique at base or often slightly cordate, acute; the winged peduncle stalked at base, the wings unequal below, 8 to 12 cm. long; pedicels, calyx, and ovary densely pubescent.

Collected by C. G. Pringle in mountains about Patzenaro, Michoacan, July 22, 1892 (no. 4126, type) and by E. W. Nelson at base of Mount Tancitaro, Michoacan, 1903 (no. 6874).

Perhaps nearest *T. mexicana*, but certainly with very different leaves.

**Tilia houghi** Rose, sp. nov.

A small tree, 8 to 10 meters high; young branches clothed with brown matted hairs; leaves nearly orbicular, 10 to 15 cm. long by 8 to 12 cm. broad, abruptly short-acuminate, somewhat oblique at base with a broad shallow or moderately deep sinus, very pale and densely stellate-pubescent beneath, dark green and glabrous above, the margin sharply serrate; the winged peduncle subsessile, very broad, obtuse, not reaching to the cyme; pedicels and buds densely stellate-pubescent, almost white.

Collected by J. N. Rose and Walter Hough in a mountain canyon above Cuernavaca, Morelos, May 27-30, 1899 (no. 4398).

Distinguished from *T. occidentalis* by its large broader leaves, which are much paler beneath and covered with a finer pubescence.

It gives me great pleasure to name this interesting tree for my companion in Mexican travels, Dr. Walter Hough of the U. S. National Museum.

**MALVACEAE.****THREE NEW ABUTILONS.****Abutilon holwayi** Rose, sp. nov.

Undoubtedly perennial and perhaps tall; branches slender with short spreading glandular hairs; leaves ovate, 8 to 10 cm. long, cordate at base (the sinus either closed or open), acuminate, crenate, the under surface with pale soft stellate pubescence, the upper surface stellate and with additional simple stiff hairs; petioles 2 to 6 cm. long; stipules small, linear, deciduous; inflorescence forming a leafy panicle; flowers axillary, on peduncles 2 to 3 cm. long; calyx 10 mm. high; sepals broadly ovate; petals yellow, perhaps not longer than the sepals, but open flower not seen; carpels 10 or more, long-acuminate, a little longer than the calyx lobes; cells 3-seeded.

Only known from about Oaxaca City.

Collected on Monte Alban by Charles L. Smith, October 4, 1894 (no. 636), and near Oaxaca City by E. W. D. Holway, November 10, 1903 (no. 5374, type).

**Abutilon dentatum** Rose, sp. nov.

Apparently shrubby at base; branches densely stellate-pubescent with both coarse and very fine hairs; leaves broadly ovate, 7 to 10 cm. long, 4 to 6 cm. broad, strongly cordate at base, acuminate, coarsely toothed, densely stellate on both sides but the hairs finer and more matted beneath; flowers axillary; peduncles 1 to 4 cm. long, densely stellate, jointed near the apex; calyx lobes broadly ovate; carpels densely stellate, beaked.

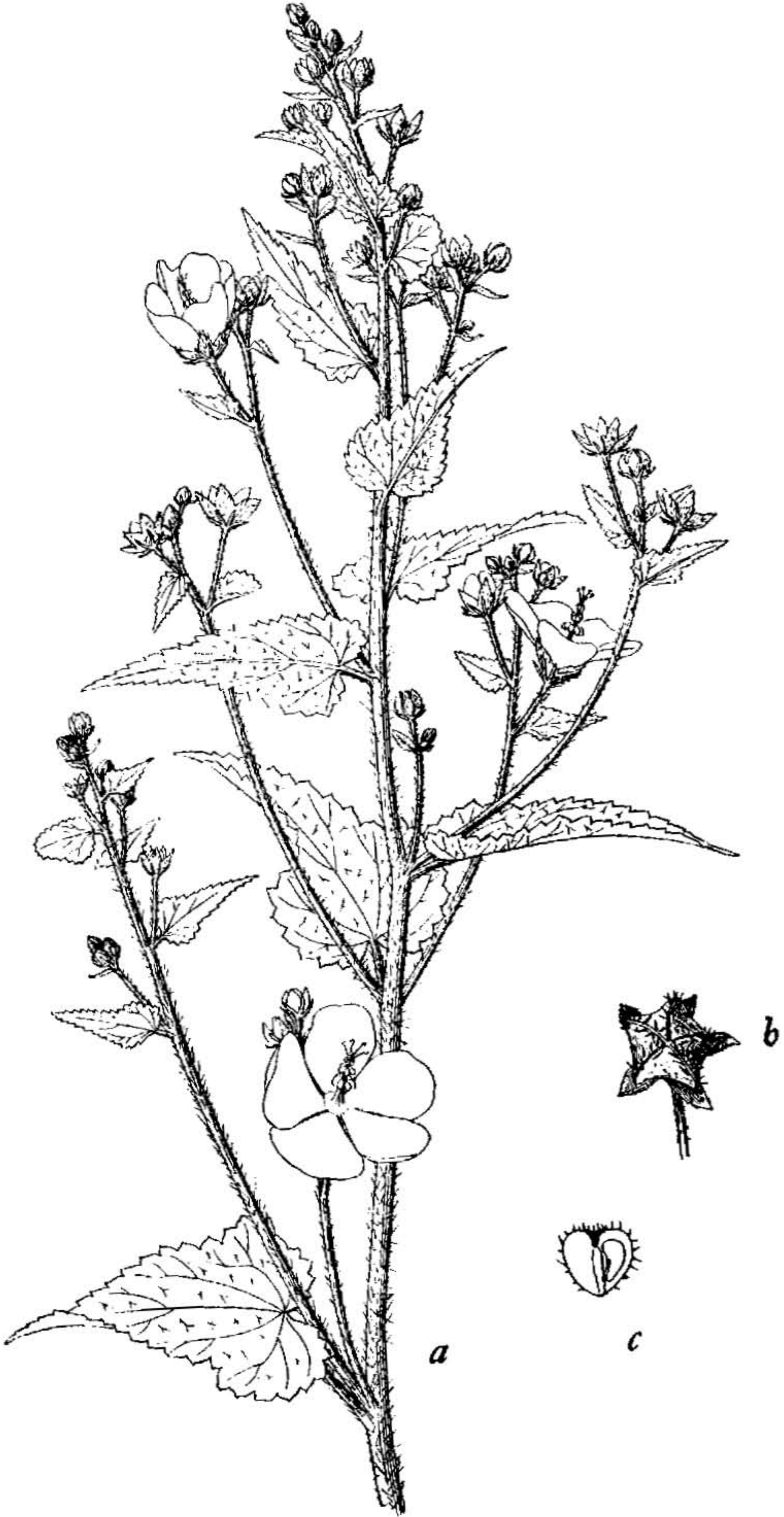
Collected by C. G. Pringle, under dry cliffs, rocky hills near Chihuahua, October, 1885 (no. 306). This species was by Dr. Gray referred as a variety to *A. berlandieri*, but it surely must be distinct. Since Dr. Gray does not give a word of description his name is a *nomen nudum*. It is also so published by E. G. Baker in his revision. It differs from *A. berlandieri* in having the leaves more cordate at base, more acuminate, the teeth stronger and sharper, the sepals broader, etc.

**Abutilon simulans** Rose, sp. nov.

Tall, often 2 to 3 meters high, much branched; branches purplish, bearing short stiff more or less glandular hairs; leaves broadly ovate, nearly orbicular, with a deep sinus at base and broad rounded overlapping lobes, long-attenuate at tip, 15 to 18 cm. long, 5 to 10 cm. broad, the undersurface white with a very fine dense soft stellate pubescence, the upper surface green but much less stellate, the margin crenate; petioles much shorter than the blades; stipules caducous; flowers axillary; peduncles 3 to 4 cm. long, joined near the apex; calyx 8 to 10 mm. long, its lobes broadly ovate and overlapping at base, finely stellate and with a few long silky hairs; corolla 3 cm. broad, yellow; carpels with long slender beaks.



KOSTELETZKYA MALVAVISCANA ROSE.



KOSTELETZKYA VIOLACEA ROSE.

Resembling *A. hypoleucum*, but with very different pubescence on the stems, the leaves less tomentose beneath, not so rough above, more abruptly acuminate, the basal lobes more overlapping, the teeth and calyx lobes different, etc.

*Specimens examined:*

Jalisco: Near Magdalena, C. G. Pringle, October, 1893 (no. 4582); near Etzatlan, Rose and Painter, October 2, 1903 (no. 7510).

Morelos: Near Cuernavaca, C. G. Pringle, 1900 (no. 8427, type).

Oaxaca: Valley of Oaxaca, E. W. Nelson, September 28, 1894 (no. 1261); on Monte Alban, C. G. Pringle, September 5, 1894 (no. 5780).

**TWO NEW KOSTELETZKYAS AND A NEW NAME.**

***Kosteletzkya malvaviscana*** Rose, sp. nov.

PLATE LXVII.

Stem 120 to 180 cm. high; branches herbaceous, greenish, somewhat stellate-pubescent; leaves ovate, 7 to 12 cm. long, with a broad rounded or somewhat cordate base, acute or acuminate, stellate on both surfaces, somewhat irregularly crenate; petioles 2 to 5 cm. long; inflorescence a few-flowered axillary raceme on slender, sometimes elongated, peduncles; pedicels slender, 5 to 12 mm. long; involucre bracts 6 or 7, linear, about two-thirds the length of the calyx, 7 mm. long, parted to the middle, stellate-pubescent; lobes ovate, acute, 3-nerved; petals purplish or rose-colored, 2 cm. long, erect and Malvastrum-like; stamen tube elongated, much longer than the flowers; capsule depressed, 5-angled; cells 1-seeded as in genus; seed glabrous.

Collected by C. V. Hartman at Las Cuevas, Sonora, October 15, 1890, and distributed as *K. cordata* from which it must be very distinct.

EXPLANATION OF PLATE LXVII.—Fig. a, plant; b, fruit; c, section of immature fruit. Fig. a, natural size; b and c, twice natural size.

***Kosteletzkya tampicensis*** (Moric.) Rose.

*Hibiscus tampicensis* Moric. Mem. Soc. Phys. Gen. 7: 260. pl. 14. 1833.

This plant must be a *Kosteletzkya* rather than a *Hibiscus*, having the peculiar fruit of the former.

The species is based on Berlandier's no. 210, coming from near Tampico, Mexico.

***Kosteletzkya violacea*** Rose, sp. nov.

PLATE LXVIII.

Herbaceous, perhaps a meter high, more or less branched, densely pilose; leaves ovate to nearly orbicular, sometimes 3-lobed, finely stellate-pubescent on both sides and sometimes with large stellate or single hairs intermixed, serrate; flowers axillary and solitary; peduncles slender, 2 to 3 cm. long; bracts 6 to 8, linear, hardly half as long as the calyx; calyx deeply 5-parted; corolla spreading, pinkish or violet, 3 cm. broad; stamens united into a slender tube; anthers sessile, arranged in 3 rings; styles 5; capsule sharply 5-angled, finely stellate-pubescent, bristly on the angles.

Collected by C. G. Pringle at Jojutla, Morelos, June 13, 1901 (no. 9671) and 1902 (no. 8663, type).

EXPLANATION OF PLATE LXVIII.—Fig. a, plant; b, fruit; c, section of fruit. Fig. a, natural size; b and c, twice natural size.

**TWO SPECIES OF ROBINSONELLA.**

***Robinsonella*<sup>a</sup> *edentula*** Smith & Rose, Bot. Gaz. 37: 214. 1904.

Undoubtedly a shrub or small tree with branches and leaves, pedicels and buds, etc., stellate-pubescent; leaves nearly orbicular in outline, somewhat 3-lobed, the lobes acute, obtuse or even rounded, entire or with faint indications of teeth, slightly pubescent above, softly stellate pubescent beneath, 6 to 10 cm. long, with a deep rather narrow sinus; flowers very abundant in axillary panicles; peduncles slender, pilose as well as stellate, 8 to 16 mm. long, jointed near the apex; corolla violet,

<sup>a</sup> For the establishment of this genus and the description of the other species see Garden and Forest 10: 245. 1897.

2 cm. broad; staminal tube very short; carpels 7 mm. long, obtuse with thin reticulated walls.

Collected by H. von Turekheim at Coban, Department of Alto Verapaz, Guatemala, altitude 1,300 meters, November, 1902 (J. D. Smith's no. 8382).

Nearest *R. divergens*, but with less densely stellate branches, leaves with entire margins, shorter staminal tube, less densely pubescent ovaries, much smaller carpels, and pilose pedicels.

**Robinsonella pilosa** Rose, sp. nov.

Differs from the above in having the base of the blades not lobed, the older leaves glabrate, the pedicels more pilose, and the buds very densely pilose.

Collected by Gustavo Neiderlein in the Comayagua between the villages of Flores and Comayagua, Honduras, February 22, 1898.

## BOMBACEAE.

### TWO NEW SPECIES OF CEIBA AND A NEW NAME.

**Ceiba pallida** Rose, sp. nov.

A large tree; young branches either glabrous and glaucous or more or less densely pubescent; leaves long-petioled; leaflets 5 to 7, oblanceolate, cuneate into a short petiolule, long-acuminate, slightly pubescent (hairs simple) on both sides, very pale beneath, sharply and closely serrate, the teeth usually spreading; flowers very large; calyx large and broad, 2 to 2.5 cm. long, nearly as broad at mouth, the lobes apparently deciduous giving a somewhat 5-lobed calyx tube, glabrous and glaucous without, densely reddish-pubescent within; petals 12 to 14 cm. long, 2 cm. broad, densely covered without with long brownish silky hairs; stamen tube 2 mm. long, densely brownish-lanate; free part of filaments alternating with small brownish scales, 7 to 8 cm. long, glabrous, much shorter than the petals; style glabrous.

Collected by J. N. Rose and Walter Hough near Cuernavaca, May 27 to 30, 1899 (no. 4337, type) and by C. G. Pringle from the same tree, May 31, 1899 (no. 8212). With these I have tentatively placed Rose and Hough's plant (no. 4564) from Tomellin Canyon, Oaxaca, although it is without flowers or fruit. This species is nearest the Yucatan plant *C. aesculifolia*, but with different serrations to the leaves, etc. It differs from the northern species *C. tomentosa* and *C. acuminata* in the simple hairs of its pubescence.

**Ceiba parvifolia** Rose, sp. nov.

A tree 6 meters high with a broad spreading top; old branches reddish and smooth; young branches somewhat reddish-pubescent; leaflets 5, small, 3 to 5 cm. long, obovate, narrowly cuneate at base into a slender petiole, rounded at apex except for an abrupt apiculation, more or less stellate on both sides but soon becoming glabrate, slightly paler beneath.

Collected by the writer on the dry hills near the little town of Matamoros, Puebla, June 26, 1899 (no. 4701). Unfortunately no flowers were obtained, but a photograph was taken which shows well the habit.

Perhaps with this species is to be associated my no. 4670 from Tomellin Canyon. The leaflets, however, are more pubescent and only a little or not at all apiculate. Palmer's no. 603 from Acapulco is also somewhat similar, but the leaflets are glabrous. Rose and Painter's no. 6564 from Yautepec probably belongs here, but the leaflets are perfectly glabrous.

**Ceiba acuminata** (S. Wats.) Rose.

*Eriodendron acuminata* S. Wats. Proc. Am. Acad. 21: 418. 1886.

Type locality, "Hacienda San Miguel," Chihuahua; collected by Dr. E. Palmer.

This species is only known from the type collection and has never been collected in flower. It must be near *C. tomentosa* and with the material in hand it is difficult to separate them. The flowers may show some good specific differences.

## STERCULIACEAE.

## TWO NEW SPECIES OF AYENIA.

**Ayenia nelsoni** Rose, sp. nov.

Shrub 60 to 90 cm. high; branches densely hirsute; leaves lanceolate, 7 to 10 cm. long, densely soft stellate tomentose beneath, the pubescence not quite so soft or dense above; flowers "dark maroon red;" peduncles numerous in the leaf axils; buds acuminate; sepals 3 to 4 mm. long, lanceolate, acuminate; blade of petal small, 1 to 2 mm. long, deeply notched at base, the lobes obtuse; ovary densely lanate; style as long as ovary; stipe wanting.

Collected by E. W. Nelson on roadside between San Ricardo and Ocozantla, Chiapas, August 18, 1895 (no. 2982).

Resembling *A. berlandieri*, but with smaller flowers, more pubescent leaves, shorter stipes to the fruit, etc.

**Ayenia compacta** Rose, sp. nov.

A low compact shrub, 10 cm. or less high, much branched at base; young branches clothed with a short crisped pubescence; leaves small, 1 cm. long, ovate, serrate, covered on both sides with small stellate hairs; peduncles solitary, axillary, naked, pubescent, 3 to 4 mm. long; fruit 4 mm. high, slightly pubescent and covered with short brown papillae; stipe very distinct, 2 mm. long.

Collected, by Dr. E. Palmer near Santa Rosalia, Lower California, March 15, 1890 (no. 268) and distributed as *A. microphylla*. It differs, however, from the last named species in the texture of the leaves, in the fruit, etc.

## A NEW MELOCHIA.

**Melochia arida** Rose, sp. nov.

Shrub 30 to 60 cm. high; leaves ovate, obtuse, thickish, strongly nerved beneath, deeply furrowed above, 2 to 4 cm. long, short-petioled, densely stellate; flowers very fragrant, purplish, medium size; fruit oblong, 5-winged, nearly truncate at base, abruptly acuminate. Type collected by J. N. Rose in yards in the town of Guaymas, June 5, 1897 (no. 1205); also from the same station by Dr. E. Palmer.

It was referred to *M. tomentosa* by Dr. Watson.

This species differs from Dr. Watson's *M. speciosa* from the same region in several striking respects including size of flowers and leaf and fruit characters.

## THEACEAE.

THE MEXICAN SPECIES OF TAONABO.<sup>a</sup>

I have followed the treatment as given by Ign. v. Szyszylowicz in Engler and Prantl's *Pflanzenfamilien* in taking up the older name Taonabo for the somewhat more familiar one of Ternstroemia.

Mr. Hemsley recognizes but 5 species of Ternstroemia from Mexico and Central America, all of which until recently have been wanting in the National Herbarium. Our recent large consignments of Mexican plants have not only supplied some of these species, but have added

<sup>a</sup> **Taonabo** Aubl. Pl. Gui. 1: 569. pls. 227, 228. 1775.

Ternstroemia Mutis; L. f. Syst. Veg. Suppl. 39. 1781.

Type species of Ternstroemia *T. meridionalis* Mutis; Taonabo based on two species *T. dentata* and *T. punctata*.

4 new ones. My greatest difficulty in studying this genus has been, of course, the making out of these old species from descriptions alone. From this study it appears that *T. clusiaefolia* and *T. seemanni* must be very closely related, if not identical. This has been doubtless observed by others, for A. Fendler's material from Panama has been referred to both species.

The Kew Index has caused some confusion in the genus by referring *T. sylvatica* Cham. & Schlecht. to *T. globiflora* of Peru, while the much later *T. sylvatica* of Choisy is referred to Mexico; the West Indian species, *T. elliptica* Swartz, is credited to Mexico; *T. lineata* DC., a good species, said to have come from Mexico, is referred to *T. elliptica*.

The following species of *Ternstroemia* were recognized by Mr. Hemsley in the *Biologia*:

*Ternstroemia clusiaefolia*. (*Taonabo clusiaefolia* Szysz.)

*Ternstroemia seemanni*. (Very near the last.)

*Ternstroemia sylvatica* (becomes *Taonabo sylvatica*).

*Ternstroemia tepezapote* (becomes *Taonabo tepezapote*).

*Ternstroemia* sp. (becomes *Taonabo maltbyi* Rose and perhaps a second species).

**Taonabo lineata** (DC.) Rose.

*Ternstroemia lineata* DC. Mem. Soc. Phys. 1: 409. pl. 1. 1821.

Type locality: "In Mexico ad clivum vulgo del Tolo in itinere Sanctuarii Chalmensis."

Mr. Hemsley questions whether both *T. elliptica* and *T. tepezapote* may not be referred to *T. lineata*. The plant which I have described as *T. pringlei* has leaves very similar to DeCandolle's illustration, but it must be a different species.

**Taonabo maltbyi** Rose.

*Ternstroemia maltbyi* Rose N. Am. Fauna 14: 78. 1894.

Type locality: "Maria Madre," Tres Marias Islands, collected by Maltby.

**Taonabo oocarpa** Rose, sp. nov.

PLATE LXIX.

Shrub 2.4 to 4.5 meters high; leaves oblanceolate, cuneate at base, 7 to 8 cm. long, 2 to 4 cm. broad, entire; peduncle erect, elongated, 2 to 3 cm. long; sepals orbicular; fruit ovate, acute, 1.5 to 2 cm. long.

Collected by E. W. Nelson on table-land about Ocuilapa, Guerrero, altitude 1,020 to 1,140 meters August 21, 1895 (no. 2994).

This species differs from *T. sphaerocarpa* especially in the shape of the fruit and in the length of the peduncles.

EXPLANATION OF PLATE LXIX.—Fig. a, branch nearly natural size.

**Taonabo pringlei** Rose, sp. nov.

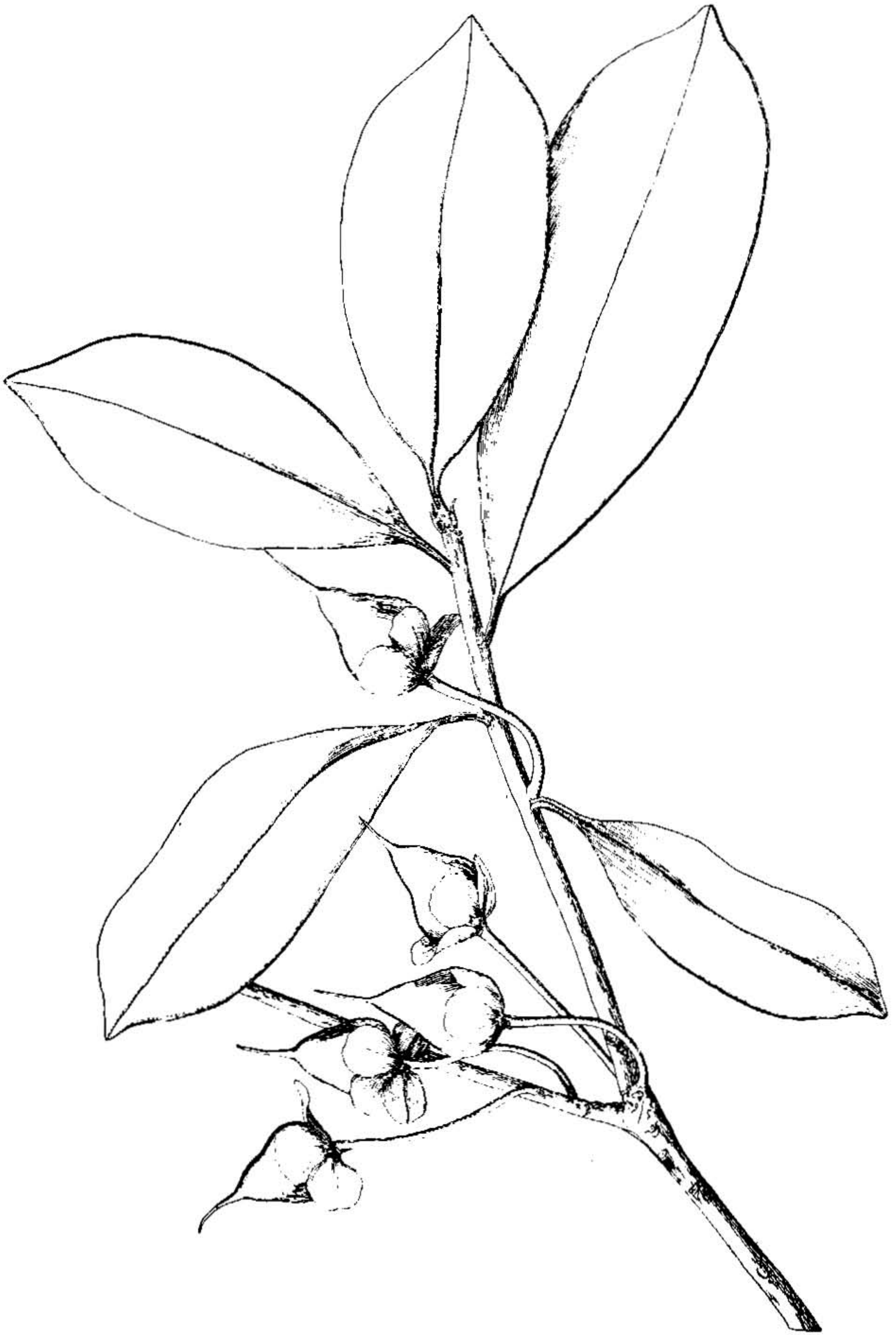
A small tree perhaps 6 meters high; leaves oblanceolate to spatulate, with minute denticulations, 3 to 8 cm. long, 2 to 3 mm. broad; flowers clustered near the top of branches, peduncles about 2 cm. long, thickened below the flower, with somewhat scattered bracts; sepals about 10 mm. long, scarious on the margin, entire.

Collected by Mr. C. G. Pringle on Sierra de Tepoxtlan, Morelos, March 18, 1899 (no. 8013, type), and by Rose and Hough near the same place May, 1899 (no. 4406).

**Taonabo sphaerocarpa** Rose, sp. nov.

Shrub 2.4 to 4.5 meters high; leaves lanceolate, cuneate at base, obtuse, 6 to 8 cm. long, 3 to 4 cm. broad, not thickish, entire; flowers "white;" peduncles short, 10 to 15 mm. long; sepals orbicular, entire or nearly so; fruit nearly globular.





TAONABO OOCARPA ROSE.

Collected by E. W. Nelson on mountain ridges on west side of valley of Cuicatlan, Oaxaca, altitude 2,250 meters, November 10, 1894 (no. 1902).

**Taonabo sylvatica** (Cham. & Schlecht.) Syzzsz. in Engl. & Prantl Nat. Pflanzenfam. 3<sup>6</sup>: 189. 1893. FIGURE 14.

*Ternstroemia sylvatica* Cham. & Schlecht. 5: 220. 1830.



FIG. 14.—*Taonabo sylvatica*.

The type was based on specimens from two localities: one from "inter Jalapan et San Andres" the other from "prope San Miguel del Soldado."

Collected by Schiede and Deppe. From the latter place Mr. Pringle collected his no. 8169.

**Taonabo tepezapote** (Cham. & Schlecht.) Syzzsz. in Engl. & Prantl, l. c.

*Ternstroemia tepezapote* Cham. & Schlecht. Linnaea 6: 420. 1831.

Type locality "Tecoluto" or perhaps it is Tecolutla on the coast of Vera Cruz.

## BEGONIACEAE.

## A PECULIAR BEGONIA FROM SOUTHERN MEXICO.

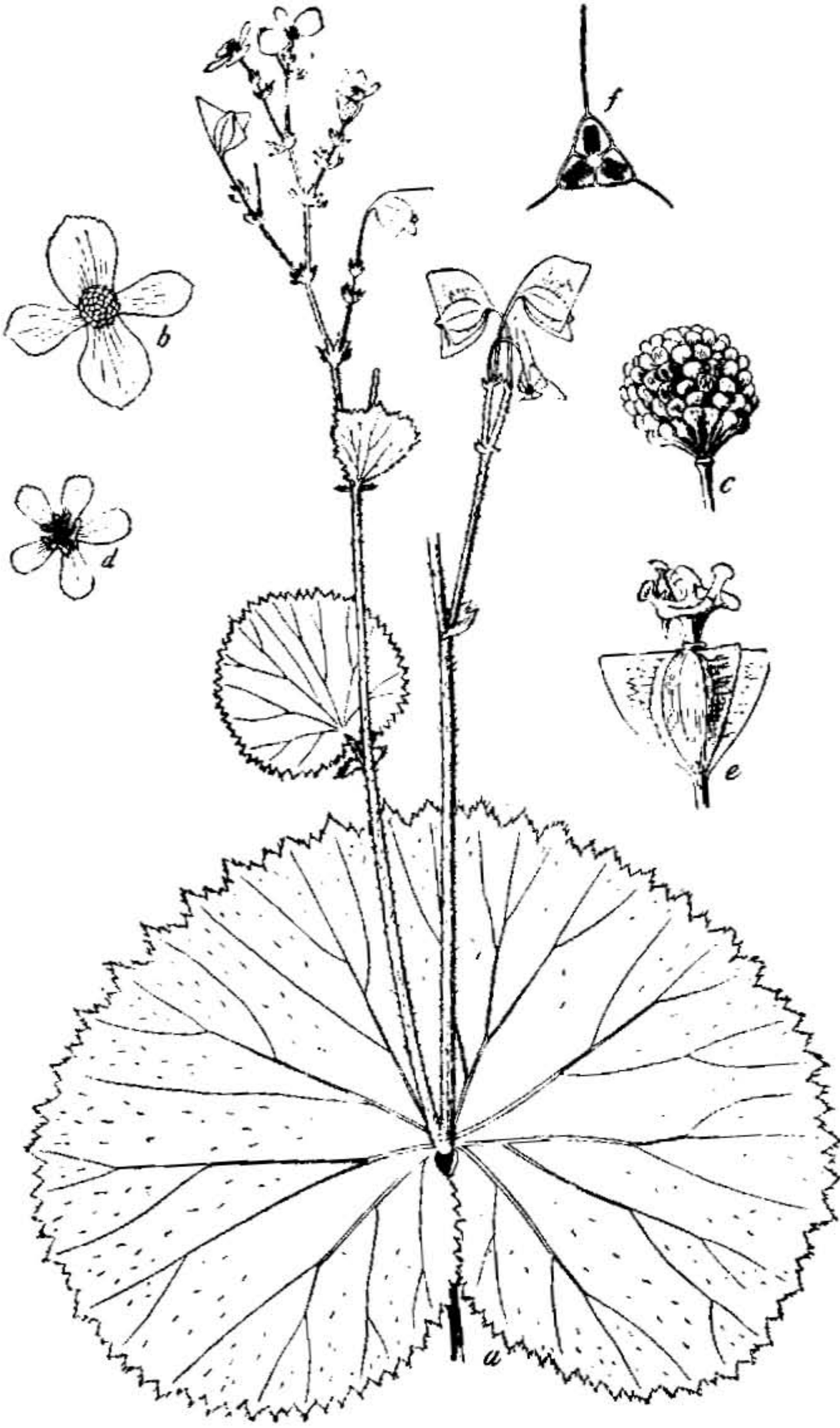
*Begonia unifolia* Rose, Rep. Mo. Bot. Gard. 15: 80. 1904.

PLATE LXX and FIGURE 15.

Tuberous-rooted; leaf single, lying close upon the ground, sessile, nearly orbicular, 10 to 30 cm. broad, with mostly 10 to 12 radiate once or twice forked principal veins, deeply cordate with overlapping lobes, deltoidly dentate with unequal teeth and frequently shallowly and broadly crenate, like the scape loosely white-villous with soft collapsible hairs that are mostly confined to the veins beneath but are scattered over the upper surface, and turn brown in drying; scape 40 to 60 cm. high, emerging through the base of the sinus, usually solitary, at first simple and staminate, later

FIG. 15.—*Begonia unifolia* and its surroundings.

with one or more pistillate branches above the middle which are subtended by suborbicular, deeply dentate often cuneate bracts sometimes 4 to 6 cm. in diameter; bractlets small, persistent, deeply cleft and lacerate; flowers nearly white, glabrous, few at the end of the scape and its branch or branches, on slender glabrous or somewhat villous pedicels of about their own length; staminate flowers about 25 mm. in diameter with 2 suborbicular often fimbriate sepals and 2 elliptical or spatulate narrower petals; stamens many, crowded, with globose-cuneate small anthers much shorter than the distinct filaments; pistillate flowers longer-stalked, with 5 caducous rather narrow perianth segments scarcely half as long as those of the staminate flowers; fruit 10 to 25 mm. long, 3-celled, with 3 wings, of which one is much broader than the others, truncate above, cuneate or on the shorter capsules rounded at base; placentae 2-cleft, bearing seeds on both surfaces; styles 3, short, forked, with continuous loosely spiral papillate stigmas.



BEGONIA UNIFOLIA ROSE.

Collected by C. G. Pringle on banks of disintegrating limestone near Jojutla, Morelos, August 30, 1902 (no. 8690, type) also near Iguala, Guerrero, October 3, 1900 (no. 9225), also at Iguala by Dr. Wm. Trelease, August 8, 1903.

The following paragraph taken from the Report of Missouri Botanical Garden is published with the permission of the Director, Dr. William Trelease, who has also consented to the use of the two plates which illustrated his article.

While making observations on an undescribed Agave which grows on the vertical cliffs of a deep marble canyon a few miles above Iguala in the State of Guerrero, last summer, my attention was attracted by an abundant Begonia which grew in similar situations and differed from all of the other species of this genus that I had seen in possessing only a single radical leaf, through the sinus of which a few-flowered scape arose,—naked except for a rather small leaf-like bract subtending its single branch, and much smaller bracts in the inflorescence proper. Though my time was largely occupied with the Agave for which I had visited the canyon, herbarium and living specimens and photographs of the Begonia were secured, and a subsequent study of this material showed that the species belongs to the Section *Huszia* of modern writers, which Klotzsch regarded as a genus separable from *Begonia*, its only close ally being *B. monophylla* Pavon in DC. Prod. 15<sup>1</sup>: 284. The latter, so far as I can learn, is known only from the type sheet in the Boissier herbarium, the label of which attributes it to New Spain. This group, *Huszia*, is that of the so-called tuberous begonias, some of which are now popular in cultivation,—nearly all of them coming from the Bolivian or Peruvian Andes. *B. monophylla* is said to produce a tuber 9 lines thick and to have a single petioled 12 to 15-nerved very shortly pilose leaf which is cordate or sometimes peltate, and rather large flowers.

On showing my material to Dr. J. N. Rose, whom I met in the City of Mexico, I learned that apparently the same species had been earlier collected by C. G. Pringle, and distributed in his set of 1902 under the manuscript name *B. unifolia* Rose: a fact verified at my return to St. Louis—the distributing number being 8690.

Aside from its northern distribution for a species of the Section *Huszia*, the rather uncertain source of its closest relative, *B. monophylla*, and the single leaf which, like the latter, it produces, *B. unifolia* is of interest in that its single large leaf is closely applied to the rock or talus in the crevices of which it is rooted, so that its subterranean parts are thus given the same kind of protection afforded by the similarly appressed basal leaves of the stag-horn ferns, *Platyceerium*.

EXPLANATION OF PLATE LXX.—Fig. a, plant; b, male flower; c, stamens; d, female flower; e, capsule; f, cross section of capsule. Fig. a, scale  $\frac{1}{10}$ ; b, c, and f, scale  $\frac{1}{2}$ ; e, and e, scale 3.

## MELASTOMATACEAE.

### RESTORATION OF SCHIZOCENTRON.<sup>a</sup>

In studying several years ago the original description of *Heeria elegans*, the type species of the genus *Heeria* of Schlechtendal, I was astonished at the differences between it and all the other species included in the genus by M. Cogniaux. But as no material of this species was at hand, the study was laid aside for the time being. In the summer of 1899, however, I visited Jalapa, Mexico, in the hope of obtaining *H. elegans*, and was successful in collecting both herbarium specimens and seeds. The differences suggested by the description were more than borne out by the living plant. It is characterized by its creeping vine-like habit, its ovate leaves 3-nerved from the base, its large solitary terminal long-peduncled purple flowers, and its persistent calyx lobes. In all these respects it differs from the other species referred to *Heeria*, which should therefore now be restored to

<sup>a</sup> *Schizocentron* Meissn. Gen. Comm. 355. 1843.

*Heeria* Schlechtendal, Linnaea 13: 432. 1839, not Meissn. 1837.

Type species *S. elegans* Meissn. l. c.

Heterocentron, while the Heeria of Schlechtendal itself, being a homonym, must give place to Schizocentron.

**Schizocentron elegans** (Schlecht.) Meissn. l. c.

*Heeria elegans* Schlecht. *Linnaea* 13: 432. 1839.

*Rheeria elegans* Schlecht. l. c.

A low creeping vine-like plant forming a dense carpet and rooting at the joints; branches terete or nearly so, reddish, somewhat appressed-pubescent; leaves ovate, distinctly petioled, obtuse, 5 to 10 mm. long, dark green above, slightly pubescent; flowers solitary and terminal on slender peduncles 1.5 to 2 cm. long; calyx tube about 6 mm. long covered with glandular bristles, the bases (in age) forming enlarged closely set tubercles; sepals ovate, 4 mm. long, ciliate; corolla a deep purple, 2 to 2.5 cm. broad, spreading; 4 anthers sessile, erect, yellowish, 4 reflexed and larger, the cells and stalks purplish but the appendage yellowish; ovary crowned by a prominent lacerate border.

Type locality; "pr. Jalapa" & "pr. Chiconquiaco." Only known from the region about Jalapa, Mexico.

*Specimens examined:*

Vera Cruz: in garden at Jalapa, August 13, 1901, J. N. Rose (no. 6081).

This is a very dainty plant and well worthy of ornamental cultivation. It is now grown in some of the Mexican gardens, but I have no knowledge of its being planted elsewhere. I have been told that seed was frequently sent to Germany and possibly it has gotten into trade under a different name. Plants are now growing in one of the greenhouses of the Department of Agriculture, where it flowered in 1904.

#### A SYNOPSIS OF THE SPECIES OF HETEROCENTRON.<sup>a</sup>

Out of deference to Professor Cogniaux I have very long delayed restoring the Heterocentron of Hooker and Arnott to generic rank, but I have no doubt that if he had the material now in the National Herbarium he would not hesitate to make the change himself. Into it go all the species of Heeria except *H. elegans*, all of which have heretofore been described under that genus except the new one here proposed. I have also restored *H. mexicanum*, the type of the genus, which comes from western Mexico but which for a long time has been resting under the name of *Heeria subtripplinervia*, a very different species from eastern Mexico. *H. undulatum* has also been little understood. It seems close to *H. mexicanum*, but I am inclined to admit the species until the types can be more carefully looked into.

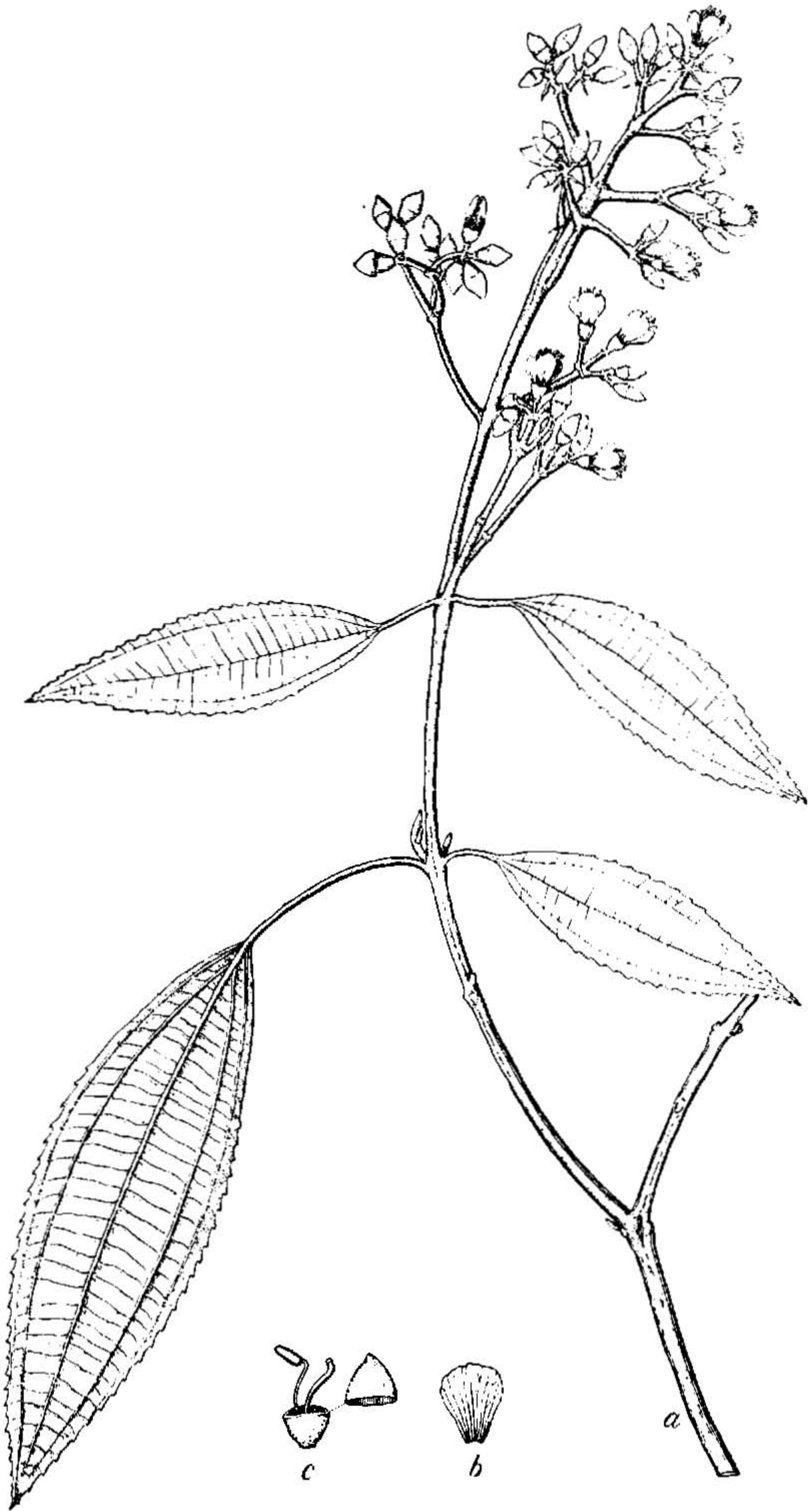
I have not found the characters of the crown used by Triana and Cogniaux to be very constant as flowers from the same branch will have the crown setose or naked. The following key, while it may require correction and additions, serve to distinguish the species in the National Herbarium.

#### KEY TO THE SPECIES OF HETEROCENTRON.

- Pedicels glabrous ..... 1. *H. subtripplinervium*.  
 Pedicels pubescent.  
 Calyx tube not glandular.  
 Calyx lobes ciliate on the margins ..... 2. *H. macrostachyum*.  
 Calyx lobes not ciliate on the margins.  
 Leaves deep green, narrow (1 to 3 cm. broad) ..... 3. *H. roseum*.  
 Leaves pale green, broad (2.5 to 3 cm. broad) ..... 4. *H. occidentale*.  
 Calyx tube glandular.  
 Calyx lobes ciliate on margin ..... 5. *H. undulatum*.  
 6. *H. mexicanum*.  
 Calyx lobes not ciliate on the margins ..... 7. *H. axillare*.

<sup>a</sup> HETEROCENTRON Hook. & Arn. Bot. Beech. 290. 1840.

Type species *H. mexicanum* Hook. & Arn. l. c.



CONOSTEGIA MINUTIFLORA ROSE.



MONOCHAETUM PRINGLEI ROSE.



**Heterocentron occidentale** Rose, sp. nov.

A shrub 180 to 200 cm. high; branches 4-angled, the younger ones reddish and densely appressed-pubescent; leaves lanceolate, 6 to 8 cm. long, 2.5 to 3 cm. broad, obtuse, cuneate, often oblique at base, tapering into a distinct petiole, very pale and densely appressed-pubescent on both sides, with 4 or 5 pairs of lateral veins; inflorescence a few-flowered cyme; calyx tube about 6 mm. high, covered with short broad almost triangular hairs, in age almost tubercled; calyx lobes acuminate, glabrous; stamens as of the genus; ovary (in specimens examined) not setose.

Collected by J. N. Rose in the foothills of the Sierra Madre between Pedro Paulo and San Blascito, Tepic, August 4, 1897 (no. 1980).

**NEW SPECIES OF TWO GENERA.****Conostegia minutiflora** Rose, sp. nov.

PLATE LXXI.

A small shrub, 90 to 240 cm. high with the young branches densely stellate; leaves lanceolate, narrowed at base, acuminate, 5-nerved, 7 to 12 cm. long, in age glabrous above, densely white tomentose beneath; petiole 10 to 35 mm. long; inflorescence a terminal panicle; flowers sessile or nearly so; buds small, 4 mm. long, acute, densely stellate for the lower half, the circumscissile cap glabrous or nearly so; petals pink, 4 mm. long; style 3 mm. long.

Collected by E. W. Nelson about Plunia, Oaxaca, altitude 900 to 1,040 meters, March 17, 1895 (no. 2493a).

This species is perhaps nearest *C. lanceolata*, but has different pubescence, smaller flowers, etc.

EXPLANATION OF PLATE LXXI.—Fig. a, plant; b, petal; c, calyx, stamen and ovary. Fig. a, natural size; b and c, enlarged.

**Monochaetum pringlei** Rose, sp. nov.

PLATE LXXII.

A shrub; branches glabrous somewhat setose at the nodes; leaves narrowly lanceolate, 2 to 4 cm. long, 3 to 6 mm. broad, cuneate at base, acute, glabrous above, with a few scattered hairs beneath, a little ciliate on the margin, entire, 3-nerved; petioles reddish, 2 to 4 mm. long; flowers solitary, terminal; peduncle 6 to 8 mm. long, with scattered appressed hairs; calyx-tube urn-shaped, 6 to 8 mm. long, with scattered appressed (some glandular) hairs; lobes 2 mm. long, obtuse, ciliate, reddish; petals purplish.

Collected by C. G. Pringle near Cuernavaca, Morelos, altitude 1,950 meters, November 1, 1896 (nos. 6976, 7352); Sierra de Tepoxtlán, 1890 (no. 8359, type), and 1902 (no. 9785).

This species differs from all the other Mexican species in having glabrous stems.

EXPLANATION OF PLATE LXXII.—Fig. a, plant; b, flower. Figs. a and b, natural size.

**ONAGRACEAE.****INTRODUCTORY NOTE.**

Sometime before Professor Lévillé's monograph of *Oenothera* began to appear I took up the study of our Mexican species of that genus with the hope of preparing a usable key. I was greatly disappointed to find that our herbarium material was very scanty and that a considerable number of the species are only known by the original collection from which they were described. Though I have prepared a tentative treatment of this group there are various species whose status is still uncertain, and as there seems to be no pressing need for a revision I shall withhold most of my manuscript until much more material has been studied.

Mr. Hemsley enumerates in the *Biologia* 25 species from Mexico, while the number of species known today is about 40. Mr. Hemsley's treatment was the old one, in which *Oenothera* was considered a polymorphic genus. The Mexican species have never been considered in the light of recent classification and for this reason the review was undertaken with considerable interest and I trust without prejudice. My judgment is that there are 8 genera in Mexico, although some may prefer to call them only sections. Professor L evell e does not believe in breaking up *Oenothera*, but since he has so wholly disregarded its natural groups his conclusions as to the generic limitations will have little weight.

#### NEW HARTMANNIAS.

**Hartmannia berlandieri** (Spach) Rose.

*Oenothera berlandieri* Walp. Rep. 2: 85. 1843.

*Xylopleurum berlandieri* Spach in Nouv. Ann. Mus. Par. 4: 370. 1835.

The *Xylopleurum berlandieri* of Spach seems not to have been reported since that author's time. There are, however, in the National Herbarium a number of sheets which have heretofore passed as *Oenothera* or *Hartmannia tetraptera* but which answer better to this species. As I have not yet seen Berlandier's plant there is of course still some doubt whether my specimens are identical, but there is little question that Spach's name deserves recognition under *Hartmannia*.

**Hartmannia cuprea** (Schlecht.) Rose.

*Oenothera cuprea* Schlecht. Linnæa 12: 269. 1838.

I have collected near the type locality of *Oenothera cuprea* Schlecht. a *Hartmannia* which I have referred here for want of a better place. My specimen (no. 5672) was growing as a weed in cultivated ground, which may account for its large size. Mr. Seaton's plant (no. 212), also from Mount Orizaba (alt. 3,450 meters), is more typical.

I have also referred here two specimens collected by the writer from the high mountains of Central Mexico, no. 5611 from Sierra de Pachuca, Hidalgo, July, 1901, and no. 5713 from Flor Maria, State of Mexico, July, 1901.

Type locality: "In prato elatiore montis Orizaba."

**Hartmannia dissecta** (Gray) Rose.

*Oenothera dissecta* Gray, in S. Wats. Proc. Am. Acad. 17: 357. 1882.

*Megapterium dissectum* Small, Bull. Torr. Bot. Club 23: 184. 1896.

*Oenothera dissecta* has clearly the fruit of a *Hartmannia* rather than a *Megapterium*, and I therefore have no hesitancy in transferring it to the former genus.

We have the following material in the National Herbarium:

San Luis Potosi: Near San Luis Potosi, Parry and Palmer, 1878 (no. 249); J. Barreta, no date.

Durango: Near Durango City, Dr. E. Palmer, 1896 (no. 966).

Type locality: "In sandy localities near San Luis Potosi."

**Hartmannia havardii** (S. Wats.) Rose.

*Oenothera havardii* S. Wats. Proc. Am. Acad. 20: 366. 1885.

Doctor Small has recently referred this species, with *Oenothera dissecta* A. Gray, to *Megapterium dissectum*. The two species while similar in habit and foliage are evidently distinct. The former is distinguished especially by its very short style branches and its cohering calyx tips.

Type locality: "On prairies near Morfa, western Texas." Collected by V. Havard.

**Hartmannia latiflora** (Ser.) Rose.*Oenothera latiflora* Ser. in DC. Prod. 3: 50. 1828.

Seringe's *Oenothera latiflora* was based upon Mocino and Sessé's drawing (DC. tracing no. 376). He questions whether this species should not be referred to *tetraptera*. A comparison of the published illustrations of the two indicates a difference in pubescence, foliage, etc., and I am inclined to keep them distinct.

Specimens collected by the writer on Sierra de Pachuca, Hidalgo (no. 5638) seem to answer *H. latiflora* fairly well.

Type locality: "In Mexico."

**Hartmannia montana** Rose, sp. nov.

Stems branching, the branches 30 to 40 cm. long, pubescent; leaves oblong, 6 to 10 cm. long, slightly pubescent, entire or nearly so, acute, shortly petioled; calyx tube pilose, 1 cm. or less long; petals drying purplish; fruiting peduncle 2 to 4 cm. long; capsule 1.5 cm. long, broad at apex.

Collected at Cima station, State of Mexico, on the railroad between City of Mexico and Cuernavaca, by J. N. Rose and Jos. H. Painter, September 19, 1903 (no. 7170).

**Hartmannia palmeri** Rose, sp. nov.

Acaulescent or with very short stems, glabrous throughout, with the habit and foliage of *H. dissecta* and *H. havardi*; calyx tube very slender, 5 cm. long, twice longer than the calyx segments; calyx buds long-acuminate; tips of segments free in bud; style branches short; expanded corolla 6 cm. broad, purplish in dried specimens; ovary as well as calyx glabrous.

A very showy and beautiful plant.

Collected by Dr. E. Palmer near City of Durango, 1896 (no. 45).

**Hartmannia reverchonii** Rose, sp. nov.

A low diffuse perennial, its branches slender and wiry, slightly pubescent; leaves all linear, laciniately lobed or toothed, slightly pubescent or early glabrate, 2 to 4 cm. long; flowers axillary, sessile; sepals 10 to 12 mm. long; petals 12 to 15 mm. long, pale pink; capsule including the very stout woody base 15 mm. long; seed glabrous.

Collected by J. Reverchon along the railroad east of Laporte, Tex., June 16, 1903 (no. 3554).

## NEW NAMES IN LAVAUXIA.

**Lavauxia tubifera** (Ser.) Rose.*Oenothera tubifera* Ser. in DC. Prod. 3: 50. 1828.

This species has heretofore only been known from Mocino and Sesse's plate (DC. tracing no. 377).

In 1901 the writer had the good fortune to collect a plant in an alpine meadow in Central Mexico which corresponds very closely with the illustration referred to. My exact locality is the Sierra de Pachuca, Hidalgo, and the date July 21 and 22, 1901 (no. 5622).

**Lavauxia graminifolia** (Lévl.) Rose.*Oenothera graminifolia* Lévl. Monog. Onoth. 1: 42. pl. 3 [in part]. 1902.*Oenothera brachycarpa* var. *stenophylla* Lévl. l. c.

Nearly acaulescent; leaves elongated, linear, 10 to 20 cm. long, 2 to 4 mm. wide, subentire, only slightly pubescent; calyx tube slender, 14 cm. long, appressed-pubescent; petals pinkish, 4 to 4.5 cm. long; capsule rather slender, 2.5 cm. long, pubescent, slightly winged.

Collected by Dr. E. Palmer at Saltillo in 1880 (no. 342). Doctor Watson was inclined to consider this a very narrow-leaved form of *brachycarpa*.

The writer had given a different name and the description was in manuscript before the appearance of Professor Léveillé's monograph. The latter's name must, of course, be taken up, as his material, at least for most part, is the same as mine.

Type locality: "Saltillo, Coahuila."

**RAIMANNIA, A NEW GENUS.**

Linnaeus, in the first edition of the *Species Plantarum*, describes three species as belonging to *Oenothera*, viz, *O. biennis*, *O. mollissima*, and *O. fruticosa*. These species are now believed to be of different genera. In 1835 Spach referred them to *Onagra*, *Oenothera*, and *Kneiffia*, respectively, and this course has been followed by Raimann, Small, Britton, and other recent writers on this group.

Recently Mr. W. F. Wight has informed me that the species *biennis* should be considered the type of *Oenothera* proper. A careful review of the history of the genus seems to confirm his statement. This being the case, the *Onagra* of Tournefort, Adanson, and Spach becomes a true synonym of *Oenothera* L., and our plants commonly called *Oenothera* are without a name. They can not be merged into *Anogra*, although some of the reputed *Anogras* should go with them.

I propose for this genus the name *Raimannia*, given in honor of Dr. Rudolf Raimann, of Vienna, who had the courage to divide the old genus *Oenothera* and to place the group on a proper basis.

Type species *R. laciniata* (*Oenothera laciniata* Hill).

The following North American species are recognized:

***Raimannia colimae* Rose, sp. nov.**

A small much-branched plant strikingly resembling *Hartmannia rosea*, somewhat appressed-pubescent and with some spreading hairs; leaves lanceolate, 2 to 3 cm. long, acute, minutely toothed; buds erect or nodding, glabrous except for a few long silky hairs; tips free but short; segments 10 mm. long; tube slender, 3 to 3.5 cm. long; pods sessile, slender, 3 to 4 cm. long; seeds nearly globular, somewhat reticulated.

Collected on the Volcano of Colima, Jalisco, by M. E. Jones, July 14, 1892 (no. 232).

***Raimannia confusa* Rose, sp. nov.**

Stems 40 to 70 cm. high, much branched, more or less purplish, somewhat appressed-pubescent as well as slightly pilose; leaves rather narrow, 2 to 5 cm. long, pinnately cleft; flower buds nodding; calyx segments long-hairy, 12 to 15 mm. long, the free tips very short; the tube slender, about 3 cm. long; petals rose-colored, 14 mm. long; pods terete, sessile, hairy, erect or somewhat spreading, 3 to 4 cm. long; seeds in two rows, reticulated.

Collected by J. N. Rose on the Sierra de Pachuca, July 21, 22, 1901 (no. 5636).

This species is rather common in the Valley of Mexico and on the lower stretches of the neighboring mountains. It has heretofore been confused with *O. sinuata* (now *R. laciniata*), but has a somewhat different appearance and much shorter tips to the calyx-segments, etc.

***Raimannia curtissii* Rose, sp. nov.**

Perennial, comparatively simple, 20 to 80 cm. high; basal leaves narrowly oblanceolate, 5 to 10 cm. long, acute, subentire, runcinately-lobed; stem leaves lanceolate to linear, subentire, acute, clothed with cinereous appressed hairs; inflorescence an interrupted leafy-bracted spike; calyx tube very slender, 2.5 to 3 cm. long; somewhat spotted, nearly glabrous; lobes 1 cm. long, nearly glabrous (but sometimes with a few long hairs and some shorter ones), its tips very short; petals probably white but somewhat purplish in dried specimens, 15 mm. long; capsule cone-shaped, 12 to 14 mm. long, somewhat pubescent; seeds in two rows in each cell.

Collected by A. H. Curtiss in dry open places in Flint River Valley near Bainbridge, Georgia, August 22, 1902 (no. 6880); and probably also by S. M. Tracy at East Pass, Florida, September 1, 1899 (no. 6614).

***Raimannia coronopifolia* (T. & G.) Rose.**

*Oenothera coronopifolia* T. & G. Fl. N. Am. 1: 495. 1840.

*Anogra coronopifolia* Britton, Mem. Torr. Bot. Club 5: 234. 1894.

*Oenothera coronopifolia* was referred to *Anogra* by Doctor Britton in 1894 and this view has since been followed by Small and others. It is true the buds are nodding

and the flowers purplish, but it has the fruit of a true *Raimannia* and requires to be placed in that genus.

**Raimannia drummondii** (Hook.) Rose.

*Oenothera drummondii* Hook. Bot. Mag. 61: pl. 3361. 1835.

**Raimannia grandis** (Britton) Rose.

*Oenothera sinuata grandis* Britton, Mem. Torr. Bot. Club 5: 358. 1894.

*Oenothera sinuata grandiflora* S. Wats. Proc. Am. Acad. 8: 581. 1873, not *O. grandiflora* Ait. 1789.

*Oenothera laciniata grandis* Britton in Britton & Brown Illust. Fl. 2: 487. 1897.

*Oenothera laciniata occidentalis* Small, Bull. Torr. Bot. Club 23: 173. 1896.

This western species is very common in the prairie region of eastern Texas. It does not seem to grade into the *O. laciniata* of the eastern United States, being easily distinguished by its few large flowers, long tips to the calyx-segments, and very long stigma lobes, and I have therefore given it specific rank.

**Raimannia heterophylla** (Spach) Rose.

*Oenothera heterophylla* Spach, Nouv. Ann. Mus. Par. 4: 348. 1835.

The old *Oenothera heterophylla* shows considerable variation in the pubescence of the calyx and the length and spread of calyx tips as well as in general habit. The few Texas specimens which I have seen suggest the possibility of a second species but hardly warrant the description of one at this time. The species is often confused in herbaria with *O. rhombipetala*, but the latter is easily recognized by the appressed pubescence on the calyx.

*O. bifrons* Don belongs here. *O. leona* Buckley, generally referred to *O. heterophylla*, has a nearly glabrous calyx, and this suggests the possibility of its being a good species, but the material in our larger herbaria is still scanty.

**Raimannia humifusa** (Nutt.) Rose.

*Oenothera humifusa* Nutt. Gen. 1: 245. 1818.

**Raimannia laciniata** (Hill) Rose.

*Oenothera laciniata* Hill, Syst. Veg. 12: 64. 1767.

**Raimannia littoralis** (Schlecht.) Rose.

*Oenothera littoralis* Schlecht. Linnaea 12: 268. 1838.

To *R. littoralis* I would refer Pringle's no. 7678, collected on sandy dunes near Tampico, Tamaulipas, April, 1898. Pringle's plant seems to differ from *R. drummondii*, a United States species, in its pubescence and more erect pods.

A somewhat similar plant, but probably distinct, variously treated as a form of *O. drummondii* and *O. sinuata*, has been collected on the coast of Lower California.

**Raimannia macrosceles** (A. Gray) Rose.

*Oenothera macrosceles* A. Gray, Mem. Am. Acad. n. ser. 4: 43. 1849.

*Onagra macrosceles* Small, Bull. Torr. Bot. Club 23: 172. 1896.

The *Oenothera macrosceles* Gray is certainly not an *Onagra* as supposed by Small, for it has ascending ovules and terete seeds, etc.

**Raimannia rhombipetala** (Nutt.) Rose.

*Oenothera rhombipetala* Nutt.; T. & G. Fl. N. Am. 1: 493. 1840.

## APIACEAE.

### INTRODUCTORY NOTE.

In 1900 Coulter and Rose published a synopsis of the Mexican and Central American Umbelliferae.<sup>a</sup> Since then a number of new species of *Eryngium* have been published by Mr. W. Botting Hemsley, while

<sup>a</sup> Proc. Washington Acad. Sciences, vol. 1, pp. 111-159, pls. 3-13, 1900.

descriptions of a number of species belonging to *Eryngium* and other genera have been drawn up by me from time to time, and are here presented. A few notes regarding rare species are entered and one change of name is made.

#### NEW AND RECENT SPECIES OF ERYNGIUM.

***Eryngium crassisquamosum*** Hemsley, Hook. Ic. **28**: *pl.* 2765. 1903, is based on Seeman's no. 2136, which I have not seen.

***Eryngium globosum*** Hemsley, Hook, Ic. **28**: under *pl.* 2765. 1903.

Type collected by E. W. Nelson near Tepic, Territorio de Tepic, April 9, 1897 (no. 4174).

Type specimen in U. S. National Herbarium (no. 347477).

***Eryngium goldmani*** Hemsley, Hook. Ic. **27**: *pl.* 2638. 1900.

Type collected by E. A. Goldman in the Sierra Madre near Guasarachi, Chihuahua, September 26, 1898 (no. 168).

Type specimen in U. S. National Herbarium (no. 335667).



FIG. 16.—*Eryngium grande*.

***Eryngium grande*** Hemsley & Rose, sp. nov.      **FIGURE 16.**

Tall stout perennial, 1 to 1.5 meters high, growing in clumps; stems glabrous, fluted, leafy; basal leaves parallel-nerved, 60 to 100 cm. long, 2 cm. broad, the margin with short stout spinescent lobes usually shorter than the breadth of the leaf; inflorescence elongated, sometimes 40 cm. or so long, containing many short-peduncled heads crowded along the upper part of the stem or sometimes the peduncles elongated, the central one sometimes 20 cm. long; mature heads sometimes 4 cm. high; bracts at the base of the head numerous, linear, entire, strongly nerved, pungent, also decurrent on the peduncle, in one case for the distance of 10 cm.; bractlets pungent, longer than the flowers; sepals ovate, acute; styles very long, 3 or 4 times as long as sepals; surface of fruit without imbricating scales; cross section of seed deeply indented.

*Specimens examined:*

State of Mexico: Nevada de Toluca, J. N. Rose and Jos. H. Painter, October 15, 1903, altitude 3,100 meters (no. 7938, type) near Salazar, Rose and Painter, September 14, 1903 (no. 7031).

State of Jalisco: Volcano of Colima, M. E. Jones, July 13, 1893 (no. 236).

***Eryngium guatemalense*** Hemsley, l. c. under *pl.* 2766. 1903.

First specimen cited, Nelson's no. 3654 from Hacienda de Chancol, Guatemala, at 3,300 meters.

Specimen in U. S. National Herbarium (no. 274013).

***Eryngium longispinum*** Coult. & Rose, Hook. Ic. **28**: under *pl.* 2766. 1903.

Collected by C. G. Pringle on the pedregal in Valley of Mexico (no. 4359).

***Eryngium medium*** Hemsley, Hook. Ic. **28**: *pl.* 2767. 1903.

Type collected by E. W. Nelson near San Julian, Chihuahua, altitude 2,100 to 2,400 meters, September 7, 1898 (no. 4924).

Type specimen in U. S. National Herbarium (no. 330871).

***Eryngium palmeri*** Hemsley, Hook. Ic. **28**: under *pl.* 2765. 1903.

Collected by Dr. E. Palmer at Rio Blanco near Guadalajara, Jalisco, in 1887 (no. 681).

**Eryngium painteri** Hemsley & Rose, sp. nov.

FIGURE 17.

Perennial, with a short somewhat creeping rootstock producing many long black roots; stem rather slender but much stouter than in *E. pringlei*, 30 to 70 cm. tall, glabrous, bearing a few much-reduced leaves; basal leaves numerous, 2 to 3 dm. long, 10 to 15 mm. broad, pungent, parallel-veined, the face somewhat banded, the margins with numerous spinescent linear lobes longer than the breadth of leaf, often bearing prickles in the axils; inflorescence a simple terminal umbel, sometimes more compounded, and the 2 to 5 bract-like leaves below the umbel bearing solitary heads; rays (peduncles) 3 to 7 cm. long, slender; flower parts, bracts, and sometimes the upper leaves more or less deep blue; bracts linear, 1 to 2 cm. long, entire, pungent, about as long as the mature heads; bractlets linear-ovate, pungent, longer than the flowers; sepals ovate, pointed; styles about twice as long as the sepals.

The material seen is all from about Pachuca, Hidalgo.

*Specimens examined:*

Near Real del Monte: J. N. Rose, June 2, 1899 (nos. 4488 and 4489); also Rose and Painter, August 31, 1903 (no. 6660).

On the Sierra de Pachuca: C. G. Pringle, 1898 (no. 6939); also Rose and Hay, July 21 and 22, 1901 (no. 5589) and Rose and Painter, September 1, 1903 (no. 6723, type).

This species is common near the top of mountains growing in the oak and fir forests. Its relationships seem to be with *E. bromeliaefolium* and *E. axillifolium*, but it is more slender and otherwise different.

**Eryngium pilularioides** Hemsley & Rose, sp. nov.

FIGURE 18.

Delicate little annual with slender trailing branches, rooting at the joints; basal leaves linear, hollow, parallel-nerved, 6 to 8 cm. long, entire, or with a few (2 to 4) marginal bristles toward the base, either obtuse or tipped by a short bristle; stem leaves several at each node, somewhat similar to the basal leaves but some at least shorter, bristling at base; stipular sheath with white scarious margins; branches 10 cm.

or more long, flowering from the base; heads subsessile or short-peduncled, 3 to 4 mm. in diameter, bracts little exceeding the flowers, entire, linear, or a little broader at base and here scarious-margined; bractlets similar in size and shape to the bracts; sepals short, ovate; styles shorter than the calyx lobes; fruit covered with white ovate papillose scales.

Collected by C. G. Pringle in

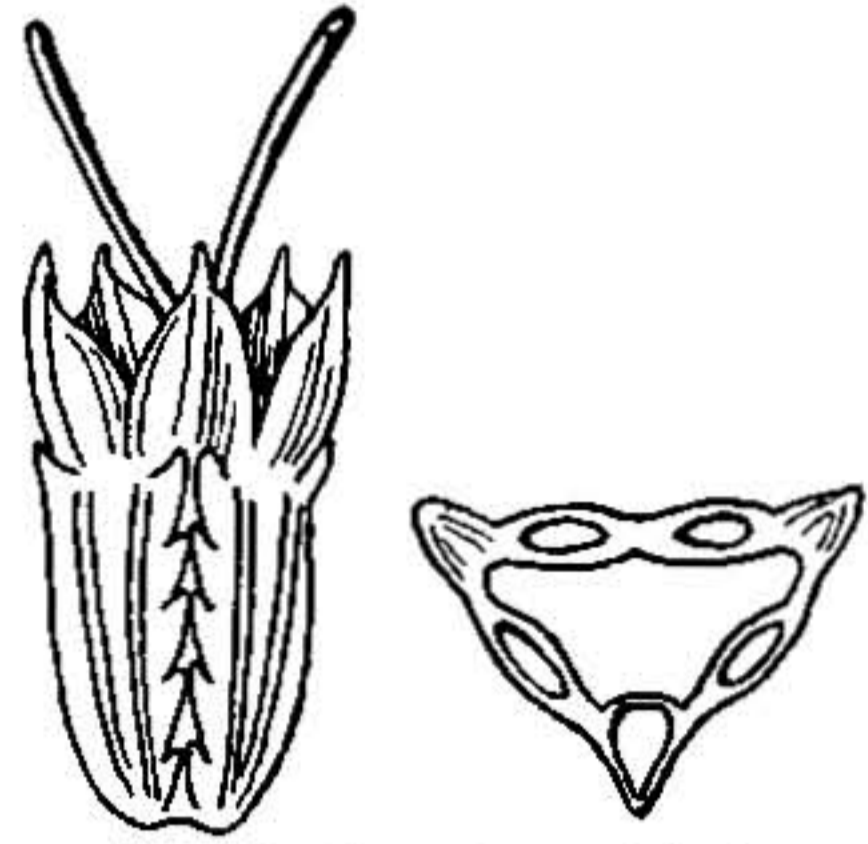
shallow hollows of meadows in eastern Hidalgo, 1904 (no. 8948).

This is a very remarkable species, very unlike any material in the National Herbarium. The venation seems to be parallel and therefore of the type of *E. yuccae-folium* as well as of some of the giant species.

**Eryngium pringlei** Hemsley & Rose, sp. nov.

FIGURE 19.

Very slender perennial, 30 to 50 cm. high; basal leaves narrow, 4 to 5 mm. broad, erect, 20 to 30 cm. long, the margin bearing many slender bristles in the lower half, naked above, pungent at tip; stem leaves few, much reduced; heads few, small, less than 1 cm. in diameter, on slender peduncles 2 to 4 cm. long; bracts about 5, small,

FIG. 17.—*Eryngium painteri*.FIG. 18.—*Eryngium pilularioides*.

2 to 3 mm. long, ovate-acuminate, serrulate on the margin; bractlets very slender, like the bracts in size and shape, hardly extending beyond the flowers; sepals ovate, acute; styles slender, a third longer than the sepals; fruit about 3 mm. long, covered with small ovate overlapping scales.

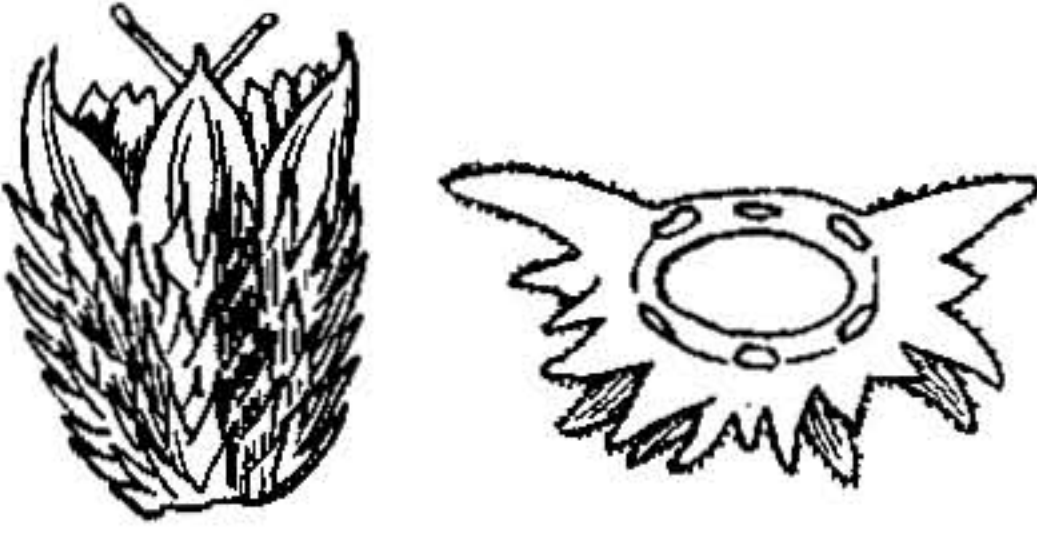


FIG. 19.—*Eryngium pringlei*.

Collected by C. G. Pringle in alkaline meadows, Hacienda de Angostura, San Luis Potosi, July 10, 1891 (no. 3759). Type in U. S. National Herbarium (no. 461279). It was distributed as *E. deppeanum*, from which it differs greatly.

***Eryngium puberulentum* Hemsley & Rose, sp. nov.**

Perennial from a slender rootstock; stems slender, 90 to 100 cm. high, nearly simple, rather pale; basal and lower stem leaves long and narrow (60 cm. long by 4 to 8 mm. broad), the margin bearing paired unequal setae closely set in the lower part, more distinct above; inflorescence a simple or somewhat compounded umbel; rays (peduncles) usually slender, about 3 cm. long; heads globular, 5 to 6 mm. in diameter; bracts 5 or 6, ovate, acute, small, 3 mm. long; bractlets similar, puberulent; sepals broadly ovate, mucronate; styles elongated.

Collected by C. G. Pringle in the Sierra Madre above Monterey, Nuevo Leon, August, 1903 (no. 11461, type) and by Dr. E. Palmer in the Caracol Mountains southeast of Monclova in 1880. Doctor Palmer's plant was distributed as "*E. quercifolium* var.?" under which name it has ever since rested.

***Eryngium stenlobum* Hemsley, Hook. Ic. 28: under pl. 2766. 1903.**

Collected by Rose and Hough near Cuernavaca, Morelos, in 1899 (no. 4393).

Type specimen in U. S. National Herbarium (no. 346355).

***Eryngium watsoni* Coulter & Rose, sp. nov.**

Rather slender perennials, very pale but not glaucous, 30 to 40 cm. high, somewhat branching above; basal and lower stem leaves elongated, linear, 60 to 70 cm. long, 10 to 12 mm. broad, parallel-veined, banded down the center, the margin bearing short weak spines; inflorescence a compound umbel or an umbel-like cluster; heads oblong in outline, 12 mm. long; bracts few, linear-ovate, about 7 mm. long, usually entire, pungent, strongly 3-nerved; bracts similar but smaller; sepals ovate, acute; styles slender, 3 times as long as the sepals.

Collected by C. G. Pringle in mountains near Lake Chapala, Jalisco, October 18, 1895 (no. 6197). Type specimen in U. S. National Herbarium (no. 244270).

This species although long ago recognized as new has remained unpublished. In the meantime several other species have been confused with it. Mr. W. B. Hemsley suggests a relationship with *E. longifolium* Cav.

**FIVE NEW SPECIES OF PRIONOSCIADIUM.**

***Prionosciadium diversifolium* Rose, sp. nov.**

Perennial, 1 to 2 meters high, loosely branching, glabrous and somewhat glaucous below; leaves ternately divided; rachis winged, either entire or toothed; leaflets ovate, acute or obtuse, 8 cm. or less long, sharply serrate, glabrous except a little scabrosity along the veins; peduncle short (3 to 6 cm. long), slender; involucre none; involucrel bractlets few, linear, about the length of the fruiting pedicels; rays about equal, 2 cm. long, scabrous; pedicels 2 or 3 mm. long; fruit oblong, 10 mm. long, glabrous.

Collected by Mr. C. G. Pringle on mountains above Iguala, Guerrero, September 14, 1900 (no. 8420).



The detached leaves vary so much in shape and tothing of the leaflets and in the character of the rachis as to suggest two species. Mr. Pringle, however, is very confident that we have but one. In case there is a mixture the leaf with obtuse segments is to be excluded. In its thin leaves and winged rachis this much resembles *P. acuminata*, but in several other respects it is very different.

**Prionosciadium moschatum** Rose, sp. nov.

Tall perennial, 1 to 3 meters high, much branched; leaves large, ternately divided, the main and secondary branches not winged; segments oblong, each confluent at base with its mate forming a wedge-shaped projection down the rachis, somewhat scabrous, very decidedly so beneath, and with crenate mucronate teeth; inflorescence much branched and crowded; umbels small on short (2 to 5 cm. long) often verticillate peduncles; peduncle, rays, pedicels and fruit more or less roughened; involucre wanting; involucre bractlets several, linear, longer than the pedicels; rays 1 to 2 cm. long; pedicels 2 mm. long; fruit seen immature, scabrous on the ribs.

The species is nearest *P. mexicanum*, but the fruit is roughened, etc.

Collected by J. N. Rose near Chalchicomula, Puebla, at the base of Mount Orizaba, July 24, 1901 (no. 5664).

This species, like many species of the Arracacias, has a strong odor of musk.

**Prionosciadium palustre** Rose, sp. nov.

Perennial, caulescent, 1 to 2 meters high, glabrous throughout; basal leaves ternately divided, the rachis evenly winged to the very base; wing thin and entire; segment rather small, 3 to 6 cm. long, ovate, with an entire cuneate base, acuminate, sharply serrate; pedicels very short, 1 to 3 cm. long; involucre bracts 1 to several, sometimes linear, sometimes resembling reduced leaves; involucre bractlets several, linear, somewhat longer than the pedicels; rays short, 10 mm. or less long; pedicels 2 or 3 mm. long; fruit broadly oblong, 8 to 10 mm. long, glabrous, rounded at apex, cordate at base; wings as broad as body; oil tubes 2 or 3 in the interval, 4 to 6 on the ventral surface; stylopodium none; seed face deeply concaved.

Collected by J. N. Rose and Jos. H. Painter in swamp near Yautepec, Morelos, August 27, 1903 (no. 6555).

Somewhat resembling *P. acuminatum*, but still very different.

**Prionosciadium seleri** Rose, sp. nov.

Doubtless a tall branching perennial, but no data given by collector; basal leaves twice ternate, then pinnate, the main rachis and primary branches not winged, the leaflets more or less confluent at base, the pubescence on both sides but more abundant beneath, consisting of very short, stiff yellow hairs; leaflets obtuse, serrate; inflorescence consisting of many short-peduncled umbels, either opposite or verticillate, pedicels very short; fruit seen immature, glabrous.

Collected by C. and E. Seler in Guatemala, June 10, 1896 (no. 3106).

This species seems to belong to the *P. pringlei* type.

**Prionosciadium townsendi** Rose, sp. nov.

Stems 150 cm. high, glabrous and pale; leaves broad, ternate then pinnate (in all specimens seen), the alternate segments or pinnae more or less confluent and tapering below into a more or less winged and toothed rachis; leaflets lanceolate, acute, sharply and finely serrate, sometimes 8 cm. long and 3 cm. broad; umbels numerous and verticillate, sometimes only 3 to 10 cm. long; rays numerous, about equal, 2 to 4 cm. long; pedicels 5 to 6 mm. long; rays and pedicels a little scabrous; involucre of numerous linear bractlets; fruit glabrous, narrowly oblong, 11 to 12 mm. long, 6 mm. broad, wings about as broad as body, strongly notched at base.

Collected by C. H. Tyler Townsend and C. M. Barber (no. 381), in the Sierra Madre, 20 miles southwest of Chuichupa, Chihuahua, August 29, 1899.

Perhaps nearest *P. pringlei*, but glabrous, with different leaflets, etc.

## NEW SPECIES OF SEVERAL GENERA.

**Ammoselinum popei** (T. & G.) Gray, has not been collected in Mexico for many years. It has recently been found again by Mr. C. G. Pringle (no. 8315) near Diaz, on the northern border.

**Arracacia humilis** Rose, sp. nov.

Stems herbaceous, the lower portion spreading and more or less imbedded in humus and undergrowth, glabrous throughout; leaves twice ternate; leaflets ovate, more or less lacerate and sharply, almost spinulosely-toothed, pale and somewhat glaucescent, 1 to 2.5 cm. long; peduncles slender, overtopping the leaves, 10 to 20 cm. long; rays 8 to 10, fruiting ones few, nearly erect, slender, about 5 cm. long; involucre wanting; involucre bractlets several, longer than the pedicels, narrow, 3-cleft near the apex; pedicels stout, 3 to 4 mm. long; fruit ovate, 4 mm. long, rounded at the base; stylopodium low.

Collected by C. and E. Seler in mountain woods between Totonocapan and Los Encuentros, Guatemala, September 25, 1896 (no. 2342).

Near *A. brevipes*, but with foliage, involucre bracts, etc., glabrous.

**Coulterophytum holwayi** Rose, sp. nov.

Perennial with tall stems woody at base; leaves large, the main branches 30 to 40 cm. long, ternate, then twice pinnate; leaflets ovate, long-acuminate, petioled or sessile, 5 to 12 cm. long, 2.5 to 5 cm. broad at widest point, cuneate, rounded or even broadly cordate at base, dark green above and glabrate, densely cinereous-puberulent beneath, sharply serrate; stipular sheath large, inflated; inflorescence of numerous slender short (4 to 8 cm. long) peduncles, variously angled; involucre bracts linear, shorter than the pedicels (4 to 5 mm. long); ovary puberulent; fruit seen immature.

Collected by E. W. D. Holway near Zapotlan, Jalisco, October 9, 1903 (no. 5138).

**Hydrocotyle yucatanensis** Millsp. Bot. Field Col. Mus. 2: 81. 1900, seems not to differ from true *H. bonariensis*.

**Ligusticum madreense** Rose, sp. nov.

Stems 60 to 90 cm. high, glabrous; basal leaves rather small, somewhat narrow in outline, once or twice ternate, then once to twice pinnate; leaflets ovate, sometimes merely toothed, at other times cut into linear lobes, somewhat scabrous on the margins; umbels terminal and axillary, apparently never verticillate, 1 to 2 dm. long, somewhat scabrous at the top (as are the rays and pedicels throughout); rays numerous, about equal, 3 to 7 cm. long; pedicels slender, 8 to 15 mm. long; involucre wanting; involucre consisting of several filiform elongated bractlets; fruit seen immature, glabrous.

Collected by C. H. Tyler Townsend and C. M. Barber, in the Sierra Madre, 5 miles southeast of Colonia Garcia, Chihuahua, September 23, 1899 (no. 350).

This species is quite different from the two other North Mexican species (*L. goldmani* and *L. nelsoni*) in its foliage and involucre bractlets.

**Museniopsis arguta** Rose, sp. nov.

Perennials from elongated thickened roots, 40 to 50 cm. high, slender, glabrous, somewhat glaucous, purplish below, somewhat branching above; leaves mostly basal, bipinnate or ternate-pinnate, the lower pair of segments elongated; leaflets on segments ovate, the terminal ones more elongated, acute, 1 to 3 cm. long, sharply serrate, the larger ones first cut or cleft and then serrate, slightly scabrous on the veins; petioles about the length of the blade; upper leaves somewhat similar but reduced, the uppermost bract-like, linear or of linear lobes; peduncles slender 6 to 10 cm. long; rays 5 to 10, nearly equal, 15 to 25 mm. long; involucre bractlets 3 or 4, filiform, longer than the pedicels (2 mm. long); fruit ovate, cordate at base, 3.5 mm. long, glabrous, flattened laterally; carpels with 5 filiform ribs, rather conspicuous; oil tubes

3 in an interval, sometimes fewer in lateral ones, 6 on commissural side; seed strongly involute; stylopodium low-conical.

This species closely resembles *M. serrata* C. & R., but has less scabrous leaves and different fruit, and possesses involucrel bractlets, etc.

Collected by Mr. C. G. Pringle on a rocky hillside about the waterfall near El Oro, Michoacan, September 13, 1901 (no. 6812).

**Museniopsis fusiformis** Rose, sp. nov.

Biennials from small spindle-shaped tubers, stems glabrous, much branched, 40 cm. high, not at all zigzag; leaves 2 to 3 times ternate; leaflets linear, entire; rays usually 4 to 10, nearly equal, 1 to 2 cm. long; pedicels about 3 mm. long; involucre of one or two bracts; involucrel bractlets if present one or two and linear; flowers yellow; fruit 2 mm. long, cordate at base; ribs of fruit rather prominent.

Collected by J. N. Rose and Jos. H. Painter, October 13, 1903 (no. 7821, type), near Tultenango canyon, State of Mexico; and by Mr. C. G. Pringle at same locality (no. 9815).

This species comes nearest *M. tuberosa*, but is stouter throughout, often possesses an involucre and involucrel bractlets, has stouter ribs, etc.

**Oaxacana ebracteata** Rose, sp. nov.

Stems tall, 60 or more cm. high, erect, glabrous and glaucous; upper leaves twice ternate; leaflets ovate, acute, more or less cleft and sharply serrate; petioles wanting, stipular bases much enlarged and scarious; peduncles short, 7 to 8 cm. long; rays numerous, spreading, 3 to 4 cm. long; involucre and involucrel bractlets wanting; flowers purplish, the sterile ones on slender pedicels, the fruiting ones very short or subsessile.

Collected by C. and E. Seler between Hutztan and Oxchuc, Chiapas, March 11, 1896 (no. 2148).

**Spermolepis echinatus** (Nutt.) Heller, should now be taken up for *Leptocaulis echinatus* Nutt.

Mr. C. G. Pringle has recently collected material at Diaz, Coahuila (no. 8309).

**Washingtonia mexicana** (Griesb.) Rose.

*Osmorrhiza mexicana* Griesb. Goett. Abh. 24: 147. 1879.

*Washingtonia mexicana* has a wide distribution in the mountains of Mexico.

## CUCURBITACEAE.

### TWO NEW SPECIES.

**Roseanthus elongatus** Rose, sp. nov.

Annual vine, climbing to 4.5 to 6 meters, monoecious, the stem somewhat angled, pubescent; leaves ovate, cordate, with a broad generally open sinus, sometimes 3-lobed, 15 cm. long, thin, acute, the margin with fine but distinct teeth, pubescent on both surfaces; male flowers abundant, axillary on long slender peduncles (20 cm. or so long), 7 to 8 cm. broad; corolla white with numerous greenish veins; female flowers on short peduncles (1 to 1.5 cm. long), very pilose and also covered with short glandular hairs; calyx tube greenish, 4 cm. long; lobes linear, 10 to 12 mm. long; ovary pubescent; fruit globular, 5 cm. in diameter, its rind thin and splitting irregularly; seeds horizontal, separated from one another by thin tough plates.

Very common on the western slopes of the Cape region of Lower California. Collected by T. S. Brandegee first in September, 1893, and again in November, 1902. Type in Brandegee Herbarium.

**Schizocarpum jaliscanum** Rose, sp. nov.

A delicate vine, climbing over low bushes and shrubs, the stems bearing pilose as well as short glandular hairs; leaves orbicular in outline, with broad open sinus, the basal lobes rounded, the apex rounded or acutish, nearly glabrous above, scabrous-

pubescent beneath; male flowers yellow, trumpet-shaped, 4 to 6 cm. long, on peduncles 6 to 12 cm. long; the lobes obtuse; female flowers somewhat smaller than the male flowers on peduncles 3 to 10 mm. long; fruit 4 cm. long.

Very common in the hot valley of Bolaños River, near Bolaños. Collected by J. N. Rose, September 10 to 19, 1897 (no. 2851).

### A SYNOPSIS OF THE MEXICAN SPECIES OF RIBES.

[Continued from page 301.]

The following additional notes on Mexican Ribes are based on information received too late for incorporation into the body of my paper on Ribes:

Through the kindness of Dr. I. Urban, I have had an opportunity to examine fragments from the type material of all of Humboldt's Mexican species except the now well known *R. microphyllum*. The examination of these specimens in the light of the abundant material in the National Herbarium clears up several points which have long been misunderstood. The various names based on Humboldt's material will be taken up alphabetically.

*Ribes affine* H. B. K. is best represented in our collection by specimens distributed by Pringle as *R. multiflorum* and others collected by myself near the type locality. In the type specimen the petioles are clothed with soft hairs, and bear a few stalked glands on the stipular base only; the calyx tube is very short; the pedicels are without glands of any kind, but the bracts and bractlets bear stalked glands. None of the National Museum material, however, has stalked glands on the bracts and bractlets. A larger series of specimens must yet be collected before the limits of this species are clearly made out. For the reason mentioned below, the reference by the Kew Index of this species to *R. campanulatum* would not be warranted even if the two were the same.

*Ribes campanulatum* H. B. K. was treated by Kunth as a synonym of his *R. affine*, and has ever since been considered the same as that species. A careful examination of Willdenow's No. 4859, the type of *R. campanulatum* H. B. K., seems to indicate that this species is the same as my *R. pringlei*. The petioles have stalked glands, as also the upper surface of the leaf blade; the ovary is glandular, and the flowers were apparently large. In all these respects it differs from *R. affine* and corresponds with *R. pringlei*. The name, however, is a homonym, and therefore does not invalidate my new name. An interesting fact, stated in connection with the original publication of *R. campanulatum*, which seems to have been overlooked, throws some light on this point. It is stated that this species was collected with *R. ciliatum*, which came from the State of Michoacan, while if it had been with *R. affine* it would have come from the central part of the State of Hidalgo. *R. campanulatum* is a homonym of a much earlier name, as is shown on page 298.

*Ribes ciliatum* H. & B. is well represented in the National Herbarium by Pringle's No. 4255 from the volcano of Toluca. The petiole has short stalked glands and short close pubescence; the upper surface is nearly smooth, except for some stalked glands, which are also found on the tips of the teeth, while the under surface has many sessile glands and much pubescence on the nerves. The material here described is a part of Willdenow's No. 4860.

*Ribes kunthii* Berland. was made because *R. multiflorum* H. B. K. was found to be a homonym of a much earlier name. If *R. multiflorum* is a good species it must bear the name of *R. kunthii*.

*Ribes jorullense* H. B. K. seems to be the same as *R. ciliatum*. This was the conclusion of Kunth, and I believe has never been questioned. Humboldt's specimen

in the general Berlin herbarium seems to be identical with Willdenow's No. 4860. *R. jorullense* is more recent than *R. ciliatum* and therefore goes properly into synonymy. It was retained however in the *Biologia Centrali-Americana*.

*Ribes mexicanum* Spreng. was made because *R. multiflorum* H. B. K. was found to be a homonym. *R. kunthii*, however, has a priority of one year, and therefore *R. mexicanum* becomes a synonym of that species.

*Ribes multiflorum* H. B. K. is a very peculiar species. In the type specimen, our only source of information, the inflorescence seems to be abnormal, having the two bractlets alternate and distant from the summit of the pedicels and the raceme itself compounded. Its flowers suggest *R. affine*, but besides differences in the inflorescence the petioles have stalked glands. If it is a good species it must take the name *R. kunthii*, otherwise it must be considered an aberrant form of *R. affine*.

***Ribes orizabae* Rose, sp. nov.**

Leaves 2 to 4 cm. long, ovate in outline, 3-lobed, or sometimes 5-lobed, the central lobes usually longer, acute, glabrous above but with sessile glands when young, pubescent on the veins beneath and with some sessile glands, the margins with gland-tipped hairs, doubly serrate; petiole 1 to 2.5 cm. long, with scanty soft pubescence and subsessile glands, its stipular base considerably enlarged and ciliate with long glandular hairs; racemes drooping, many-flowered; bracts about the length of the pedicels, lanceolate, linear, the margins fringed with simple and glandular hairs, the lower ones toothed; pedicels only slightly pubescent, soon glabrate, never glandular; bractlets caducous, not seen; ovary glabrous; calyx pubescent without, including the lobes, 6 mm. long, its lobes nearly 4 mm. long and obtuse.

Collected by Fred. Muller at Orizaba in 1853 (no. 637?). Type in Gray herbarium, fragment and photograph in United States National Herbarium. This specimen belonged to the John Ball herbarium, which went to the Gray herbarium in 1890.

This species differs from *R. affine* in having the upper surface of the leaves perfectly glabrous, the teeth sharper, the margin bearing gland-tipped hairs, the lower bracts toothed, the pedicels much less pubescent, the stipular base larger, with longer fibrillæ. If this plant came from near Orizaba City it is found at a much lower altitude than the true *R. affine*.

***Ribes grande* Rose, sp. nov.**

A large bush 2 to 3 meters high; first-year branches dark blue, then reddish, or very vigorous ones grayish brown, clothed with short soft pubescence and with scattered sessile glands, as also the petioles and inflorescence; petioles bearing stalked glands on the stipular base; leaves nearly orbicular in outline, 3 to 5-lobed, the two lateral lobes always small or indistinct, all of them rounded at apex, doubly crenate, glabrate above, softly pubescent beneath, bearing sessile glands on both surfaces; inflorescence either simple or branched; bracts large and foliaceous, the lower ones toothed and much longer than the pedicels, the upper ones entire, all ciliate and glandular; bractlets linear-lanceolate, pubescent and glandular, borne on the pedicel above the middle; calyx lobes broad, but longer than the tube, pubescent; petals broader than long; ovary glabrous; fruit bluish black.

Along the roadside above Chalchacomula, Puebla, on the way to Mount Orizaba, collected by J. N. Rose, July 24, 1901 (no. 5656).

This species is perhaps nearest *R. affine*, but the lobes of the leaves are more rounded, the calyx tube longer than its lobes, etc.