THE SPECIES OF SISYRINCHIUM IN URUGUAY, PARAGUAY AND BRAZIL

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SOUTH AMERICA is evidently an evolutionary center for the Iridaceae and is probably the place of origin and the center of distribution for *Sisyrinchium;* within this genus a great variety of diverse forms has been developed in that continent. In the present paper I discuss the species found in Brazil, Paraguay, Uruguay and the low country of northern and northeastern Argentina. This is a natural region and most of the species I have treated are confined to it. In a subsequent paper I shall discuss the species of Argentina and those of southern Chile. No pretense is made that these treatments are complete or in any way beyond criticism. Very much more material from the areas must be studied and the types in Europe must be reexamined before a definitive monograph of this very difficult genus can be prepared. The South American species of *Sisyrinchium,* however, are in great need of immediate study. The published monographs of the genus are incomplete, vague, and full of obvious errors, and are almost useless for the identification of specimens.

The present paper is based on a study of the material from our area preserved in the Gray Herbarium (G), the U. S. National Herbarium (US), and the Field Museum in Chicago (FM). Invaluable in my study of the Brazilian species has been the large sending of specimens, from the herbarium of the Serviço de Botanica e Agronomis of São Paulo (S.B.S.P.), which I received through the courtesy of Mr. F. C. Hoehne. Of the Uruguayan species I have received many very interesting specimens from Dr. Bernardo Rosengurtt. Dr. Angel L. Cabrera kindly sent me a number of collections of *Sisyrinchium* from the Argentine.

KEY TO THE SPECIES

Filament-tube and lobes glabrous, devoid of hairs or glands; leaf-blades flattened; corolla yellow.

Leaves all cauline, well developed or more or less reduced and scale-like, scattered along the stems, the lower ones very reduced and not forming a basal cluster.....1. *S. vaginatum* and allies.

Leaves crowded at the base of the stem, forming a conspicuous cluster, stem-leaves apparently terminal or none.

Filaments completely united into a very slender elongate tube, the oblong anthers closely proximate; spathes borne on slender elongate naked peduncles.....2. *S. megapotamicum.*

Filaments united only below the middle, free and diverging above; the narrow elongate anthers separate, becoming curved or coiled at maturity; spathes sessile or short pedunculate.

Stems continued as the rhachis of an erect terminal distichous spike; the outer spathe-valves clasping the stem; the stem producing no leaf or leaf-like bract in or just below the inflorescence.

Leaves 1–1.5 mm. broad, margins serrulate; plant 15–25 cm. tall. 3. *S. avenaceum.*

Leaves 2–5 mm. broad; plant much coarser, 15–40 cm. tall.

Leaves and stems serrulate on margin; middle of the leaf-blade devoid of prominent veins, these crowded at the margins; leaf-margins thin, not thickened.....4. *S. Rosengurttii.*

Leaves and stems with entire margins; prominent veins equally distributed on the leaf-blade; leaf-margins somewhat thickened and rounded.....5. *S. eserrulatum.*

Stems apparently terminated by an erect leafy bract that appears to be a sterile continuation of the stem; the inflorescence apparently lateral.

Margins of leaves thickened; the stout strongly compressed spicate cluster of spathes surpassed by the two leaf-like bracts subtending it; outer spathe-valves (from keel to margin) 3–5 mm. broad; stems less than 2 dm. tall, usually surpassed by the leaves; corolla-lobes ca. 2 cm. long.....6. *S. nidulare.*

Margins of leaves thin, usually scarious; the cluster of spathes overtopping the leafy bracts or overtopped by only one of them; outer spathe-valves (keel to margin) ca. 2 mm. broad; stems 2–10 dm. or more tall, usually surpassing the leaves.

Plant coarse, stems and leaves 4–15 mm. broad; the epidermis smooth, without emergences; inflorescence repeatedly branched, congested or open.....7. *S. macrocephalum.*

Plant slender, stems and leaves 2–6 mm. broad; the epidermis usually bearing abundant microscopic conic or rounded emergences; inflorescence of one, or two unequal, rather regular, dense, erect, distichous spikes, 4–10 cm. long. 8. *S. Wettsteinii.*

Filament-tube bearing glands (particularly near the base) or hairs or both.

Spathes sessile or subsessile in bracteolate, crowded cymes or glomerules borne at the base of the stiff erect leaf which terminates the otherwise naked stem and appears to be its sterile continuation; inflorescence apparently lateral, its branches (when developed) curving.

Blades of the basal leaves (and the bract terminating the stem) distinctly terete.

Individual spathes 10–15 mm. long; Paraguay and Matto Grosso. Leaf-blades 5–14 cm. long; leaf-sheathes ciliolate..9. *S. Fiebrigii.*

Leaf-blades very inconspicuous, acicular, 0.3–1 cm. long; leaf-sheathes not ciliolate.....10. *S. subnudum.*

Individual spathes 6–10 mm. long; Uruguay and eastern Brazil.

Valves of spathes and the subtending bracteoles acute, lanceolate, with narrow (0.2–0.5 mm. wide) scarious margins which are narrowed towards the apex; Paraná to Minas Geraes.
11. *S. Luzula.*

Valves of spathes and the subtending bracteoles obtuse or retuse, oblong to elliptic, with a very wide (0.8–1.5 mm.) scarious margin which continues broad and conspicuous to (or even beyond) the tip of the valve or bracteole; Uruguay to Paraná .....12. *S. scariosum.*

Blades of basal leaves (and the bract terminating the stem) not terete, compressed, linear-ensiform.

Staminal tube clothed its whole length with abundant, more or less reflexed, elongate yellow hairs, not glanduliferous.

Leaves 2–3 mm. broad; stems usually ancipitous; Paraguay.
13. *S. Hasslerianum.*

Leaves 1–2 mm. broad; stems terete; eastern Brazil.
14. *S. Hoehnei.*

Staminal tube without yellow hairs or these borne only near the summit, glanduliferous especially near the base.

Basal leaves usually equaling or even surpassing the conspicuously winged stem; the leafy bract subtending the spathes very elongate and conspicuous; spathe-valves lanceolate, acute, with narrow scarious margins.....15. *S. Sellowianum.*

Basal leaves usually much shorter than the terete or inconspicuously ancipitous stems; the leafy bract subtending the spathes short and not conspicuous; spathe-valves lance-oblong, obtusish, with broad conspicuous scarious margins.

Plant about 3 dm. tall; leaves about 3 mm. broad.
16. *S. fasciculatum.*

Plant 1–2 dm. tall; leaves 0.5–2 mm. broad.

Leaves 1–2 mm. broad; spathes 12–15 mm. long; plant not darkened in drying.....17. *S. Ostenianum.*

Leaves 0.5–0.8 mm. broad; spathes 6–9 mm. long; plants becoming dark in drying.....18. *S. Claritae.*

Spathes on evident naked peduncles, terminal on the stem or its branches; stems usually leaf-bearing and dichotomous; uppermost leaf rarely (except in nos. 21 and 22) much simulating a sterile continuation of the main stem.

Filaments united for only ½ to ⅔ of their length, the tube inflated towards the base, flask-shaped, the free tips of the filaments evident, ascending; plants weedy annuals.

Corolla small, less than 10 (usually ca. 6) mm. long, usually yellowish; spathe-valves very unequal, the outer one much surpassing

the inner; fruiting pedicels not surpassing the shorter valve and usually surpassed by it; ovary glabrous; plant usually darkened in drying; a tropical species extending into the temperate zone. 19. *S. micranthum.*

Corolla large, 10–15 mm. long, white or bluish; spathe-valves subequal; fruiting pedicels as long as the valves or distinctly surpassing them; ovary frequently glandular puberulent; plant not becoming dark in drying; Chile and Argentina north to Paraguay and Brazil.....20. *S. laxum.*

Filaments completely united or nearly so, the tube cylindric or only swollen (except in no. 26) below the middle.

Papery bracts inside the spathe protruding beyond the valves at maturity; inner valve distinctly longer than the outer, obtusish, very broad with conspicuous scarious margins; spathes 5–8 mm. long; peduncles usually densely clustered and varying conspicuously in length.

Leaves capillary, 0.2–0.5 mm. wide; Paraguay....21. *S. piliferum.*

Leaves linear, 0.7–2 mm. wide; Brazil.....22. *S. commutatum.*

Papery bracts inside the spathe remaining short and completely hidden; inner valve weakly if at all surpassing the outer, elongate, with narrow scarious margins; spathe (except in no. 25) 10–15 mm. long or more; spathes usually not densely clustered nor conspicuously unequal.

Corolla 2.5–6 mm. long; plants small, slender, less than 15 cm. tall; roots very slender, fibrous, apparently annual.

Staminal tube yellow-villous from base to top, glands inconspicuous or absent; leaves capillary, ca. 0.1 mm. thick; stems naked, scapose; plant spreading by very slender elongate subterranean rhizomes.....23. *S. setaceum.*

Staminal tube with stipitate glands near the base, otherwise glabrous except for a few hairs occasionally produced near the apex; stems bearing one or more leaves; leaves flattened, linear, 0.5–1.7 mm. broad; rhizomes absent.

Capsule obovoid or ellipsoid, distinctly elongate, becoming verrucose at maturity from the pressure of the swelling seed within; spathes with spathe-valves unequal, the outer twice the length of the inner and usually surpassing the fruiting pedicels; stems becoming repeatedly branched, producing many cauline leaves and many spathes, commonly 1–2 dm. long; plant usually darkened in drying.....24. *S. minus.*

Capsules globose or ellipsoid-globose, not becoming distinctly verrucose; spathes with subequal valves which are usually surpassed by the fruiting pedicels; stems usually simple and producing only a single cauline leaf and a single (apparently terminal) spathe, commonly less than 9 cm. long; plant usually not darkening in drying. 25. *S. minutiflorum.*

Corolla 7–13 mm. long; plants coarser and larger, 15–75 cm. tall, usually with coarse roots which are frequently more or less fleshy and perennial.

Corolla purplish to nearly white.....*26. S. platense.*
Corolla yellow.

Ovary and pedicels glandular puberulent; capsule subglobose, 2.5–5 mm. long; roots more or less fleshy and frequently conspicuously thickened; perennial..*27. S. pachyrhizum.*

Ovary and pedicels glabrous; capsule rather large, 6–8 mm. long, broadly ellipsoid or obovoid; roots fibrous, slender, possibly annual.....*28. S. foliosum.*

1. **Sisyrinchium vaginatum and allies.**

S. VAGINATUM Spreng. Syst. **1:** 166 (1825). — Montevideo, *Sellow.*

S. RESTIOIDES Spreng. Syst. **1:** 166 (1825). — Montevideo, *Sellow.*

S. MARCHIO (Vell.) Steud. Nomencl. ed. 2, **2:** 596 (1841). *Souza Marchio.* Vellozo, Fl. Flum. 273 (1825) and Icones **7:** tab. 1 (1827). — State of Rio Janeiro.

S. SULCATUM Gillies ex Hook. Icones **3:** tab. 218 (1840). — Maldonado, Uruguay, Gillies.

S. ALATUM Hook. Icones **3:** tab. 219 (1840). — Demerara, Brazil and Uruguay.

S. INCURVATUM Gardner ex Hook. Icones **6:** tab. 513 (1843). — Organ Mts., *Gardner 5890.*

S. GLAZIOVII Baker, Jour. Bot. **14:** 268 (1876), and Handb. Irid. 129 (1892). — Rio Janeiro, *Glaziou 6732.*

S. WEIRII Baker, Jour. Bot. **14:** 268 (1876), and Handb. Irid. 130 (1892). — Southern Brazil, *Weir 372.*

S. MANDONI Baker, Jour. Bot. **14:** 269 (1876), and Handb. Irid. 130 (1892). — Bolivia, *Mandon 1217.*

S. BALANSAE Baker, Handb. Irid. 133 (1892). — Paraguay, *Balansa 547* and *548.*

S. PARVIFOLIUM Baker, Bull. Herb. Boiss. II. **3:** 1104 (1903). — Paraguay, *Hassler 5938.*

S. DISTANTIFLORUM Kränzlin, Bot. Jahrb. **40:** 240 (1908). — Paraguay, *Fiebrig 248* and *Hassler 2121;* Bolivia, *Fiebrig 3302.*

S. ALATUM var. MINOR Rusby, Bull. N. Y. Bot. Garden **6:** 493 (1910). Northern Bolivia, *Williams 114.*

The names listed belong to a very natural group of plants containing an undetermined number of critical species. A consideration of this difficult complex is being reserved for a subsequent paper. The treatments of the group, by Klatt, Linnaea **31:** 77–80, 374–5 (1861–2) and

in Martius, Fl. Bras. **3**(1): 537–39 (1871), and Baker, Handb. Irid. 129–30 (1892), are not satisfactory.

2. **Sisyrinchium megapotamicum** Malme, Ark. Bot. **269, 9:** 16 (1935).

S. gracile Klotzsch ex Baker, Jour. Bot. **14:** 268 (1876), Handb. Irid. 123 (1892), not *S. gracile* Phil. (1858).

BRAZIL: Curityba, Paraná, 1928, *Hoehne, S.B.S.P. no. 23053* (G); Porto Alegre, Rio Grande do Sul, 1892, *Lindman 333* (G). ARGENTINA: El Socorro, Buenos Aires, 1926, *Parodi 7388* in pt. (G).

The species is based upon *Sellow 3863,* from southern Brazil. In gross habit the plant much resembles forms of *S. pachyrhizum.* From that plant, however, *S. megapotamicum* is quickly distinguished by having the staminal tube glabrous and glandless, the anthers larger and more elongate, the base of the stem more fibrous, and the roots very much more slender and not at all fleshy. The species is a very distinct one.

3. **Sisyrinchium avenaceum** Klatt, Linnaea **31:** 373 (1862), and in Martius, Fl. Bras. **3**(1): 537 (1871).

S. monostachyum Baker, Jour. Bot. **14:** 268 (1876), and Handb. Irid. 132 (1892).

S. aurantiacum Griseb. Abhandl. Ges. Wiss. Göttingen **24:** 327 (1879).

S. Clarazii Baker, Jour. Linn. Soc. Bot. **21:** 235 (1884).

URUGUAY: Agronomía, Paysandú, 1937, *Rosengurtt B. 2193* (G). ARGENTINA: Concepcion del Uruguay, Entre Rios, Sept. 1877, *Lorentz* (G); Alto de Lucero, Tandil, Buenos Aires, 1937, *Troncosa 1250* (G); Cerros y Laguna de Puán, 1928, *Scala 1086* and *1087* (G).

I have seen a photograph of *Sellow 2849,* the type of *S. avenaceum.* It consists of one plant, showing basal leaves and flowering stems, about 2.5 dm. tall, one or two detached flowering stems of the same, and a very coarse tuft of leaves. The coarse leaves, at least 8 dm. long and 2–3 mm. broad, belong to an unrecognized species. The flowering plant and the detached flowering stems are a close match for the material, collected at Concepcion de Uruguay by Lorentz, which Grisebach described as *S. aurantiacum.*

4. **Sisyrinchium Rosengurttii,** sp. nov.

Planta perennis 1.5–4 dm. alta; radicibus fasciculatis crassiusculis; foliis basalibus 5–25 cm. longis, 2.5–5 mm. latis, margine serrulatis; nervis marginem versus laminae congestis 1–2, alibi haud conspicuis; caule ancipite 1.5–3 mm. lato, quam foliis subduplo longiore, margine serrulato; inflorescentia spicata terminali simplici 3–5 cm. longa, rhachi eius recta productionem caulis formante; spathis sessilibus distichis 2–5;

valva exteriore carinata rhachim amplectente 1.5–2 cm. longa glumacea praesertim marginem versus purpurascente, apice plus minusve producta et herbacea (apice valvae infimae 0.5–5 cm. longo, ceterae breviore; valvis intimis angustis scariosis quam exterioribus paullo brevioribus; tepalis flavis 1 cm. longis 3 mm. latis 7-nervatis glaberrimis apice acutis apiculatis; filamentis glaberrimis 2.5–3 mm. longis, infra medium in tubum connatis, supra medium liberis ascendentibus; antheris angustis elongatis 2–2.3 mm. longis maturitate plus minusve curvatis vel spiralis; ovario ovoideo glaberrimo; capsula subglobosa 3–4 mm. crassa 4–5 mm. longa.

URUGUAY: Sierra Animas, Maldonado, rocky places, fl. yellow, Oct. 11, 1932, *Osten 22692* (TYPE, Gray Herb.); Sierra Animas, rocky slope, Nov. 5, 1931, *Osten 22393* (FM); Est. Palleros, Rio Negro, Cerro Largo, Dec. 1937, *ex Rosengurtt PE. 1509* (G); Est. Santa Elvira, Cerro Colorado, Florida, Nov. 1936, *ex Rosengurtt PE. 272* (G).

This species is evidently related to *S. avenaceum,* but differs from it in being larger and coarser in all its parts and in having a geographic range to the east of that species.

5. **Sisyrinchium eserrulatum,** sp. nov.

Planta ca. 3 dm. alta; radicibus ignotis; foliis basalibus 15–20 cm. longis 3–5 mm. latis planis, margine integerrimis parce incrassatis; nervis conspicuis saepe 5 regulariter (ca. 0.9 mm. distante) dispositis; caule ancipite 2 mm. lato quam foliis basalibus evidenter longiore; inflorescentia terminali simplice spicata 4–5 mm. longa, rhachi eius recta productionem caulis formante; spathis ca. 4 sessilibus distichis 12–15 mm. longis; valva exteriore carinata glumacea plus minusve purpurascente rhachim amplectente; valva spathae infimae cum apice ca. 3 mm. longo ornata, ceteris acutis; valvis intimis scariosis quam exterioribus paullo brevioribus; tepalis flavis ca. 10 mm. longis glaberrimis; antheris anguste elongatis 2–2.3 mm. longis maturitate curvatis vel spiralibus; filamentis glaberrimis ca. 3 mm. longis infra medium in tubum connatis, supra medium liberis ascendentibus; ovario glaberrimo obovoideo; capsulis (vix maturis) subglobosis 5 mm. crassis.

BRAZIL: Est. L. Gomez, northwest of Neu Württemberg, Rio Grande do Sul, 500 m. alt., Oct. 18, 1904, *Bornmüller 236* in pt. (TYPE, Gray Herb.).

Much resembling *S. Rosengurttii* in general appearance, but readily distinguished from that Uruguayan species by having the stems and leaves entire, rather than serrulate, the leaves with slightly thickened, rather than sharp margins, and the leaf-blades bearing veins, not crowded

at the margins, but equally distributed across its surface. The tips of the spathe-valves appear to be less well developed than in its relative. The type material of *S. eserrulatum* was mixed with specimens of *S. macrocephalum* and determined as "*S. iridifolium.*"

6. **Sisyrinchium nidulare** (Hand.-Mazz.), comb. nov.

S. palmifolium var. *nidulare* Hand.-Mazz. Denkschr. Akad. Wiss. Wien **79**: 216 (1908).

BRAZIL: Curityba, Paraná, in campo, 1908, *Dusen 6815* (G); Curityba, 1915, *Dusen 17185* (G); Pinhaes near Curityba, in campo, 1908, *Dusen 7107* (G); Ypirangas, S. Paulo, 1912, *Brade 7271, S.B.S.P.* no. *7271* (G); Chapada do Paranan, Minas Geraes, *Martius* (photo.; FM).

A very well marked species having a low stature, thickened leaf-margins, broad, strongly two-ranked spikes with two large bracts, and very large corollas. The collection by Martius, cited above, is that referred to *S. marginatum* by Klatt in Martius, Fl. Bras. **3**(1): 540 (1871).

7. **Sisyrinchium macrocephalum** Graham, Edinb. N. Philos. Journ. 176 (Jan. 1833); Klatt, Linnaea **31**: 98, 380 (1861–2), and in Martius, Fl. Bras. **3**(1): 542 (1871).

Moraea alata Vahl, Enum. **2**: 154 (1805), not *S. alatum* Hook. (1840).
S. altissimum Tenore, Atti 3a. Riun. Soc. Bot. Ital. 504 (1841); Walpers, Ann. Bot. Syst. **3**: 610 (1852).
S. giganteum Tenore, Cat. Orto Bot. Napoli 96 (1845).
S. marginatum Klatt, Linnaea **31**: 83, 376 (1861–2) and Hamburg. Garten- u. Blumenzeitung **17**: 453 (Oct. 1861), and in Martius Fl. Bras. **3**(1): 539 (1871).
S. grande Baker, Bull. Herb. Boiss. II. **3**: 1106 (1903).

Uruguay and eastern Brazil (Rio Grande do Sul to Paraná) westward to Bolivia (Tarija to Cochabamba) and northern Argentina.

BRAZIL: Calmon, Paraná, 1910, *Dusen 9268* (G); Roca Nova, Paraná, 1909, *Dusen 8955* (US); Est. L. Gomez near Neu Württemberg, Rio Grande do Sul, 1904, *Bornmüller 236* in pt. (G). URUGUAY: Barra del Rio Santa Lucia, San Jose, *Osten 21642* (FM) and *Rosengurtt B. 1743* (G); Cerro Colorado, Florida, 1936, *Rosengurtt B. 733* (G); Cerro de las Cuentas, Cerro Largo, 1938, *Rosengurtt B. 2544* and *B. 2545* (G); Est. Palleros, Cerro Largo, 1937, *ex Rosengurtt PE. 1307* (G); Rio Negro, *Parker 853* (G). PARAGUAY: Rio Curuguaty, *Hassler 4586* (G); illegible, *Jorgensen 4533* and *4538* (US).

Apparently in response to various habitats, this plant varies in stature, in robustness, and in the size and form of the inflorescence. When well

developed it forms large clumps a meter or more high. The plants are the largest in the genus. When well developed the cymes are much forked, open, and nearly a decimeter in length. They may be variously simplified in branching, or may be shortened and congested into a very dense subsessile cluster. In some plants the cymes remain unbranched and form a more or less curving unilateral spike. When this is accompanied by a reduction in the number of spathes there may be only one or a very few spathes sessile at the summit of the stem. There are many transitions between all these forms of inflorescences. Since the species is reported from such diverse habitats as swamps, meadows, sand, and rocky hillsides these variations may well be ecological in origin.

Baker, Handb. Irid. 132 (1892) treats most of the above species as synonyms of *S. palmifolium* L. While this may be correct, I feel it is wise at present to place the Linnaean species among the doubtful ones, since the type must be reexamined and its precise identity established.

8. **Sisyrinchium Wettsteinii** Hand.-Mazz. Denkschr. Akad. Wiss. Wien **79:** 216, fig. 6 (1908).

BRAZIL: Turma 23, Paraná, locis subpaludosis in campo, 1914, *Jonsson 1204a* (FM); Curityba, Paraná, campo subuliginoso, 1908, *Dusen sine no.* (US); Alto da Serra, São Paulo, 1924, *Gehrt, S.B.S.P.* no. *14501* (G).

This species was based upon material collected between Pilar and Alto da Serra (*Wacket*) and on the upper slopes of Itatiaya (*Wettstein & Schiffner; Wawra 480*). Handel-Mazzetti stressed the microscopic protuberances on the epidermis. These do seem to achieve an unusual development in *S. Wettsteinii* but they do not always have the maximum development that Handel-Mazzetti describes. The species is evidently related to the more southern *S. macrocephalum*. Possibly it may be only a northern variety of that species characterized by a very slender habit, papillate epidermis, slightly smaller corollas, and a usually more erect and more simply and trimly organized inflorescence.

9. **Sisyrinchium Fiebrigii,** sp. nov.

Planta 3–8 dm. alta; radicibus perennibus gracilibus; foliis basalibus; lamina terete elongata (sed caulem haud superante) e vagina 5–14 cm. longa anguste scariosa haud ciliolata oriente; caulibus teretibus junciformibus apice bracteam 3–9 cm. longam rectam (cum lamina terete quam parte vaginata 0–3-plo longiore donatam) productioni caulis similem gerentibus; inflorescentia bracteolata e basi bracteae caulinae terminalis erumpente ergo per speciem laterale; spathis 1–5 congestis

sessilibus vel in ramulo usque ad 5 mm. longo curvato gestis ca. 15 mm. longis; valvis spathae lanceolatis infra medium 4–5 mm. latis, margine late scariosis (margine scarioso apicem versus valvae gradatim angustato); tepalis ad 6 mm. longis oblongis 3-nervatis (in sicco purpureis) apice obtusis apiculatis; filamentis fere ad apicem in tubum ca. 2 mm. longum connatis, apicibus liberis brevibus haud conspicuis ascendentibus; tubo basi glandulis adundantibus aglutinatis incrassato, alibi pilis brevibus flavis glanduliferis ornato; antheris latis ca. 0.4 mm. longis; ovario globoso pilis flavis brevibus glanduliferis vestito; capsula depresse globosa 4–5 mm. crassa.

PARAGUAY: Cordillera de Altos, Oct. 8, 1902, *Fiebrig 220* (TYPE, Gray Herb.).

Related to *S. laterale* Baker, a Bolivian species probably having a synonym in *S. pictum* Kränzl. The Bolivian species also has elongate terete leaf-blades. Its spathes are also similar to the species here described. Its longer (3–3.5 mm.) staminal tube, however, is shaggy villous its whole length with slender yellow hairs without glands. Towards the base of the tube these hairs are most abundant and there may be intermixed with some subsessile glands. There is no agglutinated mass of glands at the base of the tube as is found in *S. Fiebrigii*. The Bolivian and Paraguayan plants seem to be amply distinct.

10. **Sisyrinchium subnudum,** sp. nov.

Herba 2–3 dm. alta; radicibus gracilibus perennibus; foliis basalibus; vaginis 4–7 mm. longis margine ciliolatis apice laminam acicularem inconspicuam 3–10 mm. longam gerentibus; caulibus junciformibus teretibus apice bracteam 2–5 cm. longam rectam (saepe cum lamina terete quam parte vaginata 1–4-plo longiore donatam) productioni caulis persimilem gerentibus; inflorescentia e basi bracteae caulinae terminalis erumpente, ergo per speciem laterali; bracteolis conspicuis; spathis 1–3 congestis; valvis subaequalibus 10–12 mm. longis 2.5–4 mm. latis (infra medium latioribus) margine 0.5–0.9 mm. latis late scariosis, apice subacutis mucronatis; valvis intimis spathae scariosis maturitate conspicuis; ovario et pedicellis pilis flavescentibus glanduliferis sparse vestitis; tepalis flavis oblongis 3-nervatis 4-5 mm. longis ca. 1.5 mm. latis, apice obtusis ca. 0.8–1 mm. longe flagellato-acuminatis; filamentis in tubum 1.7–2.1 mm. longum connatis; tubo basim versus glandulis abundantissimis agglutinatis incrassato, alibi pilis flavis eglanduliferis vestito; antheris latis ca. 0.5 mm. longis subsessilibus; capsula maturitate ignota, ut videtur depresse globosa et ca. 3 mm. crassa.

BRAZIL: Corrego dos Moreiras, E.F.N.B., Matto Grosso, Sept. 1914,

Kuhlmann, S.B.S.P. no. *103* (G); Capão Bonito, Campo Grande, Matto Grosso, Sept. 6, 1936, *Archer & Gehrt, S.B.S.P.* no. *36372* (TYPE, Gray Herb.).

Evidently related to the Paraguayan *S. Fiebrigii,* but smaller in all parts and having non-ciliate leaf-sheaths and only rudimentary leaf-blades.

11. **Sisyrinchium Luzula** Klotzsch ex Klatt, Linnaea **31**: 89, 376 (1862–3) and in Martius, Fl. Bras. **3**(1): 542 (1871); Baker, Handb. Irid. 131 (1892).

BRAZIL: Ponta Grossa, Paraná, campo, 1928, *Hoehne, S.B.S.P.* no. *23226* (G); Curityba, Paraná, 1928, *Hoehne, S.B.S.P.* no. *23133* (G); Curityba, 1903, wet place, *Dusen 2247* (G; US. in pt.); Curityba, 1908, campo, *Dusen 6921* (US); Santo Angelo, São Paulo, campo, 1936, *Hoehne & Gehrt, S.B.S.P.* no. *36568* (G); Butantan, São Paulo, *Hoehne, S.B.S.P.* no. *2558* (São Paulo); Ypiranga, São Paulo, campo, 1921, *Brade 5621, S.B.S.P.* no. *7269* (G); São Ignatio, *Sellow c. 321* (FM, photo.); Minas Geraes, *Regnell 1227* and *1224* (US).

The species was originally based upon the following suite of specimens: 1) *Widgren 789* from Minas Geraes; 2) *Blanchet 3313;* 3) *Sellow B1325, c320* from S. Antonio da Monte; and 4) *Sellow c321* from S. Ignatio. Later Klatt added other collections, some of which are certainly referable to *S. Hoehnei* and *S. scariosa.* All the original specimens are probably representative of the species as here accepted. In the past, most of the species with terete stems and leaves and congested pseudo-lateral cymes, have at one time or another, been referred to *S. Luzula.* The real *S. Luzula* appears to be restricted to eastern Brazil from Paraná to Minas Geraes or Bahia.

12. **Sisyrinchium scariosum,** sp. nov.

Herba 1–7 dm. alta; radicibus gracilibus perennibus; foliis basalibus; vaginis 5–10 cm. longis saepe ciliolatis, apice plerumque laminam teretem gracilem gerentibus; laminis vaginarum superiorum non rariter 1–2 dm. longis quam caule brevioribus; caulibus junciformibus teretibus apice bracteam 2–10 cm. longam rectam (saepe cum lamina terete quam parte vaginata 1–8-plo longiore donatam) productioni caulis persimilem gerentibus; inflorescentia congesta e basi bracteae caulinae terminalis erumpentibus ergo per speciem laterali; bracteolis late scarioso-marginatis, carina ciliolata; spathis 1–8 spiculae Melicae sub-similibus 6–10 mm. longis sessilibus et glomeratis vel in ramulo inflorescentiae 1–6 mm. longo curvato gestis; valvis spathae exterioribus quam interioribus

evidenter longioribus 4–5 mm. latis; margine valvae latissime scariosa, apicem versus valvae haud angustata; tepalis trinerviis 5–7 mm. longis 1.8–2.3 mm. latis apice emarginatis flagellatis; filamentis fere ad apicem apicem in tubum ca. 2 mm. longum connatis, apicibus liberis brevibus; tubo basim versus glandulis numerosis agglutinatis incrassato, alibi pilis flavis glanduliferis satis ornato; antheris ca. 0.4 mm. longis; ovario globoso pilis brevibus flavis glanduliferis ornato; capsula depresse globosa 3–4.5 mm. crassa.

BRAZIL: Curityba, Paraná, wet places, 1903, *Dusen 2247* in pt. (US); Neu Württemberg, Rio Grande do Sul, 1904, fl. yellow, *Bornmüller 381* (G); Santo Amargo, Rio Grande do Sul, 1925, *Jürgens 167* (US); Porto Alegre, Rio Grande do Sul, 1902, *Malme 96* (G, US). URUGUAY: Arroyo de La Pantanosa, Rocha, wet place, 1938, *Rosengurtt B. 2452* (G); Cerro de las Cucutas, Cerro Negro, grassy rocky slopes, 1938, *Rosengurtt B. 2555* (G); Rio Negro y Palleros, Cerro Negro, grassy slopes, fl. yellow, 1937, *Rosengurtt B. 2366* (G); Cerro, Montevideo, fl. white, 1924, *Herter 625–76162* (G, US); Atlantida, Canelones, dunes, fl. pink, 1930, *Osten 22020* (FM); Sierra Animas, Maldonado, grassy and rocky places, fl. violaceous, Oct. 11, 1932, *Osten 22693* (TYPE, Gray Herb.).

A very well marked species that has been confused with the more northern *S. Luzula*. It is readily recognized by having spathes which are very much more broadly scarious-margined and very much less pointed. In age the scarious margin becomes weathered and much torn, and the spathes consequently ragged and not so neat and trim as are those of *S. Luzula*.

13. **Sisyrinchium Hasslerianum** Baker, Bull. Herb. Boiss. II. **3**: 1106 (1903).

PARAGUAY: vicinity of the Rio Capibary, *Hassler 4376* (G); Cord. de Altos, *Fiebrig 220* (FM); Villarica, 1930, *Jorgensen 4262* (US, FM).

In this species the staminal tube, for its entire length, is covered with abundant coarse reflexed yellow hairs. The spathes and inflorescences are very similar to those of *S. scariosum*.

14. **Sisyrinchium Hoehnei**, sp. nov.

Planta perennis junciformis 3–9 dm. alta; foliis basalibus longe vaginatis; vaginis 5–10 cm. longis saepe laminiferis; lamina 0–45 cm. longa lineari compressa, facie 1–1.5 mm. lata 3–4-nervata, margine tenui integra; caulibus teretibus quam foliis basalibus conspicue longioribus, apice bracteam 1–6 cm. longam rectam (saepe cum lamina compressa

ornatam) productioni caulis similem gerentibus; inflorescentia e basi bracteae caulinae terminalis erumpente glomerata subsessili; ramulis 0–6 mm. longis curvatis, bracteolatis; spathis saepe numerosis congestis 5–8 mm. longis stramineis; valvis obtusiusculis mucronatis 2–3.5 mm. latis conspicue scarioso-marginatis, interiore quam exteriore (ad 2 mm.) longioribus, intimis scariosis valvis exterioribus aequilongis; bracteolis navicularibus (carina serrulata) quam valvis spathae evidenter brevioribus; ovario globoso saepe pilis brevibus flavis glanduliferis plus minusve vestitis; tepalis flavis ca. 5 mm. longis 2 mm. latis trinervatis apice acutis apiculatis; filamentis in tubum ca. 2 mm. longum gracilem pilis flavis reflexis eglanduliferis abundantibus dense vestitum connatis; antheris ca. 0.9 mm. longis oblongis subsessilibus; capsula depresse globosa 2.5–3.5 mm. crassa.

BRAZIL: Heitor Legrum, S. Paulo, Sept. 1921, *Brade, S.B.S.P.* no. *7281* (G); Rio do Peixe, S. Paulo, *Edwall, S.B.S.P.* no. *12551* (G); Rio Pardo, S. Paulo, Sept. 1826, *Riedel* (G); Curityba, Paraná, Oct. 1908, *Dusen 6788* (US); Curityba, Oct. 1914, *Dusen 15627* (US); Curityba, fl. yellow, Oct. 1928, *Hoehne, S.B.S.P.* no. *23057* (TYPE, Gray Herb.).

Evidently a Brazilian relative of the Paraguayan endemic, *S. Hasslerianum*. It differs from that species in having less well developed leaf-blades (these shorter, narrower and less numerous), in its slightly shorter spathe-valves which are much more broadly scarious-margined, and in its terete rather than narrowly ancipitous stems. A collection of *S. Hoehnei* from Curityba (*Dusen 6788*) has the sheathes of the basal leaves lacking lamina. The bract terminating the stem, however, is prolonged into the flattened blade characteristic of the species.

15. **Sisyrinchium Sellowianum** Klatt, Linnaea **31**: 375 (1862) and in Martius, Fl. Bras. **3**(1): 539, tab. 70 (1871); Baker, Handb. Irid. 131 (1892).

S. platycaule Baker, Handb. Irid. 132 (1892).

BRAZIL: Est. L. Gomez, near Neu Württemberg, Rio Grande do Sul, 1904, *Bornmüller 231* (G). PARAGUAY: vicinity of the Rio Alto Paraná, *Fiebrig 5434* (G, US).

The type of *S. Sellowianum* is given as "Brasilia meridionalis, Montevideo, leg. *Sellow* no. *1484* et *3922*." I suspect that the material was obtained during Sellow's travels in the state of Rio Grande do Sul. The staminal tube is about 2 mm. long. It is more or less conic or swollen below the middle and short-cylindric above. The thickened lower portion is densely glandular or stipitate-glandular, above the indument is similar but very much less abundant. The anthers, 0.5–0.8 mm. long,

are oblong and borne on the short free tips of the otherwise completely united filaments. These tips are short but evident, and are almost as long as the anthers. The type of *S. platycaule* was collected in Paraguay by Balansa (no. *555*). It may possibly be worthy of recognition, but it is evidently very closely related to *S. Sellowianum*.

16. **Sisyrinchium fasciculatum** Klatt, Linnaea **31**: 97, 380 (1861–2) and in Martius Fl. Bras. **3**(1): 541 (1871); Baker, Handb. Irid. 131 (1892).

The original description of the species was based upon collections cited, "Brasilia meridionalis, leg. Sellow, Herb. Reg. Berol. no. 2 et 112." Later, in the Flora Brasiliensis Klatt cited additional material as follows, "Habitat in Brasilia australiore, stationibus accuratio haud notatis: *Sello, Riedel;* in prov. Rio Grande do Sul; *Gaudichaud.*" I have seen no specimens referable to this species. Recently Malme, Ark. Bot. **26A** (3): 18 (1935), has reported two collections of the plant from Rio Grande do Sul (*Lindman 310, 383*).

The measurements given by Klatt call for a plant with stems "subpedalis, 1 lin. crassus" and leaves "4–7 poll. longa, 1½ lin. lata." These measurements indicate that his illustration of the species is twice natural size. Klatt gives the staminal tube as 1 line long and densely glandulose-pubescent. His illustration of the tube shows it to be narrowly cylindric and not at all thickened at the base.

17. **Sisyrinchium Ostenianum** Beauverd, Bull. Soc. Bot. Genève **14**: 162, fig. 8 (1922).

URUGUAY: Cerro, dept. Montevideo, Oct. 1926, *Herter 907–81163* (US); Rio San Jose, F. C. Raigón, dept. San Jose, 1935, *Rosengurtt B. 1818* (G).

The type was collected by Osten (no. *4306*) in 1901, near Molles, dept. Durazno, Uruguay. Beauverd did not mention the androecium in his description. Herter's collection, above cited, is slightly immature and has no flowers. Rosengurtt's collection is in prime condition, having both flowers and fruit. The staminal tube is almost 2 mm. long. The lower quarter is covered with agglutinated glands and is distinctly thickened. Near the summit, beneath the short crowded anthers, the tube bears a dense conspicuous mass of eglanduliferous reflexed yellow hairs. Between this apical mass of yellow hairs, and the basal glandular area, the tube is practically naked and glabrous.

18. **Sisyrinchium Claritae** Herter, Rev. Sudamer. Bot. **5**: 27 (1937).

Herba 8–13 cm. alta; radicibus gracilibus ut videtur perennibus; foliis

basalibus rigidis gracillimis angustissimis linearibus quam caule evidenter brevioribus 5–9 cm. longis 0.4–0.8 mm. latis compressis in facie 2–3-nervatis; caulibus gracillimis rectis subteretibus vix ancipitibus ca. 0.4–0.8 mm. crassis 7–12 cm. longis usque ad apicem nudis, apice bracteam 5–10 (rariter usque ad 20) mm. longam rectam productioni caulis similem gerentibus; inflorescentia e basi bracteae caulinae terminalis erumpentibus ergo per speciem laterali bracteolata; spathis 1–4 sessilibus congestis 6–9 mm. longis; valvis 3–4 mm. latis apice obtusis margine 0.5–1 mm. late scariosis; valva interiore quam exteriore paullo longiore; bracteis intimis spathae scariosis valvis aequilongis; pedicellis et ovario subgloboso sparse flavescenteque glandulifero-villosulis; tepalis ca 5 mm. longis elongatis ca. 1.5 mm. latis trinerviis acuminatis "flavis"; filamentis omnino connatis ca. 2 mm. longis; tubo filamentorum basim versus evidenter ampliato ad 1 mm. crasso dense glandulifero, deinde abrupte contracto sursum anguste cylindraceo ca. 0.3 mm. crasso, apicem versus pilis flavis reflexis eglanduliferis gerente, alibi subglabro; antheris oblongis ad 1 mm. longis subsessilibus; capsula subglobosa 2.5–3 mm. crassa.

BRAZIL: Quinta, near Rio Grande do Sul, 1892, *Lindman 819* (G, US). URUGUAY: Santa Teresa, Rocha, Nov. 1931, *Herter 1525–87667* (G, US).

The species was based upon material collected by Herter at Santa Teresa, dept. Rocha, (no. *87667*) and near Arequita, dept. Lavalleja (no. *1525a–81255*), Uruguay. It is evidently related to *S. Ostenianum*. The staminal structures in the two species are very similar. The species, however, differ conspicuously in gross habit. The present one is a very much more slender plant than *S. Ostenianum,* and is smaller in all of its parts. It becomes darkened in drying; its relative does not. Malme, Bot. Ark. **26A**(9): 18 (1935), has recently reported the Brazilian collection, cited above, as representing *S. Ostenianum*. The new description, provided above, covers many of the important details of structure not mentioned in the original description of the species.

19. **Sisyrinchium micranthum** Cav. Diss. **2**: 345, tab. 191, fig. 2 (1788).

S. iridifolium HBK. Nov. Gen. **1**: 324 (1816).
S. scabrum Schlecht. & Cham. Linnaea **6**: 57 (1831).

Ranging from northwestern Argentina and southern Brazil, northward to Venezuela, Colombia and central America.

BRAZIL: Gavia, Rio Janeiro, 1868, *Glaziou 3129* (US, FM); betw. Petropolis and Raiz da serra, Rio Janeiro, 1928, *Smith 1313* (G);

Campinas, S. Paulo, *Novaes 1193* (US); Serra da Cantareira, S. Paulo, *Loefgren & Edwall 3284,* in pt. (G); Ubaruba, Paraná 1929, *Hoehne, S.B.S.P.* no. *24325* (G); Blumenau, S. Catharina, 1888, *Ule 982* (US); Velha, S. Catharina, 1888, *Ule 981* (US); Neu Württemberg, Rio Grande do Sul, 1904, *Bornmüller 245* (G). ARGENTINA: Delta, Rio Carabelas across from Tiburón, Buenos Aires, Nov. 1925, *Scala* (G); El Candado, Catamarca, 1907, *Jorgensen 1219* in pt. (US); dept. Famailla, Tucuman, *Venturi 407, 1024* and *1417* (G, US); dept. Leales, Tucuman, *Venturi 1330* (US); dept. Tafi, Tucuman, *Venturi 3933, 3937, 3940,* and *6005* (G, US). PARAGUAY: Villarica, 1929, *Jorgensen 3873* (US); Asuncion, *Morong 63* (G).

This slender weedy annual, which commonly darkens in drying, is well illustrated, as *S. micranthum,* in the Botanical Magazine, **47:** tab. 2116 (1830). Klatt seems to have placed plants of this species chiefly under *S. scabrum* and *S. micranthum.* As far as can be determined Baker seems generally to have used the name *S. micranthum* in the correct sense. Most of the recent collections from northern South America have been determined as *S. iridifolium.*

20. **Sisyrinchium laxum** Otto ex Sims, Bot. Mag. **49:** tab. 2312 (1822); Link ex Sprengel, Syst. **1:** 167 (1825).

S. geniculatum Herbert, London Jour. Bot. **1:** 538 (1842), nomen.
S. uniflorum Gay ex Phil. Linnaea **29:** 631 (1857).
? S. Pearcei Phil. Linnaea **33:** 251 (1864–5).
S. valdivianum Phil. Anal. Univ. Chile **91:** 616 (1895).
S. Metae Herter, Rev. Sudamer. Bot. **5:** 28 (1937).

BRAZIL: Minas Geraes: Serra da Caparáo, 1929, *Mexia 4028* (G, US, FM). Rio Janeiro: Serro Frio, 1886, *Glaziou 16399* (FM); Theresopolis, 1872, *Glaziou 6451* (US, FM); Tejuca, *Gardner 217* (US). São Paulo: Butantan, 1917, *Hoehne, S.B.S.P.* no. *769* (G); Mogy das Cruses, 1912, *Brade 5618, S.B.S.P.* no. *7270* (G); Rio Grande, 1892, *Edwall 1967, S.B.S.P.* no. *12518* (G); Santo Amaro, 1913, *Brade 7220, S.B.S.P.* no. *7286* (G); S. Francisco dos Campos, 1896, *Loefgren 3584, S.B.S.P.* no. *12511* (G); Serra da Cantareira, 1895, *Loefgren & Eswall 3284, S.B.S.P.* no. *12522* (G). Paraná: Rio Negro, 1928, *Hoehne, S.B.S.P.* no. *23138* (G); Ponta Grossa, 1928, *Hoehne, S.B.S.P.* no. *23241* (G); Tibagy, 1935, *Reiss 168* (G); Pinhaes, 1908, *Dusen 7109* (G); Serrinha, 1914, *Dusen 1083a* (US); Turma 23, 1914, *Dusen 1336a* (US); Rio Grande do Sul: Salto Alegre near Neu Württemberg, 1904, Bornmüller *304* (G); Porto Alegre, 1921, *Lindman 385* (G); Viamo near Porto Alegre, 1936, *Archer 4327* (G). URUGUAY: Riachuelo, Colonia, 1936,

Cabrera 3927 (FM); Mercedes, Soriano, 1936–37, *ex Rosengurtt PE. 59* and *172* (G); Rio Yi y Arroyo Marincho, Flores, 1936, *ex Rosengurtt. PE. 452* (G); Cerro Colorado, Florida, 1936, *ex Rosengurtt PE. 208, 334* and *375* (G); Santa Lucia, Canelones, 1884, *Safford 115* (US); Cayago, Montevideo, 1934, *Rosengurtt B. 1722* (G); Cerro, Montevideo, *Herter 143–79608, 144–79607, 146–79426* and *146a–79662* (G); Punta Yeguas, Montevideo, 1926, *Herter 448–81394* (G); Rio Negro, Cerro Largo, 1937, *ex Rosengurtt PE. 1367, 1429, 1789, 1881, 2040* and *2095* (G); Cabo Santa Maria, Roca, 1938, *Rosengurtt B. 2472* (G). PARAGUAY: Cord. de Altos, 1902, *Fiebrig 253* (FM); Itape, 1931, *Jorgensen 4538* (US, FM). ARGENTINA: Tilcara, Jujuy, 1927, *Venturi 4886* (G); El Duraznito, Tucuman, 1921, *Venturi 1561* (US); prov. Cordoba, *Lossen 1141* (G); Yapeyú, Corrientes, 1936, *Parodi 12658* (G); Isla Santiago, Buenos Aires, *Cabrera 2000* and *3417* (G); Avellaneda, Buenos Aires, 1925, *Parodi 6716* (G); Elizalde, Buenos Aires, 1930, *Cabrera 1527* (G); Mouth of Rio Negro, *Wilkes Exped.* (G); Bariloche, Rio Negro, 1934, *Parodi 11463* (G); Corcovado, Chubut, 1901, *Illin 43* (G).

Of this weedy annual I have cited all the material which I have examined from Brazil, Uruguay, Argentina and Paraguay; I have not listed the material from Chile. The species is not known from other South American countries, but occurs as an adventive species in Europe. Klatt and Baker seem to have referred this widely distributed, generally temperate plant, to *S. iridifolium,* but that name undoubtedly belongs in the synonymy of *S. micranthum* Cav. Illustrations of the present plant, all as *"iridifolium,"* may be found in the following works, Herbert, Bot. Reg. **8:** tab. 646 (1822); Lodd. Bot. Cab. **20:** tab. 1979 (1833) and Bettfreund, Fl. Argent. **3:** 217 (1901).

In my key I have given the characters which usually serve to distinguish *S. laxum* from its close relative, *S. micranthum.* Individually these characters are not always decisive, though collectively they will usually distinguish the northern and tropical *S. micranthum* from the more southern and temperate, *S. laxum.* There are plants which present embarrassing combinations of characters, but it will be noted that most of these come from northern Argentina and southern Brazil where the ranges of these two species overlap and hence in the very region where hybridization might be expected. Of these two related species, *S. laxum* is the most variable.

21. **Sisyrinchium piliferum** Klatt, Abhand. Naturf. Ges. Halle **12:** 379 (1882); Baker, Handb. Irid. 123 (1892).

S. capillare Baker, Bull. Herb. Boiss. II. **3:** 1106 (1902).

PARAGUAY: Rio Curuguaty, *Hassler 4588* (G, FM); Cord. de Altos, *Fiebrig 161* (G); betw. Rio Apa and Rio Aquidaban, *Fiebrig 4677* (G); Itititimi, *Balansa 533* (FM, photo.); Hiati, *Jorgensen 4260* (US, FM); Villarica, *Jorgensen 3771a* (US).

A species closely related to the Brazilian *S. commutatum* but smaller and more slender, having almost capillary leaves and stems. Klatt founded his species on *Balansa 553* from Paraguay and described its leaves as being "radicalibus e vagina lata et longa piliferi-teretibus cuspidatis." Baker, apparently translating Klatt's description, erroneously described the leaves as "thread-like fine-pilose." The leaves are in fact actually capillary, slightly compressed, and glabrous.

22. **Sisyrinchium commutatum** Klatt, Hamburg. Garten- u. Blumenzeitung **16:** 164 (April, 1860).

S. secundiflorum Klatt, Linnaea **31**: 91, 377 (1861–2), and in Martius Fl. Bras. **3**(1): 541, tab. 71, fig. 2 (1871); Baker, Handb. Irid. 123 (1892).

BRAZIL: Caldas, Minas Geraes, 1862, *Herchen I. 444* (US); Minas Geraes, 1845, *Widgren* (US); Itatiaya, *Ginzberger 266* and *267* (FM); Campinas, S. Paulo, *Novas 1192* (US); Corrego Alegre, S. Paulo, *Loefgren 3585, S.B.S.P.* no. *12519* (G); Santa Anna, S. Paulo, *Usteri, S.B.S.P.* no. *12514* (G); Itú, S. Paulo, *Russel 70, S.B.S.P.* no. *18686* (G); Ypiranga, S. Paulo, *Luederwaldt 286, S.B.S.P.* no. *12509* (G); Itapetiininga, S. Paulo, *Loefgren 344, S.B.S.P.* no. *12510* (G); Moóca, S. Paulo, *Brade 5623* and *5966, S.B.S.P.* nos. *7266* and *7267* (G); Atibaia, S. Paulo, *Duarte 129, S.B.S.P.* no. *12507* (G); Butantan, S. Paulo, *Hoehne, S.B.S.P.* no. *549* (G); Ave. Paulista, S. Paulo, *Usteri, S.B.S.P.* no. *12508* (G). Jaguariahyna, Paraná, 1911, *Dusen 13266* (US); Tibagny, Paraná, *Reiss 164* (G, FM).

The plant illustrated in the Flora Brasiliensis has a poorly developed inflorescence. The inflorescence may become compounded with branches as much as one decimeter long. The peduncles are usually 1–2 (rarely even 5) cm. long and are rather unequally developed in each cluster. The staminal tube is densely glandular towards the base. Towards the apex the tube may bear some reflexed hairs, or may be almost glabrous.

A year before Klatt published his well known revision of *Sisyrinchium*, in volume 31 of Linnaea (1861), he had published a much less critical review of the genus in the Hamburger Garten- und Blumenzeitung **16:** 159–169 (1860). In this earlier work Klatt proposed a single new species, *S. commutatum*, basing it upon material from Minas Geraes collected by Regnell (no. *444*) and Widgren (no. *788*). This species, how-

ever, was ignored in his monograph published the next year and was there replaced by *S. secundiflorum*. He based that latter name upon the same two collections from Minas Geraes supplemented by a collection of Sellow, no. *101*, (cited,— "a S. Paula ad meridiam") which he had recently examined. The two species, *S. commutatum* and *S. secundiflorum* are practically identical. The former name, being at least a year older, is the one to be accepted.

23. **Sisyrinchium setaceum** Klatt, Linnaea **31**: 85 (1861); and in Martius, Fl. Bras. **3**(1): 540, tab. 71, fig. 1 (1871); Baker, Handb. Irid. 122 (1892).

BRAZIL: Porto Alegre, Rio Grande do Sul, *Malme 60* (G, US); Pelotas, Rio Grande do Sul, *Archer 4287* (G). ARGENTINA: Col. Bonpland, *Lilliesköld* (FM).

This species is well illustrated in the Flora Brasiliensis. It has a small tuft of very slender capillary leaves and bears the solitary spathes terminal on the erect naked capillary scapose stems. The outer valve commonly has a slender prolonged tip, 20–30 mm. long. This outer valve terminates the stem and is the homologue of the leafy bract which terminates and appears to be a prolongation of the stem in such species as *S. Luzula, S. macrocephalum, S. Sellowianum*, etc. In *S. setaceum* this terminal foliar structure clearly functions as the outer spathe-valve. In the other species mentioned it is a bract that stands beside the cymose cluster of spathes.

24. **Sisyrinchium minus** Engelm. & Gray, Boston Jour. Nat. Hist. **5**: 265 (1845); Bicknell, Bull. Torr. Bot. Club **28**: 591 (1901).

S. Bermudianum var. *minus* (Engel. & Gray) Klatt, Linnaea **31**: 69 (1861).

S. geniculatum Herbert, Bot. Reg. **29**: Miscel. 84 (1843), nomen.

URUGUAY: Arroyo Negro, Paysandú, 1937, *Rosengurtt B. 2276* (G); Rio Yi y Arroyo Marincho; Flores, openings in woods near stream, 1936, *Rosengurtt B. 582* (G); Rio Santa Lucia, 25 de Agosto, San José, weed near stream, 1935, *Rosengurtt B. 1800* (G). ARGENTINA: Delta del Paraná, Paraná Guazu, Buenos Aires, 1914, *Scala 41* (G); Avellaneda, Buenos Aires, 1931, *Parodi 9910* (G); Villa Ortuzar, Buenos Aires, adventive, *Parodi 8964* (G); Baradero, Buenos Aires, *Burkart 8532* (FM).

This is a very distinct species which is readily recognized by its slender, leafy stems, annual root, and its small elongate verrucose capsules. The plants of Uruguay and Argentina are remarkably similar to those of

Texas. The species was based upon material collected by Lindheimer at the margin of pools in the prairie west of San Felipe, Texas. Whether the species is one of those occurring naturally in Texas and in temperate South America, or whether it is recently adventive in the south, has not been determined.

25. **Sisyrinchium minutiflorum** Klatt, Linnaea **31**: 71 (1861), and in Martius, Fl. Bras. **3**(1): 536 (1871); Baker, Handb. Irid. 125 (1892).

BRAZIL: Rio Grande do Sul, 1901, *Malme 146* (G). URUGUAY: Agronomía, Paysandú, 1937, *Rosengurtt B. 2216* (G); Cerro, Montevideo, 1924, *Herter 145a–76182* (G); Santa Lucia, Canelones, 1886, *Safford* (US).

This species was based upon a collection made by Sellow (no. *2913*) at an undetermined locality in southern Brazil or Uruguay. I have seen a photograph of the type.

I have seen a specimen of a small annual herb of Brazil which resembles both *S. minutiflorum* and *S. minus*. It appears to be related to both of these species and seems to be undescribed. The specimen was collected by Dusen (no. *9450*, US) near Desiro Ribas, Paraná, and has been determined as *S. bogotense*. The plants from Rio Grande do Sul mentioned by Malme, Ark. Bot. **26A**(3): 16 (1935), under the name *S. iridifolium*, probably represents the same species. The plant in question has weak stems which become decumbent and root at the nodes, or, when buried in the soil, act as rhizomes. The capsules and size of leaves suggest those of *S. minutiflorum* but the corolla and the spathes (while smaller and having much less unequal valves) most suggest *S. minus*.

26. **Sisyrinchium platense,** sp. nov.

Planta 1.5–7.5 dm. alta perennis; radicibus longiusculis pro planta crassis; caulibus strictis numerosis rectis vel geniculatis supra medium dichotome ramosis ancipitibus 1–2 usque ad 3 mm. latis margine non raro serrulatis; foliis basalibus gramineis 1–2.5 dm. longis 2–4 mm. latis ensiformibus 7–20-nervatis margine saepe serrulatis; foliis caulinis quam basalibus brevioribus 1–3 pedunculos spatharum suffulcientibus; spathis 2–10-floris 15–19 mm. longis; pedunculis gracilibus 2–8 cm. longis 0.5–0.8 mm. latis rectis ascendentibus; valvis spathae lanceolatis stramineis saepe plus minusve purpurascentibus subaequalibus; pedicellis erectis gracilibus cum pilis glanduliferis sparse vestitis; ovario pilis glanduliferis ornato: tepalis violaceis extus puberulentis 5–9-nervatis oblongis ca. 1 cm. longis 2–3.5 mm. latis apice abrupte 1–2 mm. longeque acuminatis;

filamentis connatis; tubo 1.5–2.5 mm. longo, infra medium plus minusve evidenter expanso (non rariter ad 1 mm. crasso), e basi usque ad medium vel paullo supra medium dense glandulifero, alibi glabro vel sparse glandulifero; antheris ca. 0.5 mm. longis sessilibus; capsulis (plus minus depresse) globosis 4–5 mm. diametro.

PARAGUAY: Mercedes, Soriano, 1936, *ex Rosengurtt PE. 102, 137* and *160* (G); San José, 1922, *Smith 88* (G); Santa Lucia, Canelones, *Safford* (US) and *Smith 50* (US); near Montevideo, 1886, *Safford 116* (US); Cerro, Montevideo, 1925, *Herter 147–79660* (G); Carretera, Km. 100, Minas, 1937, *Rosengurtt B. 2325* (G); Rio Negro, Est. Palleros, Cerro Largo, 1937, *ex Rosengurtt PE. 1234, 1289, 1294, 1628, 1656,* and *1949* (G); Rio Negro y Arroyo Palleros, Cerro Largo, 1936, *Rosengurtt B. 1721* (G). ARGENTINA (dept. Buenos Aires): Bañado de Flores, Nov. 10, 1927, *Parodi 8171* (TYPE, Gray Herb.); San Fernando, 1903, *Pennington 46* (G); Punta Lara, 1932, *Cabrera 2419* (G); Tolusa, 1937, *Cabrera 3412* (G); between Tolusa and Ensenada, 1930, *Cabrera 1553* (G); Villa Elisa, La Plata, 1935, *Burkart 7096* (G); road to Brandzen, 1937, *Rodrigo 1067* (G); Elizade, 1928, *Cabrera 462* (G).

This is the coarse, tufted, perennial species with blue or purple flowers which appears to be common on both sides of the estuary of the La Plata. It has been mistaken for various species, but most generally seems to have passed as *"S. chilense."* The relatives of *S. platense* are *S. chilense,* endemic at low altitudes in central Chile, and *S. azureum* Phil., distributed in the high country of northwestern Argentina and adjacent Chile northward to Peru. The present species, *S. platense,* has a range well separated from those of the relatives mentioned and possesses a differently shaped capsule. The capsule is depressed globose, averaging distinctly shorter than the obovoid or obovoid-ellipsoid ones of *S. chilense* and *S. azureum.* The staminal tube of *S. platense* is short (1.5–2.5 mm.) and frequently very stout. It is commonly densely glandular from the base up to or even beyond the middle. The staminal tube of *S. chilense* is 3–4 mm. long and bears agglutinated glands only below the middle lower two-fifths) and frequently some scattered glands above. In *S. azureum* the tube is equally long but it bears only a relative few glands just above its base. These three plants, *S. platense, S. chilense* and *S. azureum* differ in geographical distribution, in intangibles of habit, in the staminal tubes, and in the size and shape of the capsules. All three merit specific recognition.

Under what is described as *S. platense* there appears to be a recognizable natural assemblage of forms. In Argentina and Uruguay, however, there seems to be some other forms which are closely related to it and

which may possibly represent undescribed varieties or distinct species. All of these have longer terminal tubes on which the glandular area occurs well below the middle.

Well to the north of the main range of *S. platense* occur plants collected by Jorgensen near Guayales, Formosa (no. *2301,* G, US), and near Villarica, Paraguay (no. *3872;* US, FM). The former has a staminal tube 4 mm. long and the latter 2.6–3 mm. long. In gross habit the plants much suggest the typical plant from the province of Buenos Aires.

In southern and western Uruguay there is a more marked relative or form of *S. platense.* These plants are small, averaging 15 (rarely 20–25) cm. high and have very narrow leaves, 0.5–1 mm. wide. The stems and leaves are very densely tufted and the roots are conspicuously thickened. In these respects it is more suggestive of *S. pachyrhizum* than *S. platense.* The staminal tube is 2–3.7 mm. long, but averages 3–3.5 mm. in length. The corolla-lobes are mostly less than 1 cm. long and in some of the collections are given as white or as purplish white. Of this small, slender-leaved, fleshy rooted, densely tufted, relatively smaller flowered plant I have seen collections from Agronomiá, Paysandú, *Rosengurtt B. 3168* (G); Mercedes, Soriano, *ex Rosengurtt PE. 112* (G); Montevideo, *Safford 117* (US); Cerro, Montevideo, *Herter 908–79418* (G); and Cerro de las Animas, Maldonado, *Rosengurtt B. 2432* (G).

Similar to the Uruguayan form just mentioned, but having broader leaves, larger corollas and a coarser habit, is a plant from the southern half of the province of Buenos Aires. The few plants having fruit indicate that it produces capsules 4–6 mm. broad, and hence larger than those of typical *S. platense.* I have seen material of this form from near Monte Veloz, *Cabrera 1898* (G); Los Nogales, Tandil, *Pastore 1159* (FM); Cerros al sur de Pigüe, *Scala 1089* (G); Cerros y Laguna de Puán, *Scala 1088* (G); and Cura-malal grande, *Scala 1085* (G).

27. **Sisyrinchium pachyrhizum** Baker, Jour. Bot. **14:** 269 (1876), and Handb. Irid. 129 (1892).

S. glandulosum Kränzlin, Bot. Jahrb. **40:** 241 (1908).

BRAZIL: without locality, *Sellow 3862* (FM, photo.). PARAGUAY: Cerros de Tobaty, 1900, *Hassler 6444* and *6445* (G); Chaco, along the Rio Paraguay, lat. 23° 25′, *Rojas 2353* (G); Cord. de Altos, 1902, *Fiebrig 254* (G, FM). ARGENTINA: Queb. del Rio Caraparí, Salta, 1937, *Cabrera 4205* (FM); El Puestito, Tucuman, 1928, *Venturi 7341* (G, US); Chañar Poza, Tucuman, 1917, *Venturi 437* (G, US); Ri Timbó, Tucuman, 1923, *Venturi 2229* (G, US); C. Pellegrini, Santiago

del Estero, 1927, *Venturi 5698* (G, US); Fontana, Chaco, 1937, *Meyer 464* (FM); Las Palmas, Chaco, 1897, *Jorgensen 2295* (G, US); Santa Ana, Corrientes, 1934, *Parodi 12057* (G); Reconquista, Santa Fe, 1933, *Burkart 5774* (FM); Victoria, Entre Rios, 1937, *Burkart 8654* (FM); Baradero, Buenos Aires, 1937, *Burkart 8528* (FM); Elizalde, Buenos Aires, *Cabrera 457* and *2841* (G); El Socorro, Buenos Aires, 1926, *Parodi 7388* in pt. (G).

Baker's species was based upon *Sellow 3862*, from "southern Brazil" and Kränzlin's species was based on *Hassler 2353* from Paraguay. I suspect that Sellow obtained his type material near the Uruguay River in western Rio Grande do Sul. Some forms of *S. platense* appear to simulate *S. pachyrhizum*. The present species, however, may usually be recognized by its yellow, slightly smaller (6–9 mm.) corollas, its longer (2.5–4.5 mm.) more slender staminal tube, its slightly smaller, frequently stramineous and rarely purplish-tinged spathe-valves, its more slender leaves, and its more densely tufted growth habit. The roots may be conspicuously, or only very moderately, thickened and fleshy.

28. **Sisyrinchium foliosum,** sp. nov.

Herba gracilis foliosa 15–35 cm. alta; radicibus fibrosis gracilibus haud carnosis; foliis gramineis flaccidis basalibus 1–3 dm. longis 1.5–2.5 mm. latis, quam caule saepe sublongioribus; caulibus nudis tantum folium terminale elongatum (inflorescentiam suffulcientem) proferentibus alatis 1–2 mm. latis; spathis 2–11 cm. longe pedunculatis ca. 2 cm. longis 1–5-floris; valvis subaequilongis vel exteriore longiore; ovario obovoideo glaberrimo spathas satis superante; corolla flava; tepalis 7–9 mm. longis 2–2.5 mm. latis 5-nervatis apice acutis attenuatis; filamentis connatis; tubo gracili ca. 2.6 mm. longo basim versus glandulis stipitatis dense obsito, alibi glaberrimo; antheris elongatis 1.2–1.5 mm. longis sessilibus; capsula late obovoidea 7–8 mm. longa ca. 6 mm. crassa.

BOLIVIA: Cord. de Altos, 1902, *Fiebrig 253a* (FM). ARGENTINA: Campo Formosa, Formosa, Oct. 1919, *Jorgensen 2299* (TYPE, Gray Herb.); Rio del Chamico, dept. Tafi, Tucuman, Sept. 1922, *Venturi 1901* (G, US); Siambon, dept. Tafi, Tucuman, Nov. 1925, *Venturi 3943* (G).

A very well marked species. From *S. pachyrhizum,* the other yellow-flowered species of this group found in northern Argentina, it is readily distinguished by its much weaker, perhaps annual, roots, its glabrous pedicels and ovary, its larger, longer capsules, and its much more elongated basal leaves. The species seem to be most closely related to *S. Lechleri Phil.* of southern Chile and Patagonia.

Unrecognized and Excluded Species

Sisyrinchium Burchellii Baker, Handb. Irid. 123 (1892).

Based upon *Burchell 5961* from Goyaz. The original description is inexcusably short and indefinite. The plant is described as having terete leafless stems 3–6.5 cm. tall, "ending in a single cluster, subtended by a small lanceolate bract." The spathe is 6 mm. long. The outer valve is oblong and has a "narrow white margin." This may possibly be a slender small form of *S. Luzula.*

Sisyrinchium congestum Klatt, Linnaea **31**: 98, 380 (1861–2), and in Martius, Fl. Bras. **3**(1): 542 (1871); Baker, Handb. Irid. 132 (1892).

Type from southern Brazil, collected by Sellow (no. *2967*). According to Klatt *Sellow 1196* may also belong here. I have seen no material that I can associate with Klatt's description. Possibly a form of *S. commutatum* or perhaps even of *S. Wettsteinii* may be represented. This species has me completely puzzled.

Sisyrinchium Gilberti Kränzlin, Repert. Sp. Nov. **14**: 295 (1906).

Based on a specimen from the Rio Tapiraguay, Paraguay, *Hassler 4289,* and hence on one bearing the same number and data as the type of *S. hirsutum* Baker (cf. infra). The plant may be a form of *S. Hasslerianum* Baker or a nearly related species having broader leaves and stem.

Sisyrinchium hirsutum Baker, Bull. Herb. Boiss. II. **3**: 1106 (1905).

Based upon *Hassler 4289* from the Rio Tapiraguay, Paraguay. The data for this collection are the same as for that of the type of *S. Gilberti* Kränzlin. The description of *S. Gilberti* and *S. hirsutum* differ in many important details. Possibly this is the result of carelessness in the preparation of the diagnosis.

Sisyrinchium palmifolium L. Mant. **1**: 122 (1767).

Moraea palmifolia Thunb. Dis. Moraea 8 (1787).
Marica palmifolia Ker, Bot. Reg. **2**: sub tab. 229 (1817).
Glumosia palmifolia Herbert, Bot. Reg. **29**: Miscel. 85 (1843).

The original description given by Linnaeus is as follows, — "Palmifolium 2. SISYRINCHIUM foliis ensiformibus nervosis. Bermudiana palmae folio, radice bulbosa. *Plum. ic. 35. t. 46* ? *Habitat in* Brasilia. *D. Arduini.* Simillima *S. Bermudianae, sed* Caulis *bipedalis, etiam anceps.* Folia *duplo latiora nervis 5 a 6 exstantibus, complicata.* Glumae Floresque *numerosi in fasciculum terminalem, vix maiores Bermudianae.* Stylus *ultra medium trifidus.*"

It is to be noted that Linnaeus cites the plate of Plumier with a question mark. This plant is *Eleutherine bulbosa* (Mill.) Urban. Many authors have considered that the Linnaean name, *S. palmifolium*, should be associated with this Eleutherine. Klatt seems to have completely ignored the Linnaean binomial in his revision of the Iridaceae. Baker, Handb. Irid. 132 (1892), resurrected the name, *S. palmifolium* L., and applied it to the group of plants I have called *S. macrocephalum*, *S. nidulare* and *S. Wettsteinii*. This is probably correct, but a reexamination of the material from Arduino, preserved in the Linnaean Herbarium, is needed before the precise application of the name can be settled. Herbert, l. c., gave a few notes on the floral structure of the Linnaean type which seem to indicate that Baker properly applied the Linnaean binomial to the Brazilian group of species mentioned.

SISYRINCHIUM SPICATUM Seubert ex Klatt, Linnaea **31**: 377 (1862), and in Martius, Fl. Bras. **3**(1): 541 (1871).

This is *Orthrosanthus spicatus* (Seubert) Baker.

SISYRINCHIUM TRICHANTHUM Dusen, Arch. Mus. Nac. Rio Janeiro **13**: 67 (1903).

The type was collected by Dusen on the margin of the forest at about 2200 m. alt. on Mt. Itatiaya, Brazil. The description suggests a form of *S. Luzula*.

SISYRINCHIUM PUMILUM Larrañaga, Escritos **1**: 413 (1922).

SISYRINCHIUM RACEMOSUM Larrañaga, l. c. **2**: 210 (1923).

SISYRINCHIUM LATERIFLORUM Larrañaga, l. c. **2**: 211 (1923).

SISYRINCHIUM BIFLORUM Larrañaga, l. c. **2**: 211 (1923).

SISYRINCHIUM FLEXUOSUM Larrañaga, l. c. **2**: 211 (1923).

SISYRINCHIUM LANCEOLATUM Larrañaga, l. c. **2**: 211 (1923).

The above six Uruguayan species appear with short, very inadequate descriptions in the recently exhumed botanical works of Larrañaga. They should be discarded, since they never can be identified with precision. Any attempt to accept them can lead only to confusion and uncertainty in nomenclature.

SISYRINCHIUM AUREUM Vellozo, Icon. **9**: tab. 69 (1827) and Fl. Flum. ed. 2, 375 (1881).

SISYRINCHIUM COERULEUM Vellozo, Icon. **9**: tab. 66 (1827) and Fl. Flum. ed. 2, 374 (1881).

SISYRINCHIUM COMES (Vell.) Steudel, Nomencl. ed. 2, **2**: 596 (1841). *Souza Comes* Vellozo, Fl. Flum. 273 (1825) and Icon. **7**: tab. 2 (1827).