

A REVISION OF BESLERIA

By C. V. MORTON

INTRODUCTION

Nearly ten years ago it came to the attention of the writer that the tropical family Gesneriaceae was greatly in need of revision. No monographic treatment had been published since 1865, and the only authority on the group was Prof. K. Fritsch of Vienna, since deceased. Accordingly the author was invited by Dr. H. A. Gleason to prepare an account of this family for publication in North American Flora. Work on the genus *Besleria* was thereupon begun, and this has continued intermittently, four short papers having been published.¹

In the present paper 141 species are described, of which about one-third are new. Owing to limitations of space the older species are very briefly described, only the more important diagnostic characters being given.

In this study types or isotypes of nearly all the described species of *Besleria* have been examined. For the loan of these, as well as many other valuable specimens, the author is under great obligation to the following institutions: Botanisches Museum, Berlin-Dahlem (B); Jardin de l'État, Brussels (Br); University of California, Berkeley (C); Botanisk Museum, Copenhagen (Co); Field Museum of Natural History, Chicago (F); Gray Herbarium of Harvard University (G); Royal Botanic Gardens, Kew (K); University of Michigan, Ann Arbor (Mi); Missouri Botanical Garden, St. Louis (Mo); Academy of Natural Sciences, Philadelphia (P); Naturhistoriska Riksmuseet, Stockholm (S); New York Botanical Garden (Y). The United States National Herbarium is indicated by W.

HISTORY OF THE GENUS

The genus *Besleria* has not gone through the nomenclatural vicissitudes of many genera of this and other families. Its validity has never been questioned. The first description is by Plumier, who

¹ "The Genus *Besleria* in British Guiana," *Phytologia* 1: 151-153. 1935; "Synopsis of the Species of *Besleria* in Ecuador," *Proc. Biol. Soc. Washington*, 48: 55-58. 1935; "The Genus *Besleria* in Venezuela," *Proc. Biol. Soc. Washington*, 48: 73-76. 1935; "The Genus *Cremosperma*," *Journ. Washington Acad. Sci.* 25: 284-291. 1935.

recognized three species: *Besleria virgae aureae foliis, flore lutea* [*Besleria lutea* L.], *Besleria Melissae, tragi facie* [*Besleria melittifolia* L.] and *Besleria scandens, cristata, fructu nigro* [*Besleria cristata* L.]. These three were the only species known to Linnaeus. Subsequent authors have considered them as representing three generic types. *Besleria melittifolia* is now referred to *Episcia*, *B. cristata* to *Alloplectus*, and *B. lutea* remains as the type of *Besleria*. This segregation was first made in 1829 by Martius, who has been followed by all subsequent authors.

Additional species were proposed by Forster, Aublet, Humboldt, Bonpland, and Kunth, Martius, Poeppig, and other older authors, a good many of these now being referred to other genera. The first significant work on the genus was that of Oersted, who in his *Central-amerikas Gesneraceer*² published a new classification of the family, in which the genus *Besleria* was restricted to *B. lutea*, the remaining species being distributed among five genera: *Pseudobesleria*, *Parabesleria*, *Cyrtanthemum*, *Gasteranthus*, and *Gasteranthopsis*.

The only monographer of Gesneriaceae was Dr. Johannes Hanstein, who worked almost exclusively on material in the Berlin Herbarium. He published revisions or synopses of the various genera in several volumes of *Linnaea*, that of *Besleria* appearing in 1865.³ In this, all the above-mentioned genera were reduced by him to synonymy, *Gasteranthus*, *Pseudobesleria*, and *Parabesleria* being retained as subgenera. In addition, two new subgenera, *Macrobesleria* and *Rhynchobesleria*, were described. *Besleria lutea* was retained as the sole species of subgenus *Eubesleria*.

The treatment in the *Genera Plantarum* of Bentham and Hooker followed that of Hanstein in every particular, except that the subgenera were reduced to sectional rank and one new section was proposed, i. e. *Podobesleria*, which has existed up to the present time without any described species. Fritsch's account in *Die Natürlichen Pflanzenfamilien* was modeled on that of Bentham and Hooker, and did not add anything to our knowledge of the genus.

More recently the Central American species were studied by Capt. John Donnell Smith, who at intervals published several interesting and curious species, one of which must be excluded from the genus. The few West Indian species were treated by Urban.⁴ The only other important work on the genus is that of Dr. K. Fritsch, who in two papers⁵ has published a considerable number of new Andean species.

² Dansk. Vid. Selsk. Skrivt. V. 5: 77-152. pl. 1-11. 1861.

³ *Linnaea* 34: 316-337.

⁴ *Symb. Antill.* 2: 347-354. 1901.

⁵ *Repert. Sp. Nov. Fedde* 18: 7-13. 1922; and *Notizbl. Bot. Gart. Berlin* 11: 962-976. 1934.

DIAGNOSTIC CHARACTERS

All species of *Besleria* are of perennial duration, propagating chiefly by means of seeds. A very few are truly herbaceous, but the majority are best described as suffrutescent or soft-woody. However, a considerable number are truly shrubby or even arborescent in habit, although as a rule they do not have the appearance of shrubs owing to the fact that the main stem is usually quite unbranched. The difficulty of classifying the species according to habit is well illustrated in *B. variabilis*, the range of variation, according to herbarium labels, being from succulent herbs 2 feet high to trees of 15 feet. Such variation would hardly seem allowable within a single species, particularly since the specimens are of fully mature plants, and the collectors' notes made by professional botanists; but, inasmuch as the herbarium specimens collected do not differ in appearance, it may be presumed that the classification as herbs, shrubs, or trees was based chiefly on size. The habit of *B. pansamalana* of Guatemala is perhaps unique within the genus, and is described in the field by Dr. Alexander F. Skutch as follows: "Herb with stems up to 8 feet long, trailing on the ground and rooting at both nodes and internodes, the apex and lateral branches erect to a height of 2 or 3 feet." Most of the species are terrestrial, but a few are seemingly epiphytic at times. A scandent habit is ascribed to several species by collectors. In general it may be said that in this genus distinctive data as to habit are difficult to gain from herbarium specimens. Habital data here stated in the specific descriptions are given on the authority of collectors' notes, rather than from observation on the part of the author.

The stems, as above stated, are normally unbranched and mostly terete. However, those of a good many species are obtusely quadrangular, at least below. Here again, herbarium specimens are an insufficient guide, and little use has been made of this character. The stems vary from slender (e. g. *B. salicifolia*) to extremely coarse and fleshy (*B. tambensis*, *B. maxima*, *B. robusta*). From a practical viewpoint, and perhaps also from a phylogenetic, the most important character of the stems is as to type of pubescence. This is, indeed, remarkably variable, and is apparently constant within a species. Entirely glabrous stems are not found, and they would hardly be expected in this family, which is notable for the diversity and abundance of the hairy covering in all parts of the plant. In *B. gracilentia*, however, a high magnification is necessary to discern the few hairs present. In most species the stems are obviously strigose or strigillose, especially toward the growing point. In some the dense hairy covering may truly be called sericeous. In a few species, such as *B. reticulata* (*typica*), the stems are densely lanate-tomentose, or (in *B. tambensis*) velutinous-tomentose, or (in *B. maxima*) villous-tomentose.

A truly hirsute type of pubescence, with long, spreading hairs not at all matted, is characteristic of a large number of species belonging to several distinct groups. In a few species the pubescence is somewhat intermediate between these types, and is described by such terms as "subappressed-pilose" or the like. Although the types of pubescence seem to be a safe guide to affinity, the writer does not deem it of sufficient importance to justify formal groupings based on this character.

The leaves are always petiolate, although the petiole may be greatly abbreviated, as in *B. lutea* var. *imrayi*. The relative length of petiole and leaf blade varies, but the ratio is commonly about 1:3 or 1:4. Rarely, as in forms of *B. variabilis*, the petiole may almost equal the blade. In outline, the blades are commonly elliptic or broadly elliptic but vary to oblanceolate or oblong, or rarely to lanceolate or linear-lanceolate. The apex is usually acuminate, rarely rounded and cuspidate-acuminate, or merely acute. The base is usually cuneate, rarely rounded or obtuse. The margin is often given in the descriptions as "entire", although strictly speaking that is probably never wholly true, some vestiges of denticulation being visible on close study. On the other hand, those species described as "denticulate" have teeth of measurable length, although these also are remote and relatively inconspicuous. A good many species have obviously serrulate or serrate leaves, particularly those in the more advanced sections, such as *Rhynchobesleria* or *Gasteranthus*. The margin is irregularly sinuate-dentate in *B. perennis*, regularly and closely crenulate in a few species (e. g. *B. leucostoma*).

In texture the leaf blades vary from thin-membranous (as in *B. longipes*) to thick-coriaceous (*B. cognata*). They are sometimes pellucid-punctate (*B. labiosa*). The pubescence of the veins of the lower leaf surface is always exactly correlated with that of the stem and, like that, varies from absent, through strigose and puberulous, to tomentose or hirsute. The upper surface does not show the pubescence characteristic of the species and is usually glabrous or glabrate, the hairs when present commonly being sparse and subappressed. In *B. crassa* the fleshy leaves are minutely verrucose on both surfaces. Three species, wholly unrelated in floral characters, have a most striking peculiarity in common: the upper surface is elongate-tuberculate, each tubercle being surmounted by a long, setiform, deciduous hair.

The venation of the leaf blades in *Besleria* is similar to that obtaining in the rest of the family, being pinnate, with arcuate, anastomosing lateral veins. The number of pairs of lateral veins is relatively constant and is stated for each species. The veins are sometimes obscure (*B. crassa*), sometimes impressed above (*B. impressa*), sometimes prominently reticulate (*B. heterosepala*, *B. reticulata*).

Taken as a whole the characters exhibited by the leaf blades, especially those of pubescence, tothing, and venation, are constant within a species, and consequently have proved of great value in distinguishing species related by floral characters. They have been freely used in the key, in most instances as supplementary to more fundamental differences in the inflorescences.

Although theoretically the inflorescence is racemose, a character retained in *B. racemosa*, actually it is often subumbellate by reduction of the axis. Very often the common peduncle is well developed, sometimes exceeding the leaves, but in several large subsections it is vestigial, in which case the term obsolete is used in the descriptions. The inflorescence then becomes a sessile umbel, the flowers appearing aggregate in the leaf axils. In a very few of the more advanced species, such as *B. princeps*, the common peduncle appears to be entirely absent, the flowers then being solitary in the axils. In a few species (e. g. *B. formosa*) the flowers seem to be borne on a solitary axillary pedicel, yet close examination shows that the pedicel is jointed in its lower third, the inflorescence being therefore a 1-flowered umbel. Intermediate conditions between these types are found. For convenience such intermediate species are keyed under both headings. In spite of these intergrades, the type of inflorescence furnishes a very good and practical criterion for subsectional arrangement.

The calyx is highly variable in form, and provides many characters useful in classifying the species. Typically it is 5-parted almost to base. In a few species the segments are partially connate, sometimes up to the middle, or in subsection *Typicae* to over two-thirds their length. In outline the lobes vary from orbicular to linear-lanceolate. The relative length of calyx and corolla is frequently correlated with the shape of the calyx lobes. Rounded lobes are usually only one-third to one-sixth as long as the corolla tube, but there are exceptions (e. g. *B. rhytidophyllum*). On the other hand, the lanceolate, acuminate calyx lobes are usually more than half as long as the corolla tube, and sometimes even equal or exceed it. The midrib is often conspicuous and sometimes forms an evident keel. In some species it is excurrent as a mucro, which frequently arises below the apex of the sepal. Lateral veins range from prominent to obscure. In a few species the midrib is absent, the venation then being irregularly reticulate. The segments are commonly membranous, rarely somewhat thick and coriaceous. Their outer surface is usually hairy, the pubescence being of all the various types above discussed. In most species the inner surface is glabrous, the development of pubescence being evident in only a few advanced specific types. The margins are commonly ciliolate or ciliate, and entire, but rarely are erose, crenulate, or incised-serrate. Although few herbarium specimens bear notes on this point, it is evident that the calyx is usually bright-colored, green lobes being

a rare exception. The dominant color is doubtless orange, but white, yellow, red, or brown calyces are also known. Additional characters of the calyx are found in the relative size and shape and the degree of imbrication of the lobes. Subequal lobes are the rule, but several notable exceptions occur (e. g. *B. heterosepala*, *B. cyrtanthemum*). None of the species here described have wholly identical calyx lobes, and it would therefore be possible theoretically to provide a key based on them alone, although such a key would present difficulties both in construction and use.

The tubular corolla is erect, oblique, or horizontal in relation to the calyx. In color it may be white, yellow, orange, red, or spotted, but becomes a dull yellowish brown in drying. The base, commonly cylindrical, is spurred in sections *Neobesleria* and *Gasteranthus*. In most species the tube is markedly ventricose upwardly and contracted toward the throat. In *Neobesleria*, however, the tube is narrowly infundibular, being gradually widened up to the open throat. The limb is usually terminal and composed of five small, orbicular, subequal, erect or patent lobes, but in *Rhynchobesleria* the limb is obviously bilabiate with unequal lobes. In *Gasteranthus* the corolla is of a very peculiar shape, difficult to describe. It bears a rather remote resemblance to a shoe, the orifice being distinctly lateral and the apex of the corolla the very much inflated and extended corolla tube. In these species the limb is small and regular. A good illustration is that of *B. pansamalana* in the Botanical Gazette 17: 197. pl. 17. 1891).

Externally the corolla tube is either glabrous or hairy. Throughout the genus the author has used the characters of hairy corolla and hairy ovaries as marks of specific distinction, because as a rule species differing in one or both of these points are found to differ in several other respects as well. Since these characters are easily and definitely observable they have been given special importance in the key. It should not be assumed, however, that this has resulted in a natural key.

Only four stamens are fertile, although a rudimentary fifth is frequently developed, this sometimes bearing an abortive anther. The filaments are broad and flattened and are inserted on the corolla tube, usually a few millimeters above the base. They are free from each other throughout, but the anthers are often lightly connate in a square. At maturity the anthers are commonly free, but remain connivent. They are never exserted except in *B. pendula*, although sometimes borne in the throat of the corolla. The more usual position is slightly farther down in the corolla tube. The anther itself is composed of two cells which are early confluent at apex except in the aberrant species *B. pycnosuzygia*. Little use has been made of stamen characters in the keys and descriptions.

As in all Gesneriaceae, the ovary is 1-celled with two parietal placentae. Each placenta is divided into two lamellae, both of which bear a large number of ovules on the inner surface. In a single species (*B. maxima*) the lamellae apparently bear ovules on both the inner and outer surfaces, but this point needs further study. The ovary and style may be glabrous or variously pubescent. Typically the stigma is bilobed, but often the lobes are so short that the stigma may be described as stomatomorphic.

At the base of the ovary is a well-developed glandular disk, which, from such observations as have been made in the field, is brightly colored and copiously nectariferous. Commonly it is annular, entire, and glabrous, but in a number of species one side is obsolete, the disk then being semiannular. In those species with posteriorly spurred corollas there is frequently a marked thickening of the disk posteriorly, often accompanied by a development of pubescence; in which case the anterior portion of the disk is poorly developed or absent. In such, the disk is described as reduced to a posterior "gland," but this gland is not exactly comparable to the disk glands of *Columnea*. In one species, *B. comosa*, the disk is composed of a true gland, this being oblong, glabrous, and without any annular tendency. The propriety of retaining this species in *Besleria* is questionable.

The fruit is a fleshy berry, white, red, orange, or purple. The color is not retained in dried specimens. The skin of the berry is usually thick and roughly verrucose. The numerous minute seeds are red, fusiform, and marked with spiral striae, as in most Gesneriaceae. There are no apparent differences between the species in seed characters.

SECTIONAL ARRANGEMENT

The sectional arrangement adopted is essentially that of Hanstein. One section, *Neobesleria*, is here proposed to include certain species, part of which have been previously placed in *Gasteranthus* and part in *Eubesleria*. The subgenus *Macrobesleria* Hanst. is reduced to *Rhynchobesleria*, and *Pseudobesleria* and *Parabesleria* are reduced to *Eubesleria*. From present knowledge it is impossible to present a truly natural arrangement. Within the sections a number of subsections have been created, which will serve adequately for a practical classification, but which are almost certainly not phylogenetically accurate. Species intermediate between the subsections are fairly numerous, and have therefore been included in two places in the key, to facilitate identification.

GENERIC RELATIONSHIP

Besleria belongs to the subfamily Cyrtandroideae, characterized by having a wholly superior ovary. Among American species of this subfamily it is distinguished from all but *Cremosperma* by having the anther cells confluent at apex, the disk of an annular type, and the fruit a fleshy berry. In addition, most species have in common certain habitual resemblances which make the genus easily recognizable, e. g. the erect soft-woody stems, the equal pairs of leaves, the absence of bracts, and the frequently umbellate type of inflorescence. The free filaments and the development of ovules on only the inner surface of the lamellae of the placentae are also distinguishing characters.

The most closely related genus is *Cremosperma*, which was reduced to *Besleria* by Fritsch. In a recent paper the writer restored *Cremosperma* to generic rank and recognized ten species. One of these, *C. cinnabarinum*, was doubtfully so referred on the authority of Fritsch. An examination of the type now shows that this species is a true and rather typical *Besleria*. Excluding this, *Cremosperma* remains a compact group of closely related species, distinguished from *Besleria* as follows:

Filaments inserted in middle of corolla tube; calyx turbinate or turbinate-cylindric, 10-ribbed; inflorescence capitate-racemose, pedunculate; plants herbaceous or suffrutescent, 30 cm high or less.....	Cremosperma
Filaments inserted in base of corolla tube; calyx commonly campanulate or urceolate, not 10-ribbed; inflorescence usually a sessile or pedunculate umbel; plants usually soft-woody shrubs more than 30 cm high.....	Besleria

A fuller discussion of the relationship of *Besleria* to *Anetanthus*, *Episcia*, and other genera must await revisions of these groups.

GEOGRAPHIC DISTRIBUTION

As is well known, the Gesneriaceae in general are of extremely local distribution. The classic example is, of course, *Cyrtandra*, the various species of which are almost all restricted to individual islands in the South Seas, and often to certain valleys or mountain slopes. The American genera, and *Besleria* in particular, are no exception to this rule. E. P. Killip has remarked that, in traversing the Andes, on passing over a divide the gesneriaceous flora was observed to change completely. This pronounced endemism explains why so many of the species are represented only by single collections.

Moreover, many collections have been made in the vicinity of settlements and along mountain trails, but relatively few in the dense virgin forests which are the preferred habitat of most Gesneriaceae. Even within suitable areas the plants are as a rule widely scattered and often only sparingly floriferous. On account of this rarity only

a relatively small percentage of the species are represented in any one herbarium. The number of new species here described would be thought excessive in most groups; it is explained by the amount of new material available and the fact that almost no work has been done on this family for over 70 years. The species of *Besleria* are apparently not in a very plastic condition. Intergrades between species are uncommon, and even species represented by numerous specimens exhibit few pronounced variations in appearance or in essential characters.

The actual rarity of the species is well shown by a consideration of those known from Mexico. Four were described from Mexico by Oersted in 1858. These are *B. glabra*, *B. deflexa*, *B. cyrtanthemum*, and *B. hirsuta*, none of which have since been collected in Mexico or found elsewhere, except perhaps *B. hirsuta*. I have so identified one Costa Rican collection, but it does not agree in all respects with the type and with better material may be found specifically distinct. Besides these, the only other species known from Mexico is the widespread and common lowland *B. laxiflora*, which reaches its northern limit in Chiapas, where it has been collected twice.

In Guatemala there are four species, all endemic except *B. laxiflora*. Two of these, *B. flava* and *B. conspecta*, are more closely related than their position in the present treatment would indicate. The third, *B. pansamalana*, is the only North American representative of the section *Gasteranthus*. Remarkably enough, it is very closely related indeed to a species found in Ecuador.

The common *B. laxiflora* is found in British Honduras, Honduras, and Nicaragua, and one other widespread species, *B. solanoides*, reaches its northern limit in Honduras.

Twenty-one species and three varieties are found in Costa Rica and adjacent Panama, all of which are endemic, except *B. hirsuta* (above discussed), *B. laxiflora*, *B. pauciflora*, *B. solanoides* with its variety, and *B. triflora*, a variety of which is found in Colombia. The endemic species are limited in range within Costa Rica. Five species, viz. *B. trichostegia*, *B. robusta*, *B. macropoda*, *B. acropoda*, and *B. imbricans*, are nearly restricted to elevations below 600 meters in the Province of Limón, on the Atlantic coast. The remainder, viz. *B. triflora*, *B. barbensis*, *B. pycnosuzygia*, *B. notabilis*, *B. standleyi*, *B. formosa*, *B. wendlandiana*, *B. princeps*, and *B. columnneoides*, are found chiefly in the central mountain region at elevations up to 2,400 meters. The Panama species are *B. amabilis*, *B. panamensis*, *B. pauciflora*, *B. laxiflora*, and *B. solanoides*.

The West Indian species are six in number: *B. lutea*, *B. lanceolata*, *B. filipes*, *B. elongata*, *B. petiolaris*, and *B. solanoides*; all but the last are endemic. Except for *B. lutea*, which is found throughout the West Indies except Puerto Rico, all the others are confined to the Lesser

Antilles, often to a single small island. A very peculiar species, *B. seitzii*, is endemic in Tobago. Three endemic species, *B. longipes*, *B. strigillosa*, and *B. sieberiana*, are found in Trinidad.

The South American members of the genus are equally local. Of the 43 species found in Colombia only eight extend beyond the confines of that country. Two of these, which inhabit the Amazonian watershed, naturally enough are found also in Amazonian Peru, viz. *B. immitis* and *B. ignea*. Two, *B. rupestris* and *B. calcarata*, extend across the southwestern borders into Ecuador. One species, *B. affinis*, is found also in Venezuela and two, *B. solanoides* and *B. triflora*, occur likewise in Costa Rica. *Besleria pauciflora* is here accredited to Bolivia, Colombia, and Panama, but the forms from these three regions are not entirely alike and may not be conspecific. The percentage of endemism is at least equally high for other South American countries. It has thus seemed desirable to insert geographic data in the keys, as an aid to rapid identification.

SYSTEMATIC TREATMENT

BESLERIA [Plum.] L.

Besleria [Plum.] L. Gen. Pl. 181. 1737.

Eriphia P. Br. Hist. Jam. 270. 1756.

Gasteranthus Benth. Pl. Hartw. 233. 1846.

Cyrtanthemum Oersted Centralamer. Gesn. 56. 1858.

Gasteranthopsis Oersted, op. cit. 55.

Parabesleria Oersted, op. cit. 52.

Pseudobesleria Oersted, op. cit. 54.

Herbs or shrubs with terete or quadrangular, usually unbranched stems; leaf blades opposite, equal, petiolate, usually elliptic, acute or acuminate at apex, cuneate or rounded at base, membranous to coriaceous, subentire, denticulate, or coarsely toothed, usually discoloured, pinnately veined; flowers ebracteate, commonly borne in axillary pedunculate or sessile umbels, rarely solitary; calyx campanulate or urceolate, rarely cylindrical, 5-toothed or mostly 5-parted nearly to base, colored, the lobes imbricate in aestivation, rounded to acuminate, mostly entire; corolla tubular, erect or horizontal in calyx, cylindrical or spurred at base, often pilose, the tube usually ventricose, rarely infundibular, the limb terminal or lateral, actinomorphic or zygomorphic; fertile stamens 4, didynamous, the filaments attached to base of corolla, not connate, flattened, usually glabrous, the anthers quadrate, connate when young, 2-celled, the cells confluent at apex; ovary superior, 1-celled, with two parietal placentae, these ovuliferous on the inner surface only; style elongate, the stigma bilobed or stomatomorphic; disk annular, commonly glabrous, entire, rarely posteriorly thickened; fruit a fleshy berry with thick verrucose exocarp, the seeds minute, numerous, red, spirally striate. Type: *Besleria lutea* L.

KEY TO SECTIONS

Orifice of corolla terminal.

Corolla not spurred, but sometimes a little saccate at base.

Limb of corolla regular or nearly so, the tube contracted in throat

I. EUBESLERIA.

- Limb of corolla bilabiate, the tube widened in throat...III. RHYNCHOBESLERIA.
 Corolla spurred at base posteriorly. Disk often thickened
 posteriorly, glabrous or pubescent.....II. NEOBESLERIA.
 Orifice of corolla lateral, much exceeded by the inflated corolla tube
 IV. GASTERANTHUS.

Section I. EUBESLERIA (Hanst.) Benth. & Hook.

Folia alterna, saepe subintegra; pedunculus communis elongatus vel obsoletus, pedicellis saepe numerosis, raro solitariis; calycis lobi liberi vel connati, saepe integri, interdum mucronati; corolla erecta ecalcarata, tubo ventricoso, fauce contracta, limbo terminali subregulari parvo; discus saepe annularis, glaber. Typus: *B. lutea* L.

KEY TO SUBSECTIONS

- Calyx lobes less than half as long as the corolla tube, mostly rounded or obtuse
 Common peduncle obsolete, the pedicels aggregate in the leaf axils...1. SESSILES
 Common peduncle elongate, the pedicels umbellate or subcorymbose
 2. PEDUNCULATAE.
- Calyx lobes half as long as the corolla tube or more, usually acute or acuminate.
 Lobes of calyx free or rarely connate to middle.
 Common peduncle obsolete, the pedicels aggregate in the leaf axils.
 Disk reduced to an oblong erect gland 2.5 mm high.....3. COMOSAE.
 Disk annular or semiannular, 1 mm high or less.
 Calyx lobes with a filiform mucro arising below the apex...4. MIRIFICAE.
 Calyx lobes not mucronate.
 Lobes of calyx strongly unequal, the longest exceeding the corolla
 5. MEXICANAE.
 Lobes of calyx subequal, never exceeding the corolla...6. CONFERTAE.
 Common peduncle elongate, the pedicels umbellate or subcorymbose
 7. ELONGATAE.
 Lobes of calyx connate for over two thirds their length.....8. TYPICAE.
1. SESSILES. Herbae vel saepe frutices; pedunculus communis obsoletus vel raro ad 4 mm longus, pedicellis saepe numerosis; calycis lobi liberi (numeris 9, 17, 20 et 37 exceptis), saepe obtusi vel rotundati, 3-7 mm longi (usque ad 9.5 mm in numeris 18, 32 et 37), saepe integri (numeris 5a et 25 exceptis), intus glabri; corolla erecta vel paullo obliqua, basi non calcarata, fauce contracta, limbo terminali brevi; discus annularis vel semiannularis (numeris 15 et 25 exceptis). Typus: *B. solanoides* H. B. K.
- A. Stems, petioles and leaf veins lanate-tomentose, puberulous, strigillose or glabrate. Calyx lobes obtuse or rounded, except in nos. 5, 18 and 25.
 B. Calyx lobes not mucronate.
 C. Corolla tube glabrous externally or very minutely puberulous.
 D. Ovary and style glabrous.
 Corolla with a hairy ring within at insertion of filaments; leaves coriaceous. Colombia.....14. *B. cognata*.
 Corolla lacking a hairy ring within; leaves membranous.
 Leaf blades serrate. Trinidad.....21. *B. strigillosa*.
 Leaf blades entire or remotely denticulate.
 Disk reduced to a posterior gland; leaf blades entirely glabrous beneath. Mexico.....15. *B. glabra*.
 Disk annular or semiannular; leaf blades puberulous or strigillose, at least on the veins beneath, except in no. 9.

Corolla yellow; petioles 5.5-9 cm long. Leaf blades 7.5-10.5 cm wide, the veins 9-11 pairs. Guatemala...16. **B. conspecta.**

Corolla orange or red; petioles 1-3 cm long (or up to 6 cm in no. 17).

Stems, leaf blades and inflorescence almost entirely glabrous, the hairs sparse, microscopic. Leaf blades narrowly lanceolate; calyx lobes suborbicular. Peru.

9. **B. gracilenta.**

Stems, leaf blades and inflorescence appressed-pubescent.

Corolla tube, at least usually, not over 4 mm wide, thin-membranous; calyx lobes longer than broad.

Calyx lobes membranous; leaf surface glabrous or nearly so.

Leaf blades commonly over 10 cm long and 3 cm wide; stems not scabrous. Honduras to Peru; West Indies.....1. **B. solanoides.**

Leaf blades 3.5-9 cm long, 1-2 cm wide; stems sub-scabrous. Colombia.

1b. **B. solanoides** var. *parvifolia*.

Calyx lobes coriaceous; leaf surface strigillose. Colombia.

2. **B. lehmannii.**

Corolla tube 5-6.5 mm wide, thicker; calyx lobes broader than long.

Leaf blades long-petiolate, the primary veins 8-11 pairs; flowers usually in pairs. Corolla dark red; calyx lobes orange, coriaceous, erose. Colombia.

17. **B. nitens.**

Leaf blades short-petiolate, the primary veins 5 or 6 pairs; flowers usually solitary.

Common peduncle developed, i. e. flower stalk jointed above base. Costa Rica.....59. **B. formosa.**

Common peduncle obsolete, the flower stalk jointed at base. Colombia...42b. **B. reticulata** var. *venosa*.

DD. Ovary and style puberulous.

Corolla tube thick (5-6 mm wide), obviously saccate at base; calyx lobes suborbicular, broader than long, strongly imbricate; leaf blades obtuse or rounded at base, broadly elliptic, membranous. Costa Rica.....23. **B. standleyi.**

Corolla tube slender (not over 3 mm wide except in no. 3), not saccate at base; calyx lobes oblong or ovate, longer than broad, scarcely imbricate (except in no. 3); leaf blades cuneate or attenuate at base.

Stems thick, commonly 5-11 mm in diameter; leaf blades subcoriaceous, 6-10 cm wide. Costa Rica.....24. **B. notabilis.**

Stems slender, usually 2-3 mm in diameter, rarely up to 6 mm; leaf blades 5.5 cm wide or usually less.

Leaf blades oblanceolate, often subcoriaceous; ovary with short, appressed hairs. Colombia.....8. **B. angustiflora.**

Leaf blades narrowly or broadly elliptic, chartaceous or membranous; ovary with spreading hairs.

Hairs of leaf veins beneath not over 0.25 mm long; calyx lobes merely strigillose, minutely ciliolate.

Calyx lobes suborbicular, imbricate, venose; corolla tube 6-8 mm wide. Colombia.....3. **B. delvillari.**

- Calyx lobes oval, scarcely imbricate, not venose; corolla tube about 3 mm wide. Ecuador.....4. *B. modica*.
Hairs of leaf veins 0.5–1.25 mm long; calyx lobes subpilose, long-ciliate. Costa Rica and Colombia.
1a. *B. solanoides* var. *tenera*.
- CC. Corolla tube pilose or strongly puberulous externally.
Corolla with a hairy ring within at insertion of filaments.
Ovary glabrous. Peru.....13. *B. densiflora*.
Ovary hairy.
Anther cells confluent; corolla sparsely puberulous or pilosulous.
Leaf blades elliptic or broadly oblong, minutely strigillose on the veins beneath. Colombia.....11. *B. leucocarpa*.
Leaf blades oblanceolate, subtomentose on the veins beneath. Colombia.....10. *B. nemorosa*.
Anther cells not confluent; corolla long-pilose. Costa Rica.
12. *B. pycnosuzygia*.
- Corolla lacking a hairy ring within. Ovary hairy.
Leaf blades less than 4 cm wide (except in nos. 57 and 58a), the lateral veins 4–8 pairs. Calyx lobes strigose or subpilose.
Corolla limb about 15 mm wide, exceeding the length of the corolla tube. Panama.....57. *B. amabilis*.
Corolla limb not over 7 mm wide, much less than the length of the corolla tube.
Calyx lobes orbicular, strongly imbricate. Colombia.
58a. *B. triflora* var. *australis*.
- Calyx lobes ovate, oblong or lanceolate, little imbricate.
Corolla densely pilose. Calyx lobes oblong, rounded at apex. Colombia.....7. *B. pennellii*.
Corolla sparsely pilosulous.
Calyx lobes lanceolate, acuminate, ciliolate, strigillose.
Calyx lobes entire, not venose. Colombia.
5. *B. microphylla*.
Calyx lobes serrulate, venose
5a. *B. microphylla* var. *serrulata*.
- Calyx lobes oval or oblong, rounded or obtuse, long-ciliate, subpilose.
Corolla crimson, horizontal or strongly oblique; berry white; leaf veins 4 pairs. Ecuador.....6. *B. miniata*.
Corolla orange, erect or nearly so; berry orange; leaf veins 8 pairs. Costa Rica and Colombia.
1a. *B. solanoides* var. *tenera*.
- Leaf blades 4.5–12 cm wide, the lateral veins 8–14 pairs.
Stems very thick (about 7 mm in diameter even near apex), densely velvety-tomentose; calyx lobes 4 mm long. Colombia.
26. *B. tambensis*.
- Stems slender, villous or strigose; calyx lobes 6.5–8 mm long. Corolla yellow.
Disk reduced to a posterior gland; calyx lobes pilosulous, often toothed. Colombia.....25. *B. illustris*.
Disk annular; calyx lobes strigillose, entire. Colombia.
18. *B. nubigena*.

- BB. Calyx lobes with a mucro arising from below apex. Corolla yellow.
 Leaf blades thick-coriaceous, lightly crenulate. Pedicels stout. Martinique and Guadeloupe.....22. *B. lanceolata*.
 Leaf blades membranous or chartaceous, serrate, except in forms of no. 19.
 Pedicels 3.5–5 cm long.
 Leaf blades sharply serrate.
 Stems glabrous, except at nodes; leaf blades oblanceolate, 4.5–5.5 cm wide. Guadeloupe.....19. *B. filipes*.
 Stems strigillose; leaf blades elliptic, 6–8.3 cm wide. Dominica.
 19a. *B. filipes* f. *latior*.
 Leaf blades crenulate.
 Stems glabrous except at nodes; leaf blades entirely glabrous. Dominica.
 19b. *B. filipes* f. *glaberrima*.
 Stems sericeous; leaf blades strigillose on the veins beneath. Dominica.
 19c. *B. filipes* f. *pilicaulis*.
 Pedicels 1.5 cm long or less. Trinidad.....20. *B. sieberiana*.
- AA. Stems, petioles, and leaf veins beneath hirsute.
 Corolla glabrous externally; ovary glabrous.
 Leaf blades thick-coriaceous, over three times as long as wide, not over 3.5 cm wide, crenulate. Martinique and Guadeloupe.
 22. *B. lanceolata*.
 Leaf blades membranous or chartaceous, less than three times as long as wide, denticulate or serrulate.
 Sepals rounded at apex.
 Leaf blades chartaceous.
 Blades 22–26 cm long and 10–13 cm wide; calyx lobes long-white-ciliate. Peru.....28. *B. barbata*.
 Blades not over 9 cm long and 3.5 cm wide; calyx lobes not ciliate. Peru.....29. *B. imberbis*.
 Leaf blades thin-membranous.
 Blades oblong, evenly acuminate, the veins 11–13 pairs. Mexico and Costa Rica.....30. *B. hirsuta*.
 Blades broadly elliptic, cuspidate-acuminate, the veins 8–10 pairs. Colombia.....31. *B. fecunda*.
 Sepals sharply acuminate. British Guiana.....32. *B. saxicola*.
- Corolla pubescent externally; ovary hairy.
 Calyx lobes suborbicular, broadly rounded. Colombia.....33. *B. villosa*.
 Calyx lobes acute or acuminate.
 Corolla with a hairy ring within at insertion of filaments. Colombia.
 34. *B. vestita*.
- Corolla lacking a hairy ring within.
 Leaf blades elongate-tuberculate above, each tubercle surmounted by a long hair. Colombia.....35. *B. laeta*.
 Leaf blades not tuberculate above.
 Disk reduced to a posterior gland; calyx lobes often toothed. Colombia.....25. *B. illustris*.
 Disk annular (semiannular in no. 36); calyx lobes entire.
 Leaf blades broadly oblong, 11–25 cm wide; stems densely tomentose-villous; flowers very numerous in a cluster (15 or more.)
 Corolla only sparsely pilosulous. Colombia...27. *B. maxima*.
 Leaf blades elliptic or oblanceolate, not over 7 cm wide; stems hirsute; flowers fewer than 10 in a cluster (except in no. 40).
 Blades oblanceolate; calyx lobes linear-lanceolate, narrowed to a filiform apex. Costa Rica.....36. *B. trichostegia*.

Blades elliptic; calyx lobes ovate or lanceolate, acute or short-acuminate.

Calyx lobes ovate, 9.5 mm long, united for one third their length, orange without, green within, the tips recurved.

Bolivia.....37. *B. montana*.

Calyx lobes lanceolate, not over 6 mm long, free, the tips not recurved.

Corolla tube ventricose upwardly, sparsely pilose, the lobes small, nearly equal.

Leaf blades entire. Bolivia.....38. *B. boliviana*.

Leaf blades minutely crenulate. Colombia.

39. *B. leucostoma*.

Corolla tube cylindric, densely tomentose, the lobes relatively large, somewhat unequal. Colombia.

40. *B. cinnabarina*.

2. PEDUNCULATAE. Folia saepe subintegra vel denticulata; pedunculus communis saepe elongatus, pedicellis umbellatis vel subcorymbosis; calycis lobi integri, saepe liberi, saepe obtusi vel rotundati, 2.5–7.5 mm longi, intus glabri; corolla erecta ecalcarata plus minusve ventricosa, fauce contracta, limbo terminali, fere regulari; discus saepe annularis vel semiannularis, glaber. Typus: *B. variabilis* Morton.

A. Stems and leaves hirsute.

Calyx lobes and corolla tube glandular-pilose. Calyx lobes acute, mucronate; ovary hairy. So. Brazil.....96. *B. grandifolia*.

Calyx lobes and corolla tube not glandular.

Corolla tube glabrous externally; calyx lobes suborbicular, rounded at apex; ovary and style glabrous. Colombia.....31. *B. fecunda*.

Corolla tube densely pilosulous externally; calyx lobes linear-lanceolate, acuminate; ovary and style pilosulous. Bolivia.....41. *B. sprucei*.

AA. Stems and leaves lanate-tomentose, appressed-pubescent, or glabrate.

B. Corolla tube glabrous externally. Ovary glabrous.

Stems lanate-tomentose or densely sericeous; leaf blades persistently tomentulose on the lower surface, the veins usually reticulate. Calyx lobes not mucronate.

Calyx lobes narrowly oblong, densely strigillose, not veiny.

Petioles 15–23 mm long. Colombia.....42. *B. reticulata*.

Petioles not over 7 mm long. Colombia.

42a. *B. reticulata* var. *pubistyla*.

Calyx lobes broadly oblong, glabrate, conspicuously veiny. Colombia.

42b. *B. reticulata* var. *venosa*.

Stems strigose or glabrate; leaf blades glabrate or puberulous on the lower surface.

Lobes of calyx mucronate.

Calyx 7.5–14 mm long.

Calyx lobes connate to above middle. Venezuela...46. *B. connata*.

Calyx lobes free or connate only at base. Mexico to South America

91. *B. laxiflora*.

Calyx 3–5 mm long.

Inflorescence subcorymbose, many-flowered; leaf veins 8–15 pairs.

Corolla 20 mm long or more.

Corolla yellow, orange, or red.

Outer corolla lobes glabrous or puberulous. Peru, Bolivia.

45. *B. variabilis*.

Outer corolla lobes densely bearded. Peru.

45a. *B. variabilis* f. *barbatula*.

Corolla greenish-white. Peru... 45b. *B. variabilis* f. *pallida*.

Corolla 13-16 mm long. Venezuela and Colombia. 44. *B. affinis*.

Inflorescence usually umbellate, few-flowered; leaf veins 5-8 pairs.

Leaf blades serrulate. Venezuela..... 47. *B. mucronata*.

Leaf blades subentire. Peru..... 43. *B. lucida*.

Lobes of calyx not mucronate.

Corolla white, 5-6 mm long; primary leaf veins 16-18 pairs. Peru.

48. *B. minutiflora*.

Corolla yellow or red (rarely white), more than 1 cm long; leaf veins 5-13 pairs.

Disk reduced to an emarginate posterior gland. Corolla pale yellow; peduncles shorter than the pedicels; leaf blades not over 3 cm wide. Colombia..... 49. *B. kalbreyeri*.

Disk annular.

Corolla 10-11 mm long, the tube cylindric, not ventricose; leaf blades puberulous on the lower surface. Venezuela.

50. *B. clivorum*.

Corolla 13 mm long or usually more, the tube ventricose; leaf blades glabrous or sparingly strigillose on the lower surface.

Peduncle 5-many-flowered, the inflorescence subcorymbose.

Corolla lacking a hairy ring within.

Calyx lobes about 3 mm long, not veiny. Colombia.

51. *B. decipiens*.

Calyx lobes 4-10.5 mm long, conspicuously veiny.

Corolla red; calyx lobes 4-7 mm long, orbicular; leaf veins 6-8 pairs; filaments and anthers stipitate-glandular.

Peru..... 52. *B. tetragularis*.

Corolla white; calyx lobes 8.5-10.5 mm long, oblong; leaf veins 11-13 pairs; androecium eglandular. So. Brazil.

95. *B. seloana*.

Peduncle 1-3-flowered.

Corolla with a hairy ring within; peduncles 2- or 3-flowered; leaf blades up to 20 cm long and 8.5 cm wide. Colombia.

53. *B. elegans*.

Corolla lacking a hairy ring within; peduncles 1-flowered; leaf blades not over 8 cm long and 2.7 cm wide. Costa Rica.

59. *B. formosa*.

BB. Corolla tube pilose or puberulous externally.

Ovary glabrous; peduncles much longer than the pedicels.

Corolla tube with a hairy ring within, the throat glabrous within. Calyx lobes mucronate.

Tube of corolla 8.5 mm wide at middle; calyx lobes united for about one third their length. Bolivia..... 54. *B. rotundifolia*.

Tube of corolla 3.5 mm wide at middle; calyx lobes nearly free. Peru.

55. *B. concolor*.

Corolla tube lacking a hairy ring within, the throat stipitate-glandular within.

Corolla red; calyx lobes 4-7 mm long, rounded, prominently veiny.

Peru..... 52. *B. tetragularis*.

Corolla ochroleucous; calyx lobes 3-4 mm long, acutish, submucronate, not veiny. Peru..... 56. *B. pallidiflora*.

Ovary pilose; peduncles equaling or shorter than the pedicels. Corolla orange or red.

Corolla limb (15 mm) broader than the length of the tube; peduncle very short (3 mm), bearing a single pedicel. Panama...57. *B. amabilis*.

Corolla limb (9 mm or less) much shorter than the length of the tube; peduncles often longer, 1-many-flowered.

Calyx lobes suborbicular, rounded at apex, strongly imbricate.

Pedicels umbellate or subcorymbose. Costa Rica...58. *B. triflora*.

Pedicels solitary. Colombia.....58a. *B. triflora* var. *australis*.

Calyx lobes ovate, acute, scarcely imbricate. Colombia. 10. *B. nemorosa*.

3. **COMOSAE.** Pubescentia hirsuta; folia membranacea, integra; pedicellus solitarius; calycis lobi liberi, argute serrati, intus glabri; corolla coccinea, utrinque longe pilosa; ovarium glabrum; discus in glandulam posticam solitariam oblongam haud annularem reductus. Typus: *B. comosa* Morton.

A single species. Ecuador.....60. *B. comosa*.

4. **MIRIFICAE.** Frutices hirsuti; folia magna membranacea serrata; calycis lobi liberi subulato-mucronati; corolla lutea vel aurantiaca; ovarium glabrum; discus annularis. Typus: *B. mirifica* Morton.

A single species. Colombia.....61. *B. mirifica*.

5. **MEXICANAE.** Frutices; folia subintegra; calycis lobi lineari-lanceolati inaequales, longissimus corolla longior; discus semiannularis. Typus: *B. deflexa* (Oerst.) Hanst.

Stems and leaves strigose. Mexico.....62. *B. deflexa*.

Stems and leaves hirsute. Mexico.....63. *B. cyrtanthemum*.

6. **CONFERTAE.** Pedunculus communis obsoletus, pedicellis in axillis aggregatis; calycis lobi fere liberi (numeris 64 et 87b exceptis), saepe acuti vel acuminati, 7.5 (6)–17 mm longi; corollae tubus calyce non duplo longior, ecalcaratus erectus, fauce contracta, limbo terminali parvo regulari; discus annularis vel semiannularis. Typus: *B. immitis* Morton.

Calyx lobes connate to middle, acuminate or filiform.

Upper leaf surface tuberculate; ovary villous. Colombia.

64. *B. tuberculata*.

Upper leaf surface smooth; ovary glabrous. Peru.

87b. *B. peruviana* var. *dissimilis*.

Calyx lobes free or nearly so.

Leaf blades subcoriaceous.

Calyx lobes toothed; ovary villous at apex. Corolla red-villous. Costa Rica.....65. *B. columnneoides*.

Calyx lobes entire; ovary glabrous.

Corolla lobes bearded.

Pubescence of stems, petioles and leaf blades appressed. Disk annular.

Petioles not over 4 cm long; leaf blades oblanceolate. Peru and Amazonian Brazil.....66. *B. ignea*.

Petioles 7–10 cm long; leaf blades elliptic. Peru.

66a. *B. ignea* var. *mexiae*.

Pubescence hirsute.

Disk annular. Peru.....66b. *B. ignea* var. *loretensis*.

Disk semiannular. Colombia...66c. *B. ignea* var. *semiannularis*.

Corolla lobes merely ciliolate.

Pedicels and calyx lobes densely villous. Dominica.

67. *B. petiolaris*.

Pedicels and calyx lobes sericeous. Costa Rica.....68. *B. robusta*.

Leaf blades membranous.

Stems, petioles, and leaf blades sparingly strigose. Corolla yellow.

Corolla densely villous. Peru.....69. *B. citrina*.

Corolla glabrous or only sparingly pilosulous.

Corolla glabrous. Peru.....70. *B. membranacea*.

Corolla pilosulous.

Calyx lobes about 8.5 mm long; pedicels 5 mm long or less. So.
Brazil.....71. *B. cuneata*.

Calyx lobes 12-17 mm long; pedicels 12-17 mm long. So.
Brazil.....72. *B. melancholica*.

Stems, petioles, and leaf blades hirsute.

Calyx lobes pubescent on both sides.

Calyx lobes membranous, broadly ovate, 7-9 mm wide. So. Brazil.
73. *B. symphytum*.

Calyx lobes thicker, linear-lanceolate, not over 2 mm wide. Venezuela.
76. *B. disgrega*.

Calyx lobes glabrous within.

Corolla glabrous externally.

Leaf blades cuneate at base, sharply serrate; corolla yellow or orange.
So. Brazil.....74. *B. meridionalis*.

Leaf blades rounded at base, merely denticulate; corolla white.
Peru.....77. *B. furva*.

Corolla hairy externally. Leaf blades entire or nearly so (except in
no. 80).

Ovary glabrous.

Calyx lobes ovate-lanceolate, 12-17 mm long; corolla whitish or pale
yellow. So. Brazil.....75. *B. fasciculata*.

Calyx lobes lanceolate or linear-lanceolate, 7.5-13 mm long; corolla
orange.

Corolla with a hairy ring within; leaf veins not impressed above.
Colombia.....78. *B. riparia*.

Corolla lacking a hairy ring within; leaf veins strongly impressed
above. Colombia.....79. *B. impressa*.

Ovary hairy.

Corolla red, with a hairy ring within. Calyx lobes entire; leaves
serrulate. Colombia and Peru.....80. *B. immitis*.

Corolla lacking a hairy ring within (no. 36 might be looked for here).
Calyx lobes toothed; corolla yellow; leaf blades subentire. Peru.
81. *B. compta*.

Calyx lobes entire; corolla orange or red; leaf blades serrate.
Panama.....86a. *B. pauciflora* var. *uniflora*.

7. *ELONGATAE*. Pedunculus communis elongatus, pedicellis umbellatis vel subcorymbosis; calycis lobi liberi vel ad medium connati, saepe integri, 10-17 mm longi (7-8.5 mm in numeris 91, 96 et 97), saepe acuminati; corolla erecta ecalcarata ventricosa, fauce contracta, limbo terminali, fere regulari; discus glaber, saepe annularis. Typus: *B. elongata* Urban.

Corolla pubescent externally.

Stems and leaves hirsute.

Ovary pubescent, at least at apex; calyx lobes free.

Corolla with a hairy ring within; calyx lobes glabrous within, mucronate.

Mucro much exceeding apex of sepal; corolla long-pilose externally;
leaf blades acuminate, cuneate at base, not over 13 cm long and
6 cm wide. Peru.....82. *B. capitata*.

- Mucro not reaching apex of sepal; corolla minutely but densely hirtopuberulous; leaf blades rounded at apex and base, 17–26 cm long, 8–15 cm wide. Peru.....83. *B. racemosa*.
- Corolla lacking a hairy ring within; calyx lobes hirsute on both sides, linear-lanceolate, not mucronate. Panama to Bolivia.
86. *B. pauciflora*.
- Ovary glabrous; calyx lobes united to middle. Peru....87. *B. peruviana*.
- Stems and leaves strigillose. Ovary glabrous; calyx lobes united to middle. Bolivia.....85. *B. ovalifolia*.
- Corolla glabrous externally.
Ovary pubescent.
- Leaf blades elevated and strongly reticulate beneath; disk semiannular or reduced to a posterior gland.
Outer calyx lobe much longer and broader than the others. Colombia.
98. *B. heterosepala*.
- Outer calyx lobe conform with the others. Colombia.
99. *B. subcarnosa*.
- Leaf veins not strongly elevated or reticulate; disk annular. So. Brazil.
96. *B. grandifolia*.
- Ovary glabrous.
Calyx lobes united to middle, long-acuminate.
Stems and leaves hirsute.
Peduncles shorter than the petioles or pedicels. French Guiana.
88. *B. patrisii*.
- Peduncles much longer than the petioles or pedicels. Peru.
87a. *B. peruviana* var. *occulta*.
- Stems and leaves appressed-pubescent.
Corolla limb slightly bilabiate, 15–16 mm wide. Bolivia.
100. *B. longipedunculata*.
- Corolla limb regular, 6–11 mm wide.
Leaf blades serrate. British Guiana.....89. *B. verecunda*.
- Leaf blades subentire or merely denticulate. Peru.
90. *B. divaricata*.
- Calyx lobes free or united only near base.
Stems and leaves hirsute-tomentose; corolla lobes long-ciliate. Peru.
84. *B. trichiata*.
- Stems and leaves puberulous or glabrate; corolla lobes glabrous or ciliolate.
Calyx lobes suborbicular, lacking a midrib. Venezuela.
97. *B. rhytidophyllum*.
- Calyx lobes oblong, ovate-lanceolate, or lanceolate, the midrib usually prominent.
Leaf blades, peduncles, and pedicels entirely glabrous at maturity.
Corolla yellow. Costa Rica.....92. *B. macropoda*.
- Leaf blades, peduncles and pedicels at least slightly puberulous.
Corolla orange or red; leaf blades with 5–8 (rarely 10) pairs of lateral veins. Mexico to South America....91. *B. laxiflora*.
- Corolla white or yellow; lateral veins 7–13 pairs.
Calyx lobes acuminate or acute.
Leaf blades toothed. St. Vincent.....93. *B. elongata*.
- Leaf blades entire. So. Brazil.....94. *B. umbrosa*.
- Calyx lobes rounded. Corolla white. So. Brazil.
95. *B. selleana*.

8. TYPICAE. Folia serrata, ovata vel elliptico-oblonga, membranacea, subtus strigilosa vel glabrata; pedunculus communis obsoletus, pedicellis paucis axillaribus; calyx cylindricus vel urceolatus, lobis alte connatis integris acutis; corolla lutea vel ochroleuca, erecta ecalcarata ventricosa, fauce contracta, limbo terminali regulari; gynaeceum glabrum; discus annularis glaber. Typus: *B. lutea* L.

Calyx urceolate, glabrate or strigillose. West Indies.....101. *B. lutea*.

Calyx cylindric, hirto-puberulous. British and French Guiana.

102. *B. insolita*.

Section II. NEOBESLERIA Morton, sect. nov.

Herbae vel frutices, caulibus lanato-tomentosis vel strigillosis raro hirsutis; folia opposita, saepe serrata acuminata membranacea; pedunculus communis saepe elongatus; calycis lobi liberi, saepe dentati; corolla horizontalis postice calcarata; discus saepe postice crassior, saepe pubescens. Typus: *B. corallina* Fritsch.

KEY TO SUBSECTIONS

Common peduncle elongate, much exceeding the pedicels in length.

Corolla limb not spotted.

Disk not thickened posteriorly, glabrous.....9. PENDULAE.

Disk thickened posteriorly, or reduced to a posterior gland, pubescent (except in *B. corallinoides*).

Corolla scarlet, contracted in throat; ovary glabrous; calyx lobes strongly imbricate.

Calyx lobes toothed, pubescent on both sides; corolla puberulous or pilosulous externally; leaf blades strongly toothed...10. CORALLINAE.

Calyx lobes entire, glabrous; corolla glabrous; leaf blades entire or denticulate (except in *B. imbricans* var. *arguta*)...11. IMBRICATAE.

Corolla yellow, not contracted in throat; ovary pubescent; calyx lobes slightly imbricate.....12. WENDLANDIANAE.

Corolla limb purple-spotted.....13. MACULATAE.

Common peduncle obsolete.

Corolla limb regular, not over 10 mm wide; ovary glabrous; pubescence appressed.....14. AXILLARES.

Corolla limb bilabiate, 35 mm wide; ovary pilose; pubescence hirsute

15. HERBACEAE.

9. PENDULAE. Caules sericeo-strigosi; folia subintegra vel parum denticulata, venis 4-9-jugis; pedunculus communis pendulus (*B. floribunda* excepta), pedicellis multo brevioribus; calycis lobi liberi integri utrinque plus minusve pilosuli; corolla flava calcarata horizontalis, fauce non contracta, limbo terminali subregulari; ovarium pubescens; discus annularis glaber. Typus: *B. penduliflora* Fritsch.

Common peduncle erect. Calyx lobes pilosulous in a median line. Colombia.

103. *B. floribunda*.

Common peduncle pendulous, very slender.

Calyx lobes pilosulous over the whole surface; corolla 35-40 mm long; leaf blades densely hairy on both surfaces. Venezuela.

104. *B. penduliflora*.

Calyx lobes pilosulous only at base; corolla 17-24 mm long; leaf blades sparingly strigose. Venezuela.....105. *B. pendula*.

10. CORALLINAE. Caules dense tomentosi; folia serrata vel crenata, venis 9-11-jugis; pedunculus communis erectus, pedicellis multo brevioribus; calycis lobi liberi ovati imbricati serrati vel denticulati, utrinque pubescentes; corolla coccinea

horizontalis calcarata pubescens, fauce contracta, limbo terminali parvo regulari; ovarium glabrum; discus postice crassior saepe pubescens. Typus: *B. corallina* Fritsch.

Disk gland glabrous; filaments and anthers slightly pilose; corolla only slightly spurred. Ecuador.....107. *B. corallinoidea*.

Disk gland puberulous or pilosulous; androecium glabrous; corolla strongly spurred at base.

Calyx lobes incised-serrate. Peru.....106. *B. corallina*.

Calyx lobes merely denticulate.

Calyx lobes 5.5 mm long; leaf blades serrate, appressed-pubescent on the veins beneath. Colombia.....108. *B. sylvarum*.

Calyx lobes 7-9 mm long; leaf blades crenate, hirsute on the veins beneath. Colombia.....109. *B. crenata*.

11. IMBRICATAE. Frutices, caulibus minute puberulis, mox glabris; folia saepe subintegra, venis 14-17-jugis; pedunculus communis elongatus, pedicellis multo brevioribus; calycis lobi liberi imbricati inaequales integri glabri; corolla coccinea horizontalis calcarata glabra, fauce contracta, limbo terminali parvo regulari; ovarium glabrum; discus postice crassior pubescens. Typus: *B. imbricans* Donn. Smith.

Leaf blades rounded at base and toward apex, the apex itself short-cuspidate; corolla 3 cm long or more, the spur 8 mm long; calyx lobes about 14 mm long. Panama.....110. *B. panamensis*.

Leaf blades acute at base and apex; corolla 1.5 cm long, the spur 1.2-2.5 mm long; calyx lobes 7-10 mm long.

Blades entire; corolla spur not hooked. Costa Rica.....111. *B. imbricans*.

Blades serrate; corolla spur a little hooked. Costa Rica.

111a. *B. imbricans* var. *arguta*.

12. WENDLANDIANAE. Frutices, caulibus tomentosus vel strigillosus; folia serrata vel parum denticulata, appresso-pubescentia; pedunculus communis elongatus, pedicellis multo brevioribus; calycis lobi liberi acuminati serrati non imbricati; corolla flava horizontalis calcarata externe parce pilosula, fauce non contracta, limbo terminali regulari parvo non purpureo-maculato; ovarium pubescens; discus postice crassior pubescens. Typus: *B. wendlandiana* Hanst.

Corolla tube not ventricose, the spur short; common peduncle pubescent. Leaf blades serrate. Costa Rica.....112. *B. wendlandiana*.

Corolla tube strongly ventricose; peduncles glabrous.

Corolla spur about 3 mm long; leaf blades merely denticulate. Colombia.

113. *B. columbiana*.

Corolla spur about 6 mm long; leaf blades sharply serrate. Colombia.

113a. *B. columbiana* var. *arguta*.

13. MACULATAE. Frutices, caulibus tomentosus vel strigillosus; folia serrata, venis 8-15-jugis; pedunculus communis elongatus, pedicellis multo brevioribus; calycis lobi liberi acuminati intus glabri; corolla flava et purpureo-maculata, horizontalis, calcarata, fauce non contracta, limbo bilabiato; discus postice crassior pubescens. Typus: *B. rupestris* Morton.

Stems densely lanate-tomentose; calyx lobes toothed; ovary villous. Colombia, Ecuador & Peru.....114. *B. rupestris*.

Stems sparsely strigillose; calyx lobes entire; ovary glabrous. Costa Rica.

115. *B. acropoda*.

14. AXILLARES. Herbae, caulibus strigillosis; folia denticulata strigillosa, venis 9-jugis; pedunculus communis obsoletus, pedicellis axillaribus; calycis lobi liberi oblongi integri non imbricati; corolla horizontalis, calcarata, fauce contracta, limbo terminali parvo regulari; ovarium glabrum; discus postice crassior glaber. Typus: *B. gibbosa* (Poepp.) Hanst.

Corolla white or yellow; ovary glabrous; disk thickened posteriorly.

Calyx lobes glabrous within; corolla white, 24–30 mm long. Amazonian Brazil.....116. *B. gibbosa*.

Calyx lobes puberulous on both sides; corolla yellow, about 16 mm long. Guatemala.....117. *B. flava*.

Corolla scarlet; ovary pubescent; disk annular, regular. Ecuador.

6. *B. miniata*.

15. HERBACEAE. Herbae parvae, caulibus hirsutis; folia serrata hirsuta; pedunculus communis obsoletus, pedicello solitario axillari; calycis lobi liberi integri; corolla alba horizontalis calcarata externe pilosula, tubo deflexo, fauce ampliata, limbo terminali 25 mm lato bilabiato; ovarium pilosum; discus postice crassior pubescens. Typus: *B. herbacea* Morton.

A single species. Colombia.....118. *B. herbacea*.

Section III. RHYNCHOBESLERIA (Hanst.) Benth. & Hook.

Caules saepe appresso-pubescentes; folia saepe dentata; pedunculus communis nullus vel obsoletus; calycis lobi liberi; corollae tubus sursum ampliatus, fauce non contracta, limbo terminali bilabiato 16–35 mm lato; ovarium saepe pubescens; discus glaber. Typus: *B. labiosa* Hanst.

KEY TO SUBSECTIONS

Disk reduced to a bilobed posterior gland; leaf blades linear-lanceolate, 7–15 mm wide.....16. SALICIFOLIAE.

Disk annular (semiannular in *B. longipes*); leaf blades oblong to broadly elliptic.

Common peduncle none, the pedicels solitary; leaf blades not pellucid-punctate.....17. SOLITARIAE.

Common peduncle vestigial, the pedicels 2–4 in the axils; leaf blades often pellucid-punctate.....18. LABIATAE.

16. SALICIFOLIAE. Herba appresso-pubescentis; folia lineari-lanceolata, integra, venis 3–5-jugis; pedunculus communis obsoletus, pedicellis solitariis vel binis; calycis lobi lineari-lanceolati integri; corolla externe pilosula, intus basin versus anulum pilosum gerens; filamenta basi pilosa; ovarium pilosum; discus in glandulam bilobam reductus. Typus: *B. salicifolia* Fritsch.

A single species. Colombia.....119. *B. salicifolia*

17. SOLITARIAE. Folia elliptica, strigosa vel hirsuta; pedunculus communis nullus, pedicellis solitariis; calycis lobi ovati vel lanceolati, saepe serrati. Typus: *B. princeps* Hanst.

Leaf blades entire, tuberculate above, hirsute; corolla with a hairy ring within near base; filaments and anthers pilosulous. Costa Rica.

120. *B. princeps*.

Leaf blades serrate, not tuberculate, strigose; corolla lacking a hairy ring within; androecium glabrous.

Calyx lobes serrate; corolla orange; leaf veins 12 or 13 pairs. Costa Rica.

121. *B. barbensis*.

Calyx lobes entire; corolla white; leaf veins 4 or 5 pairs. Tobago.

122. *B. seitzi*.

18. LABIATAE. Caules glabri vel appresso-pubescentes; folia elliptico-oblonga vel oblongo-ovata, integra vel serrata vel dentata, opaca vel pellucido-punctata, venis 4-12-jugis; pedunculus communis obsoletus, pedicellis 2-4 axillaribus; calycis lobi integri vel undulati; corolla rubra vel flava, 20-40 mm longa, utrinque glabra; ovarium glabrum vel pubescens. Typus: *B. labiosa* Hanst.

Leaf blades membranous, pellucid-punctate, toothed; corolla yellow, 35-40 mm long.

Calyx lobes suborbicular, 8-9 mm long. Venezuela.....125. *B. labiosa*.

Calyx lobes oblong-lanceolate, 15-18 mm long. Trinidad...124. *B. longipes*.

Leaf blades coriaceous, opaque, entire; corolla orange-red, 20 mm long. Colombia.
123. *B. crassa*.

Section IV. GASTERANTHUS (Benth.) Benth. & Hook.

Herbae vel frutices; folia saepissime serrata vel dentata; pedunculus communis elongatus, vel raro obsoletus, uniflorus vel saepe multiflorus; calycis lobi ovati vel lanceolati, interdum utrinque pubescentes; corolla saepe calcarata, ventricosa, saepe pubescens, limbo laterali haud terminali; ovarium saepissime plus minusve pubescens; discus postice crassior vel in glandulam posticam reductus, glaber vel pubescens. Typus: *B. quitensis* (Benth.) Hanst.

Corolla not spurred, erect in calyx; leaves subrosulate.....137. *B. anomala*.

Corolla spurred, horizontal in calyx; leaves subremote, strictly opposite.

Pedicels solitary.

Filaments puberulous; leaf blades linear-oblong, not over 1.8 cm wide, sinuate-dentate; peduncle and pedicel glabrous. Ecuador.

134. *B. perennis*.

Filaments glabrous; leaf blades obovate-oblong, at least 4 cm wide, serrate; peduncle and pedicel canescent or tomentose.

Stems closely canescent. Guatemala.....135. *B. pansamalana*.

Stems tomentose. Ecuador.....136. *B. ecuadorensis*.

Pedicels umbellate or subcorymbose.

Disk glabrous.

Stems and leaves hirsute; leaf blades serrate; calyx lobes denticulate.

Calyx lobes hirsute, 5-7 mm long; leaf blades hirsute on the upper surface. Colombia and Ecuador.....126. *B. calcarata*.

Calyx lobes glabrate, about 10 mm long; leaf blades glabrate on the upper surface. Ecuador.....127. *B. quitensis*.

Stems and leaves tomentose or strigillose; leaf blades dentate; calyx lobes entire. Ecuador.....128. *B. calceolus*.

Disk pubescent.

Corolla orange, long-pilose. Ecuador.....129. *B. timida*.

Corolla scarlet, glabrous or minutely puberulous.

Ovary strongly compressed, pilosulous on the margins; leaf blades rounded at apex; young stems, peduncles, calyx lobes, and leaf veins beneath villous-tomentose. Corolla 35 mm long. Ecuador.

130. *B. venusta*.

Ovary not compressed, puberulous all over or glabrous; leaf blades acuminate at apex; stems, peduncles, calyx lobes, and leaf veins lanate-tomentose or merely strigillose.

Peduncles 16-17 cm long; ovary entirely glabrous; corolla 30-35 mm long. Ecuador.....131. *B. lateralis*.

Peduncles 3-7 cm long; ovary puberulous; corolla 17-22 mm long.

Calyx lobes 4-6 mm long, rounded. Ecuador.

132. *B. oncogastra*.

Calyx lobes 6.5-9 mm long, acuminate. Colombia.

133. *B. tincta*.

1. *Besleria solanoides* H. B. K. Nov. Gen. & Sp. 2: 398. 1818.*Besleria acutifolia* Benth. Plant. Hartw. 237. 1846.*Parabesleria costaricensis* Oersted, Centralamer. Gesn. 53. pl. 6, fig. 9-13. 1858.*Besleria costaricensis* Hanst. Linnæa 34: 330. 1865.

Shrub 1.5-3 m high; stems strigose upwardly, almost glabrous below; petioles 5 cm long or less; leaf blades elliptic, up to 15 cm long and 5.5 cm wide, cuneate at base, inconspicuously denticulate, strigillose on the veins beneath, otherwise glabrous or nearly so, the primary veins 6-8 pairs; pedicels few, up to 2 cm long; calyx lobes oblong, 3-4 mm long, obtuse, free, membranous, not concave, faintly nerved, nearly glabrous, ciliolate; corolla orange, 13-15 mm long, erect, not calcarate or saccate at base, ventricose upwardly, glabrous externally, lacking a hairy ring within; androecium glabrous; ovary and style glabrous; disk entire; berry orange.

TYPE: Popayán, Dept. El Cauca, Colombia, *Humboldt & Bonpland* (B).

RANGE: Honduras to Peru, and West Indies.

ADDITIONAL SPECIMENS EXAMINED:

HONDURAS: El Achote, *Yuncker, Dawson & Youse* 6245 (F, S).

COSTA RICA: *Oersted* (Co), type of *B. costaricensis*. Santa María de Dota, Prov. San José, *Standley* 41749 (F, W), 41840 (W), 42416 (W); *Stork* 3015 (F). Los Ayotes, Prov. Guanacaste, *Standley & Valerio* 45367 (W). La Ventolera, on Volcán de Poás, Prov. Alajuela, *Standley* 34738 (W). Irazú, Prov. San José, *Pittier* 13041 (K). Naranjo Prov. Alajuela, *Stork* 1844 (F).

PANAMA: El Boquete, Chiriquí, *Maxon* 4953 (F, W); *Pittier* 2972 (W).JAMAICA: *Wright* (K).DOMINICA: *Anderson* (K).VENEZUELA: Mérida, *Moritz* 1491 (B).

COLOMBIA: Without specific locality, *Linden* 1114 (K); *Triana* s. n. (K). SANTANDER: Vicinity of El Roble, *Killip & Smith* 19371 (W). BOYACÁ: Caldas, *Dawe* 785 (K, W, Y); Mount Chapón, *Lawrance* 262 (B, F, K, S, W). TOLIMA: Medación, *André* 2056 (K); Libano, *Pennell* 3400 (Y). ANTIOQUIA: Titiribí, vicinity of Medellín, *Toro* 502 (Y); Angelópolis, *Toro* 902 (Y); Fredonia, *Toro* 851 (Y); Armeria, *Toro* 225 (Y); Sousón, *Lopez (Archer)* 398, (W); Santa Elena, *Archer* 634 (W). CALDAS: Canaan, south of Salerito, *Pennell* 9077 (G, P, W, Y). EL VALLE: Between Las Hojas and Río Dagua, *Triana* 2467 (B, K, W); hills of Miraflores, above Palmira, *Pittier* 899 (W); La Cumbre, *Killip & Hazen* 11119 (P, W); Miraflores, Palmira, *Killip* 6129 (Y), 6145 (P, W, Y). EL CAUCA: La Gallera, Micay Valley, *Killip* 7900 (P, Y); plateau of Popayán, *Lehmann* 4947 (F, G, K, W), 4761 (K); *André* K 1496 (K, Y); *Hartweg* 1276 (K), type of *B. acutifolia*; Río Ortega, north of Tambo, *Pennell & Killip* 8065 (P). El Tambo, *Sneidern* 592 (S), 898 (S).

PERU: Tambillo, *Jelski* 24 (B).1a. *Besleria solanoides* var. *tenera* Morton, Field Mus. Publ. Bot. 18: 1155. 1938.

Differs from the typical variety in the slightly puberulous corolla and in the pilose ovary.

TYPE: Cerro de La Carpintera, Prov. Cartago, Costa Rica, altitude 1,500-1,850 meters, *Standley* 35554 (W).

RANGE: Costa Rica and Colombia, at 1,400 to 1,850 meters elevation.

ADDITIONAL SPECIMENS EXAMINED:

COSTA RICA: Type locality, *Standley* 34394 (W). Estrella, Prov. Cartago. *Cooper* 5879 (G, K, W).

COLOMBIA: Quindío, *Goudot* (K). Without specific locality, *W. Bull* (K).

1b. *Besleria solanoides* var. *parvifolia* Morton, var. nov.

A var. *typica* foliis multo minoribus (3.5–9 cm longis, 1–2 cm latis), caulibus scabriusculis differt.

Differs from the typical variety in the much smaller leaf blades (3.5–9 cm long, 1–2 cm wide) and in the subscabrous stems.

Type in the Gray Herbarium, collected in highlands of Popayán, Department of El Cauca, Colombia, altitude 1,600–1,900 meters, February 1886, by F. C. Lehmann (no. B. T. 1075). Duplicates at Kew and the Field Museum.

RANGE: Southern Colombia, at 1,500 to 2,000 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Popayán, *Lehmann* B. T. 674 (K, Y).

2. *Besleria lehmannii* Fritsch, Notizbl. Bot. Gart. Berlin 11: 967. 1934.

Shrub up to 3 m high; stems substrigose at apex, soon glabrate; petioles about 1 cm long; leaf blades narrowly elliptic, 7–10 cm long, 3–4 cm wide, cuneate at base, inconspicuously denticulate, strigillose beneath, the primary veins about 7 pairs; pedicels few, up to 2 cm long; calyx lobes ovate, about 4 mm long, nearly free, rounded, coriaceous, entire, strigillose, ciliolate; corolla orange-scarlet, about 12 mm long, erect, not spurred or saccate, almost cylindrical, the tube about 3 mm wide, glabrous, lacking a hairy ring within; androecium glabrous; ovary and style glabrous; disk annular.

TYPE: Cordillera de Belalcazar, Dept. El Cauca, Colombia, *Lehmann* 7217 (B).

RANGE: Southern Colombia, at 1,200 to 1,600 meters elevation.

ADDITIONAL SPECIMEN EXAMINED: Type collection (K, W).

3. *Besleria delvillari* Cuatr. Trab. Mus. Cienc. Nat. & Jard. Bot. Madrid, Bot. 29: 11. 1935.

Stems sericeous at apex, glabrate below; petioles up to 15 mm long; leaf blades elliptic, about 8 cm long and 3.5 cm wide, membranous, cuneate at base, entire, puberulous on the veins beneath, the primary veins about 7 pairs; pedicels few, 1 cm long or less; calyx lobes suborbicular, about 5.5 mm long, much imbricate, united toward base, membranous, entire, rounded, not mucronate, venose, strigillose externally, ciliolate; corolla 15–17 mm long, erect, not saccate at base, the tube 6–8 mm wide, ventricose upwardly, glabrous, lacking a hairy ring within; ovary and style pilosulous.

TYPE: Cuesta del Sacrificio, Nevada del Tolima, Dept. Tolima, Colombia, *Cuatrecasas* 2048.

RANGE: Colombia, at 2,100 meters elevation.

SPECIMENS EXAMINED: Type collection (B, F).

A critical species, without any very distinctive characters. It differs from *B. acutifolia* in its pubescent ovary and broader corollas.

4. *Besleria modica* Morton, Proc. Biol. Soc. Washington 48: 58. 1935.

Shrub; stems densely strigose; petioles strigose, up to 4 cm long; leaf blades elliptic, up to 10 cm long and 4.5 cm wide, cuneate at base, entire (the margin revolute), subtomentose, strigillose on the veins beneath, the primary veins about 5 pairs; pedicels numerous, about 1 cm long; calyx lobes connate at base, oval, about 4 mm long, rounded, venose, strigillose externally; corolla reddish, 9–10 mm long, erect, not spurred, the tube inflated, essentially glabrous without, lacking a hairy ring within; ovary and style puberulous; disk annular.

TYPE: Zaruma, Province of Oro, Ecuador, *Hitchcock* 21201(W).

RANGE: Ecuador, at 1,000 to 2,550 meters elevation.

ADDITIONAL SPECIMEN EXAMINED: Saloya Valley, Quito, *Diels* 838 (B).

5. *Besleria microphylla* Fritsch, Repert. Sp. Nov. Fedde 18: 8. 1922.

Herb or shrub; stems densely appressed-pilose; petioles 1 to 10 (rarely 40) mm long; leaf blades oblanceolate, usually very small and not over 4.5 cm long

and 1 cm wide, but sometimes up to 10 cm long and 3.4 cm wide, attenuate at base, entire, membranous, strigose beneath on veins, the primary veins about 5 pairs (rarely 8); pedicels few, 5 mm long or less; calyx lobes lanceolate, 4–5 mm long, equal, acuminate, entire, not conspicuously venose, strigose externally, glabrous within; corolla orange, 12–14 mm long, erect, slightly saccate at base, a little ventricose upwardly, sparsely pilosulous externally, lacking a hairy ring within; limb small, regular; androecium glabrous; ovary and style puberulous; stigma bilobed; disk glabrous, annular.

TYPE: Albejoral, Dept. Antioquia, *Lehmann* 4639 (B).

RANGE: Colombia and Ecuador, at 1,600 to 2,500 meters elevation.

ADDITIONAL SPECIMENS EXAMINED:

COLOMBIA: Angelopolis, vicinity of Medellín, Dept. Antioquia, *Toro* 906 (Y). Buenos Aires, north of Supía, Dept. Caldas, *Pennell* 10741 (P). Alto de Taizá, Dept. El Cauca, *Lehmann* 3210 (W).

ECUADOR: Tandacato, Prov. Pichincha, *Holmgren* 464 (S); *Heilborn* 479 (S).

The specimens from Ecuador are atypical.

5a. *Besleria microphylla* var. *serrulata* Morton, var. nov.

A var. *typica* calycis lobis majoribus (ca. 7 mm longis) serrulatis, magis venosis, plus minusve inaequalibus differt.

Differs from the typical variety in the larger (7 mm long), serrulate, more veiny, more or less unequal calyx lobes.

Type in the New York Botanical Garden, collected at Cascada Chorrón, south of Antizales, Department of Bolívar, Colombia, altitude 2,400–2,700 meters, Feb. 25, 1918, by F. W. Pennell (no. 4382).

RANGE: Colombia.

ADDITIONAL SPECIMEN EXAMINED: Dauro, vicinity of Medellín, Dept. Antioquia, *Toro* 1156 (Y).

6. *Besleria miniata* Morton, sp. nov.

Caules quadrangulari strigillosi; petioli breves strigillosi; lamina foliorum elliptico-lanceolata membranacea integra, subtus in venis strigillosa; pedicelli pauci, breves, patentes vel deflexi, strigillosi; calycis lobi ovaes rotundati membranacei integri, fere glabri, albo-ciliati, non mucronati; corolla coccinea horizontalis, paullo calcarata, sursum paullo ventricosa, externe parce pilosa, fauce contracta, lobis parvis aequalibus; ovarium pilosulum; discus annularis; bacca alba.

Shrub up to 3.5 m high, the stems quadrangular, strigillose toward apex, glabrate below; petioles strigillose, up to 1.2 cm long; leaf blades elliptic-lanceolate, 10–12 cm long, 3–4 cm wide, cuneate at base, membranous, entire, glabrous above, strigillose beneath on the veins, the primary veins 4 pairs; common peduncle obsolete, the pedicels few, about 1 cm long, spreading or deflexed, sparingly strigillose; calyx lobes free, oval, 3.5 mm long, 2 mm wide, rounded at apex, not mucronate, thin-membranous, entire, almost glabrous externally, glabrous within, conspicuously white-ciliate; corolla scarlet, about 15 mm long, horizontal in calyx, short-spurred at base (the spur rounded, 2–2.5 mm long), the tube 3 mm wide, upwardly a little ventricose, becoming 4 mm wide, externally with a few scattered hairs, lacking a hairy ring within, the throat a little contracted, the limb terminal, narrow, the lobes small, equal, scarcely 1 mm long; androecium glabrous; ovary pilosulous; style glabrous; disk annular, irregularly lobed, glabrous; berry white, about 7 mm in diameter.

Type in the U. S. National Herbarium, no. 1,705,126, collected at Parroquia de Concepción, Province of Esmeraldas, Ecuador, altitude 105 meters, Dec. 7, 1936, by Ynes Mexía (no. 8410).

7. *Besleria pennellii* Morton, sp. nov.

Suffrutex, caulibus novellis dense pilosulis; petioli substrigosi; lamina foliorum elliptica, integra, basi cuneata, supra strigosa, subtus praecipue in venis dense flavido-strigosa; pedicelli pauci breves pilosuli; calycis lobi oblongi integri aequales, fere liberi, apice rotundati, non mucronati, externe dense strigosi; corolla aurantiaca, erecta, ecalcarata, externe densissime pilosa, non ventricosa, lobis parvis, paullo inaequalibus, pilosis; ovarium pilosum; discus annularis; bacca parva.

Small, scarcely branched shrub, the stems densely short-pilose upwardly, glabrate below; petioles substrigose, up to 2 cm long; leaf blades elliptic, up to 6.3 cm long and 2.5 cm wide, or probably becoming somewhat larger, acute at apex, cuneate at base, entire, strigose above, densely yellowish-strigose beneath, especially on veins; primary veins 7 or 8 pairs; common peduncle obsolete, the pedicels 2-5, pilosulous, 6-10 mm long; calyx lobes oblong, 4.2 mm long, 2 mm wide, equal, almost free, erect, entire, rounded, not mucronate, densely strigose externally, glabrous within; corolla orange, 10-13 mm long, erect in the calyx, not spurred at base, the tube about 5 mm wide, densely pilose externally, glabrous within, not ventricose, the throat hardly contracted, the limb terminal, about 7 mm wide, the lobes small, externally pilose, glabrous and eglandular within, a little unequal, the two posterior 2 mm long, the others 2.5 mm long; androecium glabrous; ovary pilosulous; style glabrous; disk annular, thin, glabrous; berry globose, small, hardly 4 mm in diameter, pilose at apex, the style base persistent.

Type in the Academy of Natural Sciences, Philadelphia, no. 642569, collected on Cerro Tatamá, Department of Caldas, Colombia, altitude 3,200-3,400 meters, Sept. 8-10, 1922, by F. W. Pennell (no. 10487).

During his explorations in Colombia the collector of the present species, who devoted special attention to the Gesneriaceae, made accurate color notes, which are in many cases of great value. I am indebted to him for the loan of almost the entire collection of Gesneriaceae in the Academy of Sciences. *Besleria pennellii* is probably found at the highest altitude of any species of the genus.

8. *Besleria angustiflora* Fritsch, Notizbl. Bot. Gart. Berlin 11:966. 1934.

Tall herb, with slender stems, puberulous toward apex; petioles up to 2 cm long; leaf blades oblanceolate, 15 cm long and 5 cm wide, coriaceous or thick-chartaceous, attenuate at base, entire, strongly discolorous, minutely strigillose on both surfaces, the primary veins 8-10 pairs; pedicels few or numerous, up to 2 cm long; calyx lobes coriaceous, ovate, 3-3.5 mm long, rounded or acutish, glabrous or nearly so, ciliolate, not venose; corolla orange, 12-14 mm long, erect, scarcely ventricose, the tube slender, not over 3 mm wide, glabrous without, sparsely pilosulous within but lacking a hairy annulus, the limb narrow, regular; androecium glabrous; ovary and style strigillose; disk glabrous, annular.

TYPE: Popayán, Dept. El Cauca, Colombia, *Lehmann* 5129 (B).

RANGE: Southern Colombia, at 1,400 to 2,700 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (F, K, W). San José, Dept. El Cauca, *Pennell & Killip* 12132 (P, W, Y). La Paz, Dept. El Cauca, *Lehmann* 9993 (K, W).

9. *Besleria gracilentia* Morton, sp. nov.

Caules fere omnino glabri, pilis microscopicis sparse instructi; petioli breves glabri; lamina foliorum anguste lanceolata, apice gradatim acuminata, basi cuneata, chartacea, integra, fere omnino glabra; pedicelli pauci glabri; calycis lobi suborbiculares, basi connati, rotundati, non mucronati, paullo erosi, glaberrimi, minute ciliolati; corolla aurantiaca erecta ecalcarata, utrinque glabra, paullo ventricosa, lobis parvis, paullo inaequalibus; ovarium glabrum; discus annularis.

Shrub 2 m high, the stems appearing entirely glabrous even when young, a few minute hairs visible at the nodes with high magnification; petioles short, up to 15 mm long, glabrous; leaf blades narrowly lanceolate, up to 11 cm long and 2.3 cm wide, gradually acuminate at apex, cuneate at base, entire, almost glabrous, the primary veins 7-9 pairs; common peduncle nearly obsolete, becoming 1.5 mm long, the pedicels 2 or 3, about 1.5 cm long, glabrous; calyx lobes suborbicular, about 5 mm long, connate at base for 2 mm, rounded, not mucronate, a little erose, entirely glabrous, except the minutely ciliolate margin; corolla orange, 13 mm long, erect, not spurred, the tube 3.5-5 mm wide, entirely glabrous externally, lacking a hairy ring within, a little ventricose upwardly, the throat contracted, the limb terminal, narrow, the lobes small, slightly unequal; androecium glabrous; ovary and style glabrous; disk annular, glabrous.

Type in the Gray Herbarium, collected at Mirador, Province of Huánuco, Peru, altitude 2,400 meters, Nov. 5, 1935, by Ynes Mexía (no. 04136).

10. *Besleria nemorosa* Morton, sp. nov.

Caules apicem versus strigosi, mox glabri; petioli dense appresso-tomentosi; lamina foliorum oblanceolata, basi cuneata, membranacea, integra, subtus in venis subtomentosa; pedunculus communis brevis vel obsoletus, strigillosus, pedicellis paucis, quam pedunculo multo longioribus; calycis lobi ovati, fere liberi, membranacei, acuti, vix mucronati, integri, venosi, strigillosi; corolla erecta ecalcarata, sursum ventricosa, parce pilosula, limbo angusto, lobis subaequalibus; ovarium pilosum; discus annularis.

Stems quadrangular, about 3.5 mm thick, strigose when young, soon glabrate; petioles up to 2 cm long, densely sublanate-tomentose; leaf blades oblanceolate, up to 21 cm long and 7 cm wide, usually smaller, cuneate at base, membranous, entire, glabrous above, subtomentose on the veins beneath, the primary veins 6-8 pairs; common peduncle short (13 mm) or sometimes obsolete, strigillose, the pedicels 2-6, much longer than the peduncle, 2-3 cm long, strigillose, thickened at apex; calyx lobes ovate, 6-6.5 mm long, nearly free, membranous, colored, acute, scarcely mucronate, entire, venose, strigillose externally, glabrous within; corolla 17 mm long, erect, not spurred, a little saccate at base posteriorly, the tube 5-6 mm wide, upwardly ventricose, sparsely pilosulous externally, bearing a puberulous ring within near base, the throat contracted, the limb terminal, about 7 mm wide, the lobes subequal, ciliate; androecium glabrous; ovary and style pilose; disk annular, glabrous.

Type in the herbarium of the Naturhistoriska Riksmuseet, Stockholm, collected in woods at Munchique, Province of El Tambo, Department of El Cauca, Colombia, altitude 2,000 meters, Aug. 27, 1935, by Kjell von Sneidern (no. 474).

RANGE: Southern Colombia, at 2,000 to 2,300 meters elevation.

ADDITIONAL SPECIMEN EXAMINED: Type locality, *Sneidern* 728 (S).

11. *Besleria leucocarpa* Morton, sp. nov.

Caules quadrangulares, novelli strigillosi, vetusti glabri nitidi; petioli elongati crassi strigillosi; lamina foliorum late elliptica vel oblonga, membranacea, integra vel remote denticulata, subtus strigillosa; pedicelli breves strigillosi; calycis lobi suborbiculares liberi puberuli integri rotundati venosi; corolla aurantiaco-rubra erecta ecalcarata puberula, vix ventricosa, lobis patulis parvis; ovarium puberulum; discus annularis; bacca alba.

Herb, the stems quadrangular, strigillose when young, glabrous and shining with age; petioles up to 6.5 cm long, thick, strigillose; leaf blades broadly elliptic or oblong, the largest 28 cm long and 12 cm wide, membranous, entire or remotely denticulate, short-acuminate at apex, cuneate at base, above with a few scattered appressed hairs, beneath strigillose, the primary veins 8-12 pairs; common peduncle obsolete, the pedicels numerous, about 1 cm long, strigillose; calyx

lobes suborbicular, 5 mm long, free, puberulous, entire, rounded, venose; corolla orange-red, 16 mm long, erect, not spurred, puberulous externally, bearing a hairy ring within at insertion of stamens, the tube 6.5 mm wide, scarcely ventricose, the throat somewhat enlarged, the lobes small, spreading; ovary puberulous; disk annular, thick, glabrous; berry white, pubescent, the style base persistent.

Type in the U. S. National Herbarium, no 1,142,396, collected in forest at La Gallera, Micay Valley, Cordillera Occidental, Department of El Cauca, Colombia, altitude 1,400–1,500 meters, June 29–30, 1922, by E. P. Killip (no. 7686).

ADDITIONAL SPECIMENS EXAMINED: Type collection (P, Y).

12. *Besleria pycnosuzygia* Donn. Smith, Bot. Gaz. 52:53. 1911.

Epiphytic shrub, the stems unbranched, strigillose at apex; leaves subequal, petiolate, the petiole up to 2 cm long, the blades oblanceolate, up to 14 cm long and 5 cm wide, acuminate at apex, attenuate at base, subcoriaceous, entire, green above, pale beneath, glabrous above, minutely and sparsely strigillose beneath; flowers fasciculate, the pedicels up to 1 cm long, strigose, the bracts small, oblong; calyx lobes oblong, 7 mm long, erect, obtuse, entire, puberulous externally, pilose within near middle; corolla scarlet, 21–24 mm long, erect in calyx, gibbous at base, long-pilose externally, glandular-pilose within toward base, the tube curved, scarcely ampliate or ventricose, slightly contracted in throat, the limb narrow, about 5 mm wide, regular, the lobes minute; anthers transversely oblong, 1 mm long, 2 mm broad, connate in pairs, the cells not confluent; ovary villous; disk annular, thick, glabrous, slightly interrupted dorsally.

TYPE: La Palma, Prov. San José, Costa Rica, *Tonduz* 12545 (W).

RANGE: Known only from type locality, at about 1,500 meters elevation.

ADDITIONAL SPECIMEN EXAMINED: Type locality, *Tonduz* 12458 (W).

The anther cells are apparently not confluent at apex, thus contradicting one of the principal generic characters of *Besleria*. Habitally, however, it is quite typical of the genus.

13. *Besleria densiflora* Fritsch, Notizbl. Bot. Gart. Berlin 11:965. 1934.

Stems densely strigose-subtomentose; petioles thick, 2–5 cm long; leaf blades oblanceolate, up to 25 cm long and 10 cm wide, coriaceous, entire, sericeous-strigose on costa and veins beneath, the primary veins 6–8 pairs, prominently elevated beneath; pedicels very numerous, scarcely 5 mm long; calyx lobes orbicular, about 4 mm long, strongly imbricate, concave, strigillose without, glabrous within, ciliolate; corolla orange, 10–11 mm long, erect, not saccate at base, ventricose upwardly, puberulous externally, with a hairy ring within at insertion of filaments, contracted in throat, the throat glabrous within, the lobes small, strongly ciliate; androecium glabrous; ovary glabrous; style densely puberulous; berry orange.

TYPE: Cerro de Ponasa, Dept. Loreto, Peru, *Ule* 6667 (B).

RANGE: Peru, at 1,200 meters elevation.

14. *Besleria cognata* Morton, sp. nov.

Caules quadrangulares strigillosi; petioli elongati glabri; lamina foliorum late elliptica vel elliptica, coriacea integra, supra fere glabra, subtus ubique strigillosa; pedicelli pauci strigillosi; calycis lobi suborbiculares, basi connati, rotundati, leviter erosi, subcoriacei, ciliolati, parce strigillosi; corolla aurantiaca ecalcarata erecta glabra ventricosa, lobis parvis erectis; ovarium glabrum; discus annularis.

Shrub 1.2–1.5 m high, the stems quadrangular, strigillose; petioles up to 6 cm long, glabrous; leaf blades broadly elliptic or elliptic, the larger 18 cm long and 7 cm wide, acuminate at apex, broadly and obliquely cuneate at base, coriaceous, entire, almost glabrous above, strigillose beneath, the primary veins 8 or 9 pairs:

common peduncle obsolete, the pedicels few, 1 cm long, strigillose; calyx lobes suborbicular, 3.5 mm long, connate at base, rounded, lightly erose, ciliolate, sparsely strigillose externally, glabrous within; corolla orange, about 12 mm long, erect, not spurred or saccate at base, the tube about 6 mm wide, gradually ventricose upwardly, glabrous externally, bearing a hairy ring within at insertion of stamens, the throat contracted, about 4 mm wide, the limb terminal, narrow, the lobes subequal, erect; filaments glabrous; ovary and style glabrous; disk annular, entire, short, glabrous; berry small.

Type in the U. S. National Herbarium, no. 1,482,468, collected in region of Mount Chapón, Department of Boyacá, Colombia, altitude 2,250 meters, June 3, 1932, by A. E. Lawrance (no. 150).

ADDITIONAL SPECIMENS EXAMINED: Type collection (B, K, S).

15. *Besleria glabra* (Oersted) Hanst. *Linnaea* 34: 325. 1865.

Gasteranthopsis glabra Oersted, *Centralamer. Gesn.* 55. pl. 10, fig. 1-8. 1858.

Shrub; stems strigose at apex, otherwise glabrous; petioles glabrous, up to 4.5 cm long; leaf blades obliquely elliptic-oblong, up to 22 cm long and 9 cm wide, cuneate at base, glabrous beneath, entire, the primary veins 8-10 pairs; pedicels few, glabrous, up to 2.2 cm long; calyx lobes oval, 3-4 mm long, obtuse, membranous, scarious-margined, puberulous externally, glabrous within, faintly nerved; corolla red, erect at base, not calcarate, upwardly a little ventricose, 15-20 mm long, glabrous, lacking a hairy ring within; androecium glabrous; ovary and style glabrous; disk semiannular, glabrous.

TYPE: Lacoba, Chinantla, State of Puebla, Mexico, *Liebmann* (Co).

RANGE: Mexico.

ADDITIONAL SPECIMENS EXAMINED: Type collection (F, W). Oaxaca, *Galeotti* 1921 (F, W).

16. *Besleria conspecta* Morton, sp. nov.

Caules subquadrangulares, apice dense strigosi, mox glabri; petioli elongati graciles glabrati; lamina foliorum oblique late-elliptica, magna, cuspidato-acuminata, basi angustata, membranacea integra, subtus in venis parce puberula; pedicelli pauci glabrati; calycis lobi orbiculares rotundati imbricati aequales glabri suberosi ciliolati; corolla lutea erecta ecalcarata ventricosa, externe glabra, fauce contracta, limbo terminali parvo, lobis aequalibus glabris; ovarium glabrum; discus annularis.

Slender shrub up to 1.2 m high, the stems subquadrangular, densely strigose at apex, glabrate below; petioles slender, up to 9 cm long, glabrate; leaf blades obliquely elliptic, up to 21 cm long and 10.5 cm wide, cuspidate-acuminate at apex, narrowed at base, thin-membranous, entire, bearing a few scattered hairs above, the veins beneath sparsely appressed-pubescent, the primary veins 9-11 pairs; common peduncle obsolete, the pedicels few, up to 1.5 cm long, slender, glabrate; calyx lobes orbicular, about 5 mm long, rounded, not mucronate, imbricate, equal, erect, glabrous, the margin suberose and ciliolate; corolla yellow, about 19 mm long, erect, not spurred or saccate at base, the base about 4 mm wide, the tube upwardly ventricose, becoming 8 mm wide, glabrous externally, glandular-pilosulous within above middle, the throat contracted, about 5.5 mm wide, the limb terminal, 8 mm wide, the lobes small, suborbicular, about 2 mm long, equal, glabrous, not ciliate; filaments glabrous, inserted about 3 mm above the base of the corolla; ovary and style glabrous; disk annular, glabrous.

Type in the U. S. National Herbarium, no. 1,637,918, collected at Palmar, Department of Quezaltenango, Guatemala, altitude 960-1,290 meters, Oct. 11, 1934, by Alexander F. Skutch (no. 1413).

17. *Besleria nitens* Fritsch, Notizbl. Bot. Gart. Berlin 11: 964. 1934.

Stems slender, strigose toward apex; petioles 3.5–6 cm long; leaf blades obliquely lance-elliptic, up to 20 cm long and 8 cm wide, attenuate at base, entire, membranous, sparsely strigillose beneath, the primary veins 8–11 pairs; pedicels few, up to 12 mm long; calyx orange, about 6 mm long, the lobes orbicular, united for about one third their length, subcoriaceous, sparsely strigillose without, glabrous within, the margin subscarios, ciliolate, erose; corolla dark red, 17–20 mm long, erect, not spurred, scarcely ventricose upwardly, subcarose, glabrous without and within; androecium glabrous, the anthers connate; ovary and style glabrous; stigma not bilobed; disk annular, glabrous.

TYPE: Tequendame, Dept. Santander, Colombia, *Kalbreyer* 1009 (B).

RANGE: Colombia, at 1,200 meters elevation.

ADDITIONAL SPECIMEN EXAMINED: Type collection (K). This duplicate is a much better specimen than the actual type.

The flowers suggest *B. formosa*, and that species is perhaps more closely related than the present order of species would indicate. The common peduncle, though short, is developed in *B. formosa*, and bears a solitary, long pedicel. In the present species the common peduncle is obsolete, but if it were developed the flowers would be umbellate. The calyx lobes are similar, but the corolla limb is much broader in *B. formosa*. The leaves also are different, those of *B. nitens* being much larger and longer-petiolate.

18. *Besleria nubigena* Morton, sp. nov.

Caules crassi glabrati; petioli elongati crassi strigillosi; lamina foliorum late elliptica, membranacea, basi cuneata, vix denticulata, subtus imprimis in venis strigillosa; pedicelli dense aggregati, brevissimi, pilosuli; calycis lobi oblongo-lanceolati acuti liberi integri, parce puberuli; corolla flava parva, anguste tubulosa, ecalcarata, non ventricosa, externe pilosa, fauce vix contracta, lobis parvis erectis aequalibus; ovarium apice parce puberulum; discus annularis.

Herb with thick, quadrangular, glabrate stems; petioles 6.5–9 cm long, thick, strigillose; leaf blades broadly elliptic, up to 17 cm long and 9 cm wide, short-acuminate, cuneate at base, membranous, minutely denticulate, glabrate above, strigillose beneath, especially on the veins, the primary veins about 14 pairs; common peduncle obsolete, the pedicels numerous, densely aggregate, about 4 mm long, pilosulous; calyx lobes oblong-lanceolate, 7–8 mm long, 2 mm wide, acute, free, entire, sparsely puberulous; corolla yellow, 12 mm long, narrowly tubular, not spurred, a little saccate at base, not ventricose upwardly, the tube about 2.5 mm wide, externally pilose, glabrous within, the throat hardly contracted, the limb terminal, narrow, the lobes small, erect, equal; ovary sparsely puberulous at apex; style nearly glabrous; disk annular, thick, entire, glabrous.

Type in the Academy of Natural Sciences, Philadelphia, no. 642,555, collected along stream in forest, Río San Rafael, below Cerro Tatamá, Department of Caldas, Colombia, altitude 2,500–2,800 meters, Sept. 7–11, 1922, by F. W. Pennell (no. 10412).

ADDITIONAL SPECIMEN EXAMINED: Type collection (Y).

19. *Besleria filipes* Urban, Symb. Antill. 2: 350. 1901.

Stems 0.3–1 m high, glabrous except at nodes; petioles 2–4 cm long; leaf blades chartaceous, oblanceolate, up to 14 cm long, 4.5–5.5 cm wide, attenuate at base, sharply serrate, strigillose beneath on nerves, the primary veins 10 or 11 pairs; pedicels few, elongate, 4.5–5 cm long, strongly thickened toward apex; calyx lobes ovate, 6–6.5 mm long, united near base, entire, short-mucronate, glabrous except for the copiously ciliate margin; corolla erect, 17–18.5 mm long, slightly ventricose

upwardly, glabrous, the lobes large, unequal, the larger ones about 6 mm long, minutely ciliate; ovary glabrous; disk annular.

TYPE: Trois-Rivières, Guadeloupe, *Duss* 2376.

RANGE: Guadeloupe.

SPECIMENS EXAMINED: Type collection (Y).

In vegetative characters this species is highly variable, and three forms from Dominica are described below. A specimen of the type number in the U. S. National Herbarium does not agree with that in the New York Botanical Garden. Inasmuch as the latter was annotated by Urban, it is accepted as typical of the species. The National Herbarium specimen is doubtless conspecific but represents a variant form. Another variant, also from Guadeloupe, is *Duss* 3385 in the New York Botanical Garden.

19a. *Besleria filipes* forma *latior* Morton, f. nov.

A f. *typica* caulibus parce et persistente strigillosis, foliis late ellipticis, 6–8.3 cm latis differt.

Differs from the typical form in the sparsely but persistently strigillose stems, and in the broadly elliptic leaf blades, 6–8.3 cm wide.

Type in the New York Botanical Garden, collected in Dominica by W. C. Fishlock (no. 12).

19b. *Besleria filipes* forma *glaberrima* Morton, f. nov.

A f. *typica* foliis anguste oblongis crenulatis glaberrimis, calycis lobis fere eciliatis differt.

Differs from the typical form in the entirely glabrous, crenulate, narrowly oblong leaf blades and the non-ciliate calyx lobes.

Type in the New York Botanical Garden, collected in Dominica, Jan. 22, 1933, by G. Proctor Cooper (no. 47).

19c. *Besleria filipes* forma *pilicaulis* Morton, f. nov.

A f. *typica* caulibus dense et persistente sericeis, foliis crenulatis haud serratis differt.

Differs from the typical form in the densely and persistently sericeous stems and in the crenulate rather than serrate leaf blades.

Type in the New York Botanical Garden, collected on the Lisdara Estate, Dominica, altitude 560–600 meters, Mar. 7, 1933, by G. Proctor Cooper (no. 157). Duplicate in the U. S. National Herbarium.

20. *Besleria sieberiana* Urban, Symb. Antill. 2: 349. 1901.

Stems strigose at apex; petioles 4–7 mm long; leaf blades ovate or narrowly ovate, 8–14 cm long, 4–7.5 cm wide, rounded or obtuse at base, membranous or subchartaceous, serrate, pilosulous beneath on veins, the primary veins 10–12 pairs; pedicels 10–15 mm long; calyx lobes connate nearly to middle, 5 mm long, ovate, obtuse, mucronulate; corolla 17–18 mm long, cylindric, a little curved, glabrous; ovary glabrous; stigma bilobed; disk annular.

TYPE: Trinidad, *Sieber* 193 p. p.

The description is compiled from Urban. It is doubtful if this species is really different from *B. strigillosa* Urban. Both were described from parts of the same collection. I saw a specimen of *Sieber* 193 from the Kew Herbarium, I believe, but unfortunately lost my notes on it.

21. *Besleria strigillosa* Urban, Symb. Antill. 2: 349. 1901.

Stems strigose at apex; petioles 15–20 mm long; leaf blades ovate, those of a pair unequal, the larger one 8–11 cm long, 4–6 cm wide, obtuse at base, membranous, serrate, short-pilose on both sides, the veins beneath strigose, the primary veins 8–12 pairs; pedicels few, about 15 mm long; calyx lobes free, orbicular,

rounded, not mucronulate, sparsely pilosulous externally, ciliolate; corolla glabrous; ovary glabrous.

TYPE: Trinidad, *Sieber* 193 p. p.

This species is placed in the key from description only. Compare note on *B. sieberiana*.

22. *Besleria lanceolata* Urban, Symb. Antill. 2: 351. 1901.

Besleria coriacea Urban, loc. cit.

Suffrutescent, 1.3–1.6 m high; stems hirsutulous at apex; petioles 1–3 cm long; leaf blades lanceolate or oblong-lanceolate, 10–18 cm long, 3–3.5 cm wide, attenuate at base, crenulate, sparingly hirsutulous beneath, the primary veins 7–11 pairs; pedicels 1–4 in each axil, 1–4 cm long; calyx lobes nearly free, oval or narrowly ovate, about 5 mm long, obtuse, subcoriaceous, strigillose, ciliolate, the midrib thickened and extended into a short mucro; corolla not gibbous at base, 14–18 mm long, glabrous externally; ovary glabrous; disk annular; fruit about 5 mm in diameter.

TYPE: Martinique, *Bélangier* 193 (photograph, W).

RANGE: Martinique and Guadeloupe.

SPECIMENS EXAMINED: Photograph of type (F). Mount Pelée, Martinique, *Hahn* 1420 (S). Without specific locality, *Hahn* 314 (K, W), 612 (K); *Iserl* (Co).

From description I am unable to separate *B. coriacea*, described from Guadeloupe.

23. *Besleria standleyi* Morton, Field Mus. Publ. Bot. 18: 1155. 1938.

Shrub 1 m high; stems fleshy, 4 mm thick, sericeous; petiole 1.5–2.5 cm long, sericeous; leaf blades broadly elliptic, up to 18 cm long and 10 cm wide, obtuse at apex, obtuse or broadly cuneate at base, denticulate, green and glabrous above, pale and minutely sericeous beneath, the primary veins about 10 pairs; common peduncle obsolete, the pedicels very numerous, densely aggregate, about 10 mm long, thickened at apex, brown-sericeous; calyx lobes orbicular, 4.5 mm long, rounded, veiny, suberose, ciliolate, sericeous externally; corolla orange, 13 mm long, erect or oblique, not spurred, saccate at base, not much ventricose, the tube 5–6 mm wide, nearly glabrous, lacking a hairy ring within, the limb terminal, narrow, the lobes small, rounded, equal; androecium glabrous; ovary pilosulous; style thick; stigma bilobed; disk annular, entire, glabrous.

TYPE: La Palma, Prov. San José, Costa Rica, altitude 1,600 meters, *Standley* no. 33005 (W).

24. *Besleria notabilis* Morton, Field Mus. Publ. Bot. 18: 1153. 1938.

Shrub 1 m high, the stems about 1 cm thick, angulate, appressed-pubescent; petioles 3 cm long, thick, pubescent; leaf blades elliptic, the larger 22 cm long and 10 cm wide, short-acuminate at apex, cuneate at base, entire, subcoriaceous, puberulous beneath, the veins and margin subtomentose, the primary veins 6–8 pairs; common peduncle obsolete, the pedicels numerous, aggregate, about 10 mm long, pubescent; calyx lobes oblong, 3 mm long, 1.5 mm wide, obtuse, free, ciliolate, sparsely puberulous externally, glabrous within; corolla yellowish-orange, 9–10 mm long, erect, not spurred, the tube 2 mm wide, glabrous on both sides, the limb terminal, narrow, the lobes small, obtuse, equal; androecium glabrous; ovary minutely puberulous at apex; style glabrous; stigma bilobed; disk annular, glabrous; berry white, subtended by the purple calyx.

TYPE: La Palma, Prov. San José, Costa Rica, altitude 1,500 meters, *Werckle* (Herb. Nat. Cost. 11603) (W).

RANGE: Costa Rica and Panama, at 900 to 1,700 meters elevation.

ADDITIONAL SPECIMENS EXAMINED:

COSTA RICA: La Hondura, Prov. San José, *M. Valerio* 749 (F). La Palma, Prov. San José, *M. Valerio* 1412 (F); *Tonduz* 7456 (W). Cerro de la Palma,

Prov. Alajuela, *Brenes* 3750 (F). Pejivalle, Prov. Cartago, *Standley & Valerio* 49121 (W).

PANAMA: ? Cricamola Valley, Prov. Bocas del Toro, *Cooper* 197 (F, Y).

This has commonly been misidentified either as *B. costaricensis* or *B. robusta*. The former is, as evidenced by the type, a synonym of *B. solanoides*. The latter differs strongly in pubescence and in characters of the calyx and corolla.

25. *Besleria illustris* Morton, sp. nov.

Caules teretes crassi superne villosi; petioli lanati; lamina foliorum ovato-elliptica, acuta, basi cuneata, membranacea, integra vel inconspicue denticulata, utrinque strigillosa; pedicelli numerosi breves, vix pubescentes; calycis lobi oblongi liberi acuti, saepe plus minusve dentati, externe pilosuli; corolla lutea deflexa ecalcarata, basi paullo saccata, sursum ventricosa, externe pilosa, fauce contracta, lobis parvis erectis aequalibus; ovarium dense pilosum; discus in glandulam posticam glabram crassam reductus.

Subligneous herb 1.5 m high, the stems terete, thick, villous upwardly; petioles short or up to 3.5 cm long, lanate; leaf blades ovate-elliptic, the larger 12.5 cm long and 6.5 cm wide, acute, cuneate at base, membranous, entire or inconspicuously denticulate, strigillose on both sides, the primary veins about 10 pairs; common peduncle obsolete, the pedicels numerous, very short (about 4 mm long), slightly pubescent; calyx lobes oblong, 6.5 mm long, free, acute, often somewhat toothed, pilosulous externally, glabrous within; corolla yellow, 15 mm long, deflexed, not spurred, a little saccate at base posteriorly, densely pilose, the tube gradually ventricose upwardly, becoming 7 mm wide, the throat contracted and 5 mm wide, the limb terminal, narrow, the lobes small, erect, equal; ovary and style pilose; disk reduced to a fleshy, glabrous, posterior gland.

Type in the herbarium of the Royal Botanic Gardens, Kew, collected in the region of Mount Chapón, Department of Boyacá, Colombia, altitude 1,050 meters, June 18, 1932, by A. E. Lawrence (no. 246).

RANGE: Dept. of Boyacá, Colombia.

ADDITIONAL SPECIMENS EXAMINED: Type collection (G, W). Same locality, *Lawrence* 82 (F, W).

26. *Besleria tambensis* Morton, sp. nov.

Caules crassi, densissime tomentosi; petiolus brevis crassus, dense tomentosus; lamina foliorum obovata magna, breviter acuminata, subcoriacea integra, dense ciliata, supra mox glabra, subtus in venis tomentosa; pedicelli numerosi brevissimi, dense tomentosi; calycis lobi liberi elliptici subaequales, vix imbricati, paullo apiculati, acutiusculi, externe dense tomentosi; corolla paullo obliqua, ecalcarata, non ventricosa, externe pilosa, intus glabra, lobis parvis subaequalibus; ovarium pilosum; discus annularis glaber.

Stems very thick, about 7 mm in diameter, densely matted-tomentose; leaves a little unequal, short-petiolate, the petiole about 1.4 cm long, thick, densely tomentose, the blade obovate, up to 19 cm long and 8.5 cm wide, short-acuminate, obtuse at base, subcoriaceous, entire, densely ciliate, soon glabrous above, tomentose on the veins beneath, the primary veins 9 or 10 pairs; common peduncle obsolete; pedicels densely aggregate in the leaf axils, scarcely 4 mm long, densely tomentose; calyx lobes free, elliptic, about 4 mm long, subequal, hardly imbricate, acutish, a little apiculate, densely tomentose externally, glabrous within; corolla tubular, 14 mm long, a little oblique, not spurred, the tube a little saccate above base posteriorly, cylindric upwardly, scarcely ventricose, about 3.5 mm wide, pilose externally, glabrous within, the throat not contracted, the limb terminal, about 4 mm wide, the lobes about 1 mm long, subequal, not ciliate, pilosulous externally, eglandular within; filaments glabrous; ovary pilose; style glabrous; stigma bilobed; disk short, annular, glabrous.

Type in the herbarium of the Naturhistoriska Riksmuseet, Stockholm, collected at La Costa, District of El Tambo, Department of El Cauca, Colombia, altitude 1,200 meters, July 26, 1936, by Kjell von Sneidern (no. 850).

Most nearly related is perhaps *B. notabilis* of Costa Rica, which agrees in having numerous, small, short-pedicellate axillary flowers and large, coriaceous, hairy-marginate leaves. The dense velvety-tomentose pubescence of the stems, petioles, and calyx lobes of the present species is, however, distinctive and is not matched elsewhere in the genus. *Besleria maxima* is also closely allied, but in that species the pubescence of the costa and veins beneath is hirsute.

27. *Besleria maxima* Morton, sp. nov.

Caules crassi, longe tomentoso-villosi; petiolus crassus tomentoso-villosus; lamina foliorum late oblonga, magna acuta, basi late cuneata, membranacea, fere integra, supra glabrescens, subtus in venis hirsuta; pedicelli numerosi breves; calycis lobi liberi aequales oblongo-lanceolati acuti, breviter mucronati, externe hirti; corolla paullo obliqua, ecalcarata, non ventricosa, utrinque fere glabra, lobis parvis aequalibus; ovarium pilosulum; discus annularis glaber.

Stems thick, 8–10 mm in diameter, conspicuously long-tomentose-villose; petiole 7–15 mm long, very thick, tomentose-villose; leaf blades broadly oblong, up to 28 cm long and 16.2 cm wide, acute, broadly cuneate at base, membranous, nearly entire, glabrescent above, hirsute beneath especially on the veins, the primary veins 10 to 12 pairs; common peduncle obsolete; pedicels densely aggregate in the leaf axils, short, up to 7 mm long; calyx lobes free, oblong-lanceolate, about 5 mm long, entire, equal, acute, thickened and a little mucronate at apex, hirtous externally, glabrous within; corolla a little oblique, 12 mm long, not spurred, the tube about 4.5 mm wide, not ventricose nor ampliate, nearly glabrous externally, sparsely pilosulous toward apex, glabrous within, the throat scarcely contracted, glabrous within, the limb terminal, about 4.5 mm wide, the lobes about 1 mm long, erect, rounded, equal, glabrous; filaments inserted about 4 mm above the base of the corolla, glabrous, not contorted; anthers connate; staminodium well developed, about 2 mm long, bearing a sterile anther; ovary pilosulous; style glabrous; stigma bilobed; disk annular, 0.5 mm high, glabrous.

Type in the herbarium of the Naturhistoriska Riksmuseet, Stockholm, collected in virgin forest at La Costa, District of El Tambo, Department of El Cauca, Colombia, altitude 1,000 meters, July 29, 1936, by Kjell von Sneidern (no. 891). Two additional specimens were collected at the same locality by Sneidern (nos. 849 and 890).

28. *Besleria barbata* (Poepp.) Hanst. *Linnaea* 34:327. 1865.

Hypocyrta barbata Poepp. *Nov. Gen. & Sp.* 3: 3. 1845.

Shrub with thick hirsute stems: petioles up to 4 cm long; leaf blades broadly elliptic, 22–26 cm long, 10–13 cm wide, short-acuminate, cuneate at base, subcoriaceous, remotely but sharply denticulate, glabrous above, sparingly hirsute beneath on midrib and veins, the primary veins 9 pairs; pedicels numerous, about 1 cm long; calyx lobes oblong, 6.5–7 mm long, rounded at apex, much imbricate, sparingly pilosulous externally, glabrous within, conspicuously long-ciliate; corolla orange, 12 mm long or probably a little longer, erect, not saccate at base, glabrous externally, the limb terminal, the lobes small, equal; ovary glabrous; disk annular, glabrous.

TYPE: Pampayaco, Peru, *Poeppig* (photograph, W).

RANGE: Peru.

SPECIMEN EXAMINED: Amazon River, *Poeppig* 1508, compared with type in Vienna by Mansfeld.

29. *Besleria imberbis* Morton, sp. nov.

Caules apice dense pilosi; petiolus pilosus; lamina foliorum elliptica acuminata, basi cuneata, chartacea, remote denticulata, supra glabra, subtus pilosa; pedicelli numerosi pilosi; calycis lobi oblongi obtusi membranacei integri, vix mucronati, externe pilosuli; corolla aurantiaca erecta ecalcarata, sursum ventricosa, utrinque glabra, fauce contracta, limbo parvo subregulari; ovarium glabrum; discus annularis glaber.

Shrub, the stems densely pilose toward apex; petioles up to 2 cm long, pilose; leaf blades elliptic, up to 9 cm long and 3.5 cm wide, acuminate, cuneate at base, chartaceous, remotely denticulate, glabrous above, pilose beneath, the primary veins 7 to 9 pairs; common peduncle obsolete; pedicels numerous, about 18 mm long, pilose; calyx lobes oblong, 5 mm long, obtuse, hardly mucronate, entire, membranous, pilosulous externally, glabrous within; corolla orange, about 12 mm long, erect, not spurred, not saccate at base, the tube about 4 mm wide, upwardly ventricose, glabrous on both sides, the throat contracted, the limb terminal, small, subregular; filaments glabrous; ovary glabrous; style sparsely strigose; stigma bilobed; disk annular, glabrous.

Type in the Berlin Herbarium, collected at Tambillo, Department of Cajamarca, Peru, Apr. 17, 1878, by A. Raimondi (no. 5334).

30. *Besleria hirsuta* (Oersted) Hanst. *Linnaea* 34: 326. 1865.

Gasteranthopsis hirsuta Oersted, *Centralamer. Gesn.* 55. pl. 10, fig. 9-13. 1858.

Shrub; stems hirsute; petioles up to 6.5 cm long, hirsute; leaf blades oblong, up to 23 cm long and 9.5 cm wide, attenuate at base, obsoletely serrulate, hirsute on the veins beneath, the primary veins 11-13 pairs; pedicels hirsute, about 1 cm long; calyx about 5 mm long, the lobes free, oblong or suborbicular, rounded, membranous, short-pilosulous; corolla about 18 mm long, glabrous without and within; ovary glabrous; disk annular.

TYPE: Chinantla, State of Pueblo, Mexico, *Liebmann* (Co).

RANGE: Mexico and Costa Rica.

ADDITIONAL SPECIMEN EXAMINED:

COSTA RICA: Siquirres, Prov. Limón, *J. D. Smith* 6714 (W).

31. *Besleria fecunda* Morton, sp. nov.

Caules quadrangulares hirsuti; petiolus longus, parce hirsutus; lamina foliorum late elliptica, magna, cuspidato-acuminata, basi late cuneata, membranacea denticulata, supra parce pilosula, subtus in venis parce hirsuta; inflorescentia subcorymbosa, pedunculo communi brevi hirsuto; pedicelli numerosi hirsuti; calycis lobi suborbiculares subaequales imbricati liberi subcoriacei, margine subscariosi, paullo undulati, externe pilosi; corolla lutea obliqua ecalcarata, basi gibbosa, utrinque glabra, vix ventricosa, limbo parvo; ovarium glabrum; discus annularis glaber.

Slender shrub, the stems subquadrangular, hirsute; petioles elongate, up to 8.5 cm, sparingly hirsute; leaf blades broadly elliptic, up to 28 cm long and 14.5 cm wide, cuspidate-acuminate, broadly cuneate at base, thin-membranous, remotely denticulate, sparsely pilosulous above, hirsute beneath especially on the veins, the primary veins 8 to 10 pairs; inflorescence subcorymbose, about 4.5 cm long, the common peduncle short, about 4.5 mm long, hirsute; pedicels numerous, up to 1.5 cm long, hirsute; calyx lobes suborbicular, about 6 mm long, free, subequal, strongly imbricate, subcoriaceous, the margin subscarios, a little undulate, externally pilosulous, glabrous within; corolla yellow, 20-23 mm long, oblique, not spurred at base but saccate above base, the tube about 7 mm wide, scarcely ventricose, glabrous on both sides, the throat slightly contracted, the limb terminal, about 1 cm wide, the lobes suborbicular, 4 mm long, subequal, not glandular within; filaments glabrous; ovary and style glabrous; disk annular, glabrous.

Type in the U. S. National Herbarium, no. 1,661,595, collected in the vicinity of Barranca Bermeja, Magdalena Valley, between Sogamoso and Colorado Rivers, Department of Santander, Colombia, altitude 100–500 meters, Nov. 19, 1934, by Oscar Haught (no. 1428).

RANGE: Colombia, at low elevations.

ADDITIONAL SPECIMEN EXAMINED: Viscaína Creek, Dept. Magdalena, *Haught* 2049 (W).

In some respects the present species suggests the North American *B. hirsuta* (Oerst.) Hanst., in which the common peduncle is obsolete, the few flowers being aggregate in the leaf axils. This is in decided contrast to the present species, in which the flowers are borne in short-pedunculate subcorymbose inflorescences. The leaves of the two species differ also, those of *B. hirsuta* being relatively narrower, with closer and more numerous veins. In that the blade is gradually acuminate at apex, in contrast to the cuspidate-acuminate blade of the present species.

32. *Besleria saxicola* Morton, Phytologia 1: 151. 1935.

Shrub with terete hirsute stems; petioles hirsute, 7–11 cm long; leaf blades membranous, 20–30 cm long, 8–12 cm wide, narrowed at base, remotely sharp-serrulate, hirsute, especially on the veins beneath, the primary veins 7–9 pairs; common peduncle obsolete; pedicels numerous, scarcely 1 cm long; calyx lobes free, yellow, ovate, imbricate, 6–8 mm long, subulate-acuminate, hirsute, long-ciliate; corolla yellow, 20 mm long, glabrous, not saccate, a little ventricose upwardly; style puberulous; disk semiannular.

TYPE: Tumatumari, Potaro River, British Guiana, *Hitchcock* 17375 (W).

RANGE: British Guiana.

ADDITIONAL SPECIMENS EXAMINED: Type collection (Y). Type locality, *Gleason* 420 (G, W, Y). Moraballi Creek, *Sandwith* 58 (K, Y). Potaro River, *Abraham* 345 (K).

33. *Besleria villosa* Fritsch, Notizbl. Bot. Gart. Berlin 11: 964. 1934.

Stems very densely long-villous; petioles villous, 7–15 cm long; leaf blades elliptic-oblongate, up to 13 cm long and 4 cm wide, entire, cuneate at base, densely hirsute beneath on veins and margin, pilose on mesophyll, the primary veins 8 or 9 pairs; pedicels few, hirsute, about 10 mm long; calyx 4 mm long, the lobes rounded, hirsute, glabrous within, nearly free; corolla pubescent without, glabrous within; ovary puberulous; disk annular.

TYPE: Between Tuquerres and Barbacoas, Dept. Nariño, Colombia, *Triana* (B).

RANGE: Western Cordillera of Colombia, at 900 meters elevation.

34. *Besleria vestita* Fritsch, Notizbl. Bot. Gart. Berlin 11: 97. 1934.

Herb with villous stems 0.5 m high; petioles villous, 2–4 cm long; leaf blades elliptic, up to 9 cm long and 5 cm wide, membranous, broadly cuneate at base, entire, hirsute above, the hairs with inflated bases, in falling leaving the surface pustulate-scabrous, finely hirsute beneath, the primary veins 10–15 pairs; pedicels villous, short, not over 5 mm long; calyx lobes free, lanceolate, acuminate, 4–5 mm long, entire, hirsute externally, glabrous within; corolla chrome-yellow or orange, 13–15 mm long, erect at base, not saccate, upwardly a little deflexed, strongly ventricose, externally pilose, with a dense hairy ring within at the insertion of the filaments, the throat contracted, the limb terminal, regular; androecium glabrous; ovary and style puberulous; disk annular, glabrous; berry orange.

TYPE: Las Juntas del Dagua, region of Buenaventura, Dept. El Valle, Colombia, *Lehmann* 5854 (B).

RANGE: Colombia, from sea-level to 2,100 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (K, W). La Cumbre, Dept. El Valle, *Killip* 11626 (W); *Pennell* 5875 (P, W, Y), 5891 (P, Y). Medellín, Dept. Antioquia, *Toro* 1232 (Y).

35. *Besleria laeta* Morton, sp. nov.

Caules et petioli hirsuti; lamina foliorum elliptica crassa acuta, basi cuneata, integra, supra elongato-tuberculata, tuberculis apice piliferis, subtus dense hirsuta; pedicelli numerosi hirsuti; calycis lobi ovaes obtusi integri, fere liberi, externe hirsutuli; corolla erecta ecalcarata, fere tubulosa, sursum paullulum ventricosa, externe puberula, intus glabra, lobis parvis subaequalibus; ovarium pilosum; discus annularis.

Stems slightly quadrangular, hirsute; petioles up to 3.5 cm long, hirsute; leaf blades elliptic, the largest 11 cm long and 5 cm wide, thick, acute, cuneate at base, entire, elongate-tuberculate above, the tubercles piliferous, densely hirsute beneath, the primary veins about 11 pairs; common peduncle obsolete; pedicels densely aggregate in the leaf axils, about 6 mm long, hirsute; calyx lobes oval, 5 mm long, 2.5 mm wide, obtuse, entire, nearly free, externally hirsutulous, glabrous within; corolla 12–15 mm long, erect, not spurred, nearly tubular, slightly ventricose upwardly and becoming 5 mm wide, puberulous externally, glabrous within, the throat contracted, the limb small, terminal, the lobes erect, rounded, subequal; filaments contorted, glabrous, the anthers connate; ovary pilose; style puberulous; stigma bilobed; disk annular, entire.

Type in the Kew Herbarium, collected at Alto de Cruz Grande, Colombia, Dec. 14, 1896, by E. André (no. K. 1482).

36. *Besleria trichostegia* Donn. Smith, Bot. Gaz. 61: 380. 1916.

Stems slender, sparingly hirsute; petioles hirsute, up to 2 cm long; leaf blades oblanceolate, up to 17 cm long and 6.5 cm wide, narrowed at base, entire, ciliate, hirsute beneath, especially on veins, the primary veins 7–10 pairs; pedicels few, 8–13 mm long, hirsute, very slender; calyx 5–6 mm long, the lobes free, linear-lanceolate, about 1 mm wide at base, entire, long-pilose; corolla red, 11–13 mm long, pilose without, glabrous at insertion of filaments, sparsely pilose within throat; ovary pilose; disk semiannular.

TYPE: Tsaki, Prov. Limón, Costa Rica, *Tonduz* 9558 (W).

RANGE: Costa Rica, at low elevations on the Atlantic coast.

ADDITIONAL SPECIMEN EXAMINED: Type locality, *Tonduz* 9408 (W).

37. *Besleria montana* Britt. Mem. Torrey Club 4: 240. 1895.

Stems hirsute; petioles hirsute, up to 6 cm long; leaf blades elliptic, up to 20 cm long and 9.5 cm wide, denticulate, cuneate at base, hirsute beneath on veins, the primary veins 9 or 10 pairs; common peduncle none; pedicels numerous, hirsute, 5 mm long or less; calyx about 9.5 mm long, the lobes united for about 3 mm, ovate, acute, entire, externally hirsute, glabrous within, the tips recurved; corolla about 20 mm long, hardly ventricose, externally densely lanate-pilose, glabrous within, not glandular in throat; stamens strongly didynamous, the anthers free; ovary sparingly pilose at apex; disk annular.

TYPE: Yungas, Bolivia, *Bang* 412 (Y).

RANGE: Bolivia.

ADDITIONAL SPECIMENS EXAMINED: Type collection (G, M, P, W). La Paz, *Rusby* 2150 (W, Y). Yungas, *Rusby* 2425 (W, Y). Hacienda Simaco, above road to Tipuani, *Buchtien* 5564 (W).

38. *Besleria boliviana* Morton, sp. nov.

Caules petiolique flavo-hirsuti; lamina foliorum elliptica acuminata membranacea integra, supra parce hirsuta, subtus praecipue in venis hirsuta; pedicelli pauci hirsuti breves; calycis lobi lanceolati liberi acuminati integri, parce hirsuti,

longe ciliati; corolla rubra erecta ecalcarata, externe parce pilosa, intus glabra, sursum paullo ventricosa, limbo parvo; ovarium apice parce pilosum; discus annularis glaber.

Stems subquadrangular, densely yellowish-hirsute; petioles up to 5.5 cm long, hirsute; leaf blades elliptic, up to 19 cm long and 7 cm wide, acuminate, narrowed at base, membranous, entire, sparsely hirsute above, hirsute beneath especially on the veins, the primary veins 9 or 10 pairs; common peduncle obsolete; pedicels few, scarcely 5 mm long, hirsute; calyx lobes lanceolate, 6 mm long, about 2 mm wide, acuminate, free, entire, sparsely hirsute, long-ciliate, not recurved at apex; corolla red, 13 mm long, erect, not spurred, externally sparingly pilose, glabrous within, upwardly a little ventricose, becoming 4 mm wide, the throat a little contracted, the limb terminal, narrow, the lobes rounded, ciliolate; filaments glabrous; anthers connate; ovary sparsely pilose at apex; stigma stomatophytic; disk low, annular, glabrous.

Type in the U. S. National Herbarium, no. 1,399,336, collected at San Carlos, Mapiro Regior, Bolivia, altitude 850 meters, Jan. 30, 1927, by Otto Buchtien (no. 1334c).

From *Besleria montana* the present species differs in its smaller calyx, with free, lanceolate, narrower lobes, not recurved at tips. The corolla also is smaller and much less densely pilose.

39. *Besleria leucostoma* (Hook.) Hanst. *Linnaea* 34:326. 1865.

Hypocyrtia leucostoma Hook. Bot. Mag. Curtis 73: pl. 4810. 1847.

Stems densely hirsute; petioles densely hirsute, up to 15 mm long; leaf blades narrowly elliptic, up to 15 cm long and 4.5 cm wide, broadly cuneate at base, membranous, minutely crenulate (the teeth very numerous), sparingly hirsute above, densely so beneath, the primary veins about 10 pairs; pedicels hirsute, up to 12 mm long; calyx lobes lanceolate, 4.5 mm long, free, acute, hirsute externally, glabrous within; corolla about 17 mm long, erect, not saccate at base, a little ventricose upwardly, sparingly pilose externally, glabrous within, the limb narrow, terminal, the lobes small; androecium glabrous; ovary pilose; style glabrous except at base.

TYPE: A cultivated specimen grown from seed collected in Colombia by Purdie (K).

40. *Besleria cinnabarina* Fritsch, Notizbl. Bot. Gart. Berlin 11:976. 1934.

Cremosperma cinnabarinum Morton, Journ. Washington Acad. Sci. 25:290. 1935.

Shrub up to 1 m high; stems very densely hirsutulous; petioles densely hirsutulous, up to 2.5 cm long; leaf blades elliptic, the larger 7.5 cm long and 3.5 cm wide, broadly cuneate at base, entire, densely hirsutulous on both sides, the primary veins about 8 pairs; pedicels numerous, crowded, not over 2 mm long; calyx lobes lanceolate, 3.5–4 mm long, free, entire, densely hirsute externally, glabrous within, the posterior deflexed; corolla deep red, 9–10 mm long, saccate posteriorly at base, cylindric upwardly, not ventricose, densely tomentose externally, glabrous within, the lobes relatively large, patent, obviously unequal; ovary and style pilose; disk annular.

TYPE: Montaña de Caramanta, Dept. El Valle, Colombia, Lehmann 7441.

RANGE: Colombia, at 2,300 to 2,600 meters elevation.

SPECIMEN EXAMINED: Type collection (K).

In his original description, Fritsch referred the present species to section *Cremosperma*. Several years ago, in my paper restoring *Cremosperma* to generic rank, I erroneously followed Fritsch and transferred this species to that genus. I have now had the opportunity of examining a specimen of the type collection and find that by no means may this species be so referred. It is a true *Besleria*, but without any close affinity to other species.

41. *Besleria sprucei* Britt. Bull. Torrey Club 27: 31. 1900.*Besleria uleana* Fritsch, Bot. Jahrb. Engler 37: 483. 1906.

Shrub; stems hirsute; petioles 1.5–4 cm long, hirsute; leaf blades elliptic or oblanceolate, up to 25 cm long and 10 cm wide, membranous, serrate, cuneate at base, hirsute beneath on veins and mesophyll, the primary veins 9–11 pairs; peduncles short, up to 2.6 cm long, hirsute; pedicels 1.5 cm long or less, hirsute; calyx about 5 mm long, the lobes nearly free, linear-lanceolate, acuminate, entire, hirsutulous without, glabrous within; corolla red, 18–20 mm long, densely pilosulous without, the tube glabrous within, cylindric below middle and about 4 mm wide, abruptly and conspicuously ventricose upwardly, becoming 9 mm wide, contracted at throat, the throat glandular within, the limb small, regular, terminal; ovary and style pilosulous; disk annular.

TYPE: Mapiri, Bolivia, *Rusby* 2149 (Y).

RANGE: Eastern Bolivia at low elevations and Amazonian Brazil.

ADDITIONAL SPECIMENS EXAMINED:

BOLIVIA: Type collection (K, P, W). San Carlos, *Buchtien* 1334 (W), 1334a (W), 1334b (W), 5789 (W). Charopampa, *Buchtien* 1497 (W). Without specific locality, *Bang* 2537 (W, Y), 2538 (W, Y).

BRAZIL: Fontaleza, Rio Juruá, State of Amazonas, *Ule* 5927, type of *B. uleana* (B, photograph F).

42. *Besleria reticulata* Fritsch, Notizbl. Bot. Gart. Berlin 11: 969. 1934.

Stems densely lanate-tomentose; petioles tomentose, 1.5–2 cm long; leaf blades elliptic or narrowly elliptic, up to 14 cm long and 6 cm broad, rounded at base, remotely denticulate, subpersistently sericeous above, tomentulose beneath, especially on the veins, the primary veins 9–11 pairs; peduncles 6.5–10 cm long; pedicels 1–3 cm long; calyx 4–5 mm long, the lobes nearly free, oblong, obtuse, externally strigillose, glabrous within; corolla orange, 10–13 mm long, very slightly ventricose, bearing a few long scattered hairs externally, glabrous within; ovary glabrous; style glabrous or nearly so; stigma bilobed; disk glabrous, annular.

TYPE: Diamanta, Dept. Santander, Colombia, *Kalbreyer* 1078 (B).

RANGE: Colombia, at 2,400 to 2,800 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: El Peñon, Dept. Cundinamarca, *Pennell* 2665 (G, W, Y). El Tambo, Dept. El Cauca, *Sneidern* 470 (S). Without locality, *Mutis* 919 (Madrid).

42a. *Besleria reticulata* var. *pubistyla* Fritsch, Notizbl. Bot. Gart. Berlin 11: 970. 1934.

Differs from the typical form in the very short petioles, not over 7 mm long.

TYPE: Popayán, Dept. El Cauca, *Lehmann* 5128 (B).

RANGE: Western Cordillera of Colombia, at 1,500 to 2,700 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (K). San José, Dept. El Cauca, *Pennell & Killip* 7394 (P, Y).

42b. *Besleria reticulata* var. *venosa* Morton, var. nov.

A var. *typica* foliis minoribus, venis vix reticulatis, pedunculo communi brevi vel saepissime obsoleto, calycis lobis late oblongis, 5–6 mm longis, evidenter venosis, glabratis differt.

Differs from the typical variety in the smaller, scarcely reticulate leaf blades, the short or obsolete common peduncle, and in the broadly oblong, evidently venose, glabrate calyx lobes, 5–6 mm long.

Type in the U. S. National Herbarium, no. 1,355,031, collected on road from Pamplona to Toledo, Department of Norte de Santander, Colombia, altitude 2,800–3,000 meters, Feb. 27–28, 1927, by E. P. Killip and A. C. Smith (no. 19854).

RANGE: Eastern Cordillera of Colombia, at 2,100 to 3,000 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (G, Y). Peñon, Dept. Cundinamarca, *Mrs. Tracey* 350 (K); *Pennell* 2417 (G, Y), 2666 (G, W, Y). Pica-Pica Valley, above Tapatá, Dept. Norte de Santander, *Killip & Smith* 20024 (W, Y).

43. *Besleria lucida* Poepp. Nov. Gen. & Sp. 3: 2. 1845.

Small shrub, the stems densely strigose when young; petioles up to 2 cm long, strigose; leaf blades elliptic, up to 12.5 cm long and 5 cm wide, cuneate at base, membranous, entire, strigillose beneath, especially on the veins, the primary veins 7 or 8 pairs; common peduncle 2.5–5 cm long, strigose, the pedicels subumbellate, 2 or 3, up to 2.5 cm long, strigose; calyx lobes suborbicular, 4–5 mm long, rounded, a little mucronate, nearly free, subcoriaceous, venose, sparingly strigillose externally, glabrous within, strongly ciliate, a little erose; corolla orange-red, about 15 mm long, erect, not spurred, the tube 5–7 mm wide, glabrous externally, lacking a hairy ring within, upwardly only slightly ventricose, the throat little contracted, the limb terminal, small, regular; androecium glabrous; ovary and style glabrous; disk annular, glabrous.

TYPE: Cochero, Peru, *Poeppig* (photograph, W).

RANGE: Peru, at 2,300 to 2,700 meters elevation.

SPECIMENS EXAMINED: Between Huánuco and Pampayacu, *Kanehira* 42 (G). Mirador to Chinchao, Dept. Huánuco, *Mexía* 04158 (G).

44. *Besleria affinis* Morton, Proc. Biol. Soc. Washington 48: 75. 1935.

Stems strigillose when young; petioles up to 9.5 cm long; leaf blades ovate or oblong, up to 28 cm long and 13 cm wide, denticulate, rounded at base, glabrate, strigillose beneath on the veins, the primary veins 11–15 pairs; peduncles pendulous, elongate, up to 21 cm long; pedicels subcorymbose, slender, up to 2 cm long; calyx about 4.5 mm long, the lobes ovate, connate about to middle, glabrous, ciliolate, mucronate; corolla red or yellow, 13–16 mm long, scarcely ventricose, glabrous, slightly pubescent in throat; ovary glabrous; disk annular.

TYPE: Ocumaré Valley, State of Aragua, Venezuela, *Pittier* 12562 (W).

RANGE: Venezuela and Colombia.

ADDITIONAL SPECIMENS EXAMINED:

VENEZUELA: Colonia Tovar, *Fendler* 2606 (K), 2365 (G). Without special locality, *Linden* 1403 (K). El Castaño, *Pittier* 13899 (F, W).

COLOMBIA: Dibulla, Dept. Magdalena, *Seifríz* 269 (W).

45. *Besleria variabilis* Morton, sp. nov.

Caules petiolique glabri; lamina foliorum late elliptica, magna, basi obtusa, membranacea, remote denticulata, supra glabra, subtus minute strigillosa; pedunculus communis elongatus; pedicelli subcorymbosi glabri; calycis lobi ovati glabri integri mucronati ciliolati; corolla aurantiaca vel ferruginea, erecta ecalcarata, vix ventricosa, utrinque glabra, limbo patente; ovarium glabrum; discus annularis glaber.

Shrub 1.5–2 meters high; stems subquadrangular, glabrous; petioles 4–11 cm long, glabrous; leaf blades broadly elliptic, 13–23 cm long, 5.5–13 cm wide, obtuse at base, membranous, remotely and minutely denticulate, glabrous above, minutely strigillose beneath, the primary veins 8 to 10 pairs; common peduncle 5.5–10 cm long, the pedicels subcorymbose, 2–3.5 cm long, glabrous, ascending; calyx lobes ovate, 3–4 mm long, entire, mucronate, glabrous, ciliolate, the mid-nerve thickened; corolla orange or rust color, 20–26 mm long, erect, not spurred, the tube scarcely ventricose, 4–5.5 mm wide, glabrous on both sides, the throat contracted, the limb terminal, spreading, rather broad (9–12 mm), the lobes subequal, sparsely puberulous externally; filaments glabrous; ovary and style glabrous; stigma bilobed; disk annular, entire, glabrous.

Type in the U. S. National Herbarium, no. 1,457,292, collected at Balsapuerto, Department of Loreto, Peru, altitude 220 meters, February 1933, by G. Klug (no. 2912).

RANGE: Eastern Peru, at low elevations.

ADDITIONAL SPECIMENS EXAMINED: Type collection (B, F, G, S). Pongo de Cainarachi, Dept. San Martín, Klug 2668 (F, G, S, W).

This species appears to be common in northeastern Peru. Variant forms are numerous, among them the following collections, all in the National Herbarium: Estrella, Dept. Ayacucho, Killip & Smith 22658 (tree, with light yellow corolla, green-tinged without); La Merced, Dept. Junín, Killip & Smith 23710 (herb with succulent stems, and petioles almost equaling the leaf blades), 23554 and 24016 (common peduncles short, the pedicels divergent). Worthy of nomenclatorial recognition are:

45a. *Besleria variabilis* forma *barbatula* Morton, f. nov.

A f. *typica* caule arborescente 2.4–4.5 m alto, corollae lobis exterioribus barbatis differt.

Differs in its arborescent stem and bearded outer corolla lobes.

Type in the U. S. National Herbarium, no. 1,460,123, collected between San Nicolás and Azupizú, Department of Junín, Peru, altitude 650–900 meters, July 6, 1929, by E. P. Killip and A. C. Smith (no. 26127).

RANGE: Eastern Peru, at 400 to 900 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Puerto Yessup, Dept. Junín, Killip & Smith 26332 (F, W). Estrella, Dept. Ayacucho, Killip & Smith 22666 (S, W).

45b. *Besleria variabilis* forma *pallida* Morton, f. nov.

A f. *typica* caule herbaceo 0.6–0.9 m alto, corolla viridi-alba differt.

Differs from the typical form in the herbaceous stem 0.6–0.9 m high, and in the greenish-white corolla.

Type in the U. S. National Herbarium, no. 1,359,543, collected in Río Paucartambo Valley, Department of Junín, Peru, altitude 700 meters, June 19, 1929 by E. P. Killip and A. C. Smith (no. 25293).

46. *Besleria connata* Morton, sp. nov.

Caules et petioli strigosi; lamina foliorum elliptica acuminata membranacea, argute denticulata, subtus praecipue in venis strigillosa; pedunculus communis brevis, pedicellis paucis umbellatis; calyx subcoriaceus, parce externe strigillosus, segmentis supra medium connatis, orbicularibus mucronatis subintegris, margine subscariosis; corolla lutea erecta ecalcarata, utrinque glabra, paullo ventricosa, limbo subbilabiato; ovarium glabrum; discus annularis glaber.

Robust herb, the stems sparsely strigose toward apex; petioles up to 2 cm long, strigose; leaf blades elliptic, up to 12.5 cm long and 5.7 cm wide, sharply acuminate, cuneate at base, membranous, sharply denticulate, glabrous above, strigillose beneath, especially on the veins, the primary veins about 8 pairs; common peduncle short, 5–15 mm long, erect, strigillose, the pedicels 2–4, umbellate, up to 2.5 cm long; calyx 7.5 mm long, sparsely strigillose externally, subcoriaceous, the segments connate to above middle, the tube urceolate, about 5 mm long and 8 mm wide, the lobes orbicular, mucronate below apex, subentire, the margin scarious, ciliolate; corolla yellow, about 20 mm long, erect in calyx, not spurred or saccate at base, the tube glabrous on both sides, a little ventricose upwardly, the throat contracted, the limb terminal, subbilabiate; androecium glabrous; ovary and style glabrous; disk annular, glabrous.

Type in the Field Museum, no. 684,043, collected on Río Claro, Venezuela, altitude 1,360 meters, February 1931, by José Saer (no. 783).

From *Besleria affinis* the present species differs in its smaller leaves with fewer lateral veins, in its very short peduncle, bearing only a few pedicels, and in its

larger, coriaceous calyx. From *B. mucronata* it differs in its denticulate rather than serrulate leaf blades, and its thicker, larger calyx, with the lobes connate to above the middle. In *B. mucronata* the calyx lobes are almost free.

47. *Besleria mucronata* Hanst. *Linnaea* 34: 330. 1865.

Shrub to 1.8 m high; stems strigillose when young; petioles up to 4 cm long, finely strigillose; leaf blades lance-elliptic, up to 12.5 cm long and 4.5 cm wide, short-acuminate, cuneate at base, serrulate, membranous, finely strigillose beneath, especially on the veins, the primary veins 5–7 pairs; common peduncles exceeding the petioles, strigillose, several-flowered, or rarely subcorymbosely branched, the pedicels shorter than peduncle, up to 2 cm long; calyx lobes connate near base, suborbicular, orange, about 4 mm long, sparingly puberulous, not venose, broadly rounded, with a conspicuous mucro arising below the apex; corolla red, oblique in the calyx or almost horizontal, not spurred, slightly saccate at base posteriorly, 13–14 mm long, the tube about 5 mm wide, not ventricose, not contracted in throat, glabrous externally, glabrous within or nearly so; androecium glabrous; ovary and style glabrous; disk interrupted anteriorly.

TYPE: Barrúta, Venezuela, February 1856, *Gollmer* (B).

RANGE: Venezuela, at 1,000 to 1,400 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: El Limón, *Pittier* 13503 (F). Hacienda Puerto La Cruz, *Pittier* 8071 (W). Upper Catuche wood, *Pittier* 7158 (W), 9584 (Y). Petaquire, *Fendler* 787 (G, K, Y). Caracas, *Berschel* (K). Colonia Tovar, *Fendler* 2606 (K). Without specific locality, *Eggers* 13221 (Co) *Karsten* s. n. (B).

48. *Besleria minutiflora* Fritsch, *Repert. Sp. Nov. Fedde* 18: 9. 1922.

Herb; stems glabrate quadrangular; petioles 3–5 cm long, thick; leaf blades elliptic, up to 28 cm long and 12 cm broad, nearly entire, narrowed at base, pale beneath, minutely puberulous on veins beneath, the primary veins 16–18 pairs; peduncles equaling the petioles; pedicels numerous, corymbose, 5 mm long, glabrate; calyx in anthesis 2.5 mm long, the lobes nearly free, suborbicular, rounded, ciliate; corolla whitish 5–6 mm long, glabrous, the tube cylindric, not ventricose or ampliate, the lobes subequal, spreading, the limb about 4 mm broad; ovary and style glabrous; disk glabrous, annular.

TYPE: Leticia, Peru, *Ule* 6211 (B).

A peculiar species, without any close affinities. The inflorescence is not duplicated elsewhere in the genus. The common peduncle is subumbellately 3-branched at apex, but the pedicels, instead of being crowded near the apices of these secondary branches as in other species with subcorymbose inflorescences, are borne throughout the length of the branches. The relatively small corollas with entirely cylindric tube and the large, many-veined leaves are also characteristic.

49. *Besleria kalbreyeri* Fritsch, *Repert. Sp. Nov. Fedde* 18: 8. 1922.

Stems nearly glabrous; petioles 5–7 mm long; leaf blades narrowly elliptic, up to 8 cm long and 3 cm broad, entire, cuneate at base, pale beneath, almost glabrous, the veins bearing a few scattered hairs, the primary veins 5 pairs; peduncles 5–7 mm long, glabrous; pedicels few, 12–13 mm long, glabrous; calyx about 5.5 mm long, the lobes nearly free, oblong, obtuse, glabrous; corolla yellow, about 14 mm long, glabrous externally, glabrous within except for a few hairs in throat, not much ventricose, the limb terminal, regular, small; androecium glabrous; ovary puberulent at apex; disk semiannular.

TYPE: Sisabita, Dept. Santander, *Kalbreyer* 1125 (B).

RANGE: Eastern Cordillera of Colombia, at 1,950 to 2,600 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (K). Charta, Dept. Santander, *Killip & Smith* 19324 (W, Y).

50. *Besleria clivorum* Morton, Proc. Biol. Soc. Washington 48: 75. 1935.

Shrub; stems densely sericeous; leaf blades elliptic, up to 10.5 cm long and 4 cm wide, entire, cuneate at base, densely but minutely sericeous-strigillose beneath on mesophyll and veins, the primary veins 6 or 7 pairs; peduncles slender, up to 4 cm long; pedicels up to 2 cm long; calyx about 4.5 mm long, the lobes nearly free, ovate, imbricate, entire, not mucronate, evenly strigillose without, glabrous within; corolla yellow, 10–12 mm long, the tube glabrous without and within, not ventricose, the throat glandular within; ovary glabrous; disk annular.

TYPE: El Medio, State of Aragua, Venezuela, *Pittier* 12128 (W).

RANGE: Venezuela, at 600 to 1,400 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (B, Y). Between Carrizal and San Diego, *Pittier* 12982 (W, Y). Colonia Tovar, *Fendler* 2029 (K).

51. *Besleria decipiens* Morton, sp. nov.

Caules et petioli parce strigillosi; lamina foliorum late elliptica, basi late cuneata, membranacea integerrima, utrinque glabra; pedunculus communis brevis, glaber, pedicellis corymbosis, quam pedunculo longioribus; calycis lobi orbiculares, basi connati, rotundati integri, vix venosi, externe puberuli; corolla aurantiacorumbrabra ecalcarata, externe glabra, intus paullo stipitato-glandulosa; androeceum glabrum; ovarium apice puberulum; discus annularis glaber.

Small tree up to 3.6 m high, the stems quadrangular, strigillose at apex, soon glabrous; petioles up to 6 cm long, sparingly strigillose; leaf blades broadly elliptic, up to 22 cm long and 13 cm wide, short-acuminate, broadly cuneate at base, membranous, entire, glabrous on both sides, the primary veins about 6 pairs; common peduncle short, up to 17 mm long, nearly glabrous, the pedicels corymbose, numerous, up to 25 mm long, thickened at apex; calyx lobes orbicular, about 3 mm long, connate at base, scarcely venose, rounded, entire, ciliolate, puberulous externally, the midrib not thickened; corolla orange-red, about 13 mm long, not spurred, slightly ventricose upwardly, becoming 6 mm wide, glabrous on both sides, the throat contracted, somewhat stipitate-glandular within, the limb terminal, the lobes short, erect, glabrous, rounded; androeceum glabrous, the anthers coherent; ovary puberulous at apex; style pilosulous; disk annular, entire, glabrous.

Type in the Academy of Natural Sciences, Philadelphia, no. 642,550, collected at La Cumbre, Department of El Valle, Colombia, altitude 1,700–2,100 meters, Sept. 25–27, 1922, by E. P. Killip (no. 11608). Duplicates in the New York Botanical Garden and the U. S. National Herbarium.

52. *Besleria tetragularis* Ruiz ex Hanst. Linnaea 34: 331. 1865.

Herb or small shrub to 1 m high; stem nearly glabrous, quadrangular; petioles sparsely puberulous, up to 6 cm long; leaf blades broadly or narrowly elliptic, up to 14 cm long and 7 cm broad, membranous, subentire, short-acuminate, cuneate at base, puberulous beneath, especially on the veins, primary veins 6–8 pairs; peduncle 5–9 cm long, puberulous; pedicels numerous, puberulous, up to 3 cm long, subcorymbose; calyx lobes orbicular, 4–7 cm long, rounded, not mucronate, ciliolate, puberulous externally, glabrous within, prominently veined; corolla red, 15–17 mm long, prominently ventricose, glabrate or usually puberulent externally, lacking a hairy ring within, contracted in throat, stipitate-glandular within throat; filaments and anthers stipitate-glandular; ovary glabrous; style pubescent; disk glabrous, annular.

TYPE: Vitoc, Peru, *Ruiz & Pavón* in 1794 (B).

RANGE: Peru, at 650 to 900 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (fragment, F). Chanchusmayo, Sandía, *Weberbauer* 1172 (B). Between San Nicolás and Azupizú, Dept. Junín, *Killip & Smith* 26100 (W, Y).

53. *Besleria elegans* H. B. K. Nov. Gen. & Sp. 2: 597. 1818.

Shrub; stems pilose-hirtous when young; petioles 5 cm long or more; leaf blades obliquely elliptic-oblong, up to 20 cm long and 8.5 cm wide, acute at base, entire, thick-membranous, nearly glabrous, the veins bearing a few scattered hairs, primary veins 8 or 9 pairs, pilosulous; peduncles shorter than the petioles; pedicels 2 or 3, 12–14 mm long, glabrate; calyx glabrous, about 5 mm long, the lobes united in lower third, subrotund, not mucronate, entire, subcoriaceous, sparsely pilosulous near base, apparently colored, the margin subscarious; corolla scarlet, about 15 mm long, glabrous, cylindric, not ventricose, scarcely contracted in throat, with a hairy ring within near base, the throat glandular within; filaments and anthers glabrous; ovary elongate, glabrous; style glabrous; disk annular, glabrous; berry globular, about 1 cm long and wide.

TYPE: Quebrada de Tohecito, Quindío Region, Colombia, *Humboldt & Bonpland* (B)⁶.

54. *Besleria rotundifolia* Rusby, Mem. Torrey Club 6: 98. 1896.

Stems densely puberulous when young; petioles 2.5–4.5 cm long; leaf blades broadly elliptic, up to 16 cm long and 11 cm wide, rounded and apiculate at apex, rounded or obtuse at base, slightly denticulate near apex, subtomentose on the veins beneath and the margins, the primary veins 8–10 pairs; peduncles 6–10.5 cm long; pedicels 6–10 mm long; calyx about 6 mm long, the lobes united for about 2 mm, nearly glabrous, obtuse, mucronate, ciliolate; corolla about 12.5 mm long, ventricose, 8.5 mm wide at middle, minutely puberulous externally, with a hairy ring within, glabrous in throat; ovary glabrous; style hairy; disk glabrous, annular.

TYPE: Cochabamba, Bolivia, *Bang* 1250 (Y).

RANGE: Bolivia.

ADDITIONAL SPECIMENS EXAMINED: Type collection (G, M, P, W). San Antonio, Dept. Cochabamba, *Werdermann* 2117 (B).

Rusby's description of the fruits is drawn from specimens of *Hoffmannia latifolia* (Bartl.) Kuntze, which is mixed on some sheets with the *Besleria*. In the National Herbarium one entire sheet of *Bang* 1250 is *Hoffmannia*.

55. *Besleria concolor* Fritsch, Notizbl. Bot. Gart. Berlin 11: 970. 1934.

Stems sparsely pubescent; petioles minutely pubescent, 1–4 cm long; leaf blades lance-elliptic, up to 20 cm long and 8 cm broad, membranous, subentire, the margins subtomentose, narrowed at base, puberulous on the veins beneath; peduncles pubescent, 3–5 cm long; pedicels up to 5 mm long; calyx orange, 4–5 mm long, the lobes nearly free, oblong-lanceolate, submucronate, subglabrous, unequal, imbricate; corolla orange, barely 10 mm long, puberulous without, with a villous ring within at insertion of stamens, the throat glabrous; ovary glabrous; style hairy above; disk glabrous, annular.

TYPE: Chunchusmayo, Sandía, Peru, *Weberbauer* 1194 (B).

RANGE: Peru, at 900 meters elevation.

Closely related to *B. rotundifolia* Rusby and perhaps not really different.

56. *Besleria pallidiflora* Fritsch, Notizbl. Bot. Gart. Berlin 11: 968. 1934.

Herb; stems nearly glabrous; petioles up to 6 cm long; leaf blades lance-elliptic, 6–14 cm long, 2–5 cm wide, membranous, minutely denticulate, cuneate at base, puberulous on the veins beneath; peduncles puberulous, 6–8 cm long; pedicels puberulous, subcorymbose, numerous, 1–2 cm long; calyx 3–4 mm long, the lobes united at base, obtuse, puberulous externally, glabrous within, ciliolate, submu-

⁶ Fritsch (Oesterr. Bot. Zeitsch. 62: 407. 1912) identifies the following collection as of this species: Province of Ocaña, Colombia, altitude 2,400 meters, March 1848, *Schlim* 1692 (Herb. Petrop.).

ronate, not venose; corolla ochroleucous, 10–14 mm long, ventricose at middle (7 mm wide), contracted in throat, externally puberulous, lacking a hairy ring within, stipitate-glandular within throat, the lobes subequal; filaments stipitate-glandular upwardly; anthers stipitate-glandular; ovary glabrous; style pubescent; disk glabrous, annular.

TYPE: Yanangu, Dept. Junín, Peru, *Weberbauer* 2117 (B).

RANGE: Peru, at 2,100 meters elevation.

57. *Besleria amabilis* Morton, sp. nov.

Caules mox glabri; petioli strigosi; lamina foliorum elliptica integra, margine incrassata, supra parum strigosa, subtus in venis marginibusque strigosis; pedunculus communis brevis, pedicello solitario strigilloso; calycis lobi rotundati, basi connati, coriacei, reticulato-venosi; corolla rubra crassa erecta ecalcarata, tubo cylindrico puberulo, limbo latissimo, lobis magnis inaequalibus; ovarium apice dense villosum; discus annularis glaber.

Shrub with angulate, glabrous stems, the internodes 2 cm long, the nodes conspicuous; petioles up to 1.3 cm long, strigose; leaf blades elliptic, the largest 9 cm long and 4 cm wide, short-acuminate, cuneate at base, entire, the margin thickened, green above, sparingly strigose, paler beneath, the veins and margin strigose, the primary veins about 5 pairs; common peduncle short, the pedicel solitary, 2–2.5 cm long, strigillose; calyx lobes about 6 mm long, 4 mm wide, rounded, connate for 1 mm at base, coriaceous, sparsely pubescent without, glabrous within, reticulate-venose, ciliolate; corolla red, fleshy, erect, not spurred or saccate at base, the tube cylindric, 13 mm long, puberulous externally, the limb terminal, about 15 mm broad, the lobes large, 3 mm long, unequal; androecium glabrous, the anthers connate; ovary glabrous at base, densely villous at apex; disk annular, glabrous.

Type in the U. S. National Herbarium, no. 677,635, collected at Cuesta de las Palmas, southern slope of Cerro de la Horqueta, Province of Chiriquí, Panama, in humid forest, altitude 1,700–2,100 meters, Mar. 17–19, 1911, by H. Pittier (no. 3239).

58. *Besleria triflora* (Oersted) Hanst. *Linnaea* 34: 329. 1865.

Parabesleria triflora Oersted, *Centralamer. Gesn.* 52. pl. 6, fig. 1–8. 1858.

Besleria triflora var. *subcorymbosa* Donn. Smith, *Bot. Gaz.* 61: 380. 1916.

Shrub; stems sparingly strigose; petioles strigose, 1.5–3 cm long; leaf blades elliptic, up to 15 cm long and 7 cm broad, usually much smaller, entire, membranous, cuneate at base, nearly glabrous at maturity, the primary veins 5–7 pairs; peduncles variable in length, commonly shorter than the petioles; pedicels umbellate, subcorymbose, usually longer than the peduncle; calyx white at maturity, 5–6 mm long, the lobes free, suborbicular, ciliolate, strigillose externally, the margin subscarious; corolla orange-red, about 15 mm long, puberulent without, the limb about 7 mm broad, scarcely wider than the corolla tube; ovary hairy; disk annular; berry white.

TYPE: Turrialba, Prov. Cartago, Costa Rica, *Oersted* (Co).

RANGE: Costa Rica, at 1,300 to 2,400 meters elevation.

ADDITIONAL SPECIMENS EXAMINED:

COSTA RICA: Tuis, Prov. Cartago, *Tonduz* 11511 p.p. (W). La Palma, Prov. San José, *Standley* 38071 (W); *Tonduz* 7453 (F, G, W, Y), type of var. *subcorymbosa*; *Maxon & Harvey* 8012 (W). La Hondura, Prov. San José, *Standley* 26274 (W), 37707 (W); *M. Valerio* 700 (F). Cerro de las Caricias, Prov. Heredia, *Standley & Valerio* 52005 (W), 52035 (W). Yerba Buena, Prov. Heredia, *Standley & Valerio* 49031 (W), 49189 (W), 49233 (W), 49257 (W), 49745 (W). Orosi, *Standley* 39813 (W). El Muñeco, Prov. Cartago, *Standley & Torres* 51178 (W); *Stork* 2705 (F). La Estrella, Prov. Cartago, *Standley* 39218 (W). Viento Fresco, Prov.

Alajuela, *Standley & Torres* 47767 (W), 47938 (W), 47976 (W). Fraijanes, Prov. Alajuela, *Standley & Torres* 47481 (W), 47686 (W). San Ramón, Prov. Alajuela, *Brenes* 3602 (F), 4184 (F), 4863 (F), 5173 (F), 6030 (F), 6070 (F), 13585 (F). Vara Blanca de Sarapiquí, Prov. Alajuela, *Skutch* 3129 (W).

58a. *Besleria triflora* var. *australis* Morton, var. nov.

A var. *typica* pedunculo communi brevi, pedicellis solitariis nec umbellatis nec subcorymbosis differt.

Differs from the typical variety in the short common peduncle, the pedicels being solitary, not umbellate or subcorymbose.

Type in the U. S. National Herbarium, no. 934,809, collected above Calote, Department of El Cauca, Colombia, Mar. 18, 1884, by F. C. Lehmann (no. 3774). Duplicate at Kew.

RANGE: Colombia, at 1,700 to 2,100 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: La Cumbre, Dept. El Valle, *Killip & Hazen* 11159 (G, P, W, Y); *Pennell & Killip* 5774 (G, P, W, Y). Vicinity of Medellín, Dept. Antioquia, *Toro* 991 (Y).

59. *Besleria formosa* Morton, Field Mus. Publ. Bot. 18: 1151. 1938.

Shrub 1.5–2.5 m high, the stems angulate, strigose, soon glabrous; petioles 1–2 cm long; leaf blades lanceolate, up to 8 cm long and 2.7 cm wide, acuminate, attenuate at base, green above, glabrous or sparsely strigose, pale beneath, glabrous except for the strigose veins, the primary veins about 5 pairs; common peduncle short, up to 7 mm long, the pedicel solitary, 2.5–4 cm long, strigose; calyx lobes coriaceous, obtuse, pale green, glabrous or sparsely strigillose; corolla orange-red, fleshy, 18–19 mm long, not spurred, a little gibbous at base, glabrous on both sides, the limb spreading, narrow, the lobes obtuse; androecium glabrous, the anthers connate; ovary glabrous; style puberulent; disk interrupted on one side, glabrous.

TYPE: Yerba Buena, northeast of San Isidro, Prov. Heredia, Costa Rica, altitude 2,000 meters, *Standley* 49926 (W).

RANGE: Costa Rica, at 2,000 to 2,400 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type locality, *Standley & Valerio* 49839 (W). Cerro de las Caricias, Prov. Heredia, *Standley & Valerio* 52112 (W). Cerro Gallito, *M. Valerio* 1216 (F). Cerro de Zurqui, Prov. Heredia, *Standley & Valerio* 50527 (W), 50695 (W).

Closely related to *B. triflora*, but distinguished by the glabrous corollas and ovaries. The calyces of *B. formosa* are green, those of *B. triflora* white. The present species may also be distinguished from *B. triflora* by the common peduncle bearing only a single pedicel. In *B. triflora* the pedicels are, at least usually, umbellate or subcorymbose.

60. *Besleria comosa* Morton, sp. nov.

Caules et petioli parce hirsuti; lamina foliorum elliptico-oblonga membranacea integra, supra parce hirsuta, subtus praecipue in venis hirsuta; pedicelli solitarii brevissimi axillares hirsuti; calycis lobi lineari-lanceolati liberi membranacei acuminati, argute serrati, externe hirsuti; corolla coccinea brevis ecalcarata obliqua, vix ventricosa, utrinque longe pilosa; ovarium glabrum; disci glandula postica solitaria oblonga glabra.

Stems subterete, sparsely hirsute; petioles 0.7–3 cm long, sparsely hirsute; leaf blades elliptic-oblong, 7.5–11 cm long, 3–4.7 cm wide, acute or short-acuminate at apex, cuneate at base, membranous, entire, sparsely hirsute above, hirsute beneath, especially on the veins, the primary veins 7–9 pairs; common peduncle none; pedicel solitary, axillary, 2–3 mm long, hirsute; calyx lobes linear-lanceolate, 14 mm long, free, membranous, acuminate, sharply serrate, hirsute without,

glabrous within; corolla scarlet, scarcely longer than calyx, about 14.5 mm long, oblique in calyx, not spurred at base, the tube scarcely ventricose, about 5 mm wide, long-pilose on both sides, the throat a little contracted, the limb terminal, the lobes erect, rounded, equal; androecium glabrous, the filaments contorted, the anther cells confluent; ovary glabrous; style pilosulous; disk reduced to a solitary, oblong, glabrous, posterior gland, this 2.5 mm long.

Type in the U. S. National Herbarium, no. 1,196,567, collected between Baños and Cashurco, Valley of Pastaza River, Province of Tungurahua, Ecuador, altitude 1,300–1,800 meters, Sept. 25, 1923, by A. S. Hitchcock (no. 21870).

61. *Besleria mirifica* Morton, sp. nov.

Caules et petioli dense hirsuti; lamina foliorum elliptica magna, cuspidato-acuminata, basi late cuneata, membranacea, fere usque ad basin serrata, utrinque pilosa, in venis hirsuta; pedicelli breves glabri; calycis lobi lanceolati subaequales, fere liberi, externe parce puberuli, intus glabri, sub apice mucronati, mucrone subulato longissimo densissime hirsuto, pilis longissimis; corolla lutea vel aurantiaca, subobliqua ecalcarata ventricosa, externe pilosula, intus glabra, in fauce glandulosa; ovarium glabrum; discus annularis glaber.

Slender shrub about 2 m high, the bark rugose, the stems somewhat quadrangular, about 5 mm in diameter, very densely hirsute; petioles elongate, up to 7 cm long, densely hirsute; leaf blades elliptic, up to 30 cm long and 11.7 cm wide, cuspidate-acuminate, broadly cuneate at base, membranous, conspicuously serrate to base, persistently pilose on both sides, the veins hirsute beneath, the primary veins 8 or 9 pairs; common peduncle obsolete, the pedicels numerous, aggregate in the leaf axils, about 6 mm long, glabrous; calyx lobes lanceolate, about 4.5 mm long, subequal, nearly free, sparingly puberulous externally, glabrous within, mucronate below the apex, the mucro elongate, 8–9 mm long, very densely long-hirsute, the hairs multiseptate, up to 4 mm long; corolla yellow or orange, 15–16 mm long, oblique in the calyx, not spurred at base, the tube 4 mm in diameter at base, ventricose upwardly, becoming 6 mm wide, the hairs of the outer surface glandular at apex, the throat scarcely contracted, glandular within, the limb terminal, about 7 mm wide, the lobes subequal, semi-elliptic, rounded, about 3 mm long and 2.5 mm wide; filaments glabrous, inserted about 4 mm above base of the corolla tube; anthers connate; ovary and style glabrous; disk annular, glabrous.

Type in the U. S. National Herbarium, no. 1,661,631, collected in the vicinity of Puerto Berrio, between Carare and Magdalena Rivers, Department of Santander, Colombia, altitude 100–700 meters, Aug. 11, 1935, by Oscar Haught (no. 1881). Two additional collections made by Mr. Haught at the same locality are nos. 1623 and 1784.

62. *Besleria deflexa* (Oersted) Hanst. Linnæa 34: 321. 1865.

Cyrtanthemum deflexum Oersted, Centralamer. Gesn. 56. pl. 10, fig. 32–39. 1858.

Shrub (?); stem strigose above; petioles strigose, up to 5 cm long; leaf blades broadly elliptic, asymmetric, the pairs unequal, the largest 25 cm long, 10.5 cm wide, long-acuminate at apex and base, obsoletely serrulate, sparsely pilose above with colorless, jointed hairs, strigose on the veins beneath, primary veins about 10 pairs; pedicels 5 mm long; calyx lobes very unequal, linear-lanceolate, the upper about 22 mm, exceeding the corolla, the other four shorter, subequal, 13–17 mm long, subappressed-pubescent; corolla abruptly deflexed at base, ventricose, glabrous; stigma not bilobed; disk half encircling the ovary.

TYPE: Tintalcingo, Lobani, Chinantla, State of Puebla, Mexico, Liebmann (Co).

RANGE: Mexico.

ADDITIONAL SPECIMENS EXAMINED: Type collection (W). Comaltepec, State of Oaxaca, Liebmann (Co).

63. *Besleria cyrtanthemum* Hanst. *Linnaea* 34: 321. 1865.

Cyrtanthemum hirsutum Oersted, *Centralamer. Gesn.* 56. *pl.* 10, *fig.* 20–31. 1858. Not *B. hirsuta* Hanst.

Shrub; stems angled, sparsely pilose below, conspicuously hirsute toward apex; petioles 2.5–3 cm long, sparsely pilose; leaf blades long-elliptic, oblique, the largest about 29 cm long, 11 cm wide, narrowly acuminate at both ends, obsoletely serrulate, sparsely pilose above with colorless jointed hairs, hirsute beneath, especially on the veins, primary veins about 10 pairs; pedicels about 7 mm long, densely pilose; calyx lobes linear-lanceolate, very unequal, the upper about 20 mm long, hirsute outside, glabrous within, the four lower lobes subequal, about 12 mm long; corolla (color unknown) sharply deflexed at base, not spurred, 17–18 mm long, glabrous, markedly ventricose (about 7 mm wide at the broadest place), the throat contracted, the lobes small, obtuse, unequal; disk described as half encircling the ovary.

TYPE: St. Jago Amatlan, State of Oaxaca, Mexico, *Liebmann* (Co).

RANGE: Mexico.

ADDITIONAL SPECIMENS EXAMINED: Type collection (F, W). Lacoba, Chinantla, State of Puebla, *Liebmann* (Co). Comaltepec, State of Oaxaca, *Liebmann* (Co).

64. *Besleria tuberculata* Morton, sp. nov.

Caules et petioli dense rubro-hirsuti; lamina foliorum elliptico-oblonga acuta, basi obtusa, subcoriacea crenulata, supra longe tuberculata, tuberculis apice piliferis, subtus dense hirsuta; pedicelli hirsuti; calycis lobi ad medium connati, lanceolati integri membranacei, utrinque longe hirsuti, apice filiformes; corolla rubra parva ecalcarata, externe parce hirsuta, intus faucem versus stipitato-glandulosa, lobis longe ciliatis; ovarium dense villosum; discus annularis glaber.

Herb about 1.5 m high, the stems densely red-hirsute; petioles 5–7 mm long, densely hirsute; leaf blades elliptic-oblong, 7–9 cm long, 2.5–3.8 cm wide, acute, obtuse at base, subcoriaceous, crenulate, long-tuberculate on the upper surface (the tubercles piliferous at apex), densely hirsute beneath, the primary veins about 8 pairs; common peduncle obsolete, the pedicels numerous, about 10 mm long, hirsute; calyx about 10 mm long, the lobes lanceolate, connate to middle, membranous, entire, filiform at apex, long-hirsute on both sides; corolla red, about 13 mm long, erect, not spurred or saccate at base, the tube about 5 mm wide, scarcely ventricose, sparingly hirsute externally, glabrous within at base, stipitate-glandular toward throat, the throat contracted, the limb terminal, the lobes subequal, long-ciliate; androecium glabrous; ovary densely villous; style pilosulous; disk annular, glabrous.

Type in the U. S. National Herbarium, no. 1,482,429, collected in the region of Mount Chapón, Department of Boyacá, Colombia, altitude 2,250 meters, May 23, 1932, by A. E. Lawrance (no. 102). Duplicate at Stockholm.

In the tuberculate upper surfaces of the leaves this species is similar to *B. laeta*, but in floral characters the two species are quite unlike.

65. *Besleria columnneoides* Hanst. *Linnaea* 34: 322. 1865.

Stems densely hirsute; petioles 2.5 cm long, hirsute; leaf blades elliptic, up to 22.5 cm long and 8.5 cm wide, cuneate at base, hirsute beneath especially on the veins, the primary veins 8 or 9 pairs; pedicels 0.8–1.4 cm long; calyx yellow, 10 mm long, the lobes free, lanceolate, acuminate, externally long-pilose, glabrous within, bearing 2–4 subulate teeth; corolla scarcely longer than calyx, 4 mm wide, copiously red-villous, the lobes glabrous externally, long-ciliate; ovary villous at apex; disk subentire.

TYPE: San Miguel, Costa Rica, May 14, 1857, *Wendland* 762 (B).

66. *Besleria ignea* Fritsch, Notizbl. Bot. Gart. Berlin 11: 966. 1934.

Herb or shrub, 0.6–1.5 m high; stems densely appressed-pilose; petioles appressed-pilose, short, up to 4 cm long; leaf blades oblanceolate, up to 22 cm long and 9 cm wide, subentire, long-decurrent at base into the petiole, strigillose on the veins beneath, primary veins 5–8 pairs; pedicels up to 1 cm long; calyx orange, about 15 mm long, the lobes free, lanceolate, acute, entire, densely sericeous-pilose without, glabrous or sparingly pubescent within; corolla orange, 20–27 mm long, ventricose, nearly glabrous without, or sparingly pilosulous, with a pilose ring within at the insertion of the filaments, the lobes conspicuously long-ciliate; ovary glabrous; style hairy; disk annular but enlarged posteriorly, glabrous.

TYPE: Leticia, Dept. Loreto, Peru, *Ule* 6182 *** (B).

RANGE: Peru and Amazonian Brazil, at 375 to 625 meters elevation.

ADDITIONAL SPECIMENS EXAMINED:

PERU: Puerto Yessup, Dept. Junín, *Killip & Smith* 26230 (W). Santa Rosa, Dept. Junín, *Killip & Smith* 26154 (W). Puerto Bermudez, Dept. Junín, *Killip & Smith* 26427 (W), 26466 (W), 26517 (W), 26536 (W).

BRAZIL: Paranagua, Basin of the Rio Juruá, State of Amazonas, *Krukoff* 4553 (S, Y).

66a. *Besleria ignea* var. *mexiae* Morton, var. nov.

A var. *typica* petiolis longioribus (7–10 cm), laminis ellipticis nec oblanceolatis differt.

Differs from the typical variety in the longer petioles (7–10 cm) and the elliptic rather than oblanceolate leaf blades.

Type in the U. S. National Herbarium, no. 1,664,491, collected on trail from Rancho Indiana to Río Napo, Department of Loreto, Peru, altitude 110 meters, Jan. 27, 1932, by Ynes Mexía (no. 6447a). Duplicate in the Field Museum.

66b. *Besleria ignea* var. *loretensis* Morton, var. nov.

A var. *typica* caulibus, petiolis venisque patente hirsutis nec appresso-pilosis differt.

Differs from the typical variety in the spreading-hirsute pubescence of the stems, petioles, and veins.

Type in the U. S. National Herbarium, no. 1,461,940, collected between Yurimaguas and Balsapuerto, lower Río Huallaga basin, Department of Loreto, Peru, altitude 135–150 meters, Aug. 26–31, 1929, by E. P. Killip and A. C. Smith (no. 28337).

RANGE: Peru, at 100 to 350 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type locality, *Killip & Smith* 28418 (W). Iquitos, *Killip & Smith* 26935 (W), 27353 (W), 29855 (W). San Antonio, on Río Itaya, *Killip & Smith* 29489 (W). Soledad, on Río Itaya, *Killip & Smith* 29637 (W), 29814 (W).

66c. *Besleria ignea* var. *semiannularis* Morton, var. nov.

A var. *typica* disco semiannulari nec annulari, foliis subtus ubique molliter pilosis, venis hirsutis differt.

Differs from the typical variety in the leaf blades being hirsute on the veins and soft-pilose beneath on the surface, and in its semiannular not annular disk.

Type in the U. S. National Herbarium, no. 1,495,925, collected at Florencio, Caquetá, Colombia, December 1930, by E. Pérez Arbelaez (no. 751B).

67. *Besleria petiolaris* (Griseb.) Urban, Symb. Antill. 2: 352. 1901.

Collandra petiolaris Griseb. Fl. Brit. W. Ind. 463. 1861.

Stems densely pilose-subtomentose; petioles 2.5–6 cm long; leaf blades obovate or obovate-elliptic, 17–26 cm long, 9–11 cm wide, subcoriaceous, subentire,

broadly cuneate at base, pilosulous beneath, especially on the veins, the primary veins 9–14 pairs; pedicels densely villous, 4–6 mm long; calyx 9–12 mm long, the lobes narrowly lanceolate, long-acuminate, entire, free, villous on the back; corolla 12 mm long, glabrous; ovary glabrous; disk annular.

TYPE: Dominica, *Imray* 199 (K).

RANGE: Dominica.

Urban (*loc. cit.*) mentions *Imray* 298 and *Nicholls* 8, both from Dominica.

68. *Besleria robusta* Donn. Smith, Bot. Gaz. 25: 156. 1898.

Shrub; branches 8–10 mm thick, densely tomentose; petioles 2.5–5.5 cm long, thick; leaf blades obovate, up to 32 cm long and 17.5 cm wide, subcoriaceous, entire, cuneate at base, subtomentose on the veins beneath and the margins, the primary veins 11 or 12 pairs; pedicels densely sericeous, 6–10 mm long, elongating in fruit; calyx 10–12 mm long, the lobes free, oblong-ovate, acute, coriaceous, entire, densely sericeous without, glabrous within; corolla orange, 9–14 mm long, ventricose, glabrous except for the glandular throat within; ovary glabrous; disk annular.

TYPE: Tsaki, Prov. Limón, Costa Rica, *Tonduz* 9556 (W).

RANGE: Costa Rica and Panama, at 200 to 500 meters elevation.

ADDITIONAL SPECIMENS EXAMINED:

COSTA RICA: Guápiles, Prov. Limón, *Standley* 37065 (W), 37318 (W).

PANAMA: Buena Vista Camp, on Chiriquí Trail, *Cooper* 584 (F, Y).

69. *Besleria citrina* Fritsch, Notizbl. Bot. Gart. Berlin 11: 963. 1934.

Stems subquadrangular, sparsely strigose; petioles 2–4.5 cm long, strigose; leaf blades oblong-ob lanceolate, 15–20 cm long, 4–5 cm wide, cuneate at base, rather thick, entire, strigose beneath on the veins, the primary veins about 8 pairs; common peduncle obsolete, the pedicels very short, about 4 mm long, strigose; calyx lobes lemon-yellow, ovate, 6–8 mm long, acutish, entire, sparingly pilose without, glabrous within; corolla lemon-yellow, erect, not saccate at base, externally villous, lacking a hairy ring within, the limb terminal; androecium glabrous; ovary puberulous at apex; disk annular, glabrous.

TYPE: Moyobamba, Dept. Loreto, Peru, *Weberbauer* 4618 (B).

RANGE: Peru, at 1,000 to 1,100 meters elevation.

70. *Besleria membranacea* Morton, sp. nov.

Caules et petioli sparse strigosi; lamina foliorum elliptica vel ovato-elliptica, basi attenuata, membranacea integra, supra glabra, subtus praecipue in venis puberula; pedicelli pauci glabri; calycis lobi ovato-lanceolati liberi acuti integri, tenuiter membranacei, fere glabri; corolla flava et alba, erecta ecalcarata, paullo ventricosa, utrinque glabra; ovarium glabrum; discus annularis glaber.

Shrub 1 m high, the stems sparsely strigose toward apex; petioles elongate, up to 11.5 cm long, sparsely strigose; leaf blades elliptic or ovate-elliptic, up to 16 cm long and 7.5 cm wide, attenuate at base, membranous, entire, glabrous above, puberulous beneath, especially on the veins, the primary veins 8 or 9 pairs; common peduncle obsolete, the pedicels few, about 2 cm long, glabrous; calyx lobes ovate-lanceolate, in anthesis 9 mm long and 4.7 mm wide, becoming somewhat larger in age, free, acute, not mucronate, entire, thin-membranous, nearly glabrous without, glabrous within; corolla yellow and white, about 18 mm long, erect, not spurred or saccate at base, the tube 5 mm wide at base, a little ventricose upwardly, becoming 7 mm wide, glabrous on both sides, the limb terminal, the lobes erect, subequal; androecium glabrous; ovary glabrous; disk annular, glabrous.

Type in the Field Museum, collected at Chazuta, Río Huallaga, Department of San Martín, Peru, altitude 260 meters, March 1935, by G. Klug (no. 3994). Duplicates in the Gray Herbarium and U. S. National Herbarium.

RANGE: Amazonian Peru.

ADDITIONAL SPECIMEN EXAMINED: Río Mayo, near Tarapoto, Dept. San Martín, Spruce s. n. (K).

71. *Besleria cuneata* Gardn. in Lond. Journ. Bot. 1: 543. 1846.

Stems sparingly strigillose; petioles 2.5–4 cm long, glabrate; leaf blades oblanceolate or elliptic, up to 18 cm long and 7.5 cm wide, cuneate at base, membranous, entire, minutely strigillose on the veins beneath, the primary veins 7 or 8 pairs; pedicels 5 mm long or less, strigillose; calyx lobes yellow, ovate, about 8.5 mm long, rounded or obtuse, not mucronate, imbricate, nearly free, membranous, entire, sparingly pilosulous externally, ciliate, glabrous within; corolla yellow, not twice as long as calyx, not spurred, sparsely pilosulous; ovary glabrous; disk annular, glabrous.

TYPE: Corcovado, State of Rio de Janeiro, Brazil, Gardner.

RANGE: State of Rio de Janeiro, Brazil.

SPECIMENS EXAMINED: Corcovado, Mosén 2762 (S); Dusén 5087 (S).

72. *Besleria melancholica* (Vell.) Morton, comb. nov.

Orobanche melancholica Vell. Fl. Flum. 260. 1825; Ic. 6: pl. 77. 1827.

Besleria geminiflora Gardn. in Lond. Journ. Bot. 1: 542. 1846.

Besleria riedeliana Hanst. in Mart. Fl. Bras. 8¹: 399. 1864.

Stems strigillose or subappressed-pilose at apex; petioles up to 5 cm long; leaf blades elliptic or oblanceolate, up to 18 cm long and 8 cm wide, cuneate at base, membranous, entire, glabrate above, puberulous on the veins beneath, the primary veins 8–10 pairs; pedicels few, 12–17 mm long, strigillose; calyx lobes lanceolate or ovate-lanceolate, 12–17 mm long, acute, membranous, imbricate, entire, strigillose externally, glabrous within; corolla yellow or whitish, about 22 mm long, erect, not spurred or saccate at base, the tube scarcely ventricose, about 8 mm wide, pilosulous externally, lacking a hairy ring within; androecium and gynoecium glabrous; disk annular, glabrous.

TYPE: State of Rio de Janeiro, Brazil, Velloso.

RANGE: State of Rio de Janeiro, Brazil.

SPECIMENS EXAMINED: Corcovado, Gardner 246 (K); Dusén 197 (S); Pohl (F); Tijuca, Dusén 14359 (F, S). Rio de Janeiro, Miers 3087 (K); Widgren (S); Regnell 174 (S); Riedel s. n. (Co, K, W). Without special locality, Widgren 662 (S); Freyreiss (S); Talbot (K); Wilkes Expedition (W).

73. *Besleria symphytum* Hanst. in Mart. Fl. Bras. 8¹: 399. 1864.

Stems hirsute-villous; petioles villous, up to 4 cm long; leaf blades elliptic-ovate, up to 20 cm long and 10 cm wide, cuneate at base, membranous, entire, hirsute on both sides, the primary veins 9 or 10 pairs; pedicels numerous, short, hirsute; calyx lobes broadly ovate, 12–16 mm long, 7–9 mm wide, short-acuminate, imbricate, membranous, entire, setose-villous on both surfaces; corolla and genitalia not known.

TYPE: Rio de Janeiro, Lhotzky (photograph, F).

I have seen no specimens of this species, which is said to differ from *B. melancholica* in having the calyx lobes hairy on both surfaces. This point is not clear from the photograph I have seen. Specimens which have been so determined have been found referable to *B. melancholica*.

74. *Besleria meridionalis* Morton, sp. nov.

Caules et petioli hirsuti; lamina foliorum elliptica, breviter acuminata, basi angustata, membranacea, apicem versus serrata, utrinque hirsuta; pedicelli solitarii vel bini, elongati, parce hirsuti; calycis lobi anguste oblongi, liberi, non imbricati, integri, paullo mucronati, externe in linea media sparse pilosuli; corolla lutea erecta ecalcarata ventricosa, utrinque glabra; ovarium glabrum; discus annularis glaber.

Stems densely hirsute; petioles up to 4 cm long, hirsute; leaf blades elliptic, up to 7.5 cm long and 3.5 cm wide, short-acuminate at apex, narrowed at base, membranous, serrate toward apex, hirsute on both sides, the primary veins 6 or 7 pairs; common peduncle obsolete, the pedicels solitary or paired, elongate, 3–4.5 cm long, sparsely hirsute, thickened toward apex; calyx lobes narrowly oblong, 9–10 mm long, free, not imbricate, entire, a little rounded and mucronate at apex, pilosulous externally in a median line, glabrous within; corolla yellow, 15–18 mm long, erect, not spurred, the tube 5 mm wide at base, ventricose upwardly, becoming 9 mm wide, glabrous on both sides, the throat contracted, the limb terminal, narrow, regular; androecium glabrous; ovary and style glabrous; disk annular, glabrous.

Type in the Kew Herbarium, collected near Papagaio, State of Minas Geraes, Brazil, October 1840, by Gardner (no. 4974).

The type sheet bears the erroneous number 4976. The correct data are given on a duplicate sheet in the Kew Herbarium which bears Gardner's original label

75. *Besleria fasciculata* Wawra, Oesterr. Bot. Zeitschr. 13: 142. 1863.

Stems hirsute; petioles up to 4.5 cm long, hirsute; leaf blades oblanceolate, up to 23 cm long and 11 cm wide, cuneate at base, membranous, entire, glabrate above, hirsute beneath, the primary veins 6–9 pairs; common peduncle obsolete, the pedicels numerous, 10–12 mm long, hirsute; calyx lobes ovate-lanceolate, 12–17 mm long, acute, not mucronate, membranous, entire, hirsute without, glabrous within; corolla whitish or pale yellow, erect, not spurred, pilose externally; ovary and style glabrous; disk annular, glabrous.

Type: Corcovado, State of Rio de Janeiro, Brazil, *Wawra* (photograph, W).

RANGE: State of Rio de Janeiro, Brazil.

ADDITIONAL SPECIMENS EXAMINED: Rio de Janeiro, *Riedel* (W); *Widgren* 1323 (S).

76. *Besleria disgrega* Morton, Proc. Biol. Soc. Washington 48: 74. 1935.

Shrub; stems hirsute; petioles hirsute, up to 6 cm long; leaf blades ovate or elliptic, up to 19 cm long and 8.5 cm wide, membranous, denticulate, cuneate at base, ciliate, hirsute on the veins beneath, the primary veins 7–9 pairs; pedicels numerous, hirsute, about 7 mm long; calyx about 14 mm long, the lobes linear-lanceolate, carinate, entire, hirsute on both sides; corolla white, 15–18 mm long, lightly puberulent without, glabrous within, the throat glandular; ovary glabrous; disk annular.

TYPE: El Portachuela, State of Aragua, Venezuela, *Pittier* 11810 (W).

RANGE: Venezuela.

ADDITIONAL SPECIMENS EXAMINED: Type collection (Y). Alto de Rancho Grande, *Pittier* 12151 (W, Y). El Portachuela, *Pittier* 11367 (W). Colonia Tovar, *Fendler* 2030 (K). Puerto La Cruz, *Jahn* 1324 (W).

77. *Besleria furva* Morton, sp. nov.

Caules et petioli hirsuti; lamina foliorum oblique ovata, magna, abrupte acuminata, apicem versus denticulata, basi rotundata, utrinque hirsuta; pedicelli in axillis foliorum aggregati, hirsuti; calycis lobi ovato-lanceolati, basi connati, vix dentati, acuminati, externe hirsuti; corolla alba erecta ecalcarata, vix ventricosa, glabra; ovarium glabrum; discus annularis glaber.

Stems quadrangular, hirsute; petioles up to 9 cm long, hirsute; leaf blades obliquely ovate, up to 24 cm long and 13 cm wide, abruptly acuminate, unequally rounded at base, denticulate toward apex, hirsute on both sides, the primary veins 8–10 pairs; common peduncle obsolete; pedicels aggregate in the leaf axils, about 15 mm long, hirsute; calyx lobes ovate-lanceolate, about 11 mm long, connate at base, acuminate, slightly dentate, hirsute without, glabrous within; corolla white, 13 mm long, erect, not spurred, scarcely ventricose, glabrous, the limb terminal, the lobes erect, rounded; ovary and style glabrous; disk annular, entire, glabrous.

Type in the Kew Herbarium (2 sheets), collected at Tarapoto, Department of San Martín, Peru, on tree trunks, January 1857, by R. Spruce (no. 4955).

78. *Besleria riparia* Morton, sp. nov.

Caules et petioli hirsuti; lamina foliorum late elliptica, acuta, basi rotundata vel late cuneata, membranacea, remote crenata vel fere integra, supra hirsuta, subtus imprimis in venis hirsuta; pedicelli solitarii graciles fere glabri; calycis lobi lineari-lanceolati liberi, longe acuminati, integri, externe hirsuti, intus glabri; corolla aurantiaca erecta ecalcarata ventricosa, externe pilosa, intus annulo piloso basi praedita; ovarium glabrum; discus annularis glaber.

Shrub 1–1.5 m high, the stems hirsute upwardly, glabrescent below; petioles up to 2.5 cm long, hirsute; leaf blades broadly elliptic, up to 10.5 cm long and 5.5 cm wide, acute, rounded or broadly cuneate at base, membranous, remotely crenate or nearly entire, hirsute above, hirsute beneath, especially on the veins, the primary veins 8–12 pairs; common peduncle obsolete, the pedicels solitary in the leaf axils, slender, about 2.5 cm long, nearly glabrous; calyx lobes linear-lanceolate, free, about 13 mm long, 2.5 mm wide at base, long-acuminate, entire, hirsute externally, glabrous within; corolla orange, about 16 mm long, not spurred at base, erect, ventricose upwardly, becoming 9 mm wide, pilose externally, bearing a pilose annular ring within at the insertion of the filaments, the throat contracted, about 5 mm wide, the limb terminal, the lobes small, erect, rounded, subequal, about 1.5 mm long; anthers connate; ovary glabrous; style puberulous; disk annular, glabrous.

Type in the U. S. National Herbarium, no. 531,413, collected near Río Flautas, Río Paez Valley, Tierra Adentro, Department of Huila, Colombia, altitude 2,700 meters, Jan. 26, 1906, by H. Pittier (no. 1219).

There is in the National Herbarium a second specimen of the same species collected at the same place (*Pittier* 1212). A specimen with obtusish, relatively broader, more hirsute leaves, perhaps to be referred here, was collected on Mount Derrumbo, Dept. of El Cauca, altitude 2,500–2,900 meters, July 1, 1922, by E. P. Killip (no. 7996).

79. *Besleria impressa* Morton, sp. nov.

Caules subappresso-pilosi; lamina foliorum oblonga, basi rotundata, chartacea integra, supra subglabra, subtus praecipue in venis hirsuta, venis primariis supra valde impressis; pedicelli plurimi breves; calycis lobi lanceolati liberi, longe acuminati, nervosi, externe pilosi, ciliati; corolla erecta, ecalcarata, sursum ventricosa, externe sparse pilosa, intus glabra; ovarium glabrum; discus uno latere interruptus.

Shrub with angled, subappressed-pilose stems; petioles short, scarcely 5 mm long; leaf blades oblong, up to 10 cm long and 3.3 cm wide, acuminate, rounded at base, chartaceous, entire, subglabrous above, hirsute beneath, especially on the veins, the primary veins 9–15 pairs, strongly impressed above, elevated beneath; common peduncle obsolete, the pedicels numerous, 6–7 mm long; calyx lobes lanceolate, 7.5 mm long, free, long-acuminate, veiny, pilose externally, glabrous within, ciliate; corolla erect, 10–14 mm long, not spurred or gibbous at base, 3 mm wide at base, ventricose upwardly and becoming 5 mm wide, minutely puberulous at base, sparsely pilose upwardly, glabrous within, the limb terminal, the lobes small, equal; androecium glabrous; ovary and style glabrous; disk glabrous, interrupted on one side; berry 5–6 mm in diameter, the style base persistent.

Type in the U. S. National Herbarium, no. 1,423,128, collected at Villavicencio, Department of Meta, Colombia, altitude 2,500 meters, by M. T. Dawe (no. 263). A duplicate is in the Kew Herbarium.

RANGE: Eastern Cordillera of Colombia, at 1,200 to 2,000 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Buena Vista to Villavicencio, *Pérez Arbeláez* (W). Susumuco, south of Quetamá, Dept. Cundinamarca, *Pennell* 1367 (W, Y).

80. *Besleria immitis* Morton, sp. nov.

Caules et petioli hirsuti; lamina foliorum lanceolata vel elliptico-lanceolata, apice attenuata, basi anguste cuneata, membranacea, leviter serrata, utrinque hirsuta; pedicelli numerosi in axillis foliorum, breves; calycis lobi lineares liberi integri, externe hirsuti, intus glabri; corolla ferrugineo-rubra erecta ecalcarata tubulosa, vix ventricosa, externe hirsuta, intus annulo piloso instructa, intus in fauce glabra; filamenta brevia, basi pilosa; ovarium pilosum; discus annularis, postice crassus.

Shrub 1.5 m high, the stems terete, densely hirsute; petioles slender, up to 5.5 cm long, hirsute; leaf blades lanceolate or elliptic-lanceolate, up to 19 cm long and 6.8 cm wide, attenuate at apex, narrowly cuneate at base, membranous, lightly serrate, hirsute on both sides, the primary veins 7-9 pairs; calyx lobes linear, free, 10-11 mm long, about 1.5 mm wide, at length becoming 15 mm long, entire, hirsute externally, glabrous within; corolla brick-red, about 13 mm long, erect, not spurred, tubular, scarcely ventricose, about 6 mm wide, the throat scarcely contracted, the limb terminal, the lobes erect, rounded, small; filaments short, pilose at base; ovary pilose; style pilosulous; disk annular, very low anteriorly, thickened posteriorly, glabrous; berry shining, pilose at apex.

Type in the U. S. National Herbarium, no. 1,518,072, collected at Umbría, 6°54' N., 76°10' W., Comisaría del Putumayo, Colombia, altitude 325 meters, January-February, 1931, by G. Klug (no. 1912). Duplicate at Stockholm.

RANGE: Amazonian Colombia and Peru.

ADDITIONAL SPECIMENS EXAMINED:

PERU: Florida, Río Putumayo, Dept. Loreto, *Klug* 2231 (S, W). ? Río Santiago, Pongo de Manseriche, Dept. Loreto, *Mexía* 6245 (F).

81. *Besleria compta* Morton, sp. nov.

Caules et petioli hirsuti; lamina foliorum elliptico-lanceolata, acuminata, basi cuneata, membranacea integra, utrinque hirsuta; pedicelli in axillis foliorum aggregati, hirsuti; calycis lobi ovato-lanceolati, basi connati, acuminati, serrati, externe hirsuti, intus glabri, ciliati; corolla flava erecta ecalcarata, vix ventricosa, superne dense hirsuta, tubo intus glanduloso, annulo piloso nullo; ovarium pilosulum; discus annularis glaber.

Shrub 1 m high, the stems terete, densely hirsute; petioles up to 7 cm long, slender, hirsute; leaf blades elliptic-lanceolate, up to 17.5 cm long and 7 cm wide, acuminate, cuneate at base, membranous, entire, hirsute on both sides, ciliate; common peduncle obsolete, the pedicels aggregate in the leaf axils, about 12 mm long, hirsute; calyx lobes ovate-lanceolate, about 11 mm long, 5 mm wide at base, irregular, connate at base, acuminate, serrate, hirsute externally, glabrous within, ciliate; corolla pale yellow, about 19 mm long, erect, not spurred at base, hardly ventricose, about 7 mm wide, densely hirsute without, glabrous within, the throat not contracted, the limb terminal, the lobes erect, rounded, about 4 mm long, eglandular within; filaments about equaling the corolla tube, glabrous; staminodium well developed; ovary and style pilosulous; disk annular, entire, glabrous.

Type in the U. S. National Herbarium, no. 1,457,306, collected at Balsapuerto, Department of Loreto, Peru, altitude 220 meters, February 1933, by G. Klug (no. 2926). Duplicates at Berlin, Kew, Gray Herbarium, and Stockholm.

RANGE: Eastern Peru at low elevations.

ADDITIONAL SPECIMENS EXAMINED: Tarapoto, Dept. San Martín, *Spruce* 4564 (K). Campana, *Spruce*, s. n. (K).

The last specimen was cited by Britton as *Besleria sprucei* and formed the basis for the specific name, but *Rusby* 2149 was definitely cited as the type. The *Rusby* and *Spruce* plants are obviously different and belong in different subsections. The *Spruce* specimen is not in condition to dissect but seems to be conspecific with *Klug* 2926 and *Spruce* 4564.

82. *Besleria capitata* Poepp. Nov. Gen. & Sp. 3: 2. 1845.

Stems hirsute; petioles up to 4 cm long; leaf blades elliptic-oblong, up to 13 cm long and 6 cm wide, short-acuminate, cuneate at base, ciliate, hirsute beneath, especially on the veins, primary veins about 10 pairs; peduncles hirsute, longer than the petioles; pedicels subracemose, short; calyx orange, lobes free, oblong-lanceolate, about 11 mm long, hirsute externally, glabrous within, subentire, with a long mucro arising below the apex; corolla yellow, fleshy, about 13 mm long, the tube not saccate at base, erect, scarcely ventricose, the lobes small, subequal, densely pilose externally, not ciliate, the tube with a hairy ring within at insertion of filaments, glandular within throat; filaments pubescent upwardly; anthers sparingly pubescent; ovary pilosulous at apex; style pubescent; disk annular, fleshy, glabrous.

TYPE: Cochero, Peru, *Poeppig* 1622 (photograph, W).

SPECIMEN EXAMINED: Type locality, *Poeppig* 1623 (B).

83. *Besleria racemosa* Morton, sp. nov.

Caules et petioli tomentoso-villosi; lamina foliorum obovata vel late elliptica, rotundata, basi obliqua rotundata, chartacea, crenulata, supra parce pilosa, subtus in venis hirsuta; pedunculus communis elongatus crassus hirsutus, pedicellis racemosis crassissimis hirsutis; calycis lobi oblongi, fere liberi, coriacei rotundati serrulati, sub apice breviter mucronati, externe villosuli, intus glabri; corolla ferruginea erecta ecalcarata ventricosa, externe minute sed dense hirtopuberula, intus basin versus pilosa, lobis externe hirtis; ovarium apice pilosulum; discus annularis glaber.

Herb with fleshy stems about 1 cm in diameter, these quadrangular, densely tomentose-villous at apex; petioles fleshy, 1-3 cm long, densely tomentulose-villous; leaf blades obovate or broadly elliptic, 17-26 cm long, 8-15 cm wide, rounded, oblique and rounded at base, chartaceous, crenulate, sparsely pilose above, hirsute on the veins beneath, glabrous on the leaf surface, the primary veins 13-15 pairs; common peduncle elongate, 9-15 cm long, thick, hirsute, the pedicels racemose, 1-1.5 cm long, very thick, hirsute; calyx lobes oblong, in anthesis about 10 mm long, at length somewhat longer, nearly free (the short tube densely tomentose within), coriaceous, rounded, short-mucronate below apex, serrulate, villosulous externally, glabrous within; corolla brick-red, about 1.5 cm long, erect, not spurred or gibbous at base, the tube 3.5 mm wide at base, ventricose upwardly, becoming 5 mm wide, minutely but densely hirtopuberulous externally, pilose within toward base, the throat contracted, 3 mm wide, the limb terminal, the lobes small, erect, hirtous without, minutely ciliolate; ovary sparingly pilosulous at apex; style pilosulous; disk annular, glabrous.

Type in the Field Museum, collected at Pongo de Cainarachi, Río Cainarachi, Department of San Martín, Peru, altitude 230 meters, September-October 1932, by G. Klug (no. 2660). Duplicate at B, S, W, and Y.

Besleria capitata, *B. racemosa*, and *B. trichiata* form a group well distinguished among Peruvian species by the hirsute-tomentose stems and leaf veins, the elongate peduncle and racemose or subracemose pedicels, and the orange, coriaceous, strongly imbricate calyx lobes. The species themselves are not, however, easy to identify in the absence of flowers. I have seen six additional collections, all lacking corollas, and am unable at present to decide to which if any of the three species they belong. *Besleria capitata* itself is well distinguished by the elongate

mucro arising from the back and much exceeding the apex of the sepal. In the other two species the mucro is short, not reaching the apex of the sepal or almost wanting in *B. trichiata*. As represented by the type specimens *B. racemosa* and *B. trichiata* differ not only in the corollas but also in leaf characters, but I am uncertain as to how much importance to attach to the latter in this group. The dubious specimens of this group are:

PERU: Cahuapanas, Dept. Junín, Killip & Smith 26761 (W, Y). San Nicolás, Dept. Junín, Killip & Smith 26008 (W, Y). Dos de Mayo, Dept. Junín, Killip & Smith 25817 (W), 25822 (W, Y). Enañas, Dept. Junín, Killip & Smith 25785 (W). Schunke Hacienda, above San Ramón, Dept. Junín, Killip & Smith 24718 (W, Y).

84. *Besleria trichiata* Morton, sp. nov.

Caules et petioli densissime hirsuti vel hirsuto-tomentosi; lamina foliorum oblique et late elliptica, acuta, basi late cuneata, chartacea opaca subcrenata ciliata, supra parce pilosa, subtus praecipue in venis tomentoso-hirsuta; pedunculus communis hirsutus, pedicellis subracemosis crassis hirsutis; calycis lobi aurantiaci oblongi rotundati subaequales coriacei, sub apice paullo mucronati, externe hirsuti, intus glabri; corolla flava erecta ecalcarata suburceolata, tubo externe glabro, intus annulum pilosum gerente, faucem versus contracto, limbo terminali, lobis perspicue ciliatis; filamenta basi pilosa; ovarium glabrum conicum; discus annularis glaber.

Herb about 30 cm high, the stems not branched, densely hirsute or hirsute-tomentose; petioles up to 2 cm long, hirsute; leaf blades obliquely broad-elliptic, up to 12 cm long and 6.5 cm wide, acute, broadly cuneate at base, chartaceous, opaque, subcrenate, ciliate, green above, sparsely pilose, paler beneath, tomentose-hirsute, especially on the veins, the primary veins 8–11 pairs; common peduncle hirsute, up to 3.5 cm long, the pedicels subracemose, thick, about 6 mm long, hirsute; calyx lobes orange, oblong, 10–11 mm long, about 4.5 mm wide, nearly free, imbricate, coriaceous, rounded, a little mucronate below apex, hirsute externally, glabrous within; corolla yellow, about 16 mm long, erect, not spurred, suburceolate, the tube about 9 mm wide, glabrous externally, bearing a pilose annular ring within at the insertion of the stamens, gradually contracted toward the throat, this about 6 mm wide, the limb terminal, about 7 mm wide, not bilabiate, the lobes small, reflexed, suborbicular, about 1.5 mm long, conspicuously ciliate on the margins; filaments pilose at base; ovary glabrous, conic; style densely pilosulous; disk annular, glabrous.

Type in the U. S. National Herbarium, no. 1,359,999, collected at Porvenir, Pichis Trail, Department of Junín, Peru, altitude 1,500–1,900 meters, July 3–4, 1929, by E. P. Killip and A. C. Smith (no. 25955).

85. *Besleria ovalifolia* Rusby, Mem. Torrey Club 4: 240. 1895.

Young stems strigose, the older glabrous; petioles very long (12–14.5 cm), glabrate; leaf blades broadly oval, up to 22 cm long and 13.5 cm broad, membranous, sharply denticulate, abruptly cuspidate at apex, rounded at base, strigillose on the midrib and veins beneath, the primary veins 14 or 15 pairs, arising at a broad angle; peduncle 1.5–2.5 cm long, strigillose; pedicels subcorymbose, numerous, up to 1.5 cm long; calyx up to 12 mm long, the lobes lanceolate, long-acuminate, united to middle; corolla about 15 mm long, ventricose, contracted at throat, puberulous externally, entirely glabrous within; ovary glabrous; disk annular.

TYPE: Songo, Bolivia, Bang 862 (Y).

RANGE: Bolivia.

ADDITIONAL SPECIMENS EXAMINED: Type collection (G, K, M, P, W).

86. *Besleria pauciflora* Rusby, Bull. Torrey Club 27: 31. 1900.

Stems quadrangular, hirsute or hirsutulous; petioles up to 4.5 cm long, hirsute;

leaf blades obliquely elliptic, membranous, up to 21 cm long and 8.5 cm wide, short-acuminate, cuneate at base, sharply serrate, hirsute, especially on the veins beneath, the primary veins 8–10 pairs; common peduncle up to 5 cm long, hirsute, few-flowered, the pedicels subequaling or shorter than the peduncle; calyx lobes linear, lanceolate, membranous, scarcely imbricate, about 10 mm long, long-acuminate, not mucronate, hirsute on both sides; corolla orange or light-red, erect, 14–20 mm long, pilose externally, lacking a hairy ring within, stipitate-glandular upwardly within; androecium glabrous; ovary pilose; style sparingly pilose; stigma bilobed; disk annular, glabrous.

TYPE: Mapiri, Bolivia, *Rusby* 2437 (Y).

RANGE: Panama, Colombia, and Bolivia.

ADDITIONAL SPECIMENS EXAMINED:

PANAMA: Buena Vista Camp on Chiriquí Trail, Bocas del Toro, *Cooper* 226 (F, Y).

COLOMBIA: *Mutis* 5157 (Madrid).

The disjointed distribution of this species is not paralleled within the genus. The three specimens cited all differ somewhat, but none are in good condition for study.

86a. *Besleria pauciflora* var. *uniflora* Morton, var. nov.

A var. *typica* pedunculo communi nullo, pedicellis solitariis axillaribus, corollis flavis differt.

Differs from the typical variety in the pale yellow corolla and in lacking a common peduncle, the pedicels being solitary and axillary.

Type in the New York Botanical Garden, collected at Cana, Panama, April–June 1908, by R. S. Williams (no. 740).

87. *Besleria peruviana* Fritsch, Repert. Sp. Nov. Fedde 18: 7. 1922.

Suffrutescent herb; stems hirsute; petiole up to 4 cm long, hirsute; leaf blades elliptic or lance-elliptic, up to 15 cm long and 6.5 cm broad, nearly entire, cuneate at base, hirsute on midrib and veins beneath; peduncle 4–6 cm long; pedicels 1.5–2 cm long; calyx about 15 mm long, the lobes lanceolate, acuminate, united to middle; corolla orange-red, 20–22 mm long, not much ventricose, the tube glabrous without, the two larger lobes pilose externally, sparingly glandular-pilose within throat; ovary glabrous; disk annular.

TYPE: La Merced, Dept. Junín, Peru, *Weberbauer* 1958 (B).

RANGE: Peru, at 700 to 800 meters elevation.

87a. *Besleria peruviana* var. *occulta* Morton, var. nov.

A var. *typica* corollis (lobis inclusis) omnino glabris differt.

Differs from the typical variety in its entirely glabrous corolla.

Type in the U. S. National Herbarium, no. 1,358,572, collected at La Merced, Department of Junín, Peru, altitude 700 meters, May 29–June 4, 1929, by E. P. Killip and A. C. Smith (no. 24086).

87b. *Besleria peruviana* var. *dissimilis* Morton, var. nov.

A var. *typica* pedunculis communibus nullis, pedicellis solitariis axillaribus, corollae tubo externe piloso differt.

Differs from the typical variety in lacking a common peduncle (the pedicels being solitary and axillary), and in having the corolla tube pilose externally.

Type in the Berlin Herbarium, collected on the lower Ucayali River, Department of Loreto, Peru, altitude 180 meters, Sept. 7, 1923, by G. Tessmann (no. 3170).

88. *Besleria patrisii* DC. Prodr. 7: 638. 1839.

Stems hirsute; petioles up to 3.4 cm long; leaf blades oblong-elliptic, up to 20 cm long and 8 cm wide, serrulate, cuneate at base, hirsute on midribs and veins

beneath; peduncle 1.2–1.3 cm long; pedicels 4, slender, about 2 cm long; calyx 12–14 mm long, the lobes lanceolate, acuminate, apparently united to middle; corolla 21 mm long, cylindric, not ventricose, not bilabiate, glabrous.

TYPE: French Guiana, *Patria* (photograph, F).

89. *Besleria verecunda* Morton, Phytologia 1: 152. 1935.

Stems strigose when young, soon glabrous; petiole up to 7 cm long; leaf blades elliptic or elliptic-oblong, up to 22 cm long and 10 cm wide, serrate, cuneate at base, strigose on the midribs and veins beneath, the primary veins 7–9 pairs; peduncle up to 4.5 cm long; pedicels 3 or 4, about 2 cm long; calyx 12–13 mm long, the lobes lanceolate, subulate-acuminate, united at base for 5 mm; corolla 20 mm long, glabrous without and within, scarcely ventricose, the limb regular; ovary glabrous; disk annular.

TYPE: Upper Demerara River, British Guiana, *Jenman* 5156 (W).

RANGE: British Guiana.

ADDITIONAL SPECIMENS EXAMINED: Type collection (K, Y).

90. *Besleria divaricata* Poepp. Nov. Gen. & Sp. 3: 2. 1845.

Suffrutescent herb; young stems densely ferruginous-strigillose; petioles up to 10 cm long, slender; leaf blades elliptic, up to 15 cm long and 10 cm wide, membranous, subentire, rounded at base, sparingly strigillose on the veins beneath, the primary veins 9–11 pairs; peduncles up to 10 cm long; pedicels subcorymbose, up to 2.7 cm long; calyx about 15 mm long, the lobes lanceolate, acuminate, united to the middle; corolla crimson (or orange?), about 23–25 mm long, scarcely ventricose, glabrous without, glandular-pilose within throat; ovary glabrous; disk annular.

TYPE: Cochero, Peru, *Poeppig* (B).

RANGE: Peru and Ecuador.

ADDITIONAL SPECIMENS EXAMINED:

PERU: Pongo de Manseriche, Dept. Loreto, *Mexia* 6322 (B, F, W). Without locality, *Mathews* 2006 (K).

ECUADOR: Specific localities doubtful, *André* K1483 (K, Y), K1484 (K), 4617 (K, Y).

91. *Besleria laxiflora* Benth. in Lond. Journ. Bot. 5: 361. 1846.

Besleria chiapensis T. S. Brandeg. Univ. Calif. Publ. Bot. 6: 64. 1914.

Besleria debilis Rusby, Descr. New S. Amer. Pl. 123. 1920.

Besleria tenuifolia Rusby, loc. cit.

Shrub or suffrutescent herb; stems densely strigose when young; petioles up to 5 cm long; leaf blades elliptic or narrowly oblong, up to 21 cm long and 8.5 cm wide, usually smaller, serrulate, cuneate at base, sparsely strigillose on the midrib and veins beneath, primary veins 5–10 pairs; peduncles up to 4.5 cm long, commonly equaling or exceeding the umbellate or subcymose pedicels; calyx exceedingly variable, 7.5–14 mm long, orange or red, one third to one half the length of the corolla, the lobes ovate or lanceolate, subcoriaceous, nearly free, attenuate into a mucro; corolla red or orange, erect, not saccate at base, up to 22 mm long, slightly ventricose, glabrous without, bearing a hairy ring within at the insertion of the stamens, glandular within the throat; ovary glabrous; disk annular.

TYPE: British Guiana, *Schomburgk* 205 (K).

RANGE: Mexico to Colombia and Brazil, at altitudes up to 1,400 meters.

ADDITIONAL SPECIMENS EXAMINED:

MEXICO: Finca Mexiquito, State of Chiapas, *Purpus* 7003 (C, F, G, M, W, Y), type of *B. chiapensis*. Río Blanco, State of Chiapas, *Rovirosa* 870 (K, P).

BRITISH HONDURAS: Pueblo Viejo, *Schipp*, S-639.

GUATEMALA: Cubilquitz, Dept. Alta Verapaz, *Tuerckheim* 7644 (G, W, Y), 7756 (G, W), II. 162 (W). Panzos, Dept. Alta Verapaz, *Donnell Smith* 1700 (W). Chamá, Dept. Alta Verapaz, *Johnson* 397 (W). Finca Sepacuité, Dept. Alta Verapaz, *Cook & Griggs* 579 (W). Cerro de las Minas, Dept. Izabal, *Blake* 7806 (W). Without specific locality, *Watson* 473 (G).

HONDURAS: Lancetilla Valley, Atlántida, *Standley* 52648 (F), 52773 (F, W), 52941 (F, W), 53880 (F, W), 54132 (F, W), 54572 (F, W); *Banham* 219 (G); *Chickering* 111 (F, Mi); *Yuncker* 4718 (F, Mi).

NICARAGUA: Braggman's Bluff, *Englesing* 154 (F), 284 (F). Chontales, *Tate* 314 (K); *Seemann* 61 (K).

COSTA RICA: Río del Destierro, Santa Clara, Prov. Limón, *Pittier* 7601 (G, W). Río Verde, Santa Clara, Prov. Limón, *Donnell Smith* 6717 (G, W). Tsaki, Prov. Limón, *Tonduz* 9559 (F, W). Tuis, Prov. Cartago, *Tonduz* 11511 p. p. (W). Cabagra, Prov. Puntarenas, *Tonduz* 6679 (W). La Colombina Farm, Prov. Limón, *Standley* 36916 (W). Quebrada Huaca, Prov. Puntarenas, *Dodge & Goerger* 10308 (F). El General, Prov. San José, *Skutch* 3007 (W).

PANAMA: Sibubi Falls, *W. W. & H. E. Rowlee* 375 (W, Y). Frijoles, *Killip* 3440 (W), 12146 (W); *Standley* 27562 (W). Chagres, *Fendler* 325 (K). Between Gorgona and Gatun, *Pittier* 2282 (G, W). Paca, *Williams* 731 (W, Y). Boca de Panarandó, *Pittier* 5587 (W). Río Gariche, *Seibert* 361 (W).

BRITISH GUIANA: Mataruki River, *Myers* 5839 (K).

BRAZIL: Rio Branco, State of Amazonas, *Ule* 8459 (B, K).

COLOMBIA: San Diego, Santa Marta, Dept. Magdalena, *H. H. Smith* 2672 (K, M, P, W, Y), type of *B. tenuifolia*. Below Valparaiso, Dept. Magdalena, *H. H. Smith* 1399 (G, K, M, P, W, Y), type of *B. debilis*.

The range of this species is one of the most extensive in the genus. Several years ago most of the Central American specimens in the various herbaria were annotated by me as *B. chiapensis*, but I have since decided that that species may not be kept distinct from *B. laxiflora*. There is a good deal of diversity among the various specimens as to the relative length of the calyx and corolla.

92. *Besleria macropoda* Donn. Smith, Bot. Gaz. 25: 155. 1898.

Herb; young stems closely strigillose, the older glabrous; petioles 5–15 mm long; leaf blades oblong or elliptic, 10–14 cm long, 3.5–5 cm wide, cuneate at base, denticulate, glabrous, the primary veins about 11 pairs; peduncle 6–13 cm long, pedicels 5–9, about 2 cm long; calyx lobes subulate-lanceolate, 10–12 mm long, glabrous, free; corolla yellow, slightly ventricose, 15–18 mm long, glabrous without, with a hairy ring within at insertion of filaments, glandular-pilose within throat; ovary glabrous; disk annular.

TYPE: El Recreo, Costa Rica, *Pittier* 572.

RANGE: Costa Rica, at 200 to 650 meters elevation.

SPECIMENS EXAMINED: Santa Clara, Prov. Limón, *Pittier* 13381 (W). Tuis, Prov. Cartago, *Tonduz* 11358 (W). Carrillo, *Pittier* 2495 (W).

93. *Besleria elongata* Urban, Symb. Antill. 2: 353. 1901.

Shrub; stems pilose when young; petioles 2–3 (or 5) cm long; leaf blades elliptic, up to 30 cm long and 10 cm wide, crenate or crenulate, broadly cuneate at base, pilosulous on the nerves beneath, the primary veins 12 or 13 pairs; peduncle up to 9 cm long; pedicels subcorymbose, about 10 mm long; calyx 10–14 mm long, the lobes free, narrowly ovate, long-acuminate; corolla yellow, 15–20 mm long, glabrous; ovary glabrous; disk annular.

TYPE: St. Vincent, *H. H. & G. W. Smith* 1275.

RANGE: St. Vincent.

SPECIMEN EXAMINED: Type collection (Y).

94. *Besleria umbrosa* Mart. Nov. Gen. & Sp. 3: 44. 1829.

Stems subsericeous toward apex; petioles up to 3.5 cm long, nearly glabrous; leaf blades elliptic-oblongate or elliptic, up to 20 cm long and 12.5 cm wide, cuneate at base, membranous, entire or slightly denticulate, glabrous above, the margins and veins puberulous beneath, the primary veins 7–11 pairs; common peduncles slender, up to 6 cm long, puberulous, the pedicels subcorymbose, slender, up to 3 cm long; calyx lobes lemon-yellow, ovate-lanceolate, about 12 mm long in anthesis, slightly unequal, acute, mucronate, entire, imbricate, entirely free, minutely glandular-puberulous externally, glabrous within; corolla white or yellow, about 2 cm long, erect, not spurred, the tube broad, glabrous; ovary glabrous; disk annular, glabrous.

TYPE: Mandioca, State of Rio de Janeiro, Brazil, *Martius* (photograph, F).

RANGE: State of Rio de Janeiro, Brazil.

ADDITIONAL SPECIMENS EXAMINED: Mandioca, *Riedel* 115 (W). Petropolis, *Ball* (K, W, Y). Tijuca, *Glaziou* 3046 (Y). Rio de Janeiro, *Glaziou* 8818 (K), 14042 (Co, K). Without specific locality, *Talbot* in 1840 (K).

95. *Besleria selloana* Kl. & Hanst. in Mart. Fl. Bras. 8¹:398. pl. 65, fig. 2. 1864.

Stems tomentulose toward apex; petioles thick, up to 9 cm long; leaf blades obliquely elliptic or elliptic-lanceolate, up to 28 cm long and 11 cm wide, cuneate at base, membranous, entire, minutely puberulous on the veins beneath, the primary veins 8–13 pairs; common peduncles thick, up to 5.5 cm long, puberulous, the pedicels numerous, subcorymbose, 1.5–3.5 cm long, thickened toward apex; calyx lobes oblong, 8.5–10.5 mm long, rounded at apex, not mucronate, free, little imbricate, venose, entire, thick-membranous, puberulous externally, glabrous within; corolla white, the base yellowish, 15–24 mm long, erect, not spurred or gibbous at base, the tube cylindric, 7–8 mm wide, not ventricose, almost glabrous externally, pilosulous within throat, the throat a little contracted, the limb terminal, narrow; androecium glabrous; ovary glabrous; style strigillose; disk annular, glabrous.

TYPE: Serra do Cubatão, Brazil, *Sello*.

RANGE: Southern Brazil.

SPECIMEN EXAMINED: Alto de Serra, State of São Paulo, *Dusén* 14223 (G, S).

The above description is drawn from the *Dusén* specimens at hand, which agree fairly well with the original description.

96. *Besleria grandifolia* Schott in Schreibers, Nachr. K. Oestr. Naturf. Bras. Anh. 5. 1820.

Stems subappressed-pilosulous; petioles up to 4.5 cm long; leaf blades elliptic, up to 15 cm long and 6.5 cm wide, cuneate at base, membranous, entire, glabrous above, pilosulous beneath on veins and leaf surface, the primary veins about 9 pairs; common peduncle about 3 cm long, densely subappressed-pilosulous, the pedicels subcorymbose, up to 1.8 mm long; calyx lobes unequal, 7–8.5 mm long, united at base for about 3 mm, the free parts ovate or oblong, acute, a little mucronate, little imbricate, coriaceous, not venose, entire, glandular-pilosulous externally, glabrous within; corolla yellow, about 15 mm long, erect, not saccate at base, the tube about 5 mm wide, a little ventricose upwardly, sparsely glandular externally, lacking a hairy ring within, the throat a little contracted, the limb terminal, narrow, regular; ovary puberulous; stigma stomatomorphic; disk annular, thin, glabrous.

TYPE: "Epigaea in sylvis montium altiorum (Serra Grande)", Brazil, *Schott* (Serra de Tingua, teste Hanstein).

RANGE: State of Rio de Janeiro, Brazil.

SPECIMENS EXAMINED: Type collection (F).

This species is obviously different from *B. selloana* in its thicker, mucronate, higher-connate calyx lobes, glandular-pilose externally, and in its denser, more

spreading pubescence. *Besleria umbrosa* differs in its free calyx lobes, with much shorter glandular hairs, its glabrous ovary, and closely appressed pubescence of stems and other parts.

97. *Besleria rhytidophyllum* Hanst. *Linnaea* 34: 332. 1865.

Stems densely strigose-subtomentose when young; petioles up to 3 cm long; leaf blades elliptic or oblanceolate, up to 17.5 cm long and 5 cm wide, membranous, denticulate, cuneate at base, sparsely strigose on mesophyll and veins beneath, the primary veins 8-13 pairs; peduncles up to 7.5 cm long; pedicels subcorymbose, up to 1 cm long, glabrate or pilosulous; calyx up to 8 mm long, glabrous or sparsely pilose at base, orange or reddish, the lobes suborbicular, much imbricate, the margin scarious, rounded, not at all mucronate, without a midrib; corolla purplish- or brownish-orange, 12-15 mm long, not ventricose, glabrous without, glandular within throat, the limb broad (about 10 mm); ovary glabrous; disk annular; berry white.

TYPE: Colonia Tovar, Venezuela, *Moritz* 869 (B).

RANGE: Venezuela, at 1,800 to 2,000 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (K). Type locality, *Fendler* 788 (G, K, P, Y); *Karsten* (B). Without specific locality, *Pittier* (F, W).

98. *Besleria heterosepala* Fritsch, *Notizbl. Bot. Gart. Berlin* 11: 971. 1934.

Stems hirsute; petioles hirsute, about 2 cm long; leaf blades broadly elliptic, 16-21 cm long, 8-11 cm broad, subcoriaceous, entire, hirsute on the veins beneath; veins and veinlets elevated beneath, prominently reticulate, primary veins 9 or 10 pairs; peduncles sparingly hirsute, about 7 cm long; pedicels umbellate, numerous, about 10 mm long; calyx 10 mm long, the lobes nearly free, rounded, hirsute, entire, the margin erose and scarious, the posterior lobe much larger and thicker; corolla orange, 12-15 mm long, glabrous; ovary and style densely pubescent; disk semi-annular.

TYPE: Río Frio, Colombia, *Kalbreyer* 1959 (B).

RANGE: Colombia, at 2,100 meters elevation.

ADDITIONAL SPECIMEN EXAMINED: Type collection (K).

99. *Besleria subcarnosa* Fritsch, *Notizbl. Bot. Gart. Berlin* 11: 972. 1934.

Stems suffruticose, 2.4-3.6 m high, villous; petioles 4-7 mm long, villous; leaf blades broadly elliptic, 6-13 cm long, 3-7 cm wide, subcordate at base, thick and somewhat fleshy, minutely denticulate, glabrous and shining above, hirsute on the strongly reticulate veins beneath, the primary veins 7-9 pairs; common peduncle 3-7.5 cm long, sparingly hirsute, the pedicels subumbellate, numerous, 4-6 mm long, hirsute; calyx lobes elliptic-oblong, 5-6 mm long, free, obtuse, strongly imbricate, entire, venose, hirsute externally, glabrous within; corolla orange with yellow, about 10 mm long, erect, not spurred or saccate at base, the tube glabrous externally, with a conspicuous hairy ring within at insertion of filaments, about 4 mm wide, the throat contracted, about 3.5 mm wide, the limb terminal, narrow, regular; ovary densely pubescent; style pubescent; disk reduced to a posterior, fleshy, glabrous gland.

TYPE: La Obrel, Dept. Santander, Colombia, *Kalbreyer* 882 (B).

RANGE: Eastern Cordillera of Colombia, at 2,400 to 2,700 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (K). Prov. Ocaña, Dept. Norte de Santander, *Schlim* 340 (K). ?Batatal, Dept. Santander, *Kalbreyer* 897 (K).

The last specimen cited may represent a recognizable variety. Its characters are not included in the above description.

Fritsch in his original description placed this species in the section *Gasteranthus*, but the corolla is entirely at variance with the species of that group. The rela-

tionship to *B. heterosepala* of the section *Eubesleria* is very close indeed, both in appearance and technical characters. The two species differ chiefly in the shape of the calyx lobes.

100. *Besleria longipedunculata* Britt. Bull. Torrey Club 27: 69. 1900.

Besleria aurantiaca Fritsch, Med. Rijks. Herb. Leiden 29: 51. 1916.

Young stems strigose, soon glabrous; petioles up to 4 cm long; leaf blades elliptic, up to 32 cm long and 13 cm broad, membranous, remotely denticulate, broadly cuneate at base, strigose on the midrib and veins beneath, the primary veins 7–11 pairs; peduncles up to 20 cm long; pedicels stout, up to 4 cm long; calyx 12–15 mm long, coriaceous, the lobes strongly mucronate, united to middle; corolla red, the tube about 20 mm long, fleshy, glabrous, the throat glandular-pilose within, the limb slightly bilabiate, 15–16 mm wide, the lobes broadly spreading; ovary glabrous; disk annular.

TYPE: Mapiri, Bolivia, *Rusby* 2436 (Y).

RANGE: Bolivia, at 850 to 1,500 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (P, W). Hacienda Simaco, *Buchtien* 5556 (W, Y), 5557 (W). San Carlos, *Buchtien* 1341 (G, S, W). Hacienda Casana, *Buchtien* 7482 (B, W). Without special locality, *Bang* 2539 (W, Y).

101. *Besleria lutea* L. Sp. Pl. 619. 1753.

Eriphia jamaicensis Roem. & Schult. Syst. Veg. 3: 337. 1818.

Eriphia lutea Raf. Sylv. Tellur. 77. 1836.

Eriphia pallida Raf. loc. cit.

Besleria berteriana DC. Prodr. 7: 538. 1839.

Besleria imrayi Hook. in Bot. Mag. Curtis 104: pl. 6341. 1878.

Besleria lutea var. *vulgaris* Urban, Symb. Antill. 2: 347. 1901.

Besleria lutea var. *alpestris* Urban, op. cit. 348.

Besleria lutea var. *brevipes* Urban, loc. cit.

Besleria lutea var. *intermedia* Urban, loc. cit.

Besleria lutea var. *imrayi* Urban, loc. cit.

Besleria lutea var. *vincentina* Urban, loc. cit.

Besleria lutea var. *leucantha* Urban, op. cit. 8: 644. 1920.

Shrub or tree, 1–7 m high, erect or rarely scandent; stems glabrous and shining at maturity; leaf blades ovate or elliptic-oblong, up to 20 cm long and 9 cm wide, cuneate or rounded at base, short-petiolate or sessile, serrate, glabrate above, strigillose beneath at least on the veins, the primary veins about 9 pairs; common peduncle very short or usually obsolete, the pedicels few, 3–20 mm long; calyx lobes connate for two thirds their length or more, about 10 mm long, glabrate, mucronate; corolla yellow or rarely white, 15–20 mm long, erect, not saccate at base, a little ventricose, contracted in throat, the limb terminal, small, the lobes subequal, 2–3 mm long; androecium glabrous; ovary and style glabrous; disk annular, glabrous; berry red, enclosed within calyx.

TYPE: West Indies.

RANGE: Cuba, Haiti, Jamaica, and Lesser Antilles.

This species is so common and well known that it has not seemed worth while to cite the numerous specimens examined. The various varieties described by Urban are local in distribution. Most distinct is var. *imrayi*, of Dominica and Martinique, by reason of its sessile leaves. The white rather than yellow flowers distinguish var. *leucantha* of Hispaniola (and Jamaica?). Typically, *B. lutea* is a low shrub, but var. *vincentina*, of St. Vincent, is arborescent. The pedicels are normally 1 to 2 cm long, but var. *brevipes*, from St. Lucia, is said to have pedicels only 3 to 10 mm long. The leaf surface is glabrous or nearly so in var. *vulgaris*, minutely strigillose in varieties *alpestris* and *intermedia*, from Guadeloupe, Martinique, Dominica, St. Kitts, and Montserrat. Further collections are necessary to decide on the validity of these forms.

102. *Besleria insolita* Morton, Phytologia 1: 153. 1935.

Stems terete, hirto-strigose; petioles strigillose, up to 7 cm long; leaf blades elliptic or elliptic-oblong, up to 25 cm long and 10 cm wide, cuneate at base, serrate, strigillose beneath, primary veins 8-12 pairs; pedicels numerous, 12-15 mm long, hirto-puberulous; calyx yellow, cylindric, 7-16 mm long, hirto-puberulous, the lobes united two thirds their length; corolla ochroleucous, little longer than calyx, glabrous, scarcely ventricose; ovary glabrous; disk annular, thin.

TYPE: French Guiana, *Martin* (K).

RANGE: British and French Guiana.

ADDITIONAL SPECIMENS EXAMINED:

FRENCH GUIANA: Without locality, *Poiteau* (K).

BRITISH GUIANA: Holmia, Potaro River, *Bartlett* 8743 (Y).

103. *Besleria floribunda* Fritsch, Repert. Sp. Nov. Fedde 18: 10. 1922.

Stems densely and persistently sericeous-tomentose; petioles sericeous, up to 1.8 cm long; leaf blades lanceolate, up to 11 cm long and 2.7 cm wide, cuneate at base, membranous, entire, densely pilosulous above, sericeous-pilosulous beneath, the primary veins 8 or 9 pairs; peduncles erect, up to 4.5 cm long, densely sericeous-pilose, the pedicels 2-4, slender, 1.2-2 cm long, densely pubescent; calyx lobes free, ovate, about 4 mm long, obtuse, membranous, entire, pilosulous in a median line, puberulous within; corolla light yellow, 22-27 mm long, strongly oblique, spurred, the spur rounded, about 2.5 mm long, the tube evenly ampliate upwardly, not ventricose, bearing a few scattered hairs externally, entirely glabrous within, not contracted at throat, the throat about 7 mm broad, the limb terminal, about 11 mm wide, the lobes subequal; androecium glabrous; ovary and style pilosulous; disk regular, annular, glabrous.

TYPE: Ocaña to Pamplona, Dept. Norte de Santander, Colombia, *Kalbreyer* 1062 (B).

RANGE: Colombia, at 1,500 to 1,800 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (K). Soto, *Schlim* 1090 (B).

104. *Besleria penduliflora* Fritsch, Repert. Sp. Nov. Fedde 18: 9. 1922.

Stems densely and persistently sericeous; petioles 1.5-2.5 cm long, densely sericeous; leaf blades narrowly elliptic, up to 14 cm long and 4.7 cm wide, cuneate at base, membranous, saliently denticulate, persistently and densely pilosulous on both surfaces, the primary veins 8 pairs; common peduncles very slender, 5-7 cm long, pendent, densely appressed-pilosulous, the pedicels one or two, slender, about 3 cm long in flower, 4.5 cm long in fruit; calyx lobes free, lanceolate, about 7 mm long, membranous, acuminate, entire, not venose, pilosulous externally, puberulous within, unequal, the posterior longer and narrower, deflexed; corolla light yellow, 35-40 mm long, strongly oblique in calyx, spurred at base, the spur rounded, about 3 mm long, the tube gradually ampliate upwardly but not at all ventricose, very sparingly pilosulous externally and within throat, the throat not contracted, about 1 cm wide, the limb about 15 mm broad, the lobes a little unequal; androecium glabrous; ovary and style pilosulous; disk annular, regular, glabrous.

TYPE: Roraima, Venezuela, *Ule* 8751 (B).

RANGE: Venezuela, at 1,600 meters elevation.

105. *Besleria pendula* Hanst. Linnaea 34: 333. 1865.

Stems densely brown-strigose; petioles up to 3.5 cm long, brown-strigose; leaf blades lanceolate, up to 11 cm long and 3 cm wide, membranous, cuneate at base, minutely denticulate or subentire, sparsely strigose above, sparsely strigose beneath, especially on the veins, the primary veins 4 or 5 pairs; common peduncles

very slender, up to 10 cm long, strigose, pendent, the pedicels few to many, very slender, in anthesis about 2 cm long, strigose; calyx lobes ovate, 3–3.5 mm long, obtuse, membranous, entire, sparingly pilose at base only; corolla 17–24 mm long, strongly oblique, spurred at base, the spur rounded, 2–3 mm long, the tube evenly ampliate upwardly, glabrous externally, puberulous within throat, the throat not contracted, about 8 mm wide, the limb small, nearly regular; stamens exserted; anthers connate; ovary and style pilosulous; disk annular, regular, glabrous.

TYPE: Mérida, Venezuela, *Moritz* 1135 (B).

RANGE: Venezuela.

ADDITIONAL SPECIMENS EXAMINED: Type collection (G, K). Caracas, *Linden* 299 (K). Lagunetas, between Trujillo and San Lázaro, *Jahn* 101 (W).

106. *Besleria corallina* Fritsch, Repert. Sp. Nov. Fedde 18: 13. 1922.

Stems densely tomentose; petioles up to 13 mm long, tomentose; leaf blades elliptic-oblong, up to 25 cm long and 9 cm wide, membranous, cuneate at base, dentate-serrate, tomentulose beneath on the veins, the primary veins 9–11 pairs; common peduncle elongate, 8–17 cm long, tomentose, the pedicels numerous, subcorymbose, up to 15 mm long, pilosulous; calyx lobes broad, about 7 mm long, unequal, pilose on both sides, incised-serrate, the posterior reflexed; corolla scarlet, 15–17 mm long, spurred at base, the spur rounded, 2 mm long, the tube ventricose upwardly, densely pubescent externally, glabrous within, contracted at throat, the limb terminal, regular; androecium glabrous; ovary and style glabrous; stigma bilobed; disk semi-annular, pubescent.

TYPE: Cerro de Ponasa, Dept. Loreto, Peru, *Ule* 6671 (B).

RANGE: Loreto, Peru, at 100 to 1,200 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Río Santiago, above Pongo de Manseriche, Dept. Loreto, *Tessmann* 3720 (B); *Mexia* 6226 (F, W, Y). Río Marañón, *Spruce* 40 (K).

107. *Besleria corallinoides* Fritsch, Repert. Sp. Nov. Fedde 18: 11. 1922.

Stem lanate-tomentose; petioles long-villous, up to 3 cm long; leaf blades elliptic-oblong, nearly 30 cm long and 10 cm wide, dentate-serrate, acute, long-attenuate at base, tomentulose beneath especially on the veins; peduncles tomentulose; pedicels numerous, subcorymbose, less than 10 mm long, pilosulous; calyx about 10 mm long, the lobes broad, acutish, conspicuously puberulous on both sides, dentate, green; corolla about 20 mm long, externally puberulous, subcalcarate at base, moderately ventricose upwardly, glabrous within, the limb terminal, small; filaments sparsely pubescent; anthers hairy; ovary glabrous or nearly so; disk thin, annular, much enlarged posteriorly, glabrous.

TYPE: Río Pilatón, Ecuador, *Sodiro* 119/55 (B).

RANGE: Ecuador, at 400 to 800 meters elevation.

ADDITIONAL SPECIMEN EXAMINED: Zatzayacu, Prov. Napo-Pastaza, *Mexia* 7082 (W).

The original description contains several inaccuracies, which are corrected in the above description. In general aspect the species strongly suggests *Besleria sylvarum*, which is undoubtedly its closest relative.

108. *Besleria sylvarum* Morton, sp. nov.

Caules et petioli densissime tomentosi; lamina foliorum oblanceolata vel oblonga, acuta vel acuminata, basi in petiolum decurrens, membranacea, grosse serrata, supra glabra, subtus imprimis in venis appresso-pubescentis; pedunculus communis elongatus tomentosus, pedicellis numerosis umbellatis subtomentosis; calycis lobi ovati acutiusculi imbricati subaequales, paullo denticulati, utrinque parce puberuli; corolla in calyce horizontalis, basi calcarata, late ventricosa, externe molliter pubescens, limbo terminali; ovarium glabrum; discus in glandulam posticam puberulam vix bilobam reductus.

Herb up to 25 cm high, the stems fleshy, about 4 mm in diameter, densely tomentose; petioles up to 2 cm long, subtomentose; leaf blades oblanceolate to oblong, up to 15 cm long and 7 cm wide, acute or short-acuminate, narrowed and decurrent at base, membranous, coarsely serrate except at base, green and glabrous above, paler beneath, appressed-pubescent, especially on the veins, the primary veins 9 or 10 pairs; common peduncle up to 7 cm long, tomentose, the pedicels numerous, subumbellate, 7 mm long or less, subtomentose, thick, dilated at apex; calyx lobes ovate, about 5.5 mm long and 4 mm wide, imbricate, subequal, connate at base for 1 mm, acutish, a little denticulate, green, sparsely puberulous on both sides; corolla 12-15 mm long, horizontal in calyx, spurred posteriorly at base (the spur rounded, 2 mm long), the tube strongly ventricose, becoming 9 mm wide, soft-pubescent externally, glabrous within, the throat contracted, about 3.5 mm wide, the limb terminal, 5 mm wide, the lobes suberect, equal, transversely oblong, about 1 mm long and 2.5 mm wide, glabrous on both sides, not ciliate; filaments inserted about 4 mm above base of corolla, free, glabrous, not contorted; anthers connate; ovary and style glabrous; stigma bilobed; disk reduced to a puberulous, scarcely bilobed, posterior gland.

Type in the herbarium of the Naturhistoriska Riksmuseet, Stockholm, collected in virgin forest at La Costa, District of El Tambo, Department of El Cauca, Colombia, altitude 1,000 meters, Aug. 2, 1936, by Kjell von Sneidern (no. 957).

RANGE: Colombia.

ADDITIONAL SPECIMENS EXAMINED: Same locality, *Sneidern* 481 (S), 956 (S), 970 (S).

109. *Bealeria crenata* Morton, sp. nov.

Caules et petioli hirsuti; lamina foliorum elliptica, acuta, basi cuneata, grosse crenata, supra glabrata, subtus hirsuta; pedunculus communis crassus elongatus pilosus, pedicellis umbellatis crassis; calycis lobi inaequales, anteriores ovati acuti, laterales latiores, posticus suborbicularis rotundatus, omnes virides, fere liberi, evidenter dentati, utrinque pilosi; corolla coccinea, basi lutea, in calyce horizontalis, basi calcarata, sursum ventricosa, limbo terminali; ovarium glabrum; discus annularis, postice crassior, puberulus.

Stems fleshy, fistulose (?), densely hirsute upwardly, glabrescent below; petioles short, 1-1.5 cm long, hirsute; leaf blades elliptic, up to 15 cm long and 6 cm wide, acute, cuneate at base, coarsely crenate, glabrate above, hirsute beneath, especially on the veins, the primary veins about 9 pairs; common peduncle thick, up to 8 cm long, pilose, the pedicels umbellate, about 5 mm long, thick, pilose; calyx lobes green, spreading, nearly free, obviously dentate, pilose on both sides, ciliolate, unequal, the anterior ovate, about 7 mm long, acute, the lateral broader, about 9 mm long, the posterior one suborbicular, rounded, about 11 mm long; corolla scarlet, yellow at base, about 17 mm long, horizontal in calyx, fleshy, spurred at base (about 3 mm), ventricose upwardly, becoming 7 mm wide, densely pubescent externally, the throat contracted, about 4 mm wide, the limb terminal, the lobes erect, rounded, glabrous, about 2.5 mm long; anthers connate, the cells confluent; ovary conic, glabrous; disk annular, thicker posteriorly, puberulous.

Type in the Kew Herbarium, collected at San Pablo, Department of Nariño, Colombia, May 1876, by E. André (no. 3329).

RANGE: Department of Nariño, Colombia.

ADDITIONAL SPECIMEN EXAMINED: Armada (?), Department of Nariño, *André* K 1486 (K).

110. *Bealeria panamensis* Morton, sp. nov.

Caules et petioli glabri; lamina foliorum ovalis obtusa, basi late et oblique cuneata, denticulata, supra parce strigosa, subtus praecipue in venis strigillosa; pedunculus communis elongatus puberulus, pedicellis umbellatis brevibus glabris;

calycis lobi liberi ovales imbricati inaequales venosi integri, externe glabri, intus plus minusve glandulosi; corolla magna, in calyce horizontalis, basi calcarata, tubo glabro, sursum ventricoso, in fauce contracto, limbo terminali; ovarium glabrum; discus postice crassior, villosus.

Stems fleshy, glabrous, about 1 cm in diameter; petioles thick, about 4 cm long; leaf blades oval, very large, up to 25 cm long and 16.5 cm wide, obtuse, broadly and obliquely cuneate at base, denticulate, green above, sparsely strigose, paler beneath, strigillose, especially on the veins, the primary veins about 14 pairs; common peduncle elongate, 13-14 cm long, puberulous, the pedicels numerous, umbellate, up to 15 mm long, glabrous; calyx lobes unequal, the four larger oval, obtuse, about 14 mm long, the posterior one concave, 11 mm long and 16 mm wide, all free, oblique, imbricate, membranous, veiny, entire, glabrous externally, sparingly or densely glandular within; corolla about 30 mm long, horizontal in calyx, long-spurred at base (8 mm), the tube glabrous, 7 mm wide near base, ventricose upwardly, becoming 14 mm wide, the throat contracted, 11 mm wide, the limb terminal, the lobes small and broad; filaments about 11 mm long; ovary glabrous; disk thickened posteriorly, villous.

Type in the U. S. National Herbarium, no. 1,081,657, collected in the Province of Bocas del Toro, Panama, Apr. 22, 1921, by M. A. Carleton (no. 205).

111. *Besleria imbricans* Donn. Smith, Bot. Gaz. 25:155. 1898.

Stems minutely puberulous, soon glabrous; petioles up to 4 cm long; leaf blades elliptic, up to 23 cm long and 11 cm wide, cuneate and oblique at base, membranous, entire, strigillose on the veins beneath, the primary veins 16 or 17 pairs; common peduncle glabrous, about 8.5 cm long, the pedicels short, few; calyx lobes orange, suborbicular, about 7 mm long, imbricate, membranous, glabrous, entire, not ciliate, unequal; corolla scarlet, horizontal, 15 mm long, spurred, the spur 1.5 mm long, the tube fleshy, glabrous, ventricose upwardly, the throat contracted, the limb small, terminal; androecium glabrous; ovary glabrous; disk pubescent, enlarged posteriorly.

TYPE: Shirores, Talamanca, Prov. Limón, Costa Rica, *Tonduz* 9192 (W).

RANGE: Costa Rica, at 100 meters elevation.

111a. *Besleria imbricans* var. *uncinata* Morton, Field Mus. Publ. Bot. 18: 1152. 1938.

Differs from the typical variety in its smaller, serrate leaves, and longer, slightly hooked spur.

TYPE: Las Vueltas, Tucurrique, Prov. Cartago, Costa Rica, altitude 900-1,000 meters, *A. Tonduz* (Herb. Nat. Cost. 13038) (W).

112. *Besleria wendlandiana* Hanst. Linnaea 34: 318. 1865.

Stems densely lanate-tomentulose; petioles tomentulose, up to 2 cm long; leaf blades elliptic, up to 20 cm long and 9 cm wide, cuneate at base, serrate, lanate-puberulous on the veins beneath, the primary veins about 13 pairs; common peduncle elongate, up to 9 cm long, the pedicels numerous, about 1 cm long; calyx green, the lobes ovate-lanceolate, 8-12 mm long in anthesis, up to 16 mm long in fruit, callose-serrulate, sparsely pilosulous; corolla yellow, 18-23 mm long, horizontal, spurred at base, the tube cylindric, not ventricose, externally pilosulous, the limb terminal, 10 mm wide; ovary sericeous; disk villosulous, thicker posteriorly.

TYPE: Turrialba, Prov. Cartago, Costa Rica, *Wendland* 922 (B).

RANGE: Costa Rica and Panama, at 900 to 2,400 meters elevation.

ADDITIONAL SPECIMENS EXAMINED:

COSTA RICA: Yerba Buena, Prov. Heredia, *Standley & Valerio* 49757 (W), 49788 (W), 49806 (W), 49813 (W), 50054 (W). El Muñeco, Prov. Cartago, *Standley & Torres* 50989 (W). La Hondura, Prov. San José, *Standley & Valerio*

51798 (W). Pejivalle, Prov. Cartago, *Standley & Valerio* 46867 (W). Cerros de Zurqui, Prov. Heredia, *Standley & Valerio* 50289 (W). Cerro de las Caricias, Prov. Heredia, *Standley & Valerio* 52016 (W). La Palma, Prov. San José, *Pittier*, Herb. Nat. C. R. 690 (W). La Palma de San Ramón, Prov. Alajuela, *Brenes* 5740 (F), 13575 (F), 19007 (F).

PANAMA: Bajo Chorro, Prov. Chiriqui, *Davidson* 381 (F).

113. *Besleria columbiana* Morton, sp. nov.

Caules et petioli inconspicue strigillosi; lamina foliorum elliptica acuminata, basi cuneata, parum denticulata, membranacea, supra glabra, subtus imprimis in venis strigillosa; pedunculus communis elongatus gracilis glaber, pedicellis brevioribus glabris; calycis lobi liberi acuminati serrati, utrinque glanduloso-pubescentes; corolla flava calcarata, in calyce horizontalis, externe sparse pilosa, fauce aperta, limbo terminali; ovarium villosum; discus ad glandulam magnam posticam villosam reductus.

Shrub up to 1 m high, sparingly branched, the stems slender, obscurely quadrangular, about 3.5 mm in diameter, inconspicuously strigillose upwardly, glabrous and shining below; petioles up to 3 cm long, strigillose; leaf blades elliptic, up to 13 cm long and 5 cm wide, acuminate, cuneate at base, inconspicuously denticulate, glabrous above, strigillose beneath, especially on the veins, the primary veins about 8 pairs; common peduncle about 6.5 cm long, slender, glabrous, the pedicels up to 10 mm long, slender, nearly glabrous; calyx lobes free, 6–7 mm long, acuminate, serrate, glandular-pubescent on both sides; corolla pale yellow, 16–20 mm long, horizontal in calyx, spurred at base (3.5 mm), the tube gradually enlarged upwardly, sparsely pilose externally, the throat open, about 7 mm wide, the limb terminal, the lobes 2–3 mm long, rounded, spreading, glabrous; anthers connate; ovary villous; style pubescent; disk reduced to a large, villous, posterior gland.

Type in the Kew Herbarium, collected above Pipulquer, on the western slopes of the West Andes of Tuquerres, Department of Nariño, Colombia, in dense, wet forests, altitude 1,500–1,700 meters, by F. C. Lehmann (no. 5157).

113a. *Besleria columbiana* var. *arguta* Morton, var. nov.

A var. *typica* foliis serratis, corollis longe calcaratis, calcare ca. 6 mm longo differt.

Differs from the typical variety in its serrate leaves and long-spurred corolla (the spur 6 mm long).

Type in the Kew Herbarium, collected at San José, Department of Antioquia, Colombia, altitude 2,100–2,400 meters, Mar. 23, 1880, by W. Kalbreyer (no. 1509). Duplicate in the Berlin Herbarium.

This specimen was identified and reported by Fritsch as *B. calceolus* Fritsch, which bears a habitual resemblance but differs strongly in characters of calyx and corolla.

114. *Besleria rupestris* Morton, Proc. Biol. Soc. Washington 48: 57. 1935.

Scandent shrub, 0.6–1.5 m high; stems densely lanate-tomentose when young, 4–5 mm thick; petiole 1–1.5 cm long, lanate-tomentose; leaf blades oblong-lanceolate, up to 21 cm long and 7.5 cm wide, membranous, cuneate at base, crenate-serrate, puberulous above, soon glabrate, puberulous beneath, especially on the veins, the primary veins 9–15 pairs; common peduncle 6–7.5 cm long, puberulous, the pedicels subumbellate, few or many, about 6 mm long, glabrous; calyx lobes free, unequal, the anterior ovate-lanceolate, 8 mm long, the lateral ovate, 7 mm long, the posterior lanceolate, deflexed, 6.5 mm long, all membranous, acuminate, sharply serrate, sparsely pilose externally, glabrous within; corolla yellow, with conspicuous maroon spots on the tube and lobes, 22–32 mm long, horizontal in calyx, spurred at base, the spur rounded, 2–3 mm long, the

tube gradually enlarged (becoming 6-8 mm wide) but not ventricose, externally sparsely pilose, glabrous within, the throat not contracted, the limb terminal, a little bilabiate, 10-16 mm wide; androecium glabrous; ovary villous; style pubescent; stigma bilobed; disk reduced to a thick, puberulous, posterior gland.

TYPE: Valley of Pastaza River, Prov. Tungurahua, Ecuador, *Hitchcock* 21820 (W).

RANGE: Colombia, Ecuador, and Peru, at 1,300 to 1,900 meters elevation.

ADDITIONAL SPECIMENS EXAMINED:

COLOMBIA: La Costa, Dept. El Cauca, *Sneidern* 910 (S).

PERU: Eneñas, Dept. Junín, *Killip & Smith* 25759 (W). Puente Durand to Exito, Dept. Huánuco, *Mexía* 8237 (W).

The original material on which this species was based was inadequate and did not allow a proper diagnosis of the corolla. The von Sneidern and Mexía specimens cited are superior in every respect.

115. *Besleria acropoda* Donn. Smith, Bot. Gaz. 54: 240. 1912.

Shrub with terete sparsely strigillose stems; petioles strigillose, 1-2 cm long; leaf blades elliptic, the larger 11 cm long and 5.5 cm wide, abruptly acuminate at apex, attenuate and decurrent at base, membranous, deeply serrate, glabrous above, strigillose on the veins beneath, the primary veins about 8 pairs; common peduncles axillary but subterminal by reduction of the main axis, 1.8-2.3 cm long, glabrous, the pedicels umbellate, few, about 1 cm long, glabrous; calyx lobes ovate-lanceolate, unequal (the larger 14 mm long), free, entire, membranous, oblique, sparsely pilosulous on both sides; corolla yellow, 23-30 mm long, horizontal, strongly spurred (the spur 3 mm long or more), the tube ampliate upwardly, a little ventricose, sparsely pilosulous externally, the limb bilabiate, 15 mm wide, the lobes spotted with purple; ovary glabrous; disk enlarged posteriorly, pubescent.

TYPE: Tsaki, Talamanca, Prov. Limón, Costa Rica, *Tonduz* 9554 (W).

RANGE: Costa Rica, at 200 meters elevation.

116. *Besleria gibbosa* (Poepp.) Hanst. in Mart. Fl. Bras. 8¹: 421. 1864.

Hypocyrta gibbosa Poepp. Nov. Gen. & Sp. 3: 3. pl. 202. 1845.

Herb with quadrangular strigose stems; petioles 1.5-5 cm long, strigose; leaf blades broadly elliptic, up to 20 cm long and 10 cm wide, attenuate at base, thin-membranous, denticulate, thinly strigose on both sides, the primary veins about 9 pairs; common peduncle obsolete, the pedicels few or many, crowded, not over 8 mm long; calyx lobes ovate-oblong, 4.5 mm long, free, not imbricate, acute, entire, bearing a few long hairs externally, glabrous within; corolla white, 24-30 mm long, horizontal, spurred at base (the spur acute), the tube 4-7 mm broad at middle, sparingly pilosulous externally, glabrous within, the throat a little ampliate, 6-8 mm wide, the limb terminal, the lobes subequal; filaments slightly puberulous; ovary and style glabrous; disk reduced to a glabrous, fleshy, posterior gland.

TYPE: Ega, Brazil, *Poeppig* (photograph, W).

RANGE: Amazonian Brazil.

SPECIMEN EXAMINED: Paranagua, Rio Juruá, State of Amazonas, *Krukoff* 4554 (Y).

117. *Besleria flava* Morton, sp. nov.

Caules et petioli strigosi; lamina foliorum elliptica, acuminata, basi cuneata, minute denticulata, utrinque parce strigosa; pedicelli numerosi pilosi; calycis lobi oblongi obtusi membranacei, utrinque puberuli; corolla flava horizontalis, breviter calcarata, perspicue ventricosa, externe glabra, intus in fauce glandulosa; ovarium glabrum; discus semiannularis, plus minus in glandulas duas divisus.

Herb 30-60 cm high, the stems terete, strigose; petioles 15 mm long, strigose; leaf blades elliptic, up to 9 cm long and 4 cm wide, acuminate, obliquely cuneate

at base, minutely denticulate, green and sparsely strigose above, paler beneath, strigose especially on the veins, the primary veins about 9 pairs; common peduncle obsolete, the pedicels numerous, up to 9 mm long, pilose; calyx lobes oblong, 5 mm long, obtuse, membranous, scarious-marginate, puberulous on both sides, ciliolate; corolla yellow, about 16 mm long, short-spurred (1-1.5 mm), horizontal in calyx, glabrous externally, the tube conspicuously ventricose, 5 mm wide, the throat contracted, 4 mm wide, sparsely glandular within, the limb terminal, the lobes small, 1.5 mm long, obtuse; androecium glabrous, the filaments long, about equaling the corolla; ovary glabrous; disk glabrous, semiannular, more or less divided into two glands.

Type in the U. S. National Herbarium, no. 1,081,355, collected in forest at Quebradas Secas, Department of Alta Verapaz, Guatemala, altitude 850 meters, June 1, 1920, by Harry Johnson (no. 283).

RANGE: Guatemala, at low elevations.

ADDITIONAL SPECIMENS EXAMINED: Finca Sepacuité, *Cook & Griggs* 556 (W). Between Sepacuité and Secanquím, *Pittier* 318 (W).

118. *Besleria herbacea* Morton, sp. nov.

Caules crassi, apicem versus perspicue hirsuti; petioli hirsutuli, demum glabrescentes; lamina foliorum elliptica acuta, basi cuneata, membranacea, serrata, supra strigosa, subtus imprimis in venis hirsuta; pedunculus communis nullus, pedicello solitario axillari hirsuto; calycis lobi inaequales, anteriores ovato-lanceolati horizontales, laterales ovato-lanceolati erecti, posticus minor lanceolatus reflexus, omnes liberi imbricati integri, externe pilosi, intus glabri; corolla magna, in calyce horizontalis, basi postice calcarata, tubo piloso, supra basin contracto, tum abrupte dilatato et deflexo, in fauce non contracto, limbo terminali amplissimo bilabiato; ovarium pilosum; discus in glandulam posticam bilobam parce pilosulam reductus.

Herb about 30 cm high, the stems fleshy, 4-5 mm in diameter, conspicuously hirsute towards apex; petioles up to 4.5 cm long, hirsutulous, at length glabrescent; leaf blades elliptic, up to 12.5 cm long and 6.3 cm wide, acute, cuneate at base, membranous, serrate except at base, green above, strigose (the hairs long, hyaline, flaccid, many-celled), paler beneath, hirsute, especially on the veins, the primary veins about 6 pairs; common peduncle none; pedicel solitary, axillary, up to 4.5 cm long, hirsute; calyx lobes unequal, the anterior horizontal, ovate-lanceolate, about 16.5 mm long and 6.5 mm wide, the lateral ovate-lanceolate, erect, about 16 mm long and 6 mm wide, the posterior one lanceolate, about 11.5 mm long and 4.5 mm wide, all imbricate at base, free, entire, pilose externally, glabrous within; corolla 35 mm long, horizontal in calyx, spurred posteriorly at base (the spur rounded, about 5 mm long), the tube pilose externally, about 11 mm wide near base, upwardly contracted and about 6 mm wide, then very abruptly dilated and deflexed, the throat not contracted, 25 mm wide, pilosulous within, the limb terminal, very wide (at least 35 mm), bilabiate, the lobes rounded, the lower 15 mm long and at least 13 mm wide, the lateral a little smaller, the upper smaller than the lateral; filaments free, glabrous, inserted about 12 mm above base of the corolla (i. e. in the contracted part); staminodium glabrous, linear-subulate, 6.5 mm long, inserted at the base of the spur; anthers connate, the cells confluent; ovary pilose; style pilose, about 29 mm long; stigma bilobed; disk reduced to a posterior, bilobed, pilosulous gland, about 1.5 mm high and 3.5 mm wide; lamellae of the placentae ovuliferous only on the inner surface.

Type in the herbarium of the Naturhistoriska Riksmuseet, Stockholm, collected at La Costa, District of El Tambo, Department of El Cauca, Colombia, altitude 800 meters, in virgin forest, July 3, 1936, by Kjell von Sneidern (no. 762). An additional specimen was collected by Sneidern at the same locality (no. 793).

119. *Besleria salicifolia* Fritsch, Oesterr. Bot. Zeitschr. 62: 407. 1912.

Herb with scandent, unbranched subterete stems, subappressed-pubescent toward apex; petioles slender, 1-2 cm long, strigillose; leaf blades linear-lanceolate, 4-8 cm long, 7-15 mm wide, attenuate at both ends, membranous, entire, conspicuously discolorous, glabrous above, strigose on the veins beneath, the primary veins 3-5 pairs; common peduncle obsolete, the pedicels solitary or paired, axillary, 3-4 mm long, strigose; calyx lobes linear-lanceolate, about 11 mm long, free, membranous, acuminate, entire, sparsely strigillose externally, glabrous within; corolla white or orange, erect or a little oblique, not spurred, the tube about 12 mm long, deflexed and narrowed above base, slightly ampliate upwardly, sparsely pilosulous externally, with a hairy ring within at insertion of stamens, glandular-pilose upwardly within, constricted in throat, the limb terminal, large, spreading, more than 16 mm wide, the lobes unequal, the two posterior about 6 mm long, the others 8 mm long; filaments pilose at base; ovary pilose; style puberulous; disk reduced to a thick, bilobed, glabrous, posterior gland.

TYPE: Pamplona, Dept. Santander, Colombia, *Schlim* 1675.

RANGE: Eastern Cordillera of Colombia, at 1,200 to 3,000 meters elevation.

SPECIMENS EXAMINED: Soto, *Schlim* 1088 (Br, K). Las Vegas, Dept. Santander, *Killip & Smith* 15961 (W).

I have not seen the type of this species, but the specimens cited seem obviously referable here. Since Fritsch did not see any well-developed flowers, his description was necessarily inadequate.

120. *Besleria princeps* Hanst. Linnaea 34: 317. 1865.

Stems densely short-hirsute; petioles hirsute, 1-3.5 cm long; leaf blades elliptic, up to 13 cm long and 6 cm wide, acute or short-acuminate at apex, rounded or obtuse at base, entire, membranous, tuberculate above, the tubercles surmounted by a long hair, soft-hirsute beneath, the primary veins 7-10 pairs; common peduncle absent, the pedicels solitary, axillary, 2.5-4 cm long, pilose; calyx lobes lanceolate, 15-17 mm long, long-acuminate, erect, nearly free, irregularly sharp-serrate, densely sericeous-villous externally, glabrous within; corolla bright orange, erect, not spurred or gibbous at base, the tube posteriorly about 15 mm long, anteriorly about 20 mm long, 7-8 mm wide at middle, externally pilose, with a dense hairy ring within near base, the throat oblique and densely pubescent within, the limb bilabiate, widely spreading, 20-35 mm wide, the posterior lobes about 1 cm long and wide, the lateral lobes about 15 mm long and 20 mm wide, the anterior about 12 mm long and 14 mm wide, narrowed at base; filaments and anthers densely pilosulous; ovary and style densely villous; disk annular, low, glabrous.

TYPE: Costa Rica, *Wendland* 1273.

RANGE: Costa Rica, at 600 to 1,600 meters elevation.

SPECIMENS EXAMINED: La Palma, Prov. San José, *Tonduz* 7367 (F, G, W, Y); *M. Valerio* 8 (F); *Pittier* 10181 (W). Pejivalle, Prov. Cartago, *Lankester* 832 (W). La Hondura, Prov. San José, *M. Valerio* 731 (F). San Cristóbal Road, *Stork* 2193 (F). La Estrella, Prov. Cartago, *M. Valerio* 1212 (F). El Copey, Prov. San José, *Stork* 1636 (F). San Antonio de San Ramón, Prov. Alajuela, *Brenes* 5668a (F). Vara Blanca de Sarapiquí, Prov. Alajuela, *Skutch* 3271 (W). Without specific locality, *Brenes* 3997 (F), 5638 (F).

121. *Besleria barbensis* Hanst. Linnaea 34: 319. 1865.

Herb, 1-1.2 m high; stems angled, sparingly strigose; petioles 2-2.5 cm long; leaf blades broadly elliptic, the largest 15 cm long and 8.5 cm wide, short-acuminate, obtuse or cuneate at base, oblique, membranous, irregularly serrate, sub-strigose on the veins beneath, the primary veins 12 or 13 pairs; common peduncle

absent, the pedicels solitary, axillary, 1.5–2 cm long, sparingly pilosulous; calyx lobes ovate, 12–15 mm long, free, sharply serrate, sparsely pilosulous externally, puberulous within; corolla orange, erect, not spurred or saccate at base, the tube about 15 mm long, 8 mm wide, sparsely pilose externally, glabrous within, the limb bilabiate, the lobes spreading, the largest 9 mm long and broad; androecium glabrous; ovary pilose at apex; disk annular, thick, glabrous.

TYPE: Volcán de Barba, Prov. Heredia, Costa Rica, *Hoffmann* 45.

RANGE: Central Costa Rica, at middle elevations.

SPECIMENS EXAMINED: Las Nubes, Prov. San José, *Standley* 38549 (W). Irazú, Prov. Cartago, *Tonduz* 4309 (W). Turrialba, Prov. Cartago, *Pittier* (Y).

122. *Besleria seitzii* Krug and Urban, Notizbl. Bot. Gart. Berlin 1: 325. 1897.

A branched shrub with whitish, terete, glabrate stems, sparingly substrigose toward apex; petioles short, 12 mm long or less, strigose; leaf blades narrowly elliptic, small, 3–8 cm long, 1.5–2.5 cm wide, attenuate at base, membranous, coarsely dentate, glabrous above, sparingly strigose on the veins beneath, the primary veins 5–7 pairs; common peduncle entirely absent, the pedicels solitary, axillary, 13–16 mm long, slender, substrigose; calyx lobes lanceolate, slightly unequal, 10–13 mm long, including the long, filiform tip, membranous, free, entire, sparsely pilosulous externally, glabrous within; corolla white, strongly oblique, saccate at base posteriorly, the tube slender, 17 mm long, about 3 mm wide at middle, glabrous without and within, a little ventricose upwardly, not contracted in throat, the limb terminal, bilabiate, 18 mm wide or more, the lobes widely spreading, unequal, the larger about 9 mm long; androecium glabrous; ovary and style glabrous; disk angular, glabrous.

TYPE: Kings Bay, Tobago, *Seitz* 13.

RANGE: Tobago.

SPECIMENS EXAMINED: Easterfield, *Broadway* (G, W). Main Ridge, *Broadway* (S). Great Dog River, *Eggers* 5786 (W). Caledonia, *Broadway* (G).

123. *Besleria crassa* Morton, sp. nov.

Caules et petioli fere omnino glabri; lamina foliorum elliptica crassa, basi cuneata, integra, omnino glabra, utrinque verruculosa; pedicelli pauci glabri; calycis lobi orbiculares imbricati undulati, non nervosi, utrinque glabri; corolla aurantiaco-rubra, obliqua ecalcarata, vix ventricosa, utrinque glabra, limbo terminali bilabiato, lobis magnis patentibus ciliatis undulatis; ovarium glabrum; discus annularis glaber.

Low shrub 15–60 cm high, the stems not branched, terete, almost entirely glabrous; petioles 5–8 mm long, glabrous; leaf blades elliptic, 5–8 cm long, 2.5–4.5 cm wide, cuneate at base, entire, glabrous on both sides, verruculose, the primary veins obscure, 4 or 5 pairs; common peduncle obsolete, the pedicels few, glabrous, about 10 mm long; calyx lobes orbicular, 8 mm long, imbricate, undulate, not veiny, glabrous on both sides; corolla orange-red, about 20 mm long, oblique in calyx, not spurred at base, the tube about 5 mm wide, scarcely ventricose, glabrous on both sides, the throat not contracted, the limb terminal, bilabiate, about 16 mm wide, the lobes very large, the larger 7 mm long and 12 mm wide, the smaller 4 mm wide and long, all ciliate, undulate; androecium glabrous; ovary glabrous; style sparsely pilosulous; disk annular, glabrous.

Type in the Berlin Herbarium, collected between Medellín and Nare, Río Guatapé, Department of Antioquia, Colombia, altitude 2,100–2,250 meters, Feb. 25, 1880, by W. Kalbreyer (no. 1447). Duplicate at Kew.

124. *Besleria longipes* Urban, Repert. Sp. Nov. Fedde 17: 165. 1921.

Stems subquadrangular, appressed-pubescent; petioles 5–11 cm long; leaf blades elliptic-oblong, 15–27 cm long, 7.5–12 cm wide, dentate, obtuse and strongly

oblique at base, thin-membranous, conspicuously pellucid-punctate, glabrate except for the puberulous veins beneath, the primary veins 10–12 pairs; common peduncle obsolete, the pedicels 2–4, in flower about 1 cm long, sparsely pilosulous; calyx lobes oblong-lanceolate, 15–18 mm long, acuminate, free, membranous, entire, slightly mucronate, sparingly pilosulous externally, glabrous within; corolla greenish-yellow, 35–40 mm long, not spurred, a little saccate at base posteriorly, the tube strongly curved downward, not ventricose, glabrous on both sides, strongly ampliate upwardly, the throat not contracted, the limb bilabiate, 20–27 mm wide, the lobes strongly unequal; ovary slightly pilosulous at apex; disk semi-annular, glabrous.

TYPE: St. Anns, Trinidad, *Broadway* 3185.

RANGE: Trinidad.

SPECIMENS EXAMINED: Maracas Road, *Broadway* 6737 (W), 7247 (F, S), 7389 (S), s. n. (S). Mount Tocuche, *Britton, Hazen & Mendelson* 1279 (Y). Dibe Valley, *Britton, Hazen & Mendelson* 1750 (Y). Without locality, *Fendler* 507 (K), fide Britton.

125. *Besleria labiosa* Hanst. *Linnaea* 34: 324. 1865.

Stems sericeous toward apex; petioles sericeous, up to 4 cm long; leaf blades oblong-ovate, up to 20 cm long and 9.3 cm wide, rounded or obtuse at base, thin-membranous, deeply and irregularly serrate, sparingly pilosulous above, puberulous on the veins beneath, the primary veins 10 or 11 pairs; pedicels glabrate, about 7 mm long; calyx lobes suborbicular, 8–9 mm long, rounded, slightly mucronate below apex, glabrate; corolla yellow, a little saccate at base posteriorly but scarcely spurred, the tube 25 mm long, about 8 mm wide, erect at base, decurved upwardly, glabrous externally, lacking a hairy ring within, not ventricose, the throat a little enlarged, pubescent within, the limb bilabiate, the three lower lobes over 1 cm long, the two upper about 5 mm long; androecium glabrous; ovary minutely puberulous at apex; disk annular, glabrous.

TYPE: Caracas, Venezuela, *Gollmer* (B).

RANGE: Venezuela.

ADDITIONAL SPECIMEN EXAMINED: Caracas, *Moritz* 1725 (B).

126. *Besleria calcarata* H. B. K. *Nov. Gen. & Sp.* 2: 399. 1817.

Gasteranthus pilosus Benth. *Plant. Hartw.* 233. 1846.

Besleria sodiroana Fritsch, *Repert. Sp. Nov. Fedde* 18: 12. 1922.

Stems slender, hirsute; petioles hirsute, up to 5 cm long; leaf blades elliptic, 4–12 cm long and 1.8–6.2 cm wide, serrate almost to base, cuneate at base, membranous, conspicuously hirsute on both sides, the primary veins 14–19 pairs; common peduncle glabrous or nearly so, up to 6 cm long, the pedicels umbellate or subcorymbose, glabrous, 5–6 mm long; calyx lobes lanceolate, 5–7 mm long, membranous, hirsute, denticulate; corolla orange-scarlet, horizontal, about 15 mm long, spurred at base, sparingly pilose, the limb lateral; ovary with a few hairs near apex; disk a bilobed, posterior, glabrous gland.

TYPE: La Pamilla, Quindío Andes, *Humboldt & Bonpland*.

RANGE: Colombia and Ecuador, at 1,200 to 1,600 meters elevation.

COLOMBIA: Pusuquer, West Andes of Tuquerres, Dept. Nariño, *Lehmann* 5846 (F, K, W).

ECUADOR: San Florencio, *Sodiro* 119/53 (B), type of *B. sodiroana*, 119/52 (B); *André* K1493 (F, K, Y). Tandagú, Prov. Pichincha, *Heilborn* 772 (S).

I have not seen the type of this species, but these specimens agree with the full description. I have not been able to follow Fritsch in separating *B. sodiroana*. The distinctions given do not seem to hold in the material at hand.

The following specimens, cited by me several years ago as *B. quitensis*, are probably referable to *B. calcarata*, rather than to *B. quitensis*. At that time I had not seen any material of the latter species.

COLOMBIA: Armada, Dept. Nariño, *André* 3418 (K, Y), 1492 (K). Altaquer, Dept. Nariño, *André* K1490 (K). Río Cuaiquer, Dept. Nariño, *André* K1491 (K).

ECUADOR: San Pablo, *André* K1487 (K). Mindo, *André* K1489 (K). Corazón, Prov. Pichincha, *André* K1488 (K).

127. *Besleria quitensis* (Benth.) Hanst. *Linnaea* 34: 334. 1865.

Gasteranthus quitensis Benth. Pl. Hartw. 233. 1846.

Stems slender, hirsute; petioles hirsute, up to 4 cm long; leaf blades elliptic, up to 10 cm long and 3.5 cm wide, serrate almost to base, cuneate at base, membranous, sparsely hirsute on both sides, the primary veins about 15 pairs; common peduncle glabrous, 5–6 cm long, the pedicels glabrous, subumbellate, about 5 mm long; calyx lobes lanceolate, about 10 mm long, acuminate, membranous, sparingly denticulate, nearly glabrous; corolla horizontal, about 15 mm long, short-spurred at base, sparingly pilose, the limb lateral; ovary with a few hairs near apex; disk a bilobed posterior glabrous gland.

TYPE: Nanegal, Ecuador, *Hartweg* (K).

RANGE: Ecuador.

ADDITIONAL SPECIMEN EXAMINED: Andes of Quito, *Jameson* (K).

128. *Besleria calceolus* Fritsch, *Repert. Sp. Nov. Fedde* 18: 12. 1922.

Perennial herb; stem slender, inconspicuously strigillose toward apex; petioles 2–4 cm long; leaf blades narrowly or broadly elliptic, up to 18 cm long and 8 cm wide, cuneate at base, membranous, conspicuously but remotely dentate, glabrous above, strigillose on the veins beneath, the primary veins 9 or 10 pairs; common peduncle glabrous, up to 9 cm long, the pedicels subcorymbose, glabrous, 5–13 mm long; calyx lobes green, ovate-lanceolate, about 6 mm long, free, acuminate, entire, sparsely pilosulous; corolla cinnabar-red, horizontal, about 22 mm long, sharply spurred at base, the tube conspicuously ventricose upwardly, sparingly pilosulous, the limb small, lateral; ovary with a few hairs toward apex; disk reduced to a bilobed, posterior, glabrous gland.

TYPE: Montafia de Canelos, Ecuador, *Spruce* 5069 (B).

RANGE: Ecuador.

ADDITIONAL SPECIMENS EXAMINED: Type collection (G, K).

129. *Besleria timida* Morton, *Proc. Biol. Soc. Washington* 48: 56. 1935.

Stems slender, strigillose; petioles up to 3 cm long; leaf blades elliptic-lanceolate, up to 9 cm long and 3 cm wide, membranous, attenuate at base, minutely denticulate, strigillose on the veins beneath, the primary veins 6 or 7 pairs; common peduncle thick, glabrous, up to 6 cm long, the pedicels umbellate, glabrous, about 4 mm long; calyx lobes ovate, about 3.5 mm long, free, rounded, a little mucronate, densely glandular-pubescent, erose, ciliate; corolla orange, about 16 mm long, horizontal, long-pilose, spurred (2 mm), the tube becoming 10 mm wide, the throat lateral, about 6 mm wide; ovary puberulous; disk annular, enlarged posteriorly, pubescent.

TYPE: Corazón (?), Prov. Pichincha, Ecuador, *André* K1497 (K).

RANGE: Ecuador.

ADDITIONAL SPECIMEN EXAMINED: Balsapamba, Prov. Bolívar, *André* 4876 (K).

130. *Besleria venusta* Morton, sp. nov.

Caules crassi, apicem versus dense villosio-tomentosi, deorsum lanato-tomentosi; petioli breves tomentosi; lamina foliorum late elliptica, rotundata, basi obtusa vel rotundata, chartacea, leviter serrata, supra glabra, subtus in venis villosio-tomentosa; pedunculus communis elongatus villosio-tomentosus, pedicellis paucis umbellatis crassissimis villosio-tomentosis; calycis lobi late ovati, liberi vel basi connati, apice rotundati, subaequales integri, externe villosio-tomentosi, intus glabri; corolla rubra, in calyce horizontalis, basi postice calcarata, tubo ventricoso,

externe glabro, limbo laterali parvo; ovarium lateraliter compressum, margine pilosulum; discus annularis brevissimus, postice crassior, margine pilosulus.

Herb, the stems fleshy, densely villous-tomentose toward apex, lanate-tomentose below; petioles short, about 8 mm long, fleshy, tomentose; leaf blades elliptic, 11–13.5 cm long, 5.5–9 cm wide, rounded, the base obtuse or rounded, chartaceous, lightly serrate, glabrous above, villous-tomentose on the veins beneath, the primary veins about 7 pairs; common peduncle elongate, 9–12 cm long, villous-tomentose, the pedicels few, umbellate, 10–14 mm long, very thick, villous-tomentose; calyx lobes broadly ovate, 11–12 mm long, free or connate at base, rounded, subequal, entire, villous-tomentose externally, glabrous within; corolla red, 35 mm long, horizontal in calyx, spurred at base, the tube ventricose, becoming 2 cm wide, glabrous externally, the limb lateral, small; ovary conspicuously compressed laterally, pilosulous on the margins; style pilosulous; disk annular, very low, thin, thickened posteriorly, pilosulous on the margin.

Type in the herbarium of the Naturhistoriska Riksmuseet, Stockholm, collected at Tandagú, Province of Pichincha, Ecuador, altitude 1,500 meters, July 1920, by O. Heilborn (no. 757).

131. *Besleria lateralis* Morton, sp. nov.

Caules et petioli tomentosi; lamina foliorum oblongo-lanceolata, basi obtusa, remote serrulata, membranacea, supra fere glabra, subtus in venis tomentosa; pedunculus communis elongatus tomentulosus, pedicellis umbellatis glabratis; calycis lobi ovati, fere liberi, acuti integri venosi, utrinque glabrati; corolla magna, in calyce horizontalis, basi postice calcarata, tubo utrinque glabro, valde ventricosus, limbo laterali; ovarium glabrum; discus postice crassior, pubescens.

Stems tomentose; petioles about 1.5 cm long, tomentose; leaf blades oblong-lanceolate, 21 cm long, 7 cm wide, obtuse at base, membranous, remotely serrulate, nearly glabrous above, tomentose beneath on the veins, the primary veins 8 or 9 pairs; common peduncle elongate, 16–17 cm long, tomentulose, the pedicels umbellate, 6–9 mm long, glabrate; calyx lobes broadly ovate, about 8 mm long, nearly free, acute, entire, veiny, glabrate on both sides; corolla 30–35 mm long, horizontal in calyx, spurred at base posteriorly, the tube glabrous on both sides, strongly ventricose upwardly, 13–15 mm wide at middle, the limb lateral, about 7 mm wide; androecium glabrous; ovary glabrous; style thick, glabrous; disk thickened posteriorly, pubescent.

Type in the Gray Herbarium, collected in the Andes of Quito, Ecuador, in 1855, by J. P. Couthouy.

132. *Besleria oncogastra* Hanst. *Linnaea* 34: 335. 1865.

Shrub, with stems minutely sericeous-tomentose toward apex; petioles up to 15 mm long, sericeous-tomentose; leaf blades elliptic, up to 16.5 cm long and 7.5 cm wide, cuneate at base, membranous, remotely dentate, glabrous above, appressed-pubescent on the veins beneath, the primary veins 5–7 pairs; common peduncle 3–6 cm long, nearly glabrous, the pedicels numerous, subcorymbose, up to 8 mm long, nearly glabrous; calyx lobes ovate, 4–6 mm long, free, a little unequal, the posterior lobe deflexed and obtuse, the others erect, rounded, puberulous on both sides, minutely denticulate; corolla scarlet, horizontal, spurred (the spur rounded 3 mm long), 17–22 mm long, rounded at apex, the limb lateral, about 3 mm wide, the tube glabrous, 4 mm wide at base, 10 mm wide at middle (the location of the throat), narrower toward apex; ovary pubescent; disk enlarged posteriorly, pubescent.

TYPE: Guayaquil, Ecuador, Ruiz (B).

RANGE: Ecuador, at 100 to 600 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (W, fragment F). Between Santa Rosa and La Chorita, Prov. Oro, Hitchcock 21121 (W, Y). Chacayacu,

Lehmann 6462 (B, K, W). Pilatón, *Sodi* 119/51 (B). Manabi, *Sodi* 119/49 (B). Río de Santa Rosa, *André* 4270 (K). Ayabamba, *André* K1495 (K, Y). Tambo Grande, *André* 4278 (K, Y). Guayas, *Heilborn* 7 (S). Without specific locality, *Warscewicz* 13 (B).

133. *Besleria tinctoria* Morton, sp. nov.

Caules graciles, superne dense lanati, inferne glabrescentes; petioli strigillosi; lamina foliorum elliptica vel anguste elliptica, acuminata, basi cuneata, crenata, subtus imprimis in venis strigillosa; pedunculus communis elongatus, sparse pilosus, pedicellis umbellatis, fere glabris; calycis lobi fere liberi, ovato-lanceolati, acuminati, integri vel raro denticulati, utrinque puberuli, eciliati, posticus omnino liber, reflexus; corolla coccinea, in calyce horizontalis, basi postice calcarata, tubo minute puberulo, sursum ventricosus, limbo laterali parvo; ovarium puberulum; discus annularis, postice crassior, puberulus.

Herb 20–40 cm high, the stems slender, densely lanate toward apex, glabrescent below; petioles up to 15 mm long, strigillose; leaf blades elliptic or narrowly elliptic, up to 12.5 cm long and 4.5 cm wide, usually smaller, acuminate, cuneate at base, crenate, glabrate above, strigillose beneath, especially on the veins, the primary veins 7–10 pairs; common peduncle up to 7 cm long, sparsely pilose, the pedicels umbellate, about 7 mm long, nearly glabrous; calyx lobes ovate-lanceolate, 6.5–9 mm long, nearly free, acuminate, entire or rarely denticulate, puberulous on both sides, not ciliate, spreading, the posterior one entirely free, reflexed; corolla scarlet, about 20 mm long, horizontal in calyx, spurred at base posteriorly (3 mm), the tube minutely puberulous externally, ventricose upwardly, the limb lateral, the lobes small, erect; androecium glabrous, the anthers connate; ovary and style puberulous; disk annular, thickened posteriorly, pubescent.

Type in the Academy of Natural Sciences, Philadelphia, no. 642,473, collected at Salento, Río Boquía, Department of Caldas, Colombia, altitude 1,600–1,900 meters, July 27, 1922, by E. P. Killip and T. E. Hazen (no. 8798). Duplicates in the New York Botanical Garden and the U. S. National Herbarium.

RANGE: Colombia, at 900 to 2,000 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Cerro Bravo, near Frederica, Dept. Antioquia, *Lehmann* 3228 (K, W). Novilleros, Caldas, *André* 2372 (K, Y). Quindío, *Purdie* (K). Ocaña, *Schlim* 543 (K).

134. *Besleria perennis* Morton, sp. nov.

Caules apicem versus lanato-tomentosi; lamina foliorum lineari-oblonga, acuta, basi cuneata, membranacea, sinuato-dentata, subtus in venis tomentulosa; pedunculus communis evolutus glaber uniflorus, pedicello brevi glabro; calycis lobi ovati magni liberi acuminati integri, externe tomentulosi, intus puberuli; corolla rubra magna horizontalis, basi calcarata, valde ventricosa, externe puberula, intus glabra, limbo laterali; filamenta puberula; ovarium ubique puberulum; discus postice crassior, pubescens.

Perennial herb, 20–30 cm high, the stems scarcely branched, lanate-tomentose toward apex; petioles short, 2–8 mm long; leaf blades linear-oblong, 4.5–8 cm long, 0.8–1.8 cm wide, acute, cuneate at base, membranous, sinuate-dentate, tomentulose on the veins beneath, the primary veins 7 or 8 pairs; common peduncle about 4 cm long, glabrous, the pedicel solitary, about 6 mm long, glabrous; calyx lobes ovate, about 16 mm long, free, acuminate, entire, tomentulose externally, puberulous within; corolla red, 35 mm long, horizontal in calyx, spurred at base, the tube strongly ventricose, about 15 mm wide at middle, puberulous externally, glabrous within, the limb lateral, about 8 mm wide; filaments puberulous; ovary puberulous; disk thickened posteriorly, pubescent.

Type in the U. S. National Herbarium, no. 1,705,114, collected at Hacienda Salento, Canton Pujili, Province of León, Ecuador, altitude 1,000 meters, Nov. 20, 1934, by Ynes Mexía (no. 6719).

135. *Besleria pansamalana* Donn. Smith, Bot. Gaz. 16: 197. pl. 17. 1891.

Herb, the main stem trailing, up to 2.4 m long, rooting at both nodes and internodes, the apex and lateral branches erect, 0.6–0.9 m high, densely canescent; petioles 1–2 cm long, canescent; leaf blades obovate-oblong, the larger about 13 cm long and 6.5 cm wide, acute at apex, cuneate at base, serrate above the middle, membranous, arachnoid-puberulous beneath, the primary veins 5 or 6 pairs; common peduncle 4–7.4 cm long, canescent, bearing a single pedicel 5–8 mm long; calyx lobes ovate, 10–13 mm long, free, acute, membranous, entire, strigose externally, puberulous within; corolla orange, 30–35 mm long, horizontal, spurred at base (the spur about 3 mm long), the tube lightly puberulent externally, glabrous within, the limb lateral; filaments glabrous; ovary a little compressed laterally, essentially glabrous except for the lightly puberulent lateral ridges; disk annular but greatly enlarged posteriorly, densely pubescent.

TYPE: Pansamalá, Dept. Alta Verapaz, Guatemala, *Tuerckheim* 196 (W).

RANGE: Guatemala, at 1,200 to 1,600 meters elevation.

ADDITIONAL SPECIMENS EXAMINED: Type collection (G, Y). Type locality, *Donnell Smith* 1798 (G, W, Y). Cobán, *Tuerckheim* II. 2281 (Co, F, M, S). Dept. Alta Verapaz, *Lehmann* 1333 (W). Trail from Senahú to Actalá, Dept. Alta Verapaz, *Maxon & Hay* 3322 (W, Y). Finca Mocca, Dept. Alta Verapaz, *Johnson* 165 (W). Cerro Putul, Dept. Quiché, *Skutch* 1827 (W). Purulá, Dept. Baja Verapaz, *Tuerckheim* II. 1740 (W).

Captain Smith originally described the corolla as crimson, but on all specimens which bear notes the color is stated as orange.

136. *Besleria ecuadorensis* (Fritsch) Morton, comb. nov.

Besleria pansamalana var. *ecuadorensis* Fritsch, Notizbl. Bot. Gart. Berlin 11: 975. 1934.

Stems quadrangular, tomentose; leaf blades elliptic, 9–13 cm long, 4–6 cm wide, cuneate at base, serrulate, subtomentose on veins beneath, the primary veins about 7 pairs; common peduncle tomentose, 4.5 cm long, bearing a single tomentose pedicel about 2 mm long; calyx lobes lanceolate, 10 mm long, acuminate, entire, tomentulose at base externally, puberulous within; corolla 20 mm long, horizontal, spurred, puberulous externally, glabrous within, the tube becoming 10 mm wide at middle, the limb lateral, about 5 mm wide; androecium glabrous; ovary and style glabrous; disk thickened posteriorly, pubescent.

TYPE: Niebly, Ecuador, *Sodi* 119/50 (B).

The Guatemalan *B. pansamalana* differs in its closely and minutely canescent stems, in its broader calyx lobes, and in its larger corolla, 30–35 mm long.

137. *Besleria anomala* Morton, sp. nov.

Caules breves et petioli sparse pilosi; lamina foliorum elliptica, rotundata, basi late cuneata, membranacea crenata, supra glabra, subtus imprimis in venis appresso-pubescent; pedunculus communis brevis, pedicellis solitariis vel raris binis, sparse pilosis; calyx campanulatus appresso-pubescent, lobis fere liberis vel in tubum brevem connatis, ovato-lanceolatis, acutis integris; corolla erecta ecalcarata, externe puberula, valde ventricosa, sursum deflexa, limbo laterali, sursum spectante; filamenta dense puberula; ovarium puberulum; discus semiannularis glaber.

Low herb, the stems scarcely 20 cm high, terete, sparsely pilose; leaves clustered at apex of stem, the petioles up to 4.5 cm long, thick, sparsely pilose, the blades elliptic, up to 25 cm long and 8.5 cm wide, rounded, broadly cuneate at base, membranous, crenate, glabrous above, appressed-pubescent beneath, especially on the veins, the primary veins about 6 pairs; common peduncle about 1.5 cm long, the pedicels solitary or rarely paired, up to 5 cm long, sparsely pilose; calyx campanulate, about 11 mm long, appressed-pubescent, the lobes nearly free or

short-cornate at base, ovate-lanceolate, acute, entire, not ciliate, longitudinally nerved; corolla erect in calyx, not spurred, the base slightly saccate posteriorly, about 30 mm long, densely puberulous externally, the tube cylindric at base, about 5 mm wide, deflexed and strongly ventricose upwardly, rounded at apex, the limb lateral not terminal, the lobes very short, erect; filaments short, inserted high in corolla tube, densely puberulous; anthers large, connate, the cells confluent; staminodium well developed; ovary and style densely puberulous; disk thick, semiannular, glabrous.

Type in the Kew Herbarium, collected on moist banks near the Quebrada de la Honda, Colombia, March 1846, by Purdie.

The present species has been known for many years, but no description has ever been published nor any specific name applied to it. In the *Genera Plantarum*⁷ Bentham and Hooker describe a new section of *Besleria* as follows: "*Podobesleria* sectionem format *Besleriis* convenientem staminibus et characteribus aliis essentialibus etsi discus interdum imperfectus. Herbae sunt humiles amplifoliae, pedunculis elongatis 1 v. ∞ -floris, corolla ut in *Gasterantho* basi saccata subcalcarato tubo valde ventricoso ore parvo fere *Hypocyrtae*. Huc pertinent specimina Purdieana (pedunculis 1-floris) et Spruceana n. 3904 et Lindeniana 960 pedunculis ∞ -floris."

In 1895 Fritsch⁸ remarks as follows: "*Besleria* Sect. VII *Podobesleria* Benth. & Hook. Blkr. wie bei *Gasteranthus*. Niedrige Kräuter mit grossen B. and verlängerten Blütenstielen. Discus nicht immer vollständig ausgebildet. Keine Art beschrieben." In 1891 Donnell Smith had referred his species *Besleria pansamalana* to the section *Podobesleria*, but that species does not differ essentially from *Gasteranthus*, as recently noted by Fritsch⁹ in the following words: "*Besleria pansamalana* wird von J. D. Smith zur Sektion *Podobesleria* Benth. & Hook. gerechnet. Ich kenne die Formen nicht, welche zur Aufstellung der Sektion *Podobesleria* Anlass gegeben haben. Ich habe die Sektion in meiner Bearbeitung der Gesneriaceen übernommen, ohne mir selbst ein Urteil über deren Wert bilden zu können. *Besleria pansamalana* würde ich ruhig zu *Gasteranthus* Benth. stellen, da sie von den anderen Arten dieser Sektion nicht erheblich abweicht."

I have now had the opportunity of examining the Purdie and Spruce specimens cited by Bentham and Hooker and agree that the section may not be maintained. The Spruce specimen is referable to *B. corallina* Fritsch.

DOUBTFUL SPECIES

138. *BESLERIA AGGREGATA* (Mart.) Hanst. in Mart. Fl. Bras. 8¹:400. 1864.

Hypocyrtia aggregata Mart. Nov. Gen. & Sp. 3: 51. 1829.

Shrub; stems densely hirsute; petioles hirsute; leaf blades oblong, up to 30 cm long, subcoriaceous, entire, cuneate at base, hirsute on the veins beneath; common peduncle none; pedicels numerous, up to 1 cm long; calyx about 1 cm long, the lobes linear-lanceolate, free, entire, hirsute; corolla scarlet, urceolate, a little ventricose, finely appressed-pubescent without; disk annular; ovary pilose.

TYPE: Manacuru, on Rio Japurá, State of Amazonas, Brazil, *Martius*.

The description strongly suggests *Besleria ignea*, and the two species may be identical.

139. *BESLERIA ARDENS* Dene. ex Linden, Cat. No. 5, 1. 1850.

Description not available.

140. *BESLERIA CAMPANULATA* Linden, Cat. No. 5, 2. 1850.

Description not available.

⁷ Gen. Pl. 2: 1016. 1876.

⁸ Engl. & Prantl. Pflanzenfam. 4^{te}:159. 1895.

⁹ Notizbl. Bot. Gart. Berlin 11: 976. 1934.

141. *BESLERIA FLAVO-VIRENS* Nees & Mart. Nov. Act. Acad. Caes. Leop. Carol. 11:49. 1823.

Besleria luteo-virens Mart. Nov. Gen. & Sp. 3:45. 1829.

Stems a little pubescent at apex; petioles 2.5–5 cm long; leaf blades narrowly oblong, 12.5–22.5 cm long, 5–7.5 cm wide, cuneate at base, serrate toward apex, slightly pilosulous; common peduncle less than 2.5 cm long, the pedicels numerous, shorter than peduncle; calyx lobes ovate, united to middle, obtusish; corolla yellowish-green, scarcely twice as long as calyx, the tube infundibular, the limb broad.

TYPE: Ilheos, Bahia, Brazil, *Martius*.

I have seen no material certainly referable to this species, which still remains dubious. Fritsch cites a specimen collected by Riedel (no. 419) as being of this species. There is a specimen of this in the National Herbarium. It is in poor condition and does not seem to agree very well with the above description, which is adapted from that of *Martius*.

EXCLUDED SPECIES

BESLERIA AMPLA Vell. Fl. Flum. 262. 1825; Ic. 6: pl. 84. 1827. Not Gesneriaceae.

BESLERIA ARBOREA Vell. op. cit. 261; op. cit. pl. 82. Not Gesneriaceae.

BESLERIA BICOLOR H. B. K. Nov. Gen. & Sp. 2:398. 1818. = *Alloplectus bicolor* Klotzsch.

BESLERIA BIFLORA Forst. Fl. Ins. Austr. Prodr. 43. 1786. = *Cyrtandra biflora* Forst.

BESLERIA BIVALVIS L. f. Suppl. Pl. 280. 1781. = *Curanga bivalvis* Druce.

BESLERIA BONODORA Vell. Fl. Flum. 261. 1825; Ic. 6: pl. 80. 1827. = *Brunfelsia bonodora* Macbr.

BESLERIA CAERULEA Aubl. Pl. Guian. 2: 631. 1775. = *Schlegelia violacea* Griseb.?

BESLERIA CESTROIDES Fritsch, Notizbl. Bot. Gart. Berlin 11:962. 1934. = *Cremosperma cestroides* Morton.

BESLERIA COCCINEA Aubl. Pl. Guian. 2: 632. pl. 255. 1775. = *Alloplectus coccineus* Mart.

BESLERIA CONGESTIFLORA Donn. Smith, Bot. Gaz. 61: 379. 1916. = *Alloplectus congestiflorus* Morton.

BESLERIA CRASSIFOLIA Schott in Schreibers, Nachr. K. Oestr. Naturf. Bras. Anh. 7. 1820. = *Nematanthus* sp.

BESLERIA CRISTATA L. Sp. Pl. 619. 1753. = *Alloplectus cristatus* Mart.

BESLERIA CYMOsa Forst. Fl. Ins. Austr. Prodr. 44. 1786. = *Cyrtandra cymosa* Forst.

BESLERIA DICHRUS Spreng. Syst. Veg. 2: 840. 1825. = *Alloplectus dichrus* DC.

BESLERIA DRYMONIA Steud. Nom. Bot. ed. 2, 1: 200. 1840. = *Drymonia calcarata* Mart.

BESLERIA FOLIACEA Rusby, Mem. Torrey Club 4: 240. 1895. Not *Besleria*.

BESLERIA GRANDIFLORA H. B. K. Nov. Gen. & Sp. 2: 401. 1818. = *Campanea grandiflora* Dcne.

BESLERIA GUADALUPENSIS DC. Prodr. 7: 538. 1839. = *Episcia melittifolia* var. *guadalupensis* Urban.

BESLERIA HIRTELLA Schott, Oesterr. Med. Jahrb. VI. 2: 66. 1820. = *Alloplectus* sp.

BESLERIA HISPIDA H. B. K. Nov. Gen. & Sp. 2: 39. 1818. = *Alloplectus hispidus* Mart.

BESLERIA INCARNATA Aubl. Pl. Guian. 2: 635. pl. 256. 1775. Not *Besleria*.

BESLERIA INODORA Vell. Fl. Flum. 261. 1825; Ic. 6: pl. 81. 1827. = *Brunfelsia* sp.

- BESLERIA INSIGNIS Mart. & Gal. Bull. Acad. Sci. Brux. 9^e: 37. 1842. = *Solenophora insignis* Hanst.
- BESLERIA LUTEA Moc. & Sessé, Fl. Mex. 167. 1887. Not *Besleria*.
- BESLERIA MELITTIFOLIA L. Sp. Pl. 619. 1753. = *Episcia melittifolia* Mart.
- BESLERIA MOLLIS Hook. ex Steud. Nom. Bot. ed. 2, 1: 200. 1840, nomen nudum. Not *Besleria*.
- BESLERIA MOLLISSIMA Spreng. ex Steud. Nom. Bot. 107. 1821, nomen nudum. Not *Besleria*.
- BESLERIA PENTAPHYLLA Vell. Fl. Flum. 262. 1825; Ic. 6: pl. 83. 1827. Not Gesneriaceae.
- BESLERIA PULCHELLA Donn, Hort. Cantabr. 140. 1796, ex Bot. Mag. Curtis 28: pl. 1146. 1808. = *Tussacia pulchella* Rehb.
- BESLERIA RESUPINATA Moc. & Sessé, Fl. Mex. 167. 1887. Not *Besleria*.
- BESLERIA SANGUINEA Pers. Syn. Pl. 2: 165. 1807. = *Alloplectus sanguineus* Mart.
- BESLERIA SERRULATA Jacq. Pl. Hort. Schönbr. 3: 21. pl. 290. 1798. = *Drymonia serrulata* Mart.
- BESLERIA SPECTABILIS H. B. K. Nov. Gen. & Sp. 2: 400. 1818. = *Drymonia spectabilis* Mart.
- BESLERIA SURINAMENSIS Miq. Linnaea 22: 471. 1849. = *Trichanthera gigantea* (H. & B.) Nees.
- BESLERIA VERRUCOSA Pulle, Rec. Trav. Bot. Neerl. 9: 163. 1912. Not *Besleria*.
- BESLERIA VIOLACEA Aubl. Pl. Guian. 2: 630. pl. 234. 1775. = *Schlegelia violacea* Griseb.