

CONTRIBUTIONS FROM THE GRAY HERBARIUM OF HARVARD  
UNIVERSITY. — NEW SERIES, No. LVI

I. FURTHER NEW OR OTHERWISE INTERESTING  
LILIACEAE

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SCHOENOCAULON Gray, Ann. Lyc. N. Y. iv. 127 (Nov., 1837).  
*Sabadilla* Brandt in Hayne, Arzn. Gew. xiii. t. 27 (1837), essentially  
in synonymy. *Skoinolon* Raf. Fl. Tellur. iv. 27 (1838).

By Dalla Torre & Harms, Gen. Siph., the name "*Sabadilla*  
Brandt & Ratzebg." is maintained for this genus in place of  
*Schoenocaulon* Gray which, in the estimation of these authors, is a  
later published name. They give for the publication of *Sabadilla*  
the date "1836 vel 1837 init." and indeed it seems evident that  
volume thirteen of Hayne's work came out late in 1836 or early  
in 1837 which probably antedates volume four of the Ann. Lyc.  
N. Y. by several months. In the Bot. Zeitung xix, vol. ii. Intelli-  
genzblatt, no. i. 4-5 (1836) we learn regarding Hayne's publica-  
tion that "nach dem Tode des Verfassers die letzte Hälfte des  
12ten und die erste des 13ten Bandes erschienen, die letzte wird  
noch im Laufe des Jahres nachfolgen" and in Linnaea, Litteratur-  
Bericht for 1837, 224-226, there is a review of volume thirteen.  
This review occurs toward the end of the 1837 volume. But even  
though it is granted that *Sabadilla* is the earliest name for this  
group of plants it may be questioned seriously, it seems to me,  
whether it was originally given generic status in the sense defined  
by either the American Code or the International Rules. Refer-  
ence to Brandt & Ratzeburg's paper discloses the fact that they  
do not jointly assume responsibility for the name, since under the  
heading, "*Veratrum officinale*" occur the words, "Untergattung  
*Sabadilla* Brandt," accompanied by an asterisk which refers to this  
footnote, "Es schien uns daher besser, für jetzt ein Subgenus  
unter dem Namen *Sabadilla* vorzuschlagen um jene auffallenden  
Eigenthümlichkeiten anzudeuten. Die Zukunft wird lehren, ob  
es zur Bedeutung eines Genus erhoben werden kann oder mit einem  
der oben genannten verschmelzen muss. Daher können wir den



künftig ihm vielleicht zu ertheilenden Namen, *Sabadilla officinarum* nur fraglich andeuten." From this it would appear that Brandt was desirous of treating *V. officinale* as a distinct genus but that he lacked the requisite courage! He therefore seems to have attempted a compromise by suggesting the binomial necessary should his subgenus *Sabadilla* ever be accorded generic rank. That he himself thought that he was publishing a generic name, as Dalla Torre & Harms have construed, is not to me evident and, moreover, the one time he attaches a specific name to *Sabadilla* he does so in a manner which makes it virtually in synonymy. Accordingly the name to be used for this group of plants is *Schoenocaulon* rather than *Sabadilla*, even though volume thirteen of Hayne's work appeared before volume four of the Ann. Lyc. N.Y. since the name *Sabadilla* was not originally given generic status.

**Dichopogon fimbriatus** (R. Br.), comb. nov. *Arthropodium fimbriatum* R. Br. Prod. 276 (1810). *A. laxum* Sieb. in Roem. & Schult. Syst. vii. 441 (1829). *D. Sieberianus* Kunth, Enum. iv. 623 (1843).

Bentham in his Flora Australiensis vii. 59 (1878) wrote, "*A. fimbriatum*, R. Br. . . . of which no specimen is preserved in his herbarium, is probably this species," i.e. *D. Sieberianus*. There is little doubt, it seems to me, but that this supposition is correct from the essential agreement of the original diagnoses. Robert Brown's plant, furthermore, came from Port Jackson (Sidney) and it was there or in that vicinity that Sieber secured his specimens. Accordingly I am taking up for this plant the earliest specific name, *A. fimbriatum*.

**Arthropodium milleflorum** (Red.), comb. nov. *Anthericum milleflorum* Red. Lil. i. t. 58 (Feb., 1804). *A. paniculatum* Andr. Bot. Rep. t. 395 (Sept., 1804).

Apparently this attractive Australian lily has never been properly christened.

**Trichopetalum plumosum** (R. & P.), comb. nov. *Anthericum plumosum* R. & P. Fl. Peruv. iii. 68 (1802). *T. gracile* Lindl.? Bot. Reg. 1535 (1832).

There seems to be no doubt that this genus is not monotypic as some botanists have inferred. The plate in Ruiz & Pavon's Flora shows a plant with obtuse lanceolate-obovate perianth segments and in this respect at least it resembles the plate of Lindley's



*T. gracile*. Lindley, l. c., called attention to the differences between his species and the *A. plumosum* of Hooker figured in Bot. Mag. 3084 (1831), and proposed for Hooker's plant the name *T. stellatum*. Apparently this is the commoner species and may be distinguished readily from *T. plumosum* by the acute linear-oblong perianth segments. *Bottionea thysanotooides* Colla, Mem. Acad. Torin. xxxvii. 45. t. 1 (1834), is evidently the same as *T. stellatum*. But whatever disposition eventually may be made of these several plants the earliest available name is that of Ruiz & Pavon cited above.

***Corynotheca micrantha*** (Lindl.), comb. nov. *Asparagus micranthus* Lindl. Swan River App. 58 (1840). *Thysanotus micranthus* Endl. in Lehm. Pl. Preiss. ii. 36 (1846). *Caesia dichotoma* Muell. Fragm. i. 215 (1859). *Corynotheca dichotoma* Muell. ex Benth. Fl. Austr. vii. 50 (1878).

***Schoenolirion albiflorum*** (Raf.), comb. nov. *Amblostima albiflora* Raf. Fl. Tellur. ii. 26 (1837). *Oxytria albiflora* (Raf.) Pollard, Bull. Torr. Club, xxiv. 406 (1897). *S. Elliottii* Feay ex Gray, Am. Nat. x. 427 (1876).

Pollard, l. c., pointed out that Rafinesque first named this plant. The above new combination is necessary, however, because the generic name *Schoenolirion* is included in the list of *nomina conservanda* validated at Vienna. This genus is confined to the southeastern United States. Some botanists have considered two plants which grow in northern California and Oregon as congeneric but now that the seeds of these are known there is no doubt as to the validity of Watson's genus *Hastingsia*. Besides the points of difference which Watson notes as existing between *Hastingsia* and *Schoenolirion* there is a very definite difference in the character of seeds, those of the latter genus being smooth and highly polished while those of *Hastingsia* are rugulose and dull.

***Schizobasopsis***, nom. nov. *Bowiea* Harv. ex Hook. f. in Bot. Mag. t. 5619 (1867), not *Bowiea* Haw. in Phil. Mag. lxiv. 299 (1824).

***Schizobasopsis volubilis*** (Harv.), comb. nov. *Bowiea volubilis* Harv. ex Hook. f. in Bot. Mag. t. 5619 (1867).

Berger, Bot. Jahrb. xxxvi. 43 (1905) and Pflanzenreich, iv. Fam. 38: 122 (1908), has shown that *Bowiea* Haw. is distinct and not to be merged in *Aloe* as has been done by Baker and others. He has erred, however, in renaming Haworth's genus since, according



to the International Rules Art. 51. 1, it is Harvey's genus, published much later than Haworth's which requires a new name. *Chamaealoe* Berger, l. c., therefore, becomes a synonym of *Bowiea* Haw. and the resurrection of this generic name requires the changing of the much later *Bowiea* Harv. which may bear the name *Schizobasopsis* since it somewhat resembles and is most closely related to *Schizobasis* Baker.

*ALOE DISTICHA* Mill., var. **brachyphylla** (Baker), comb. nov. *A. Saponaria* (Ait.) Haw., var. *brachyphylla* Baker, Journ. Linn. Soc. xviii. 164 (1880).

Baker, l. c., rejected Miller's name but stated, "nomen primum sed ineptum." Durand & Schinz, Consp. Fl. Afr. v. 311 (1893) concurred and even Berger in his revision, Pflanzenreich, iv. Fam. 38: 201 (1908) has adopted the later name *A. Saponaria*. This action is contrary to the principle expressed in Art. 50 of the International Rules.

**Acanthocarpus mucronatus** (R. Br.), comb. nov. *Xerotes mucronata* R. Br. Prod. 260 (1810). *A. Preissii* Lehm. Pl. Preiss. ii. 274 (1848).

There seems to be no reasonable doubt as to the identity of the plant of Robert Brown and that of Lehmann. Since the former's name has priority it is to be adopted and the above new combination accordingly becomes necessary.

**LOMANDRA** Labill. Nov. Holl. i. 92 (1804). *Xerotes* R. Br. Prod. 259 (1810).

Although the name *Lomandra* has been generally conceded in books of reference, such as the Natürl. Pflanzenf., to be the proper name for this group of Australian plants, comparatively few of the thirty odd species have been transferred from the later published genus *Xerotes*. Britten has made the necessary new combinations in the case of two species, *L. filiformis* (Thunb.) Britten and *L. multiflora* (R. Br.) Britten, but there are several others represented in the Gray Herbarium which may now be transferred.

**Lomandra effusa** (Lindl.), comb. nov. *Xerotes effusa* Lindl. in Mitch. Three Exped. ii. 101 (1839).

**Lomandra Endlicheri** (Muell.), comb. nov. *Xerotes Endlicheri* Muell. Fragm. viii. 205 (1874).

**Lomandra glauca** (R. Br.), comb. nov. *Xerotes glauca* R. Br. Prod. 260 (1810).



*Lomandra leucocephala* (R. Br.), comb. nov. *Xerotes leucocephala* R. Br. Prod. 260 (1810).

*Lomandra obliqua* (Thunb.), comb. nov. *Dracaena obliqua* Thunb. Diss. Drac. 6. fig. 2 (1808). *Xerotes flexifolia* R. Br. Prod. 260 (1810).

*Lomandra spartea* (Endl.), comb. nov. *Xerotes spartea* Endl. in Lehm. Pl. Preiss. ii. 51 (1846).

*Gagea villosa* (Labill.), comb. nov. *Anthericum villosum* Labill. Pl. Syr. v. 14 (1812). *Phalangium villosum* (Labill.) Poir. Encycl. Suppl. iv. 381 (1816). *Ornithogalum pedunculare* Presl, Delic. Prag. 150 (1822). *G. peduncularis* (Presl) Pascher, Sitzb. Lotos, 114 (1904).

Ascherson & Graebner, Synops. Mitteleurop. Fl. iii. 81 (1905), have indicated the identity of the plants of Presl and Labillardière but have erred in following Pascher in the adoption of Presl's later name. *Gagea villosa* Duby, Bot. Gall. ed. 2, i. 467 (1828) is "universally regarded as a synonym" of *G. arvensis* Dumort. Fl. Belg. 140 (1827).

*ALLIUM CERNUUM* Roth, var. **neo-mexicanum** (Rydb.), comb. nov. *A. neo-mexicanum* Rydb. Bull. Torr. Club, xxvi. 541 (1899).

*A. cernuum* in typical form is a plant with rather thin and keeled leaves often 4 or 5 mm. wide and light pink numerous flowers. From Alberta to New Mexico and British Columbia this typical form, common in many of the Atlantic states, is largely but not entirely replaced by the var. *obtusum* Ckll. (*A. recurvatum* Rydb.). This variety is not sharply defined but may often be distinguished by the narrow (only 1-3 mm. wide) and thick leaves which are more or less rounded on the back rather than keeled. The flowers are generally darker than in the eastern state of the species. In the southwestern Rocky Mountain region another geographical variant occurs, the var. *neo-mexicanum*. This plant is intermediate in some respects between true *A. cernuum* and the var. *obtusum* since the leaves are thin and flattish like those of the former but as narrow as those of the latter. From both the typical form and the var. *obtusum*, however, the var. *neo-mexicanum* may be distinguished by the usually very small (about 5 mm. long) bracts. Yet another segregate species has been proposed in this group, viz. *A. allegheniense* Small, Bull. N.Y. Bot. Gard. i. 279 (1899), the author distinguishing his species by the urn-shaped perianth and the obtuse or retuse sepals. This plant is confined to the south-



eastern United States although it does not replace *A. cernuum* entirely in that section of the country according to Small, Fl. S.E.U.S. 2d ed. 263 (1913). No authentic material of *A. allegheniense* has been available for examination but specimens from the northeastern states of true *A. cernuum* in the Gray Herbarium frequently have the sepals quite as obtuse, and the perianth seemingly urn-shaped, as is the case with material from the southern states. These facts do not suggest, therefore, that *A. allegheniense* is specifically or even varietally distinct from *A. cernuum*.

**ALLIUM MUTABILE** Michx. This species is the type of a group of very closely related plants which seem distinct from each other and yet are with difficulty defined so that they may be at all times distinguished. For instance there is *A. mobilense* Regel, All. Monog. 121 (1875) which may usually be distinguished from *A. mutabile* by its narrow leaves, shorter perianth and pedicels and generally less robust habit and from *A. Nuttallii* by the softer and finer fibres of the outer bulb-coats, the narrower perianth segments and the more slender habit. *A. mobilense* constitutes therefore a distinct race or state intermediate between *A. mutabile* and *A. Nuttallii* and on the whole distinct enough except for a form in New Mexico which approaches *A. Nuttallii* too closely. *A. microscordion* Small, Fl. S.E.U.S. 263 (1903) and *A. arenicola* Small, Bull. Torr. Club, xxvii. 276 (1900) are both referable to *A. mobilense*. Then there is *A. Drummondi* Regel, All. Monog. 112 (1875) which Watson, Proc. Am. Acad. xiv. 227 (1879) referred to *A. mutabile* but which has very different bulb-coats, these being firm with the fibres closely woven. *A. Helleri* Small, Fl. S.E.U.S. 264 (1903) is not to be distinguished. From *A. Nuttallii* Wats. *A. Drummondi* is least readily separated but the character of the bulb-coats here again furnishes the best means of distinction. In the southern Rocky Mountains *A. Nuttallii*, like *A. mobilense*, occurs in very perplexing forms which cannot be placed very satisfactorily. It seems possible that the ranges of this group of closely related forms, each generally distinct enough, meet in the southern Rockies and that there plants occur which display a union of the characters of two or more species. Thus certain specimens from southern Colorado, Utah and New Mexico while possessing some of the characters of *A. Nuttallii* are referable in other respects to *A. mutabile* or *A. Drummondi* or even *A. mo-*



*bilense*. The presence of these forms would make a treatment of the group which would recognize one species and several varieties seem not unpalatable but until more is known of these apparently intermediate plants the species indicated above may conveniently be recognized.

**Allium Rydbergii**, nom. nov. *A. fibrosum* Rydb. Bull. Torr. Club, xxiv. 188 (1897), not *A. fibrosum* Regel, Act. Hort. Petrop. x. 322 (1887).

This excellent species bears superficial resemblance to *A. canadense* but, as shown by the crested capsule, is most nearly related to *A. Geyeri* from which it is nicely distinct by virtue of the obtuse perianth segments and the bulbet-bearing umbels.

**Allium jubatum**, nom. nov. *A. cristatum* Boiss. Fl. Or. v. 237 (1884), not *A. cristatum* Wats. Proc. Am. Acad. xiv. 232 (1879).

*Allium cristatum* Wats., a valid species of North America, is not cited in the Index Kewensis.

**BLOOMERIA** Kellogg, Proc. Cal. Acad. ii. 11 (1863). *Muilla* Wats. Proc. Am. Acad. xiv. 215 & 235 (1879).

When Watson described his genus, l. c., he had before him the single species *M. maritima* (Torr.) Wats., a several-leaved plant with greenish-white flowers borne on unarticulated pedicels and with filiform filaments. This plant could scarcely be considered congeneric with the monophyllic *Bloomeria aurea* which has yellow flowers, jointed pedicels and long filaments winged toward the base. Since then, however, additional species have been discovered which show conclusively, it seems to me, that these plants are really congeneric and that accordingly *Muilla* should become sunk in *Bloomeria*, the earlier name. In 1887 and 1888 Greene described two species of *Muilla* (*M. transmontana* and *M. coronata*, Pitt. i. 73 and 165) which he distinguished primarily from the original species *M. maritima* by the petaloid filaments, "their margins meeting at base . . . forming a shallow . . . cup around the ovary." Now this is essentially true in the case of *Bloomeria aurea* and indeed Engler, Pflanzenf. ii. Abt. 5: 57 (1887), found no other character by which to distinguish *Bloomeria* and *Muilla* but this sufficed as the filaments of *M. maritima*, the only species known to him, are very narrow. We are forced to discard, then, the character of the filaments as possessing value here for purposes of generic definition, but it is to be noted that *M. transmontana* Greene (with



which *M. coronata*, as Mrs. Brandegee has suggested, Zoe, iv. 101, should be merged) has the unarticulated pedicels of *M. maritima*. Although the presence of the jointed pedicel might serve as a means of distinguishing generically *Muilla* and *Bloomeria* it would result in arbitrarily keeping in separate genera plants which are quite similar in all respects which possess any degree of taxonomic moment. For instance *Bloomeria Clevelandii* with its pale flowers and several leaves simulates closely in habit *Muilla maritima* and although in this particular example a distinct difference in the structure of the corolla could be shown this difference is not so great nor so well marked as is the case in certain groups of *Brodiaea* some of which, furthermore, have jointless, others jointed pedicels, but which, nevertheless, every conservative botanist retains under the one generic name. But it so happens that recently a plant has been collected in Mexico which has the narrow filaments of true *Muilla* but the pedicels jointed like those of *Bloomeria*! This fact is not mentioned by Brandegee who described the plant as *Muilla Purpusii*, Univ. Cal. Publ. Bot. iv. 177 (1911). The blue-green flowers and the general aspect suggest at once a relationship to *M. maritima*. When therefore all the known species of *Muilla* and *Bloomeria* are considered it becomes apparent that they belong to one genus which must be known as *Bloomeria*, since it is the earlier name.

***Bloomeria maritima*** (Torr.), comb. nov. *Hesperoscordium?* *maritimum* Torr. Pac. R. R. Rep. iv. 148 (1857). *Muilla maritima* (Torr.) Wats. Proc. Am. Acad. xiv. 235 (1879).

**BLOOMERIA MARITIMA** (Torr.) Macbr., var. ***serotina*** (Greene), comb. nov. *Muilla serotina* Greene, Eryth. i. 152 (1893).

This montane form of southern California differs from the typical state of the species chiefly in the more robust habit and more numerous flowers. These are differences which are in no way fundamental, however, so this southern plant may best be treated as a geographical variant. Moreover the typical form has been secured recently by Abrams in Orange and Kern counties, which collections indicate a period of flowering that corresponds with that of the variety. Brandegee's no. 3382 from San Diego, referred by Miss Eastwood to *M. serotina*, is an intermediate state.

***Bloomeria transmontana*** (Greene), comb. nov. *Muilla transmontana* Greene, Pitt. i. 73 (1887). *M. coronata* Greene, l. c. 165 (1888).



This inland plant may be found to pass into *B. maritima* but the collections before me show no such tendency. Besides the very broad filaments, which, according to Mrs. Brandegee, *Zoe*, iv. 101 (1893), furnish the only means of separating *B. maritima* and *B. transmontana*, the anthers of the latter appear to be constantly yellow; those of the former, lurid purple.

**Bloomeria Purpusii** (Brandg.), comb. nov. *Muilla Purpusii* Brandg. Univ. Cal. Publ. Bot. iv. 177 (1911).

**Brodiaea grandiflora** (Lindl.), comb. nov. *Triteleia grandiflora* Lindl. Bot. Reg. xv. sub. t. 1293 (1830). *B. Douglasii* Wats. Proc. Am. Acad. xiv. 237 (1879).

The restoration of the name *Brodiaea coronaria* (Salisb.) Hort. for the plant commonly known under the later name, *B. grandiflora* Sm. necessitates the taking up of Lindley's name for the plant more recently called *B. Douglasii* Wats. since the specific name *grandiflora* is no longer "already borne by a valid species."

**BRODIAEA CAPITATA** Benth., var. **insularis** (Greene), comb. nov. *B. insularis* Greene, Bull. Calif. Acad. Sci. ii. 134 (1886).

The insular plant differs from the typical form of the mainland only in its larger size and usually longer-pedicelled flowers. Greene, in 1885, l. c. i. 216, referred his plant to *B. capitata*, "which is found exceedingly common, . . . and differing rather strikingly from the rankest California specimens in its much greater size. Its leaves, in Guadalupe, are an inch broad, and its scape not seldom more than three feet high."

✓ **Brodiaea coerulea** (Scheele), comb. nov. *Milla coerulea* Scheele, Linnaea, xxv. 260 (1852). *Androstephium violaceum* Torr. Bot. Mex. Bound. 219 (1859). *A. coeruleum* (Scheele) Greene, Pitt. ii. 57 (1890).

✓ **Brodiaea breviflora** (Wats.), comb. nov. *Androstephium breviflorum* Wats. Am. Nat. vii. 303 (1873). *B. Paysonii* A. Nels.? Bot. Gaz. lvi. 63 (1913).

There is room for much difference in the interpretation of generic limitations in this group of plants and indeed few groups have been subjected to more diverse treatment. In as much as Greene in the Bull. Cal. Acad. ii. 125 (1886) has devoted five pages to a historical résumé and a discussion of this subject under the title "Some Genera which have been Confused under the Name *Brodiaea*" it is now only necessary to call attention to Greene's



paper. There is one phase of the situation, however, upon which I would comment.

Most of the genera segregated from *Brodiaea* depend for their recognition upon characters which are virtually only modifications of the same phenomenon. Much importance, for instance, has been ascribed to the degree of development of the filament-appendages. Their absence, or, when present, the degree of their attachment to the corolla and to each other, has been used as a means of distinguishing genera although it is apparent that it is only a step from broadly winged filaments to filaments united into a tube by the union of the appendages. The fallacy of ascribing generic value to this type of characters is well shown in the results to which it inevitably leads. One who adopts in this group these or characters of similar nature for the definition of genera soon finds himself compelled, in order to be consistent, to go to ridiculous limits in his segregation. Rydberg himself admits as much in his argument for his segregate genus *Dipterostemon* Rydb. Bull. Torr. Club, xxxix. 110-111 (1912).

The maintenance of the genus *Androstephium*, then, would call for the assignment of generic value to the sort of characters discussed above and the consequent recognition of several other groups of closely related species as genera. That these plants are anything but *Brodiaeas* in aspect and fundamental character cannot be doubted and for the most part they have been regarded as species of this single and in its broader sense rather natural group.

*Brodiaea* so constituted may be said to be too close to *Milla*. Baker at one time even referred many of the species of the former to the latter genus. Later he rejected his earlier work, no doubt because he realized that, considered in the light of all the species, two characteristic groups were concerned which on the whole were amply distinct. One could argue not without reason for the suppression on grounds of technical character of *Brodiaea* and *Milla* both in *Allium* but common sense should forbid such action even as it should restrain the extreme segregation of natural elements. Rarely does it seem to make its influence felt however in thwarting the carrying out of this latter tendency.

In this connection I would question the validity of the several segregate genera of *Milla* proposed to take care of certain South American plants. These genera appear to be based on the same



class of characters that have proved unreliable in the case of *Brodiaea*. The material at hand however is so meager that this question cannot be taken up satisfactorily at present.

***Bessera tenuiflora*** (Greene), comb. nov. *Behria tenuiflora* Greene, Bull. Cal. Acad. ii. 143 (1886).

As observed by Greene, l. c. 129–130, the exclusion from *Brodiaea* of *Brevoortia* naturally calls for the recognition of the genus *Behria* Greene to take care of a plant from Lower California which has a quite similar perianth but very different staminal structure. Likewise the inclusion in *Brodiaea* of *Brevoortia* and especially of *Androstephium* (as discussed above) sets aside Greene's arguments for the creation of yet another genus for this plant (i. e. *B. tenuiflora*) because the character of *Brodiaea* when so amplified suffices, at least so far as the characters Greene uses as a means of distinguishing his genus *Behria* are concerned. But even so there are points of difference between *Behria* and *Brodiaea* which, after all, may keep them apart. The stamens in *Behria* are long-exserted from the bright red corolla and the filaments are united at base into a short tube — a combination of characters not found in any species of *Brodiaea* even when that genus is taken to include *Brevoortia* and *Androstephium*. The former has a similarly formed red perianth but the stamens are free and included; the latter has the perianth of *Brodiaea* but the stamens (included, however) are joined in a tube. *Behria*, then, may be said to possess as diagnostic character the long-exserted stamens and the combined feature of the red perianth and partially united filaments. But is this not the salient character of *Bessera*? Indeed that genus differs only in the greater division of the perianth segments and the union of the filaments into an elongate tube — differences purely of degree. The situation resolves itself, therefore, into a question as to the validity of the genus *Bessera*. With *Androstephium* sunk in *Brodiaea* the technical position of *Bessera* is indeed weakened but on the other hand it must be remembered that whereas the species of the former group are characterized by the more or less united filaments they are *Brodiaeas* in every other respect, notably in the included stamens, color of the flowers and general aspect, whereas the species of *Bessera* are at once unique both in character and aspect by the combination of red flowers and long-exserted stamens. Finally it may be mentioned that no *Brodiaea* is truly a component



of the Mexican flora although one or more species may sometime be found across the international boundary. The two species of *Bessera*, on the other hand, are peculiar to Mexico and Lower California. Altogether it seems best to regard *Bessera* as a genus distinct from *Brodiaea* even when the latter is considered in its largest sense as I have done.

*CALOCHORTUS ALBUS* Dougl. ex Benth. in Maund & Hensl. Botanist, ii. t. 98 (1839). *C. Englerianus* Hort. Berol. Notizbl. Bot. Gart. Mus. Berl. ii. 318 (1899).

Ascherson & Graebner, Synopsis, iii. 218 (1905) have taken up the name *C. Englerianus* for this plant because of the existence of the name *Fritillaria alba* Nutt. Gen. i. 222 (1818), a name which refers to another species of *Calochortus* but which is not to be used. Art. 53 of the International Rules states: "When a species is moved from one genus into another, its specific epithet must be changed if it is already borne by a valid species of that genus." Therefore *F. alba* must take the name *C. Nuttallii* T. & G. on being transferred to *Calochortus* because of the presence there of *C. albus* Dougl., a valid species which cannot, according to these rules, be renamed *C. Englerianus* as has been done by Ascherson & Graebner. It is well, indeed, that this lovely garden plant may continue to be known under the name it has always borne, *C. albus* Douglas.

*CALOCHORTUS NANUS* (Wood) Piper, Bull. Torr. Club, xxxiii. 537 (1906). *C. elegans* Pursh, var. *nanus* Wood, Proc. Acad. Phil. 168 (1868).

When Piper, l. c., raised this plant to specific rank he wrote: "This species is nearer true *C. elegans* Pursh than any other Californian species." *C. elegans* does not grow in California, as indeed Piper himself indicated, l. c. 540. In fact, *C. nanus* appears to me to be related much more closely to *C. coeruleus* (Kell.) Wats. than to *C. elegans*. It has the fimbriately ciliate petals of the former and so far as I can see is indistinguishable except by the acuminate anthers. The anthers of typical *C. coeruleus* are rounded at apex but tipped with a more or less obvious apiculation. There are, however, several collections which seem to indicate that this difference in the anthers is not always constant and if in future more material proves this to be the case *C. nanus* can scarcely be kept as a species distinct from *C. coeruleus*. Two of the specimens referred by Piper without question to *C. nanus* appear intermediate



in anther-character, viz., Piper, no. 6398, and Applegate, no. 725. The latter specimen as represented in the Gray Herbarium consists of one entire plant and two stems. The flowers of the former portion of the specimen show only anthers that are merely rather long-apiculate instead of acuminate. The specimen, furthermore, comes from Sisson, California, where *C. coeruleus* is not uncommon as is evidenced by collections by Purdy and L. E. Smith (713).

*CALOCHORTUS WEEDII* Wood, var. *VESTUS* Purdy. Abrams, Fl. Los Ang. & Vic. 83 (1917) cites this variety as a synonym of the var. *purpurascens* Wats. The latter is scarcely more than a form with purplish petals. The var. *vestus*, on the other hand, is more distinct since the very truncated petals are densely fringed with brown hairs. The Santa Barbara specimen, referred by Watson to his variety, represents rather the var. *vestus*. Although Watson mentions this plant first in his citation of specimens, Proc. Am. Acad. xiv. 265 (1879) it is evident from his description that his name may be applied properly only to the specimen from Cajon Pass, that is, to the plant with "petals purple or blotched with purple." Although there is essentially only a color-difference concerned here this variation may continue to be given varietal recognition since, as Parish indicates, Bull. So. Cal. Acad. Sci. i. 120 (1902), it is separated geographically from the typical form.

*CALOCHORTUS BRUNEAUNIS* Nels. & Macbr. Bot. Gaz. lv. 372 (1913). Rydberg, Fl. Rocky Mts. & Adj. Pl. 172 (1917) gives this species (for which he makes "A. Nels." the authority) as a synonym of *C. macrocarpus* Dougl. It is at once distinct by the glabrous petal faces and the short (6–8 mm.) anthers. The petals of *C. macrocarpus* are always more or less pubescent about the gland and the anthers are very long, 10–14 mm. Except for the very definite green band of the petals and the few-ribbed anthers, *C. bruneaunis* could be referred to the *C. Nuttallii* group. It is now known from southern Idaho and adjacent Oregon and Nevada.

There are two other plants which Rydberg, l. c., also refers to *C. macrocarpus*, namely *C. cyaneus* and *C. maculosus*. According to Rydberg, Aven Nelson is responsible for both names; as a matter of fact he is the author of the first only. Both plants are fully as distinct as *C. acuminatus* Rydb. which, of course, is kept up as a species. However, since the characters upon which *C. cyaneus* and *C. maculosus* are based are known to be inconstant in



other groups in this genus these plants may better be treated as varieties of the typical form. The former is remote geographically — it grows in southwestern Idaho and adjacent Nevada — and the color of the somewhat less hairy petals is a peculiar delicate blue-green. The latter, *C. maculosus*, represents a variation known to many species — the occurrence of a purple spot on the petals. This form seems to be local in northern Idaho and adjacent Washington.

✓ *CALOCHORTUS MACROCARPUS* Dougl., var. **cyaneus** (A. Nels.), comb. nov. *C. cyaneus* A. Nels. Bot. Gaz. liii. 219 (1912).

✓ *CALOCHORTUS MACROCARPUS* Dougl., var. **maculosus** Nels. & Macbr., in herb. *C. maculosus* Nels. & Macbr. Bot. Gaz. lvi. 471 (1913).

**Scilla hyacinthina** (Roth), comb. nov. *Ledebouria hyacinthina* Roth, Nov. Pl. Ind. Or. 195 (1821). *Barnardia indica* Wight, Ic. Pl. Ind. Or. vi. t. 2041 (1853). *S. indica* (Wight) Baker in Saund. Refug. iii. App. 12 (1870).

It is not clear why Durand & Schinz retain in their *Conspectus Florae Africae* v. 393 (1893) the binomial *S. indica* for this plant unless they considered the presence of *S. hyacinthoides* as invalidating Roth's name. The former binomial, however, cannot possibly be construed as conflicting with the name *S. hyacinthina*.

✓ **Camassia Walpolei** (Piper), comb. nov. *Quamasia Walpolei* Piper, Proc. Biol. Soc. Wash. xxix. 81 (1916).

To the list of specimens given by Piper as belonging to this seemingly local species may be added Applegate, no. 723 from Swan Lake Valley, Klamath County, Oregon.

**Hyacinthus atrovioleaceus** (Regel), comb. nov. *Bellevalia atrovioleacea* Regel, Act. Hort. Petrop. viii. 654 (1884).

The opinion seems to be nearly universal now among botanists that *Bellevalia* Lapeyr. is to be sunk in *Hyacinthus* L.

**MUSCARI RACEMOSUM** (L.) Mill. Gard. Dict. ed. 8. no. 3 (1768); Lam. & DC. Fl. Franc. ed. 3. iii. 208 (1805).

Schinz & Thellung, in Bull. Herb. Boiss. 2<sup>e</sup> sér. vii. 562 (1907), insist that the proper second authority for this binomial is "Lam. et DC." rather than "Miller," because "*M. racemosum* Miller, l. c., ist ein Mixtum-Compositum, das nur zum kleinern Teil dem *M. racemosum* (L.) Lam. et DC. et auct. rec. omn., zum grössten Teil dagegen dem *M. botryoides* (L.) Lam. et DC. (non Miller)



entspricht. . . . Es ist also dringend geboten, nach Art. 51, Al. 4 die Miller'schen Kombinationen fallen zu lassen und zu *M. racemosum* . . . '(L.) Lam. et DC.' als Autoren zu zitieren." They apply the same argument to *M. botryoides*. This action however is *not* in accord with the International Rules and in citing Art. 51, 4 of those rules as authority they misinterpret this rule which reads, "Everyone should refuse to admit a name . . . when the group which it designates embraces elements altogether incoherent, or when it becomes a permanent source of confusion or error." One generic name (*Schebera* L.) and one specific name (*Rosa villosa* L.) are then cited as examples of the working of Art. 51, 4. These names (the first, because it "derives its characters from two genera"; the second, because "certain identification seems impossible") are to be abandoned altogether in order to avoid "a permanent source of confusion or error." The case of *Muscari racemosum* does not come under this rule because it is well-known to what plant Linnaeus applied the specific epithet "*racemosum*"; and the fact that Miller, in transferring this name from *Hyacinthus* to *Muscari* misapplied it in large part has no bearing whatsoever on the validity of the combination *M. racemosum* (L.) Mill. as is shown clearly by Art. 41, which reads, "An alteration of the constituent characters or of the circumscription of a group does not warrant the quotation of another author than the one who first published the name or combination of names," and also by Art. 43, "When, in a genus, a name is applied to a group which is moved into another group . . . the change is equivalent to the creation of a new group and the author who has effected the change is the one to be quoted. The original author can be cited only in parenthesis." However badly, then, Miller may have applied the name *Muscari racemosum* he was the first to publish the combination and he and he alone is to be cited as second authority. If one wishes to show that Lam. & DC. were the first to apply the name correctly it may be written, in accord with Art. 41 (2d paragraph), *Muscari racemosum* (L.) Mill. em. Lam. & DC.

***Yucca Treleasei***, nom. nov. *Y. brevifolia* Schott ex Engelm. Trans. Acad. St. Louis, iii. 46 (1873), not *Y. brevifolia* Engelm. Bot. King. Exp. 496 (1871).

A detailed and critical exposition by Dr. Trelease on the proper application of the names *Y. Schottii* and *Y. brevifolia* may be



found in Rep. Mo. Bot. Gard. xiii. 101-103 (1902). This lucid interpretation of an involved nomenclatorial situation will doubtless prove conclusive but the plant to which the name *Y. brevifolia* Schott has been applied must receive a new name because this cognomen has been given earlier to another (and valid) species.

***Nolina juncea*** (Zucc.), comb. nov. *Dasyllirion junceum* Zucc. Abhandl. Akad. München Cl. iv. 2: 19 (1845). *D. Hartwegianum* Zucc. l. c. 21, nomen nudum; Kunth, Enum. v. 41 (1850). *Cordylone longifolia* Benth. Pl. Hartw. 53 (1840), not *N. longifolia* (Karw.) Hemsley, Biol. Centr. Am. iii. 372 (1884). *N. Hartwegiana* (Zucc.) Hemsley, l. c. 371.

***Dasyllirion longistylum***, spec. nov., habitu ignotum; foliis e lata basi (6-7 mm. latis) lineari-subulatis 4-5 dm. longis glaucis apice fere integris vel breviter fasciculo fibrarum emarcidarum terminatis supra plus minusve scabridis margine minute serrulatis spinosisque, spinis flavo-viridibus subulatis sursum curvatis; spica composita 3-5 dm. longa, spiculis dense multifloris; bracteis e lata basi subulatis; e floribus stamineis filamentis breviter exsertis; capsulis 5 mm. latis, apicibus valde dentatis sed stylo exserto, 1.5-fere 2 mm. longo; pedicellis 2 mm. longis. — MEXICO: San Luis Potosi, Minas De San Rafael, 1911, *Purpus*, no. 5561 (TYPE, Gray Herb.).

The discovery of a species of the *Nolineae* referable in all diagnostic characters to *Dasyllirion* as that genus is defined by Trelease in his tentative revision, Proc. Am. Phil. Soc. 1. 412 (1911) except that the pedicels are not "articulated close to the flowers" but rather "somewhat below the flowers" in the manner of those species referred to *Beaucarnea*, seems to furnish the additional evidence needed to prove that Trelease with good reason raised the question, l. c. 406, "whether *Beaucarnea* is more than a well-marked subgenus of *Dasyllirion* which, strictly limited, itself consists of two quite dissimilar groups." Unless *Dasyllirion longissimum* is removed the only distinctive characters remaining to *Beaucarnea* are the entire perianth segments and the paniced inflorescence. *D. longissimum* is peculiar in its 4-sided unarmed leaves but an occasional slight roughness and low elevations on the leaf-edges suggest the minute serrulations and the spines of true *Dasyllirion*. It would not be possible, therefore, except by the employment of rydbergianesque methods, to separate *D. longissimum* generically. When the species *D. longistylum* and *D. longissimum* are both taken into consideration, then, the futility of



retaining *Beaucarnea* as distinct from *Dasyilirion* seems evident. In accord with this view the following species of *Beaucarnea* represented in the Gray Herbarium are transferred.

**Dasyilirion recurvatum** (Lemaire), comb. nov. *Beaucarnea recurvata* Lemaire, Ill. Hort. viii. misc. 61, pl. 1 (1861).

**Dasyilirion strictum** (Lemaire), comb. nov. *Beaucarnea stricta* Lemaire, Ill. Hort. viii. misc. 61 (1861).

**Dasyilirion gracile** (Lemaire), comb. nov. *Beaucarnea gracilis* Lemaire, Ill. Hort. viii. misc. 61 (1861). *D. gracile* (Brongn.) Zucc. is a synonym of *D. acrotriche* (Schiede) Zucc.

**Cordyline mauritiana** (Bojer), comb. nov. *Dracaena mauritiana* Bojer, Hort. Maur. 348 (1837). *Cohnia floribunda* Kunth. Enum. v. 36 (1850).

**Asparagus Krausianum** (Kunth), comb. nov. *Myrsiphyllum Krausianum* Kunth, Enum. v. 107 (1850). *A. Krausii* Baker, Journ. Linn. Soc. xiv. 628 (1875).

It is apparent, from the statement in Recommendation ix of Article 26, International Rules, to the effect that "it will be well, in the future, to avoid the use of the genitive and the adjectival form of the same name to designate two different species of the same genus [for example *Lysimachia Hemsleyana* Maxim. (1891) and *L. Hemsleyi* Franch. (1895)]" that the genitive and adjectival forms of the same name are to be regarded as distinct and therefore are both valid for different species of the same genus. This being the case it is not correct to accept the name *A. Krausii* Baker for the plant called originally *M. Krausianum* Kunth, since, as shown above, these specific epithets are to be treated as entirely distinct names.

**ASPARAGUS ASPARAGOIDES** (L.) W. F. Wight, var. **angustifolius** (Mill.), comb. nov. *Medeola angustifolia* Mill. Gard. Dict. ed. 8. no. 2 (1768). *A. medeoloides* (L.) Thunb., forma *angustifolius* (Mill.) Baker ex Durand & Schinz, Consp. Fl. Afr. v. 286 (1893).

This narrow-leaved form is striking and well-deserving, it would seem, varietal rank.

**Asparagus Fysoni**, nom. nov. *A. subulatus* Steud. ex Baker, Journ. Linn. Soc. xiv. 614 (1875), not *A. subulatus* Thunb. Prod. Pl. Cap. 66 (1794).

Since there is another valid species in this genus already bearing the specific name *subulatus* it becomes necessary to rename this later christened plant. Prof. Fyson, in his admirable Flora of the



Nilgiri and Pulney Hill-Tops, i. 414 (1915) notes that this species is "peculiar to these hills." This fact suggests that the plant may appropriately be called *A. Fysoni* in recognition of the careful work of Prof. Fyson on the flora of its region.

CLINTONIA ALPINA (Royle) Kunth, var. **udensis** (Trautv. & Mey.), comb. nov. *C. udensis* Trautv. & Mey. Fl. Ochot. 92 (1856).

In spite of the fact that Hooker, Fl. Brit. Ind. vi. 361 (1892) wrote (under *C. alpina*), "the Chinese *C. udensis*, F. & M., hardly differs" and that Baker before him, Journ. Linn. Soc. xiv. 585 (1875) questioned (under *C. udensis*) "An sit varietas mera *C. alpinae*?" no one since seems to have compared the two plants with the idea in mind that possibly only one species is represented. Yet this seems to be the true situation if I may judge from the considerable herbarium material which is before me. In flower the specimens from the Orient may be distinguished from the Indian collections by the absence of the small bracts in the raceme which are evident in the latter but caducous. In fruit the plants appear separable only on geographical grounds. Accordingly it seems desirable to regard the later described form of the Orient as merely representing a geographical variant of the plant from India.

SMILACINA AMPLEXICAULIS Nutt., var. **glabra**, var. nov., caulibus folisque viridibus, paullo glaucescentibus, glabris. — Eastern California to Oregon. — CALIFORNIA: South Fork Kaweah River, Tulare Co., July 22, 1904, *Culbertson*, 4252 (TYPE, Gray Herb.); 1872, *Gray*. OREGON: Crater Lake, Klamath Co., Aug. 14, 1896, *Applegate*, 709; Ashland Butte, July, 1886, *Henderson*.

This is the plant to which Hall in his Yosemite Flora, 59 (1912) refers as follows under the description of *S. amplexicaulis*: "a perfectly smooth and glabrous form (or species?) occurs at 8500 ft. in Matterhorn Cañon and elsewhere in the Sierra Nevada." However, so far as I can see (from herbarium material) the only difference between this high montane plant and the typical form of lower altitudes is its entire lack of pubescence.

SMILACINA PURPUREA Wall., f. **pallida** (Royle), comb. nov. *S. pallida* Royle, Ill. Him. i. 380 (1839). *Jocaste purpurea* (Wall.) Kunth, var. *albiflora* Kunth, Enum. v. 155 (1850).

A series of specimens shows this plant to be only a white-flowered form of the typical purple-flowered state since the inflorescence of the latter is often also quite simple rather than branched



as shown by Wallich in his plate 144, *Plant. As. Rar.* ii. 38 (1831). Hooker, *Fl. Brit. Ind.* vi. 323 (1892) credits Wallich with having published, l. c., a species *S. albiflora* Wall. As a matter of fact, Wallich merely indicates the existence of a white-flowered plant with simple inflorescence which he regards as possibly more than a white-flowered variety. He does not assign to it, however, a name, so that the first published name for this white-flowered form is that of Royle.

*POLYGONATUM ODORATUM* (Mill.) Druce, var. ***ambiguum*** (Link), comb. nov. *P. ambiguum* Link in Schult. f. *Syst. Veg.* vii. 299 (1829). *P. Polygonatum* (L.) Jirasek, *B. ambiguum* (Link) Aschers. & Graebn. *Fl. Nordostd. Flachl.* 196 (1898). *P. officinale* All., var. *ambiguum* (Link) Schinz & Thell. in Schinz & Keller, *Fl. Schweiz*, ed. 3, ii. 66 (1914).

Art. 55 of the International Rules states that specific names must be rejected "when they merely repeat the generic name." This plant, therefore, cannot be called *Polygonatum Polygonatum* but must be known by the next available specific name, *odoratum*. The variety *ambiguum* differs from the typical form of the species in the 3-5 (rather than 1-2)-flowered peduncle.

*TRILLIUM UNDERWOODII* Small, var. ***luteum*** (Muhl.), comb. nov. *T. sessile* L., var. *luteum* Muhl. *Cat.* 38 (1813). *T. luteum* (Muhl.) Harb. *Bilm. Bot. St.* i. 21 (1901).

As indicated by Gates, *Annals Mo. Bot. Gard.* iv. 46 (1917), this plant is distinguished from *T. Underwoodii* merely by the yellow color of the flowers and may therefore best be treated as a variety especially since intermediate forms occur. There is great need for careful field-study of this group, characterized by *T. sessile*, since the finer differences between the species are not well-preserved in the herbarium. Of particular interest is the relationship of the plant treated above to *T. sessile* L., var. *giganteum* H. & A. (or perhaps better *T. giganteum* (H. & A.) Heller) of the Pacific coast. It seems to me probable that only one variable species is concerned here and if so *T. Underwoodii* is the first available specific name. On the other hand someone who has the opportunity to study living eastern and western material may find that there are a number of distinct things. In the meantime I think any attempt to treat satisfactorily the group from dried specimens alone will prove futile.



ALETRIS PAUCIFLORA (Klotsch) Franchet, var. **khasiana** (Hook. f.), comb. nov. *A. khasiana* Hook. f. Fl. Brit. Ind. vi. 265 (1892). *A. lanuginosa* Bur. & Franchet, var. *khasiana* (Hook. f.) Franchet, Journ. de Bot. x. 202 (1896).

I think there is no doubt as to the identity of *A. pauciflora* and *A. lanuginosa*. Since the former is the earlier name the new varietal combination given above becomes necessary. The variety differs in the pyramidal gradually acute rather than ovate-oblong, abruptly rostrate capsule.

**Luzuriaga polyphylla** (Hook.), comb. nov. *Callixene polyphylla* Hook. Ic. vii. t. 674 (1844). *L. erecta* Kunth, Enum. Pl. v. 280 (1850).

It is not clear why Kunth, in describing this plant under *Luzuriaga*, failed to adopt Hooker's name which seems quite applicable. However this may be, the latter name being the older, must, of course, take precedence.

## II. A REVISION OF MIRABILIS, SUBGENUS HESPERONIA

MIRABILIS L., subgenus HESPERONIA (Standley) Jepson, Fl. of Calif. pt. iv. 457 (1914). *Hesperonia* Standley, Contrib. U. S. Nat. Herb. xii. 360 (1909).

The treatment by Standley, N.A. Fl. xxi. 233-237 (1918), of those species of *Mirabilis* referable to the subgenus *Hesperonia* seems to me, in many regards, unsatisfactory, but nevertheless there is a distinctly useful purpose served in the bringing together of a rather difficult synonymy and in the indication of certain characters that may be used in defining the several components of the group. Then there is the treatment by Jepson, l. c., of the Californian species. Here the variability of *M. californica* is recognized but there is error in the application of certain names.

As Jepson has hinted, l. c. 459, one encounters a genuine difficulty in attempting to discriminate between the species because the form first described is so meagerly known. This is *M. laevis* (Benth.) Curran and seemingly only two or three collections have been made. One of these is represented in the Gray Herbarium, — an ample specimen secured by Brandegee, Jan. 18, 1889, on Magdalena Island, the vicinity of the type-locality. This plant is essentially glabrous. Even the most glabrate forms of other





Macbride, J. Francis. 1918. "Further new or otherwise interesting Liliaceae." *Contributions from the Gray Herbarium of Harvard University* (56), 1–20.  
<https://doi.org/10.5962/p.336019>.

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