

peratum, yet of most peculiar aspect, on account of its lacinate leaflets: but the best specific character is that of the long, several-seeded legume.

SOME WEST AMERICAN ASPERIFOLIÆ.

Our commonest Pacific American ¹Asperifoliæ have been hitherto a fruitful source of synonymy; the fate of each species having ^{here} to be published first as of one genus, then of another and another; all of which implies either that the genera are hard to define, or that the true generic characters which the plants furnish have been overlooked. In dealing with the earliest known species of them, the Old World botanists erred very naturally and excusably in applying to them those principles upon which the classification of the Old World Asperifoliæ had been based. In Europe and in Asia the genera have floral characters, the corolla itself furnishing some of the best: but not so here where, running through a long list of more than one hundred species which, by their differences of habit would seem likely to represent five or six good genera, the corolla is substantially one thing, the differences being so very slight as to teach that the diagnosis of that organ may almost be omitted as superfluous in descriptions whether of genera or of species: and the corolla in all this vast assemblage of Western North and South American plants is that of the mainly Old World genus, *Myosotis*: hence the common error of early writers who placed them as species of that genus. When the number of them was in-

¹ Ordinal names in botany, no less than the generic and specific ought, it seems to us, to be received according to priority. The one here written was proposed by Haller, accepted by his contemporaries, including such men as Dillenius, and has never yet been quite displaced by the more recent Jussieuan name *Borraginæ*; for even that most eminent writer on the order, Lehmann, continued always to use the older name, notwithstanding that the DeCandolles in their great general work, destined to wield such wide and lasting influence, chose to support the

creased, and their fruits began to be more attentively considered, it was found that they must be excluded from *Myosotis*. I apprehend that the difficulty which more recent botanists have experienced in dealing with them, has come of a too exclusive dependence upon certain of their fruit characters. As authors of the early part of the century erred by looking to the corolla alone, so, it appears to us, those of fifty years later have gone astray by regarding too exclusively the surface and the insertion of the nutlets. Between the two it is hard to say which of these kinds of character is the less available for generical distinctions. I account of both as nearly worthless for that purpose, in so far as relates to species which were until recently referred to *Eritrichium*. Assuredly what seems to me to be the most forced and artificial genus that has been proposed in this alliance is *Echidiocarya*, having every aspect and every character of *Plagiobothrys* except that there is a stipe between the scar, or point of attachment to the gynobase, and the body of the nutlet. But precisely the same thing recurs in that group of species, very unlike *Plagiobothrys*, which, in the Supplement to the Synoptical Flora of North America is neatly set apart as section *Myosotidea* of *Krynitzkia*, in one species of which, and that so near the *Eritrichium Californicum* of De Candolle as to have been hitherto confounded with it, the stipe is not only present, but even more distinct in its cut, though less elongated, than that which gave its supposed character to *Echidiocarya*. We are, then, compelled to make allowance here, in each genus, for every gradation between a perfectly sessile nutlet with scar depressed and hollowed, and a stipitate one. Professor Gray has indeed, in the Supplement referred to, remanded to *Plagiobothrys* two of the stipitate species which

more modern one. I am glad that, among contemporary authorities, one of Baron von Muller's great fame adopts the original and, I may add, the most appropriate and convenient ordinal appellation for these plants. It is one which, like Cruciferae, Composite and others, has the literary advantage of not ending in that awkward combination of successive vowels which is a serious objection against many of the names of comparatively recent date.

he had placed in *Echidiocarya*, leaving the original plant alone to represent the genus he had named. This he has done upon a supposition that the separation of the four nutlets into pairs, by a partial union of two stipes, is of generic import. That character is, as I shall show farther on, not only inconstant in the species, but even almost exceptional in the individual specimen when well developed. He is likewise unaware that in a very different plant which he has placed in *Plagiobothrys*, i. e., *Sonnea hispida*, the nutlets are not occasionally but always joined in pairs by their soft caruncular stipes, and so fall away from their gynobase. In even that long known species whose latest synonym is *Krynitzkia Jamesii*, the nutlets, far enough from the stipitate, are separated into pairs by a manifest interval: so that no kind of pairing off of nutlets can be construed as meaning, generically, anything at all.

As for the surface characters of nutlets, *Amsiackia* should have taught authors the worthlessness of them, when generically considered, in the subtribe Eritrichiæ. None of the genera are better defined or more natural than this. The limits of no other have remained so entirely unquestioned: but the nutlets vary, through the different species, from a polished and shining smoothness to strongly rugose, sharply muricate, and even echinate.

In the genus which I here propose as new under the name ²*Allocarya* the kind of diversity referred to is somewhat greater than in *Amsiackia*; but the species are far more numerous, and all of them agree admirably in that best mark of a good and natural genus, the habit; to which there is to be conjoined a character very rare in the order, if not indeed unique, that of the lower leaves being not only opposite, but distinctly connate-perfoliate. But, to return to matters appertaining to the fruit: we have in *Allocarya* fruiting calyx and pedicels of a nature most unlike those of *Plagiobothrys* or any other of the various groups of plants formerly included

² In allusion to the extreme diversity of the species as regards the surface of the nutlets.

in *Eritrichium* : and it is precisely these modifications of the fruiting calyx and its stalklet, whose value has been conceded in generifying Old World *Asperifoliae*, which both British and American authors have ignored in their treatment of the West American *Eritrichieae*. The pedicels of *Allocarya* are from the first turbinate beneath the calyx, become indurated with age, and are persistent until the whole plant decays. In *Krynitzkia*, when duly restricted we shall have still a large genus in which the pedicels are filiform and so neatly articulated with the branchlet as to fall away promptly, on the maturing of the fruit, leaving a naked rachis. *Allocarya* is, in truth, much more nearly allied to *Plagiobothrys* than to *Krynitzkia*. Its nutlets are in general, not very different, being rugose, keeled more or less both dorsally and ventrally, and showing distinct lateral angles. In the first two species of the proposed new genus these angles are not obvious, owing to a singular misplacement of them, if one may say so ; for they are drawn forward, as it were, and folded one over the other, in front of, and thus entirely conceal the proper scar or point of insertion, as well as the lower part of the ventral keel. In the third species they come forward after the same fashion, but only far enough to form a narrow groove in which the scar and keel lie exposed. In most of the other species the lateral angles are, as in *Plagiobothrys*, where lateral angles ought to be. In *Krynitzkia* the scar is itself a groove ; no species have a keeled nutlet, and lateral angles are exceptional ; for most of the so called *Krynitzkias* which have that appendage are probably to be excluded from the genus. In regard to the species of *Allocarya*, my long continued field observations lead me to suspect them of hybridizing freely, in some localities ; or, as most botanical writers would say, they are confluent, or very hard to define. They are, however, less so than the *Amsinckias*, and their nutlets, if the scar and ventral keel be carefully considered, furnish fair characters. The genus *Sonaea* is taken out of *Plagiobothrys* on account of the peculiar, softer than cartilaginous, caruncular scar. This is the same thing in the two groups

except as regards the form of it, and the plants all agree in habit, as well as in a coarser pubescence, to constitute a genus very unlike *Plagiobothrys*.

ALLOCARYA.

Pedicels turbinate-thickened and more or less distinctly 5-angled under the calyx, persistent, more or less indurated in age. Calyx 5-parted to the base; segments spreading, and in fruit somewhat accrescent. Corolla salver-form with short tube, yellow throat and white limb. Nutlets ovate or lanceolate, crustaceous, opaque or vitreous-shining, smooth or variously tuberculate and rugose, muriculate or even strongly glochidiate, often carinate on one or both sides, attached by an infra-medial or basal, concave, but sometimes raised and stipitate scar, to a low gynobase. Low herbs, mostly annual, with linear entire leaves, the lowest always opposite and connate-perfoliate: branches numerous and commonly depressed, racemose throughout almost their whole length. Plants vernal in their flowering, confined to low, moist grounds, herbage usually light green and somewhat succulent, more or less hirsute, leaves linear and entire.—Species of *Myosotis*, *Lithospermum* and *Eritrichium* of various earlier authors, and of *Echinosperrum* and *Krynitzkia* of Asa Gray.

* *Annuals; pubescence setose.*

+ *Racemes loose and more or less leafy-bracted.*

1. A. LITHOCARYA. Stem erect, a foot high, simple or parted below the middle into a pair of slender, loosely racemose branches: pubescence sparse and appressed except on the ferruginous-hirsute calyx: lower pairs of leaves joined at base into sheaths 2—3 lines long: lowest pedicel (in the fork) a half-inch long, the others about a line, all slender, the lower subtended by leafy bracts: segments of the calyx lan-

ecolate, in fruit 2 lines long: nutlets ovate, more than a line long, smooth and vitreous-shining, lightly carinate on the back, and also down the ventral face, but the keel hidden, from above midway downward, by a groove-like infolding of the lateral angles; scar linear but similarly hidden.—*Krynitzkia lithocarya*, Gray, Proc. Am. Acad. ix. 265; Syn. Fl. Suppl. 423.

Known only from Lakeport, Lake County, California, where it was collected by Mrs. Curran, in May, 1884.

2. *A. HICKMANII*. Very slender, diffuse, the filiform racemose branches 6—10 inches long: calyx a line long, the lower on longer, the upper on shorter filiform pedicels: corolla a line or more broad: nutlets ovate, hardly a half-line long, dark colored, tuberculate but not rugulose, ventral face as in the preceding, namely, the scar and all but the upper part of the keel hidden within a completely closed groove.

Southern part of Monterey County, Mr. J. B. Hickman, 1886. Species exactly intermediate between the last and the next, having the peculiar ventral face of the former, with the pubescence, inflorescence and comparatively large corollas of *A. Chorisiana*.

3. *A. CHORISIANA*. Like *A. lithocarya* in foliage and pubescence, but twice as large, freely branching, the branches at length reclining: racemes elongated, loose, leafy below; pedicels filiform, 4—8 lines long: calyx little accrescent, the campanulate segments about a line long: corolla 3—5 lines wide: nutlets ovate, little more than a half-line long, brownish and dull, carinate ventrally only, the keel and scar closely approached, but not covered by the lateral angles, the obtuse rugæ of the back running into more or less favose meshes among the numerous minute granulations: scar linear, short.—*Myosotis Chorisiana*, Cham. & Schlecht. Linnaea. iv. 444: *Eritrichium*, DC. Prod. x. 130; Gray, Proc. Am. Acad. x. 56, Bot. Cal. i. 525, Syn. Fl. 191; *E. connati-*

folium, Kell. Proc. Cal. Acad. ii. 103. fig. 51: *Krynitzkia*, Gray, Proc. Am. Acad. xx. 267; Syn. Fl. Suppl. 424.

Common in moist grassy lands about San Francisco Bay. One of the very few species whose corollas are not minute but large enough to be showy; easily distinguished from all the others by its conspicuously pedicelled flowers. Its affinity with *A. lithocarya* is indicated even in the nutlets, the lateral angles of which are drawn forward very close to the ventral keel, forming a groove along it, although not enclosing any part of it.

4. *A. DIFFUSA*. Pubescence light, closely appressed: branches procumbent, a foot or less in length, loosely racemose from the base, the raceme leafy to the middle at least; lowest pedicel a half-inch long, the others hardly a line: calyx widely spreading, corolla small: nutlets dark brown, broadly ovate, incurved, $\frac{3}{4}$ -line long, ventrally carinate down to the supra-basal, oblong-lanceolate scar, the back with rather sharp granulations and rugæ, the latter favosely confluent.

San Francisco, in grassy lands about the U. S. Marine Hospital, April, 1886. In habit most resembling *A. Chorisiana*, but the corolla minute and pedicels very short. Nutlets, with their sharpened rugæ and granulations, inclining toward those of the species which immediately follow.

5. *A. TRACHYCARPA*. Size and habit of the last, but more branching and decumbent rather than procumbent, rough with a coarser and somewhat spreading pubescence: racemes less open, leafy almost throughout: segments of calyx linear, widely spreading: corolla very small: nutlets ovate, straight, carinate on both sides, the dorsal keel and nearly straight transverse rugæ dentate-interrupted; scar suborbicular, nearly basal.—³*Krynitzkia trachycarpa*, Gray, Proc. Am. Acad. l. c.

³ *A. ULGINOSA*. Stem erect, a foot or more high, simple below, where it is clothed with many pairs of connate-sheathing leaves: pubescence short and very sparse except on the calyx, closely appressed: racemes several, naked, rather dense; lowest pedicels 2 lines long, the rest 1 line

266, and Syn. Fl. Suppl. l. c. 423, as to the Californian plant only.

In the lower part of the valley of the San Joaquin, collected by the writer near Tracy, 1884, and a year later near Antioch, by Mrs. Curran: also said by Prof. Gray, to occur in Mr. Brewer's collection from Sonoma County.

A. ECHINOGLOCHIN. Habit, pubescence and inflorescence of the last, but a coarser, larger plant; nutlets a line long, ovate, straight, crenate ventrally down to the nearly basal ovate scar, the back covered with coarse granulations and stout barbed prickles $\frac{1}{4}$ — $\frac{1}{2}$ -line high, these distinct at base or more or less confluent into walled reticulations, the latter sometimes strongly developed and the prickles themselves correspondingly reduced or even nearly obsolete.—*Echinosperrum* (*Echinoglochis*) *Greenii*, Gray, Proc. Am. Acad. xii. 163; Syn. Fl. ii. 190.

Common on moist plains everywhere from San Diego to Oregon. Quite variable in the character of the surface of its nutlets, apparently confluent with the last species, singularly and persistently dissociated by Prof. Gray, from its manifestly nearest relatives. The species was discovered, by the present writer, in 1876, near the northern boundary of California, but has since proved common over a vast stretch of the Pacific Coast region. In transferring this to what I am sure is its proper genus I have felt at liberty to choose between the subgeneric and specific names imposed by Dr. Gray, selecting, for obvious reasons, the former.

or less: corolla 3 lines broad: nutlets as in *A. trackycarpa*, except that the rugae are sharper and the body muriculate rather than granulate.—*Eritrichium uliginosum*, Philippi in herb. Cal. Acad.: *Krynitzia trackycarpa*, Gray, l. c. as to the Chilian specimens doubtless.

A South American species with the naked racemes, large corolla, erect stems and whole aspect of the Oregonian *A. Scouleri*, but nutlets different and more like those of *A. trackycarpa*. Whatever the *Lithospermum muricatum* of R. & P. may be, this plant does not at all answer to their description of that.

7. *A. HUMISTRATA*. Stout and succulent, the branches mostly prostrate, a foot long, racemose throughout: pedicels short and stout, commonly deflexed: calyx lobes linear-spatulate, in fruit greatly enlarged (4—6 lines long) and turned to one side, standing vertically in a row: corolla small; nutlets ovate lanceolate, $\frac{3}{4}$ -line long, straight, carinate ventrally down to the nearly or quite basal, rounded scar, the back with very minute muriculations and sharp-edged transverse rugulae which commonly develop short and minute penicillate bristles.—*Eritrichium Californicum* var. *subglochidiatum*, Gray, Bot. Cal. i. 526 and Syn. Fl. 191 in part, also of *Krynitzkia*, l. c. 266, but excluding the plant of the Rocky Mountain region.

Frequent from San Diego throughout the State, growing in moist places, flowering in early spring, the branches in age becoming indurated.

8. *A. SCOPULORUM*. Much smaller and more slender than the last, but somewhat succulent, the branches depressed, 1—6 inches long, leafy-racemose throughout, the floral leaves linear, elongated: segments of the calyx linear not accrescent, or turned aside: nutlet a half-line long, ovate-lanceolate, lightly carinate ventrally down to the almost basal, ovate scar, also dorsally toward the apex, the back otherwise muriculate or even somewhat penicillately roughened and rugulose, the rugulae running well into favose meshes.—*Eritrichium Californicum*, var. *subglochidiatum*, Gray, l. c. (and *Krynitzkia*, l. c.) as to the plant of Colorado, Wyoming and Montana.

Very distinct every way from the last; far more like the next.

9. *A. PLEBEIA*. Branches depressed, a span or more long: floral leaves linear-oblong: calyx slightly accrescent: nutlets ovate, a line long, carinate ventrally down to the ovate scar, the back rugose-reticulate, glabrous.—*Lithospermum plebeium*, Cham. & Schlecht. Linnaea. iv. 446: *Eritrichium*, A. DC. l. c. 133; Gray l. c.; *Krynitzkia*, Gray l. c.

Sea shores of the Aleutian Islands; also at Humboldt Bay, California, Carl C. Marshall, 1886. The sole species whose nutlets, being rugulose, are not at all granulate or muriculate.

10. *A. HISPIDULA*. Diffusely branching, 4—8 inches high, canescent with a short, setose-hispid pubescence; racemes naked or leafy-bracted: calyx not accrescent: akenes ovate, opaque, $\frac{3}{4}$ -line long, carinate on both sides, the back very lightly so and beset with a minute muriculation, the transverse rugulæ few and not prominent; scar almost basal, ovate-oblong.

From the San Bernardino Mountains, Cal. (Parish, No. 1470) northward to Oregon (T. J. Howell), referred to "*Eritrichium Californicum*," from which plant it differs in its rough pubescence, and muriculate rather than granulate akenes.

11. *A. CUSICKII*. Size and habit of *A. hispidula*, but racemes more open and leafy, the pubescence equally copious but more appressed: nutlets vitreous-shining, ovate-oblong, $\frac{1}{2}$ -line long, carinate ventrally only, the back with crowded depressed rugæ and few tuberculations: scar almost basal, narrowly linear and sharp-edged.

Union County, Oregon, 1883, W. C. Cusick, also at Reno, Nevada, 1884, Mrs. Curran. Exactly like the preceding in aspect, differing from it in the character of its nutlets, the scar of which is altogether peculiar. There is a South American species quite like these two new ones in general appearance, but with very dissimilar nutlets.⁴

⁴ *A. PROCUMBENS*. Nutlets ovate-triangular, rugulæ rising here and there into sharp points, scar infra-medial, deltoid in outline and excavated.—*Eritrichium procumbens*, DC. l. c.; *Plagiobothrys procumbens*, Gray l. c., also

A. HUMILIS — *Myosotis humilis*, Ruiz & Pavon. Fl. Per. ii. 5; *E. ? humilis*, DC. l. c., and

A. SESSILIFOLIA — *Eritrichium sessilifolium* DC. l. c.

All are considered good species by Dr. Philippi who, as a resident Chilean botanist has the best means of knowing: but, in our herbaria they appear to be separated on rather slight grounds and may eventually be united under the specific name *humilis*, that being the oldest.

12. *A. PENICILLATA*. Erect, slender, a foot high, sparingly branching, all the primary and most of the secondary branches in opposite pairs; sparingly setulose-hispid: racemes naked except a few bracts at base: calyx slightly accrescent, spreading in fruit: corolla very small: nutlets ovate-oblong, a line long, carinate from a little below the apex around it, and down the elongated, nearly linear but open and excavated scar; rugulae transverse, acute, beset with minute short setae in numerous penicillate tufts of three or four.

Donner Lake in the Sierra Nevada, Cal., August, 1883, collected only by the writer.

In the character of its nutlets this is much like *A. humistrata*, although the scar is different, and the oppositely branching habit of the plant is altogether peculiar in the genus.

13. *A. AUSTINÆ*. Erect, slender, a span high, simple or sparingly branching, almost glabrous, except the calyx which is somewhat villous: leaves narrowly linear, much elongated ($1\frac{1}{2}$ —3 inches); calyx not accrescent: nutlet light colored, ovate-acuminate, more than a line long, strongly carinate on both sides, the dorsal keel and margins surmounted by stout prickles which, from midway upwards are strongly glochidiate, body of nutlet otherwise densely tuberculate; scar supra-basal, sharply triangular, excavated.

A single specimen, collected in Butte County, Cal., 1883, by Mrs. R. M. Austin: species bearing considerable resemblance to *A. Echinoglochis*, but nutlets of extremely different and very peculiar character.

+ + *Spicate racemes bractless and more dense.*

++ *Corolla large, i. e., 3—6 lines wide.*

14. *A. SCOULEI*. Erect or ascending, a foot high, pubescence as in the last: corolla 3 lines wide: calyx-segments erect in fruit and not accrescent: nutlets ovate, $\frac{1}{2}$ -line long, dark colored, carinate on both sides at apex and ventrally

down to the linear-oblong scar, dorsal surface obviously granulate but very indistinctly rugulose.—*Myosotis Scouleri*, Hook. & Arn. Bot. Beech. 370; *Eritrichium Scouleri*, A. DC. l. c.; *E. Scouleri*, Gray l. c. and *Krynitzkia* l. c.

Hillsides, Oregon and northward.

15. *A. STIPITATA*. Ten to eighteen inches high, erect and simple, or with ascending branches from the base: herbage light green, apparently glabrous, yet roughish, slightly, with sparse and short setæ: calyx nearly sessile, segments spreading, foliaceous and accrescent, in fruit often a half-inch long: corolla short-funnelform, $\frac{1}{4}$ — $\frac{1}{2}$ -inch broad: nutlets ovate-lanceolate, carinate for the whole length of the ventral face, and a little past the apex, the back covered with blunt tuberculations and interrupted transverse rugæ; scar exactly basal, roundish and joined to the body of the nutlet by a short but distinct stipe.

This is the commonest of all the species in the central part of California, being abundant in all moist meadow lands, and along the margins of pools and ditches. It is variable in size of flowers and nutlets, and the more slender states when in flower only might pass for *A. Californica*; but the nutlets, whether large or small, never fail to display their very marked peculiarities. By their singular basal and stipitate insertion their apices are thrown apart, so that, in the calyx they are always divergent from one another.

16. *A. COOPERI*. Like the last in habit and variability in size of flower and fruit, but hispid with an abundant spreading and setose pubescence: calyx-segments narrowly oblong, little accrescent: corolla salver-form rather than funnelform: nutlets slightly carinate ventrally only, back as in the last species, scar supra-basal narrowly oblong.—*Eritrichium Cooperi*, Gray, Proc. Am. Acad. xix. 89; *Krynitzkia Cooperi*, Gray, l. c. xx. 267, and Syn. Fl. Suppl. l. c.

Apparently restricted to the Mohave Desert, Cal.

++ ++ *Corolla small, as in most species.*

17. *A. CALIFORNICA*. Slender, sparingly setose, diffusely branching, the branches 6—15 inches long, weak and reclining: racemes with few bracts at base: calyx-segments slender, not accrescent, spreading in fruit: nutlet ovate, $\frac{3}{4}$ -line long, keeled and rugulose and granulated as in the last; scar roundish, nearly basal.—*Myosotis Californica*, Fisch. & Mey. Ind. Sem. Petrop. 1835: *Eritrichium Californicum*, DC. l. c., Gray l. c. excl. var. and also *Krynitzkia*.

Common in the central and northern parts of the State, from the coast to the foot-hills of the Sierra Nevada; when in flower only rather hard to distinguish from the more slender forms of *A. stipitata*.

* * *Perennial; soft to the touch, the dense pubescence villous.*

18. *A. MOLLIS* = *Eritrichium molle*, Gray, Proc. Am. Acad. xix. 89; *Krynitzkia*, Gray l. c.

Sierra Nevada, where it has been collected only by Mr. Lemmon. The plant from near Visalia, described as rougher in its pubescence, is not known to us.

PLAGIOBOTHRYIS, Fisch. & Mey.

Racemes spike-like, elongated, loose, naked or leafy-bracted; pedicels very short, filiform, persistent. Calyx 5-cleft or -parted, closed or campanulate, or even stellate-spreading and more or less accrescent in fruit, when not too deeply cleft irregularly circumscissile near the base. Nutlets ovate or indistinctly cruciform in outline, carinate on both sides toward the apex, usually with well defined lateral margins, the back very regularly transversely rugose, smooth or roughened between the rugæ; insertion almost medial on a depressed gynobase: areola or scar rounded, hollow or solid, not rarely stipitate. Rather large but slender annuals with most of their leaves in a close radical tuft, the elongated

branches usually trailing over the ground and flowering from the base. Herbage never scabrous, commonly soft pubescent, imparting a violet stain.—Ind. Sem. Hort. Petrop. ii. (1835) 46, and A. DC. Prod. x. 134: Gray, Proc. Am. Acad. ix. 281, excluding AMBIGUI and ANOMALI.

To the genuine species defined by Prof. Gray, the following are, in my judgment, to be added.

P. MICROCARPA. Villous-canescens, erect, 6—10 inches high: calyx little more than a line long, cleft to the middle, closed over the fruit, nearly sessile, some of the lower leafy-bracted: nutlets broadly ovate, only a half-line long, dull gray, faintly wrinkled, not at all granulate.

Butte County, California, May, 1883, Mrs. R. M. Austin. Like a small *P. canescens* in aspect, but strictly erect, the nutlets very different and the smallest in the genus.

P. CANESCENS, Gray, var. *APERTUS*. Not canescens, green and rough-hirsute: branches a foot or two long, procumbent, floriferous throughout, most of the pedicels leafy-bracted: calyx deeply cleft, accrescent, the triangular-lanceolate segments stellate-spreading even before maturity: nutlets as in the type.

Plains of the upper San Joaquin, collected by the writer in 1884, appearing like a very distinct species, but specimens from still farther southward by Parish seem intermediate; and so do others of Rattan's gathering near San Jose.

P. PRINGLEI.—*Echidiocarya Arizonica*, Gray, Proc. Am. Acad. xi. 89, and Benth. & Hook. Gen. ii. 854.

Between the nutlets of this and those of the other stipitate species there is no considerable difference but that of a perceptibly greater length of stipe. Their cohering in pairs is very far from being constant, and altogether an accident of those which grow on the best fed part of the plant, namely, the lowest part of the branches, very near the root. Here they are joined above midway, but higher up the union is far

less marked, while on more than half the length of each racemose branch I find the four nutlets wholly distinct. The habit of the plant is perfectly that of the other prostrate species of *Plagiobothrys*.

SONNEA.

Inflorescence leafy, glomerate or rarely paniculate-racemose; pedicels filiform, not deciduous. Calyx 5-parted to the base, not accrescent, open in fruit. Nutlets ovate and rounded or ovate trigonous with lateral angles, carinate ventrally at apex, with or without a dorsal ridge, smooth or tuberculate-roughened; the insertion medial or supramedial by a white, soft-cartilaginous or almost albuminoid, rounded or elongated caruncular scar to a pyramidal or depressed gynobase.—Low but robust scabrous and bristly annuals with ascending, leafy branches and no radical tuft of leaves: herbage not staining.—Genus confined to the eastern slope of the Sierra Nevada and the adjacent parts of Nevada and Arizona, dedicated to Mr. Charles Frederick Sonne, of Truckee, California, who gives promise of becoming as intelligent a botanist as he has been a diligent collector and field-observer in that region of country to which these plants belong.

* Nutlets rounded, the soft but stipe-like scar globose and supramedial.—(PLAGIOBOTHRYIS § HYP SOULA, Gray).

1. *S. GLOMERATA*.—*Plagiobothrys glomeratus*, Gray, Proc. Am. Acad. xx. 286. & Syn. Fl. Suppl. 432.—The nutlets in this species are fixed just beneath the apex and all four are clearly separate from one another.

2. *S. HISPIDA*.—*Plagiobothrys hispida*, Gray, l. c. In this the gynobase has but one complete line of separation and the nutlets are in two pairs, each pair being, moreover, coherent by a partial union of their almost gelatinous stipes, so that

they fall away together. The species is therefore, among its congeners, the counterpart of *P. Pringlei* in *Plagiobothrys*.

* * Nutlets angular, the cartilaginous caruncular scar elongated and keel-like, medial.—(PLAGIOBOTHRYIS * AMBIGUI, Gray).

3. *S. KINGII*.—*Eritrichium Kingii*, Watson, Bot. King. 243. t. 23; Gray, Syn. Fl. 192: *Plagiobothrys Kingii*, Gray, Proc. Am. Acad. xx. 281, and Syn. Fl. Suppl. 430.

4. *S. JONESII*.—*Plagiobothrys Jonesii*, Gray, Syn. Fl. Suppl. 430.

5. *S. HARKNESSII*. Rough-hirsute, 3—6 inches high, parted from the base into a few erect or ascending, equal branches: lower leaves linear-spatulate, two inches or more in length, the floral small, linear-oblong: inflorescence glomerate, becoming racemose here and there: nutlets a line and a quarter long, granulate-roughened, carinate on the back and with distinct indications of transverse rugæ.

Near Mono Lake, in the Sierra Nevada, June, 1886, Dr. H. W. Harkness. A species quite like *S. hispida* in its whole aspect, but with the nutlets of *S. Kingii*, except that they are interruptedly rugose like those of the *Amsinckias*. The soft caruncular scar is here continued up nearly the whole length of the ventral keel, forming a kind of crest upon it. The corolla is as large as in *S. Kingii*, hence quite showy for so small a plant of this alliance.

THE SPECIES OF ZAUSCHNERIA.

When I look at the strongly marked forms of this genus, as they exist in our herbaria—some of them nearly glabrous, others heavily villous, some of them hoary with a coarse tomentum, others fairly white with a pubescence so minute as