



DESCRIPTION

OF SOME

NEW CISTACEÆ,

Chiefly found by Mr. Drummond, in the southernmost regions of
North America.

By E. SPACH.



LECHEA. *Nob.*

(*Lechea* species auctorum: caractere manco.)

Calyx persistens, accrescens, profunde 5-partitus, supra basin suburceolatus; *sepala* 2-seriata: 2 exteriora minima, plana, sublinearia, æstivatione subdistantia; 3 interiora multo latiora, navicularia, dorso subcarinata, æstivatione et post anthesin imbricata, nunquam contorta. *Receptaculum* in thecaphorum breve stipiteforme productum. *Discus* inconspicuus. *Petala* 3, stipitis basi inserta! cum sepalis internis alternantia, subpersistentia, angusta, exunguiculata. *Stamina* stipitis apice inserta, tarde decidua persistentia, sæpissime 3, petalis anteposita, raro 4—12. *Filamenta* libera capillaria. *Anthera* subrotundæ v. ellipticæ, minimæ, dithecæ, basi affixæ innatæ, apice emarginatæ; connectivum angustissimum. *Ovarium* minimum, subglobosum, incomplete 3-loculare; dissepimenta ex endocarpio ad cavitatis centrum fere producta; *placentæ* 3 biovulatæ, tennes, subrotundæ, ovarii diametro subæquilatæ, inter se liberæ, media linea dorsali dissepimenti oppositi margine anteriori adnatæ, utrinque recurvæ, *funiculi* brevissimi, filiformes, adscendentes, basi faciei posterioris placentarum ad angulum centram utrinque solitaires; *ovula* orthotropa (primina secundina e nucleo haud ægre

dignoscendis) arrecta, oblonga, basi affixa. *Stylus* deciduus, rectus, erectus, brevissimus, filiformis. *Stigmata* 3,¹ laciniato-

¹ We conceive Dr. Lindley to have taken a wrong view of the matter, in characterizing *Cistaceæ* by a "simple stigma;" all the species of the Order which are not provided with multipartite, or totally distinct, stigmas, having a stigma composed of plicate or fimbriolated fleshy crests; these crests are sometimes connected by their margins, and more or less connivent, but never entirely cohering; in all cases they may be easily separated, and each of them ascertained to terminate one of the constituent parts of the apparently single style, which parts themselves may be without difficulty disjoined and followed down to the axis of the placentæ. Several promoters of imaginary theories have asserted, that styles or stigmas placed opposite the placentæ (or, to use a more appropriate term, in axile relation to the placentæ) were to be reckoned among the most anomalous occurrences; such is, nevertheless, the situation of the styles or stigmas with respect to the placentæ, not alone in *Cistaceæ*, but also in most cases of loculicidal dehiscence. In fruits with intervalvular placentæ, the axile situation of the stigmas with regard to the placentæ, is no way peculiar to *Crucifera*, though this has been stated by Dr. Lindley to be one of the most striking characters of the Order, since the same relation is observable in *Papaver* and *Meconopsis*, whereas in *Crucifera* several genera (viz. *Hesperis*, *Malcolmia*, *Matthiola*, *Chorispora*, *Moricandia*, and probably some others) have their stigmas in a direct line with the axis of the valves, and consequently alternate with the placentæ. It must be remarked, that the style of these *Crucifera* has generally been mistaken for true stigmas.

Dr. Lindley seems almost equally in error with most of his other statements concerning what he considers the essential characters of *Cistaceæ*. The petals of this Order are far from being generally "crumpled

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multipartita. *Capsula* minuta, calyce tecta, testaceo-cartilaginea, lævigata, obscure pellucida, incomplete 3-locularis, v. demum 1-locularis, ab apice ad basin loculicidotrivalvis (v. nonnunquam basi evalvis), abortu 3-sperma; valvæ sepalis interioribus antepositæ! conniventes, persistentes, dissepimenta aut incomplete superstitia, tenerrima (ovulorum incremento mox a placentis disrupta) aut subcartilaginea persistentia; placentæ 3 subcentrales, persistentes, demum liberæ, subcrustaceæ, tenuissimæ, fragiles, subrotundæ, subconduplicatæ; singulæ semen unicum amplectentes, ovulo abortivo hinc superstiti. *Semina* minuta, valvis subæquilonga, ovato-trigona (facie angulata, dorso convexa) lævigata, obscure pellucida, arrecta, orthotropa, ad basin faciei posterioris cujusvis placentæ funiculo brevi capillari adscendente affixa, decidua; integumentum tenue, crustaceum; micropylus terminalis, vix conspicuus; hilum cum chalaza in areolam parvam basilarem confluentem, perispermium corneum; embryo axilis, antitropus, rectilineus v. subrectilineus, perispermio subæquilongus; cotyledones planiusculæ, subfoliaceæ, ellipticæ, fere æquilatæ; radícula recta v. oblique erecta, supera, cylindrica, obtusa, cotyledonibus subæquilonga.—*Fruticuli, sæpe surculis radicalibus decumbentibus gaudentes aut herbæ. Folia exstipulata, integerrima, breve petiolata: in-*

feriora verticillata v. opposita; cætera sparsa. Ramuli floriferi axillares v. subterminales simplicissimi, v. bifurcati, v. paniculati, nudi, v. bracteolati; pedicelli in racemulos sæpissime unilaterales dispositi, v. rarius fasciculati, aut paniculati, post anthesin erecti v. raro horizontales. Flores minimi, copiosissimi.

This genus, together with *Lechidium* (nob.) *Tæniostema* (nob.) and *Heteromeris* approach very near to *Portulacæ*, in whose vicinity the *Cistacæ* should be classed in a Natural Arrangement of Plants. The systematic Botanists will, no doubt, consider such an opinion as a great heresy, and avail themselves of the supposed difference of insertion; but even this worn-out argument will not prove of weight, since many *Portulacæ* (among which I need but cite the *Claytonia* and the genus *Cistanthe*, nob.) have stamens as strictly hypogynous as any *Cistacæ*. There are, I believe, no other constant differential characters between *Cistacæ* and *Portulacæ*, than those found in the conformation of the anthers and of the ovules; the anthers of *Cistacæ* being always adnate or innate, whereas, in *Portulacæ*, they are incumbent. The ovules and seeds of nearly all *Cistacæ* are orthotropous (the embryo consequently antitropous) or in a few cases anatropous,¹ but in *Portulacæ* these same organs are constantly campylotropous.

and twisted" in æstivation, neither are they always fugitive, nor in quinary number. A strictly definite number of stamens is found in *Lechea*, *Lechidium*, *Tæniostema*, and *Heteromeris*. *Anatropous ovules* (and consequently not inverted embryos) are met with in *Cistacæ*, though much less frequently than orthotropous ovules: the *ozostoma* being, in all possible cases, situated on the true apex of the ovule. It is not easy to understand what is meant by "ovules with the foramen on their apex;" if this signifies the apex with respect to the pericarp, it is inapplicable to the various *Cistacæ* with inverted ovules. Equally erroneous is it to describe the capsule as "either one-celled, with parietal placentæ, or imperfectly five or ten-celled, with dissepiments proceeding from the middle of the valves, and touching each other in the centre," there being many species with imperfectly three-celled capsules, whose placentas never touch each other in the centre, either before or after impregnation. The same may be said of *Androsemmum*, and a great number of other *Hypericacæ*, which are imagined to be characterized by *central placentæ*. The seeds of

Cistacæ are, indeed, of indefinite number in many instances, and in nearly as many others the ovules are almost constantly in one, two, or three pairs on each placenta, and monospermous placentas are not at all uncommon. The perisperm, which Dr. Lindley calls mealy, is as often corneous. The embryo, in several cases, is exactly rectilinear, a conformation which has been noticed by M. Dunal, but is nowhere mentioned by Dr. Lindley. Finally, it may be remarked with regard to his alliance of *Cistales*, that regular flowers and perispermous seeds, upon which are founded its characters, might seem a very slight link for connecting *Elatinacæ* (an imaginary Order, whose supposed character of a *straight embryo* is weakened by the nearly circular embryo of *Elatine Hydropiper*, Reich.), *Linacæ*, *Hugoniacæ*, *Chlenacæ*, *Cistacæ*, and *Reaumuriacæ*.

¹ In these cases, the primina projects beyond the apex of the secundina in form of a short tube, whose upper extremity adheres to the placenta at the period of fecundation, so that the ovulum is really attached both by its funiculus and by the exostoma.

Concerning *Cistaceæ*, this statement rests upon a careful examination of nearly all the species; but as to *Portulacææ*, it is founded rather upon the descriptions of various authors than upon my own observations.

Besides the two new species to be hereafter described, the generic character, as I have stated it above, applies also to *Lechea villosa* (Elliott) and *Lechea thymifolia*, (Mich.)

LECHEA DRUMMONDII. (*nob.*)

L. Drummondii, suffruticosa, surculis radicalibus filiformibus procumbentibus pilosis, caulibus erectis virgatis appressopuberulis, apice paniculatis, foliis (surculorum) verticillatis ternis quaternisve breve petiolatis ovatis v. ellipticis acuminulatis ciliatis reticulato-venosis utrinque glabris resinoso-punctulatis, ramulis fructiferis paniculatis v. subcymosis, pedicellis erectis brevibus ebracteolatis, sepalis interioribus mucronatis capsula ellipsoidea trigona infra medium evalvi paulo brevioribus.

Root perpendicular, subligneous, about the size of a hen's quill, scarcely more than an inch long, emitting along its principal stem some slender fibres, and from near its summit a tuft of sterile, decumbent or assurgent, filiform, simple, leafy branchlets, which are clothed with short, roughish, white, somewhat diverging hairs. *Stems* several, fifteen to eighteen inches high, quite erect, slender, virgate, suffruticose, quite simple along their inferior half, or higher up, then emitting numerous very slender paniculate branchlets, which are disposed in an elongated panicle, and slightly pubescent, as well as the main stem; *bark* smooth and shining, chestnut-brown. *Leaves* of the radical branchlets ternate or quaternato-verticillate, petiolate, thin, of a dark-green on the upper surface, pale on the under, glabrous on both, but dotted with granules, ciliated with white, short, somewhat bristly, and sometimes bifurcate hairs, one-nerved, venoso-reticulate, ovate or elliptic, or elliptic-oblong, abruptly acuminate, rounded at the base, two, to two and a half lines

long, one, to a line and a half broad, petiole very short and narrow. (The leaves of the main stems and their branchlets are fallen off in the specimen under examination; the leaf-scars are verticillate, or nearly so; the whorls at about three lines distance from each other in the main stems, but very approximate on the branchlets). *Fructiferous ramules* (the *flowers* also are wanting on the specimen) disposed along the superior part of the branchlets, nearly filiform, erect, approximate, destitute of leaves and bracts, simple, bifurcate or paniculate. *Pedicels* short, erect, generally disposed in abbreviated three to five-flowered not uncommonly unilateral racemes, or sometimes subfastigiate. *Calyx* (fructiferous) appressedly pilose externally, ex-adherent, deeply five-parted, somewhat urceolate over its base; *Sepals* distinctly two-seriate, the two outer¹ very narrow, flat, linear, suberect, somewhat longer than the inner, the three inner navicular with a slightly prominent dorsal keel, obtuse, mucronate, one-nerved, scarcely a line long, and one-fourth of a line broad, one of the edges rather membranaceous. *Capsule* a little longer than the interior sepals, and enveloped by them, somewhat exceeded by the outer sepals, thin, cartilaginous, smooth and shining, chestnut-brown, semipellucid, ellipsoid, obtuse, slightly trigonal,

¹ The two exterior sepals of *Lechea* have been considered by several Botanists as bracts; but as they bear absolutely the same relation to the three interior sepals as in all other five-sepaled *Cistaceæ*, I see no reason why it is necessary to give them another name, unless it might seem more convenient to consider the calyx of the whole Order not as five-sepaled, but as three-sepaled, and in most cases accompanied at its base by two bracteoles. But then the inequality of number between the petals and sepals, which we are desirous of escaping by attributing a three-sepaled calyx to the few three-petaled species, would again present itself in regard to the five-petaled. It is, indeed, a curious peculiarity of *Cistaceæ*, and which confirms their close affinity with *Portulacææ*, that even in the species provided with five petals and five sepals, the petals are not at all, as has been generally supposed, in alternate symmetry with the sepals, but are placed opposite to these, which disposition is, nevertheless, not always quite evident; so that it may be more proper, perhaps, to say that the petals are disposed unsymmetrically with regard to the sepals, as happens in those *Cistaceæ*, whose calyx is altogether destitute of the two exterior appendages.

one-celled, by abortion three-seeded, three-valved from the summit till near the base, supported on a short stipitiform thecaphorum, from which it breaks off soon after the dehiscence; valves about a line long, connivent, navicular, placed opposite the interior sepals,¹ bearing along their central line the remnants of a membranaceous dissepiment, which before coming to maturity, was connected with the corresponding placenta; placentas three,² persistent, nearly central, almost as long and broad as the valves, crustaceous, very thin, fragile, elliptic-roundish, obtuse at both extremities, each of them enveloping a single solitary seed, by the side of which the abortive ovule is still observable. *Seeds* attached on the base of the posterior face of the placentas (in the angle originally formed by the corresponding dissepiment) by a short filiform ascendent funicle, orthotropous, arrect, minute, nearly as long as the placentas, ovate, trigonal (convex on their posterior, carinate on their anterior surface) smooth and shining, reddish-brown, and pellucid enough to allow the embryo to be seen through; tegument thin, crustaceous, micropyle punctiform, terminal; hilum and chalaza confluent in a brownish basilar areola; perisperm thin, corneous; embryo³ rectilinear, or nearly so, axils antitropous, about as long as the perisperm; cotyledons somewhat narrower than the greatest breadth of the seed, thin, flat, elliptic; radicle pointing to the apex of the seed, of about the same length as the cotyledons, cylindrical, obtuse, straight, quite perpendicular to or a little oblique, in respect to the axis of the seed.

¹ It is remarkable, that in *Lechea*, and some other genera allied to it, the valves of the capsule are not alternate with the interior sepals, as is the case in all other *Cistaceæ*, whose capsule is three-valved.

² These have been mistaken by Linnæus and his copyists for "internal valvulæ" of the capsule; M. Dunal has entirely overlooked them, in his so-called *Monograph of Cistaceæ*, which is a mere tissue of errors and the most superficial observations, he says, "*semina septo nervosæ affixa, paucissima, sæpius 8.*"

³ I cannot understand what M. Dunal means by assigning to this genus an "*embryo dorsalis*," and again I am unable to agree with him when he describes the radicle as "*infera*."

This species makes one of the collection of plants found by Mr. Drummond near Apalachicola, in Florida (*v. specimen unicum fructiferum in Herb. cl. Webb.*)

LECHEA THESIOIDES, nob.

L. thesioides, herbacea ramosissima tota pilosiuscula, foliis sparsis oppositisque anguste linearibus acutis ciliatis brevissime petiolatis, racemis elongatis foliatis laxifloris unilateralibus, pedicellis erectis calyce subbrevioribus, sepalis interioribus petala oblonga emarginata capsulam globosam obscure trigonam subtrilocularem paulo superantibus.

Plant four to eight inches high, herbaceous, apparently annual; the younger parts covered with a dense greyish silky pubescence, the older with very short white, more or less diverging hairs. *Root* perpendicular, short, slender, emitting some lateral filiform fibres. *Stem* single, erect, cylindrical, slender, branched from nearly its base to the summit. *Branches* alternate or opposed, axillary, cylindrical, more or less diverging, very slender and approximate, numerous, elongate, irregularly ramuliferous; their assemblage forming a tufted pyramidal or nearly fastigiata panicle. *Ramules* paniculate or simply bifurcate, filiform, the divisions all floriferous. *Leaves* scattered or opposite, destitute of stipules, entire, linear, acute at both extremities, thin, one-nerved, not veined, glabrous when adult, except on the margins, rather numerous on the branches of the stem, but less copious on the ramules; the cauline and greater rameal four to six lines long, one-fourth to one-half a line broad; the ramular nearly filiform, scarcely more than two lines long; the uppermost floral reduced to very minute bracteoles; petiole very short and narrow. *Flowers* about half a line long, disposed along the divisions of the ramules, in simple or bifurcate unilateral, erect, lax, rather bracteolated than foliose racemes, which reach finally the length of about an inch. *Pedicels* supra-axillary, rather capillary, straight; the floriferous strictly erect, the fructiferous somewhat diverging, and one-half to three

fourths of a line long. *Calyx* persistent, accrescent, deeply five-parted, somewhat contracted at its base, greyish, with short appressed rough hairs; sepals distinctly two-seriate; the two exterior never imbricated, very narrow, flat, erect, linear, acute at both extremities; three interior imbricated (but never twisted) before and after flowering, somewhat shorter, but much broader than the exterior, navicular with a slightly prominent dorsal keel, elliptic, mucronate, one-nerved, one of the edges rather membranaceous; the fructiferous about a line long and half a line broad. *Receptacle* forming a short stipitiform thecaphorum. Disk inconspicuous. *Petals* three, inserted at the base of the thecaphorum, alternate with and by one-half shorter than the interior sepals, persistent, somewhat accrescent, narrow, exunguiculate, oblong, emarginate. *Stamens* three (rarely four), inserted at the summit of the thecaphorum, opposite the petals, and a little shorter than these, persistent; *filaments* capillary, free; *anthers* very minute, basifixed, innate, obreniform, ditheous, connectivum as narrow as the filament. *Pistil* shorter than the stamens. *Ovary* of the size of a poppy-seed, inadherent, incompletely three-locular; dissepiments projecting nearly to the centre of the cavity, fixed along the centre of its projecting face to the anterior edge of the corresponding dissepiment, and having its sides curved towards the periphery; ovules orthotropous, arrect, basifixed, oblong, collateral, attached by a short filiform ascendent funicle to the base of the posterior face of the placentas, one on each side of the dissepiment. *Style* deciduous, very short, filiform, erect, rectilinear. *Stigmas* three, multipartite, segments capillaceous. *Capsule* about the size of a cabbage-seed, enveloped by the three interior sepals, and somewhat shorter, cartilaginous, thin, pale-brown, smooth and shining, obscurely pellucid, globular, obtuse, slightly trigonal, incompletely three-celled, by abortion three-seeded, three-valved from the summit to the base, supported on a short stipes, from which it breaks off soon after the dehiscence; valves a little shorter than the interior sepals, and

placed opposite these, connivent, persistent, navicular, bearing along their axis a cartilaginous dissepiment, which separates from the corresponding placenta some time before maturity; endocarp not separating from the mæsocarp; placentas three, nearly central, persistent, almost as long and broad as the valves, very thin, crustaceous, fragile, roundish, each of them enveloping a single seed, by the side of which the abortive ovule is still remaining. *Seeds* somewhat smaller than in *Lechea Drummondii*, but altogether of the same structure.

This species was found by Mr. Drummond, in the Province of Texas, (3rd collection, No. 18.)—(v. s. sp. in *Herb. Cl. Webb.*)

LECHIDIUM. (nob.)

Calyx persistens, accrescens, profunde 5-partitus, supra basin suburceolatus; sepala 2-seriata: 2 exteriora minima, plana, linearia, æstivatione subdistantia; 3 interiora multo latiora, navicularia, dorso cristato-carinata, æstivatione et post anthesin imbricata, nunquam contorta. *Receptaculum* in thecaphorum breve stipitifforme productum. *Discus* inconspicuus. *Petala* 3, stipitis apice inserta, cum sepalis interioribus alternantia, persistentia, subaccrescentia, angusta, subunguiculata. *Stamina* 3, stipitis apice inserta! petalis anteposita, persistentia; filamenta libera, capillaria, antheræ minimæ, basi affixæ, innatæ, obreniformes; connectivo angustissimo. *Ovarium* minimum, liberum, subglobosum, incomplete 3-loculare, dissepimenta ex endocarpio orta, usque ad cavitatis axin fere producta; placentæ 3, biovulatæ, tenues, subrotundæ, ovarii diametro subæquilatæ, inter se liberæ, media linea dorsali dissepimenti oppositi margini anteriori adnatæ, utrinque recurvæ; funiculi breves, adscendentes, basi faciei posterioris placentarum utrinque ad angulum centalem, solitaires; ovula orthotropa (primina, secundina, et nuclea haud ægre dignoscendis), arrecta, oblonga, basi affixa. *Stylus* deciduus, brevis, filiformis, rectus, erectus. *Stigmata* 3, capillaceo-multipartita. *Capsula* calyce tecta, cartilaginea, obscure pellucida breve stipulata, incomplete 3-locularis, ab apice ad basin septifrago-bivalvis,

6-sperma, valvæ sepalis interioribus dissepimentisque oppositæ, cymbæformes, conniventes, persistentes; endocarpio a mæsocarpio haud soluto; dissepimenta cartilaginea, bipartibilia, ante dehiscenciam margine suo posteriori valvarum axi adnata, margine quidem anteriori ab anteposita placenta nunquam soluto; *placentæ* 3, valvis subisometræ, dispermæ, subcentrales, persistentes, subcartilagineæ, suborbiculares, apice conniventes, lateribus subrecurvæ. *Semina* minuta, valvis subæquilonga, decidua, ovato-trigona (facie angulata, dorso convexa) lævigata, obscure pellucida, arrecta, orthotropa, ad basin faciei posterioris cujusvis placentæ collateralia, dissepimento interposito sejuncta, funiculo brevi adscendente persistente capillari affixa; integumentum tenue, crustaceum, micropylus terminalis, vix conspicuus, *hilum* cum *chalaza* in areolam parvam basilarem confluens; *perispermium* corneum; *embryo* axilis, antitropus, rectilineus, perispermio subæquilongus; *cotyledones* planiusculæ, subfoliaceæ, ellipticæ; semini fere æquilatæ; *radicula* recta, supera, cylindrica, obtusa, cotyledonibus subæquilonga.—Suffrutex (*Americanus*) *ramosissimus*. Folia *sparsa* (*raro subopposita*, v. *gemina*) *exstipulata*, *breve petiolata*, *integerrima*. Pedicelli *supra axillares*, *secus ramulorum apicem in racemos unilaterales dispositi*; *fructiferi subdeflexi* v. *divaricati*. Flores *minimi*.

This genus differs strikingly from *Lechea* by the dehiscence of its capsule, the dissepiments of which break off from the valves, but do not lose their adherence with their placentas, these, besides, are cartilaginous and dispermous, not thinly crustaceous and monospermous as in *Lechea*; the insertion of the petals at the base, instead of the apex of the thecaphorum, may be considered as an additional character. The following is the only species I am acquainted with.

LECHIDIUM DRUMMONDII. (*nob.*)

Root slender, ligneous, apparently creeping. *Stems* suffrutescent, solitary or subcæspitose, very slender, erect, about a span high, sparingly branched towards the sum-

mit, or branched from the base, covered with a thin chocolate-brown bark, the younger virgate, leafy, sparingly pubescent; the older destitute of leaves and glabrous. *Branches* very slender, alternate, somewhat divaricated; more or less paniculate, sparingly clothed with leaves, covered with short whitish appressed scabrous hairs. *Ramules* filiform. *Leaves* alternate (rarely subopposite or geminate) exstipulate, very entire, minute (those of the stems and branches three to seven lines long, one-sixth to one-third of a line broad; the uppermost of the floriferous ramules reduced to very minute filiform bracteoles), exactly linear, one-nerved, supported on a very short filiform petiole; the older glabrous or nearly so; the younger more or less clothed with short, bristly, decumbent, whitish hairs. *Flowers* scarcely a line long, disposed along the extremities of the ramules, in simple, unilateral, erect, bracteolated, finally lax and somewhat elongated racemes. *Pedicels* supra-axillary, nearly capillary, two or three times longer than the calyx, generally much longer than the floral leaves, after flowering horizontal or deflexed. *Calyx* persistent, accrescent, deeply five-parted, externally pubescent like the young leaves; *sepals* distinctly biseriate; the two exterior very minute, flat, linear-filiform, acute, expanding, never imbricated; the three interior much broader than the exterior, usually somewhat shorter, cucullate (one of the sides rather membranaceous), obtuse, with a very apparent, cristate, denticulated dorsal keel; their margins before and after flowering imbricated and connivent, so as to form a three-winged spheroid. *Receptacle* forming a short stipitiform thecaphorum. *Disk* inconspicuous. *Petals* three, inserted *at the summit of the thecaphorum*, alternate with the interior sepals, and somewhat shorter, marcescent, subaccrescent, oblong, or spatulato-oblong. *Stamens* three, inserted opposite the base of the petals, persistent, somewhat longer than the pistil, a little shorter than the petals; *filaments* capillary; *anthers* very minute, basifixed, innate, obreniform, connectivum as narrow as the filament. *Ovary* very minute, subglobose,

inadherent, incompletely three-locular, as the valves, of the same conformation as in the ovary. *Seeds* commonly two on each placenta, attached as in the ovary, arrect, orthotropous, almost filling up the space between the placentas and the pericarp, smooth and shining, ovate, trigonal (convex on the back, angular on their anterior surface), somewhat tapering at the summit, chestnut-brown, and pellucid enough (when viewed with strong light) to allow the embryo to appear through the tegument and perisperm; *tegument* thin, crustaceous, micropyle terminal, punctiform; *hilum* and *chalaza* confluent in a dark-brown basilar areola; perisperm thin, corneous; *embryo* rectilinear, axile, anti-tropous, a little shorter than the perisperm; *cotyledons* thin, flat, elliptic, obtuse at both ends; nearly as broad as the diameter of the perisperm; *radicle* pointing to the apex of the seed, slender, straight, cylindrical, obtuse, a little shorter than the cotyledons.

This species was found by Mr. Drummond in the Province of Texas (third collection, No. 19!, second collection, No. 17!)—(v. s. spec. in herb. cl. Webb.)

TÆNIOSTEMA.² (nob.)

Calyx persistens, accrescens, profunde 5-partitus, basi suburceolatus; sepala biseriata, 2 exteriora minima, plana linearia, æstivatione subdistantia; 3 interiora multo latiora, navicularia, ecarinata, æstivatione et post anthesin imbricata, nunquam contorta. *Receptaculum* in stipitem brevissimum productum. *Discus* inconspicuus. *Petala* nulla. *Stamina* 3 sepalis interioribus opposita (raro 4 v. 5), stipitis apice inserta, decidua; *filamenta* complanata lineari-spathulata: *antheræ* minimæ, filamentis continuæ, suborbiculares, thecis connectivo multo angustioribus. *Ovarium* minimum, subglobosum, trigonum, 1-loculare; *dissepimenta* 3 rudimentaria, vix conspicua, tenerrima, ex endocarpio orta, basi placentifera; *placentæ* 3 filiformes, brevissimæ, singulæ apice in funicula 2

¹ This structure is peculiar to the present genus, and to *Lechea*; all the other *Cistacææ* having their ovules attached on the anterior face, or on the margins of the placentas. Were the dissepiments of the above two-mentioned genera projected but a little more towards the centre of the cavity, so as to allow the placentas to cohere by their anterior surface, and adhere by their margins to the line of separation of the valves, then should we have a six-celled ovary, with a solitary ovule attached to the central angle of each cell.

² This name, alluding to the form of the stamens, is derived from *ταινία*, ribbon, and *στῆμα*, stamen.

ovulifera capillaria brevia, adscendentia, divergentia, divisæ; *ovula* orthotropa, arrecta. *Stylus* brevissimus, rectus, erectus, filiformis. *Stigma* in cristas 3 denticulatas partitum. *Capsula* parva, calyce oblecta, substelacea, brevissime stipitata, ovato-trigona, 1-locularis, 3-valvis, abortu 3-sperma; *endocarpium* membranaceum, diaphanum, a mæsocarpio demum secedens; valvæ sepalis interioribus antepositæ, conniventes, persistentes, naviculares, medio rudimenta dissepimenti tenerimi diaphani basi placentiferi gerentes; placentæ filiformes brevissimæ apice divisæ in funicula 2 capillaria, adscendentia, persistentia, altero ovulum abortiens gerente, altero seminifero. *Semina* ovato-trigona, lævigata, obscure pellucida, orthotropa! arrecta; integumentum crustaceum, tenue; *micropylus* apicularis, punctiformis; *hilum* cum *chalaza* confluens in areolam basilarem. *Perispermium* corneum. *Embryo* subcircinnatus, subcentralis, antitropus! pro seminis indole magnus: *cotyledones* lineari-oblongæ, obtusæ, subcomplanatæ, apice deorsum spectantes; *radicula* supera, oblique adscendens, dorsalis, cylindrica, gracilis, obtusa, cotyledonibus fere æquilonga. *Planta herbacea pube stellata subtomentosa*. *Folia sparsa, exstipulata, integerrima, breve petiolata*. *Pedunculi axillares terminalesque brevissimi; pedicelli fasciculati*. *Flores minimi, sæpissime basi 1-bracteolati*.

This genus is distinguished from all the other *Cistaceæ* by the singular form of its stamens. Besides this character, it differs from *Lechea* (nob.) and *Lechidium* (nob.) by its basilar nearly rudimentary placentas, its circinnate embryo, and its apetalous flowers. I am acquainted only with the following species.

TENIOSTEMA MICRANTHUM. (nob.)

Lechea mexicana, Hort. Berol.

Plant herbaceous, clothed (particularly in its younger parts) with a greyish stellate tomentum. *Stems* four to six inches high, tufted, erect? tortuous, very slender, irregularly ramous, leafy. *Ramuli* fili-

form, more or less elongated, leafy, tortuous, commonly axillary, most of them floriferous. *Leaves* alternate, exstipulate, very entire, pubescent or tomentous on both their surfaces, oblong-spathulate, obtuse, mucronulate, nerved with pinnate veins, tapering to a short narrow petiole; the cauline about six lines long and nearly two lines broad; the ramular about twice or thrice as small. *Flowers* very minute, disposed in axillary and terminal clusters (or sometimes solitary or subsolitary in the inferior axils) throughout nearly the whole length of the ramuli. *Peduncles* very short, solitary, simple or bifurcate, erect, bearing from three to about twelve flowers, or less, frequently one or two-flowered. *Pedicels* fasciculate or in irregular cymules, short, erect, commonly destitute of bracteoles, or sometimes provided with a minute subulate bracteole at their base. *Calyx* persistent, deeply five-parted, somewhat urceolate at the base, tomentose on its outer surface, at the period of flowering scarcely half a line long, then gradually acquiring the length of about a line; *sepals* distinctly two-seriate; the two outer very minute, flat, linear, never imbricated, the three inner much larger, navicular, but without an apparent keel, obtuse, one of their sides rather membranaceous, imbricated before and after flowering, but never twisted. *Receptacle* forming a very short stipitiform thecaphorum. *Disk* inconspicuous. *Petals* none. *Stamens* three, or less frequently four or five, inserted at the summit of the thecaphorum, opposite the interior sepals when equal in number, deciduous; *filaments* somewhat shorter than the calyx, linear-spathulate, complanate; *anthers* continuous with, and scarcely broader than, the filaments, roundish, obtuse, the polliniferous conceptacles much narrower than the connectivum. *Pistil* shorter than the stamens. *Ovary* inadherent, very minute, subglobular, trigonal, 1-locular with three incomplete very narrow pellicular dissepiments; *placentas* three, filiform, very short, each of them adnate to the base of the anterior edge of the corresponding disse-

piment, and dividing themselves into two terminal, capillary, divergent, ascendent, short, ovuliferous funicles; *ovules* orthotropous! arrect. *Style* very short, rectilinear, erect, filiform. *Stigma* three-partite, each lobe forming a short denticulate crest. *Capsule* minute, inclosed in the interior sepals and somewhat shorter, subtestaceous, pale-brown, smooth and shining, obscurely pellucid and ovato-trigonal, obtuse, supported on a very short stipes, from which it breaks off soon after dehiscence, unilocular, three-valved from the summit to the base, by abortion three-seeded; *endocarp* finally separating from the *mæsocarp* under the form of a thin diaphanous pellicle; *valves* opposite the interior sepals, connivent, persistent, cymbiform, obtuse, about three-fourths of a line long, and scarcely half a line broad, bearing along their central line, an incomplete very narrow pellicular dissepiment, to whose base adheres the corresponding placenta; *placentas* three, filiform, very short, each of them ending in two capillary short, ascendent, persistent funicles; the one of these bearing a seed, the other the nondeveloped ovule. *Seeds* orthotropous, arrect, solitary on each placenta, minute (about half the length of the valves), smooth and shining, brownish, obscurely pellucid, ovato-trigonal, obtuse; *tegument* thin, crustaceous; *micropyle* punctiform, terminal; *hilum* and *chalaza* confluent in a basilar areola. *Perisperm* thin, corneous. *Embryo* antitropous, nearly circinnate, subcentral, voluminous in regard to the size of the seed; *cotyledons* linear-oblong, obtuse, flat; their summit curved towards the basis of the seed, and placed nearly in the centre of the circumvolution; *radicle* slender, cylindrical, obtuse, nearly as long as the cotyledons, dorsal obliquely ascendent.

This plant, as the name given to it in the Royal Botanic Garden of Berlin implies, is a native of Mexico, where it was probably found by Dr. Scheide. I have described it from dried specimens of the plants cultivated in the Jardin des Plantes at Paris.

HETEROMERIS. (*nob.*)

(*Helianthemis* species auctorum, characteribus omnino neglectis).

Flores heterogenei; alteri (plerique) minimi apetalis, oligandri, oligospori, alteri (paucissimi, prius evoluti, longius pedicellati, in singulis inflorescentiis sæpissime solitarii) majores, 5-petalis, polyandri, pleiospori. *Calyx* persistens, accrescens, profunde 5-partitus, supra basin suburceolatus, *sepala* 2-seriata: 2 exteriora parva angustissima, plana, æstivatione subdistantia; 3 interiora multo latiora, subnavicularia, ecarinata, æstivatione et post anthesin imbricata. *Receptaculum* in anulum parvum hypogynum productum. *Discus* inconspicuus. *Petala* sæpissime nulla, v. 5, receptaculo inserta, quoad sepala haud symmetrica, decidua. *Stamina* receptaculo inserta, decidua, in floribus apetalis sæpissime 3 (sepalis interioribus anteposita) v. nonnunquam 4—12, in floribus petaliferis 20—30. *Filamenta* capillaria, libera. *Antheræ* adnatæ, basi affixæ, in floribus apetalis minimis obreniformes, v. subrotundæ apiceque emarginatæ, in floribus petaliferis ellipticæ; connectivum angustum, lineare. *Ovarium* liberum, minutum, subglobosum, 1-loculare; *placentæ* 3, immediate parietales, filiformes, in floribus apetalis 1—2 v. 4-ovulatae, in petaliferis 4—12 ovulatae; funiculi infra medium placentarum inserti (dum plures, per paria superposita) abbreviati aut plus minusve elongati, suberecti v. adscendentes, apice incurvi; *ovula* orthotropa! inversa; exostomate placentam spectante. *Stylus* brevis, filiformis, rectus, erectus. *Stigma* profunde divisum in cristas 3 (placentarum axi respondentis), fimbriolatas. *Capsula* sepalis interioribus oblecta, testacea, lævigata, obscure pellucida, trigona, 1-locularis, ab apice ad basin 3-valvis (rarissime 1-valvis) abortu 1-v. 3-sperma, aut raro (dum florum polyandrorum incrementum) polysperma; endocarpium tenerrimum, diaphanum, a mæsocarpio demum solutum; valvæ sepalis interioribus antepositæ, cymbiformes, persistentes, conniventes, ante maturitatem medio placentiferæ; *placentæ* 3, filiformes, persistentes, demum a

valvis solutæ; nunc unica monosperma, ambeduæ vero alteræ abortu aspermæ, nunc omnes abortu monospermæ nunc raro omnes pleiospermæ; funiculi persistentes, capillares, abbreviati, aut sæpius plus minusve elongati, suberecti v. adscendentes, v. rarie arcuati. *Semina* in quavis placenta solitaria v. gemina, v. raro plura, inversa v. directione quoad pericarpium vaga, orthotropa, parva, lævigata v. subgranulosa, obscure pellucida, ovata, obtusa, facie plana, dorso convexa; integumentum tenue, crustaceum; *micropylus* terminalis, punctiformis; *hilum* cum *chalaza* confluentis in areolam basilarem; *perispermium* corneum; *embryo* antitropus, circum *perispermii* partem centalem in trianguli fere modum flexus; *cotyledones* geniculatæ, adscendentes, planiusculæ, oblongo-lineares, obtusæ; *radicula* oblique adscendens, gracilis, cylindrica, obtusa, cotyledonibus paulo brevior.—Fruticuli (*Americani*) *foliis sparsis, exstipulatis, breve petiolatis, integerrimis*. Pubes *stellato-tomentosa*. *Ramuli floriferi axillares terminalesque v. subterminales, nudi v. subfoliosi, trichotomi v. subdichotomi; pedicelli cymosi v. subcorymbosi, v. fasciculati; nonnunquam brevissimi, sæpissime basi 1-bracteolati*. *Florum evolutio centrifuga*. *Petala (dum adsint) lutea*.

This genus is very remarkable, from the striking differences of size and conformation, exhibited by the flowers of each individual specimen. Besides the species hereafter described, the above character applies to *Helianthemum ramuliflorum*, Michx.! (*Heteromeris Michauxii*, nob.), and *H. corymbosum*, Michx. (*Heteromeris cymosa*, nob.). I am not acquainted with *Helianthemum rosmarinifolium* (Pursh and Elliott), but though the description of the plant given by these authors is exceedingly short, I am rather inclined to believe it may also prove a *Heteromeris*.

HETEROMERIS POLIFOLIA. (nob.)

H. polifolia, suffruticosa ramosa erecta pube stellata scabriuscula, foliis lanceolato-oblongis v. oblongo-linearibus v. sublinearibus obtusis inferne attenuatis supra

canescentibus subtus calycibusque incanotomentosis, glomerulis axillaribus submultifloris subsessilibus, floribus apetalis 3-andris, placentis 1-ovulatis, floribus petaliferis sub 20-andris, placentis 4-ovulatis, capsulis globosis basi attenuatis, plerisque 1-spermis.

A *suffrutescent plant*, clothed nearly throughout with a more or less abundant stellate somewhat scabrous pubescence. *Root* slender, perpendicular, subligneous, scarcely branched. *Stem* six to twelve inches high, single, cylindrical, slender, erect, virgate, commonly branched in almost its whole length (less frequently without any other ramifications than short filiform axillary floriferous ramules), leafy, glabrous from the base to the distance of some inches upwards, the upper part as well as the branches and ramules clothed with a scattered grayish pubescence. *Branches* nearly filiform, virgate, simple, almost erect, leafy for their whole length, subfastigate, all of them bearing axillary very short floriferous ramules, along their upper part, and producing frequently fascicles of little leaves (abortive leafy ramules) in the axils of the inferior leaves. *Leaves* alternate, exstipulate, subcoriaceous, without other nerves but the midrib, which is rather prominent on the under surface, and forms a filiform groove on the upper, inconspicuously pennate-veined, scabrous, clothed with a thin scattered pubescence on the upper surface, and with a thick gray tomentum on the under, lanceolate-oblong, or oblong-linear, or sublinear (in the state of desiccation generally more or less revolute at their margins), obtuse, very entire, more or less tapering from the middle to the base; the cauline generally twelve to sixteen lines long, and about two lines wide in their greatest breadth; those of the branches four to nine lines long, and half to one and a half lines broad; those of the abortive ramules two to three times smaller; *petiole* very short and narrow. *Floriferous ramules* (peduncles) generally very short (so that the flowers, at first sight, seem crowded in the axils), erect, slender, generally solitary

in the axils of the superior leaves both of the branches and the main stem; the inferior commonly three to seven-flowered, scarcely or nowise bifurcate, often having a leaf-like bractea at their summit; the superior (flowering before the others) many-flowered, bifurcate nearly from their base with a long solitary overtopping dichotomary pedicel; the terminal floriferous ramule sometimes about two lines long, and bifurcating at its summit. *Pedicels* ebracteolated, or more frequently with a minute subulate bracteole at their bases, fasciculated at the summit of the ramule, or disposed in a short compact corymb, along each of its bifurcations, erect, filiform, of very unequal length; the solitary dichotomary two to three lines long; the others extremely short at the time of flowering, but acquiring finally the size of a line or two. The *flowers*, already noticed in the Generic Character, offer two kinds, very different in structure; the long-stalked solitary dichotomary first-expanding flower of each partial inflorescence being alone petaliferous, polyandrous, and its ovary containing constantly a greater number of ovules; whilst all the other flowers of the same inflorescence are apetalous, most commonly triandrous, pauci-ovulated, and of much less size than the petaliferous. *Calyx* persistent, accrescent, deeply five-parted, somewhat urceolate over its base; sepals distinctly two-seriate, tomentose on their outer surface; the two outer minute, much narrower, flat, linear, sometimes adnate towards their base by one of their margins, never imbricated; the three interior much broader and a little longer than the exterior (those of the petaliferous flowers one line and a half long, and three-fourths of a line broad; those of the apetalous scarce half a line long at the time of flowering, but finally acquiring a length of three-fourths to one line), slightly navicular, but without a keel, ovate, subacuminate, delicately five-nerved, with a broad membranaceous margin on the one side, imbricated before and after flowering. *Petals* most commonly none or five, disposed in no symmetrical manner with regard to

the sepals, deciduous, cuneato-obovate, yellow, longer than the calyx, inserted on the receptacle. *Receptacle* forming a little annular elevation around the base of the ovary. *Stamens* inserted on the receptacle, deciduous; three, or very rarely four in the apetalous flowers, about twenty in the petaliferous ones; *filaments* capillary, unconnected, shorter than the interior sepals; *anthers* basifixed, adnate, those of the polyandrous flowers elliptic, those of the oligandrous obreniform and very minute; *connectivum* linear, very narrow. *Ovary* minute, subglobular, trigonal, tapering at the base, unilocular, placentas three, immediately parietal, filiform, obliterated towards the summit of the ovary, each of them four-ovulated in the petaliferous flowers, invariably one-ovulated in the apetalous; *funicles* ascendent, capillary, inserted (in two superposed pairs, the placenta being four-ovulated) a little below the middle of the placenta, and reaching nearly to its summit; *ovules* orthotropous, inverted, presenting the exostoma to the placenta. *Style* overtopped by the stamens, filiform, rectilinear, erect, deciduous. *Stigma* deeply cloven in three fimbriated crests. *Capsule* minute (generally about the size of a cabbage-seed, or double that size when originating from the dichotomary flowers), enveloped by the three interior sepals, and somewhat shorter, testaceous, brown, smooth and shining, subglobular, trigonous, obtuse, tapering at the base into a sort of stipes, one-celled, three-valved from the summit till near the base, one to three-seeded by abortion; endocarp pellicular, diaphanous, finally separating from the mæsocarp; *valves* connivent, persistent, cymbiform, before maturity placentiferous on their middle, placed opposite the three interior sepals; *placentas* three, persistent, nerviform, subulate at their summit, finally separating from the endocarp; generally but one of them seminferous, whilst the two others bear but the remnants of the nondeveloped ovules, funicles ascendent or suberect, capillary, more or less elongated, persistent. *Seeds* inverted or of indeterminate direction with

regard to the apex of the pericarp, orthotrous, ovate, obtuse, convex on their posterior, nearly flat on their anterior surface, almost as long as the cavity of the capsule, reddish-brown, smooth and shining, obscurely pellucid, tegument thin, crustaceous, micropyle punctiform, terminal; *hilum* and *chalaza* confluent in a basilar areola; *perisperm* corneous, *embryo* (visible by the aid of a strong light through the tegument and perisperm) antitrous, curved nearly in the form of a triangle around the central part of the perisperm; *cotyledons* ascendent, geniculate, nearly flat, oblong-linear, obtuse; *radicle* oblique-

ly ascendent, slender, cylindrical, obtuse, somewhat shorter than the cotyledons.

This species was found in the Province of Texas by Mr. Drummond (third collection, No. 20!), as also by M. Berlandier. Its compact axillary clusters of flowers will prevent any one from confounding it, either with *Heteromeris Michauxii*, nob., or *H. cymosa*, nob.: not to speak of various other important, but less obvious differences. I shall but add, that in the latter of these, the placentas of the apetalous flowers are always four-ovulated, and the placentas of the petaliferous ones about twelve-ovulated.

END.

