

which in their interior contain plate-like rings and spirals raised on the narrow edge, which constitute nearly the entire mass of the wood of the *Mammillariæ*, *Echinocacti*, and *Melocacti*; and also occur in small quantity in the *Opuntia*, especially at the contractions of the joints, and which were first described by Meyen from *Opuntia cylindrica*.

EXPLANATION OF PLATE.

Fig. 1.—10. Stages of the formation of the annular vessels from *Campelia Zanonia*, Rich. Explanation in text, page 42.

Fig. 11. Commencement of the formation into a ring of a spiral from *Equisetum arvense*.

Fig. 12. Spiroidea on a section through the medulla perpendicular to the bark; *a*. the side towards the medulla, *b*. that toward the bark.

Fig. 13. Spiroidea on a section parallel to the bark.

Fig. 14. The same as in fig. 13, with an intermediate series of cells corresponding to a right wound spiral.

Fig. 12—14. From young stems of *Cucurbita Pepo*.

V.—Characters of new Genera and Species of New Holland Cyperaceæ, Restiaceæ, and Juncaceæ. By Prof. C. G. NEES VON ESENBECK.

[Communicated by Professor Lindley.]

A. GUNNIANÆ.

HELOTHRIX.

Locus inter Cyperaceas Acrolepideas.

GEN. CHAR. Spicula disticha, squamis duabus inferioribus minoribus sterilibus, duabus superioribus hermaphroditis. Stamina tria. Perigynii setæ 4 (an semper?) retrorsum scabræ. Stylus bifidus, a basi bulbosa deciduus. Caryopsis biconvexa, styli basi conica mucronata perigynioque stipata.

Inflorescentia: spiculæ axillares et terminales geminæ brevipedunculatæ.

Plantæ pusillæ habitu *Acrolepidis*, Schrad. aut *Eleogitonis*, in inundatis degentes, diffusæ. Culmus ramosus, flexuosus, foliosus.

*974. *Helothrix pusilla*. Culmi 2—4 poll. longi, flaccidi, geniculati, compressi. Vaginæ internodiis breviores, totæ herbaceæ, striatæ ore truncatæ. Folia linearia, angusta, obtusa, margine scabra, trinervia. Spiculæ vix lin. 1. longæ ex vaginis superioribus emergentes, pleræque geminæ, pedunculis inclusis, oblongæ, compressæ, virides cum purpura. Squamæ carinatæ, duæ inferiores triplo majores uninerves acutæ, duæ superiores ovato-lanceolatæ obtusæ trinerves, apice virides, basi pallidæ, deciduæ. Stylus bifidus, ramis longis tortis hirtis. Caryopsis candida,

* The numbers refer to the collections of dried plants given away by Mr. Gunn.

brevis, obovata, filamentis longis persistentibus, perigyniique setis antrorsum denticulatis albis æquilongis cincta.

An huc *Isolepis fluitans*, R. Br.?

956. *Cyperus sanguineo-fuscus*, N. ab E. umbella pluriradiata, radiis composite spiciferis spicis sessilibus patentibus, spiculis subulatis patulis 4—8-floris, squamis alternis ovali-oblongis obtusiusculis septemnervibus fusco-purpureis nitidis margine tenuissime albido dorso basin versus quandoque virescente, involucri hexaphylli foliis planis scaberrimis ternis foliisque scabris longissimis, involucellis setaceis (paucis) spica brevioribus, culmo trigono brevi.

Cyperus lucidus, Rob. Br. Fl. Nov. Holl. p. 218. n. 40. ed. N. ab E. p. 74?

Cyperus sanguinalis, Schrad. Cyp. Bras.

Adnot. Hic verus esse videtur *Cyperus lucidus*, R. Br. alter, in Sieb. Agrostogr. n. 500 evulgatus, nisi nova sit species, ad *Cyperum venustum*, R. Br. est revocandus.

420. *Isolepis propinqua*, R. Br. var. culmo $\frac{1}{2}$ — $\frac{3}{4}$ ped. alto, spiculis 2—12 in glomerulo, squamis sanguineo-maculatis obtusissimis cum mucronulo. An distincta species?

976. *Isolepis margaritifera*, N. ab E., capitulo terminali oligostachyo laterali plus minusve cum terminali confluyente, spiculis compresso-trigonis, squamis ovato-lanceolatis obtusiusculis carinatis uninervibus carina viridi lateribus fusco-sanguineis, involucri diphyllis capitulo longiori foliisque canaliculatis setaceis margine scabris, vaginis arctis ore nudo, caryopsi globoso-trigona albo-nitida lateribus convexis costulata sulcis scrobiculatis.

Variat α . capitulis in unum confluentibus;

β . capitulo laterali remoto in pedunculos mono-distachyos soluto;

γ . spiculis in culmo singulis geminisve propter involucrum monophyllum erectum in speciem lateralibus.

Isolepis setacea, R. Br. Prodr. p. 222. n. 6.

421. *Isolepis cartilaginea*, R. Br. var. α . et β . Caryopsis trigona, tenuissime seriatim tuberculata.

573. *Eleocharis mucronulata*, N. ab E., culmis teretibus brevibus, vagina truncata cum mucronulo brevi herbacea, spica cylindracea densa multiflora, squama infima una et altera latis amplexantibus sterilibus reliquis ovato-oblongis obtusis dorso ferrugineo sanguineis, carina angusta viridula marginibus albo-membranaceis, stylo trifido, caryopsi obovata dorso gibbosa levissime tuberculata, styli basi pyramidalis pallida, hypogynii setis sex caryopsi longioribus.

β . minor, squamis totis fere fuscis.

Ab *Eleocharite acuta* R. Br. differt squamis spicæ ovato-oblongis obtusis nec lanceolatis acutis.

Ab *Eleocharite multicauli* differt culmis multo crassioribus, *Eleocharite palustri* magis accedentibus, et spica duplo majore densiore basi squama una binisve latis rotundatis sterilibus cincta. Vagina longa, recta truncata, viridis, mucronulo vix lin. longo subulato herbaceo.

1013. *Cladium glomeratum*, R. Br. (genus proprium.)

Isolepidi propinqua species, probabiliter proprii generis. Squamæ bi-trifariæ, carinatæ, membranaceæ, pleræque fertiles. Stamina tria. Stylus trifidus basi subincrassatus, caryopsi trigona nitida concretus, a basi deciduus.

Fructus est *Elynanthi*, structura spiculæ potius *Isoschæni*, habitus *Cladii*.

575. *Chætospora concava*, N. ab E., culmo ancipiti altero latere plano altero convexiusculo marginibus lævibus, panícula elongata contracta decomposita.

Lepidosperma concavum, R. Br. Prodr. p. 234. (90.) n. 2?

GYMNOSCHÆNUS, N. ab E.

Spiculæ distichæ, bifloræ. Squamæ ventricosæ, læves, basi subtiliter nervoso-striatæ; inferiores quatuor minores steriles, quinta duplo major rigidior mascula involvens sextam hermaphroditam femineamve, extrema minor angustior sterilis inclusa. Setæ hypogynæ paucae 1—3, graciles, antrorsum scabræ, ovario longiores. Stamina tria, filamentis longis planis, antheris linearibus mucronatis late dehiscentibus et tum magis oblongis. Stylus trifidus, basi conico-dilatatus, pubescens, cum ovario obconico compresso-trigono articulatus. Fructum non vidi.

Inflorescentia: capitulum terminale, bracteis brevibus latis interstinctum basique involucreto. Culmi aphylli.

Observ. 1. Ab *Arthrostyli*, R. Br. differt spiculis bifloris, squamis haud carinatis setisque hypogynis.

Observ. 2. Ad hoc genus pertinere videntur *Chætospora sphærocephala*, R. Br. et *anceps*, R. Br.

952. *Gymnoschænus adustus*.

G. culmo compresso lævissimo apice incrassato, vaginis . . . , spiculis tumidulis obtusis, squamis apice fuscis.

984. *Lepidosperma ensatum*, N. ab E., panícula densa pyramidali brevi, ramis decompositis imbricato-spiculatis, culmo ancipiti medio utrinque convexo marginibus scabriusculis, spiculis 1-floris, squamis acutiusculis scabris.

983. *Lepidosperma squamatum*, Labill. Spiculæ subbifloræ, squama antepenultima mascula, penultima abortu feminea, terminalis abortiva.

Setulæ tres, retrorsum scabræ, inter stamina.

Igitur *Chætosporæ* potius generis quam *Lepidospermatis*.

962. *Restio complanatus*, R. Br. Novum genus. Spicula undique imbricata squamis membranaceis setaceo-cuspidatis. Perianthium pedicellatum quadripartitum, laciniis lateralibus angustioribus. Stamina duo basi dilatata cartilaginea, lateribus ovarii adposita. Stylus bifidus. Utriculus compressus, retusus, sæpe obliquus, monospermus.

Culmus simplex, complanatus. Vaginæ membranaceæ, truncatæ, aphyllæ, limbo lacero. Spiculæ in panícula racemosa brevi angusta.

599. *Calorophus elongata*, Labill. ♀ Restio lateriflorus, N. ab E. in Sieb. Agrostoth. n. 29. et R. Br. Prodr. Culmi filiformes, longissimi. Vaginæ ore barbatae. Spiculæ laterales, distantes, bractea setacea basi vaginante ciliata cinctæ, subsessiles. Squamæ propriæ tres, membranaceæ, ciliatæ, obtusæ. Sepala sex, tenuissime membranacea, subrotundo-ovalia, obtusa, æqualia, ciliata, nucem æquantia eidemque arcte adpressa. Nux trigona, lævis, stigmatibus tribus in spicas revolutis persistentibus coronata.

Hæc vera femina est *Calorophi elongatæ*, Labill. Quam tamquam plantam femineam in eadem tabula pinxit Labillardière (fig. 2.), ad *Hypolænam exsulcam*, R. Br. aut aliam hujus generis speciem pertinere puto.

B. DRUMMONDIANÆ ; ad Flumen Cygnorum lectæ.

1. *Chorizandra multiarticulata*, N. ab E., capitulo globoso exserto, squamis obtusis imberbibus, culmi articulis profunde striatis diametro sua paulo longioribus. Culmus magis ac in *Ch. Cymbaria striatus*, articulisque duplo brevioribus vel statu sterili dignoscendus.
 2. *Isolepis cartilaginea*, R. Br. var. spiculis 1—8 pallidis, culmo semipedali, foliis plus minus elongatis. Culmus compresso-tri-queter. Involucrum sub capitulo polystachyo diphyllum.
 3. *Elynanthus bifidus*, N. ab E., culmo filiformi striato compressiusculo basi bulboso foliatoque, foliis canaliculato-filiformibus, spiculis solitariis binisve pedunculatis terminalibus bifloris, bulbo styli in caryopsi muricato-rugoso.
 4. *Elynanthus capitatus*, N. ab E., culmo obtuse trigono compressiusculo lævi basi bulboso foliatoque, foliis convoluto-canaliculatis, vaginis margine membranaceis laceris, capitulo terminali polystachyo, spiculis unifloris squamis quatuor inferioribus cuspidatis.
 5. *Elynanthus australis*, N. ab E., culmis filiformibus lævibus foliosis, vaginis truncatis folio convoluto-filiformi basi rigide ciliolato multo brevioribus, ligula brevissima truncata, spiculis spicato-fasciculatis in panicula angusta ramis quinis singulisve bractea brevioribus dispositis lineari-lanceolatis unifloris, squamis sterilibus bracteolisque setaceo-cuspidatis.
- Affinis *Elynantho cuspidato* et *gracili*, at caractere suo distinctus.
6. ? *Elynanthus octandrus*, N. ab E., culmo compresso bulboso, foliis omnibus radicalibus linearibus planis, spiculis spicatis, spicis axillaribus solitariis, inferioribus remotis superioribus in spicam terminalem compositam coeuntibus, bracteis foliaceis culmi apicem superantibus, rostro fructus ovato crasso.
 7. *Schænus fascicularis*, N. ab E., culmo simplici compressiusculo exsulco lævi aphylo, vaginis baseos ore subbarbatis foliolo longioribus, spiculis fasciculatim confertis brevissime pedicellatis falcatis subtrifloris, squamis margine ciliatis.

Proximus *Schæno brevifolio*, a quo differt inflorescentia plerumque breviori, vix pollicari, ex paucis fasciculis approximatis conflata rarius iisdem paullo magis discretis, spiculis falcatis subsessilibus, et vaginæ foliiferæ ore, saltem in juventute, barbulato nec nudo. Structura spiculæ omnino ut apud Kunthium (En. II. p. 335.) sub *Sch. brevifolio* sed squamæ 4. inferiores vacuæ, 5, 6, et 7 fertiles.

ISOSCHÆNUS, N. ab E.

Spicula disticha, squamis æqualibus, inferioribus fertilibus, superioribus sterilibus. Rhachilla fructus curvato-sinuata. Perigynium nullum. Stamina tria, filamentis persistentibus peracta anthesi elongatis. Stylus basi æquali deciduus, trifidus. Caryopsis nucamentacea, sculpta, a flexuris rhachillæ diutius retenta.

Inflorescentia capitata aut per fasciculos axillares anguste paniculata. Culmi basi aut etiam superiora versus foliosi. Vaginæ ligulatæ. Folia angusta, filiformia aut canaliculato-filiformia.

8. *Isoschænus Armeria*, N. ab E., spiculis capitatis, culmo lævi basi unifolio.

9. *Isoschænus acuminatus*, N. ab E., *Schænus acuminatus*, R. Br. Prodr. p. 231, et N. ab E. (87.) n. 6.—spiculis fasciculato-ternis binisve lateralibus in panicula angusta dispositis, culmo foliato.

10. *Isoschænus flavus*, N. ab E., capitulo terminali, culmo rigido subangulato scabro basi foliato foliis filiformibus canaliculatis scabris breviori.

Culmus tripollicaris, quam pro altitudine crassior.

11. *Chætospora aurata*, N. ab E., culmo nudo compresso basi folioso, foliis subsetaceis canaliculatis incurvis, capitulo terminali globoso involucrio di-triphylo breviori, spiculis subbifloris squamis imberbibus carina scabris, perigynii laminis lineari-lanceolatis planis ciliatis.

Similis *Ch. curvifoliæ*, sed evidenti differt caractere.

Culmus spithamæus et ultra, compressus. Squamæ atro-sanguineæ, basi aureo-flavæ, omnes setaceo-cuspidatæ, carinatæ. Caryopsis (nux) obovata, obtusa, scabra, squamulis 7—8 æquilongis strigiosis appressis cincta. Stylus trifidus. Stamina 3.

12. *Chætospora cygnea*, N. ab E., culmo compressiusculo estriato basi foliato, vaginis ore barbatis, spiculis binis ternisve lateralibus sessilibus involucrio culmum continuante brevioribus, squamis trifariis enervibus interioribus margine puberulis, laminulis hypogynis fructu duplo brevioribus ciliatis, rhachilla fructus apice incurva.

Juncum filiformem gracilem refert.

13. *Caustis dioica*, R. Br. Est hermaphrodito-dioica pistillis plerisque sterilibus. Ad hujus formam sterilem spiculis in ramulis
Ann. & Mag. Nat. Hist. Sept. 1840.

recurvatis solitariis, nec vero ad *Caustin flexuosam*, spectat *Caustis recurvata* mihi (olim *Restionis* nomine a Siebero distributa); quod quomodo scribæ, nec mea culpa evenerit, ipse paulo post in eodem Diario botanico Ratisbonensi exposui. Sed Kunthius, qui omnia scit, ubi videor erravisse, ea sola nescire videtur, quæ ad avertendam erroris falsam speciem feci. Id quoque monendum est, *Melachnen Sieberi* non ad *Caustin flexuosam*, sed ad *Didymonema filiforme* Presl. pertinere, et igitur longe distare a Causti genere.

14. *Restio curvulus*, N. ab E., culmis apice ramosis fastigiatis, ramulis compressis curvatis apice spiciferis, spicis masculis approximatis (paucis) sessilibus oblongo-lanceolatis, squamis cuspidatis vaginisque nudis, his mucronatis, perianthiis (♂) 6-glumis.

15. *Lepyrodia macra*, N. ab E., culmis simplicissimis flexuosis vaginis foliatis strictis, spica simplici pauciflora.

Culmi spithamæi, curvati, subspongiosi, graciles. Vaginæ herbaceæ, striatæ, truncatæ, ore membranaceo, foliolo subulato obtuso 3—4-lineari erecto. Vaginæ superiores basi solubiles ut in *Restionibus*, sed flores intra squamam bibracteolati. Spica tam mascula quam feminea 3—4-floræ. Bracteæ communes oblongæ, membranaceæ. Sepala æqualia. Flos masculus (defloratus) angustior.

16. *Lyginia imberbis*, R. Br. ♀ *Schoenodum* tenue, Labill. t. 229. f. 1. Ovarium, in stylum longum crassum apice solummodo trifidum attenuatum, monospermum videtur. Perianthium sexfidum, laciniis oblongo-lanceolatis muticis membranaceis æqualibus. Bracteæ late ovatæ, setaceo-mucronatæ, fuscæ. Spica terminalis solitaria. Reliqua ut in caractere naturali a cl. Brown tradito. Vaginæ aristato-cuspidatæ. Culmi lutei, læves, simplicissimi.

17. *Anarthria grandiflora*, N. ab E., culmis simplicibus teretibus foliisque compressiusculis striatis, racemo composito denso oblongo, floribus masculis nutantibus, bracteolis geminis, sepalis lanceolatis compresso-carinatis. Squamæ bracteales longæ, lanceolatæ, ♀ racemo minori contracto, ramis 2—3 minus divisis rigidis, floribus minoribus sepalis rigidis.

18. *Anarthria humilis*, N. ab E., culmis simplicibus teretibus filiformibus foliisque compressis striatis, racemo ditrifloro, bracteolis singulis, sepalis lanceolatis obtuse carinatis.

Culmus semipedalis. Sepala lanceolata, subulato-acuta, brunnea.

19. *Leptocarpus canus*, N. ab E., amentis in glomerulos distantes laterales dispositis, squamis acuminatis, rhachilla pilosa, perianthii glumis omnibus margine lanatis, culmo simplicissimo cano. Culmi 1—1½-pedales, teretes. Vaginæ fuscæ, mucronatæ. Spiculæ geminæ—quaternæ, a medio culmo in glomerulos distantes agglomeratæ, bractea setacea brevi-vaginata cinerea suffultæ. Flores bibracteolati.

20. *Leptocarpus spathaceus*, R. Br. Distinctum genus. Stylus trigonus, crassus; ovarium triangulare, in stylum decurrens. Flores fasciculati (quos dicunt) terni quaterni, capituliformes; spiculæ squamis suffulti. Sepala mucronata.

21. *Desvauxia Drummondiana*, N. ab E., receptaculo subpaleaceo, stylis 6—7 basi connatis valvulis asperis infra apicem obtusum aristato-mucronatis mucrone valvula sua duplo breviori, foliis capillaribus scabris scapo glabro brevioribus.

D. Billardieri, R. Br. affinis.

VI.—On the Structure of the Stigma in *Mimulus* and *Diplacus*. By Mr. JOSEPH HENDERSON.

To Richard Taylor, Esq.

SIR,

I HAVE observed a very singular instance of irritability in the stigmata of some species of *Mimulus* and of one species of *Diplacus*, a genus recently separated by Nuttall from *Mimulus*. As I have nowhere seen any mention made of the existence of the phænomenon of irritability in any of these plants, you will perhaps favour me, should the fact not have been before observed, by inserting this notice in the Annals of Natural History*.

In making an experiment to ascertain if *Diplacus puniceus* would hybridize with *Mimulus cardinalis*, I found on applying the anther of the latter to the bilamellate stigma of the former, that the plates—which in their natural position are reflexed—immediately collapsed, and inclosing the mass of pollen grains that had fallen on them, pressed firmly against each other. The intimate connexion between the genus *Diplacus* and *Mimulus*, induced me to try if this unexpected property existed also in stigmata of the latter genus, and I found it to be present in *Mimulus cardinalis*, *roseus*, *luteus* and *moschatus*, all the species of *Mimulus* growing here. The movement in all these cases follows the touch as rapidly as in *Mimosa pudica*; the stigma, however, is more active when the flower is first opened. If the stigma is touched with a pin or any other instrument, the plates, after collapsing, will revert to their natural position, generally in less than two hours; but if pollen is interposed between the plates, they remain closed a much longer time.

In the 27th Number of the Annals of Natural History there is a note on the movement of the style of *Goldfussia anisophylla* by Professor Morren of Liege, in which he refers the

* The excitable property of the stigma of *Mimulus* and *Diplacus* is a fact well known, but the peculiar structure of that organ has not been before observed.—ED.



1840. "V.—Characters of new Genera and Species of New Holland Cyperaceæ, Restiaceæ, and Juncaceæ." *The Annals and magazine of natural history; zoology, botany, and geology* 6, 45–51. <https://doi.org/10.1080/03745484009443269>.

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