

to *Haplosparyx leucopyris* and *Ericameria* there are no positive char. so far as I can find to separate them from each other or from *Paracoria*, *Nardophyllum* and *Leptosperbynum*. *Haplosparyx* has generally broad more rotund capitula while in *leucopyris* and *Ericameria* they are narrow and conyngtonae or shortly paniculate the one homogamous in the one radiate in the other. The radiate *leucopyris* is only an accidental aberration not common in the species and like the way left varieties of *Cistes amellus* does not invalidate the genus.

I have now been for weeks at Helianthemum in which a previous sweep has been made by various writers and by none more than by Ch. Big. Although I cannot go with him in entirely neglecting the presence or absence of a style in the ray flowers I cannot make that a substantiel character but sometimes generic sometimes perhaps only sectional. *Helianpis canariensis* and *rupestris* make up a little group of them selves remarkable for the persistent style or subreflexed laminae of the ray flowers and ^{anthers} stigmas are nearly allied but I have dubious *obtusifolia*, *Laleya* (including *Pedicularis* and *Chionophyllum*) and *Gymnosperma* (including *Helianthemum*) are very near to one another but I cannot follow Ch. Big where *pedicularis* in Flora of period out would unite them all under *Laleya*. At least I must go into *Sclerocarpus* - indeed *Gymnosperma uniericaria* ~~not~~ can only be distinguished from *Sclerocarpus apicinatus* by slight specific differences.

Leucaspis includes *dimorpha*

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My dear Gray

To answer in the first place your two *Salvia* queries. The *Salvia angustifolia* Cav. varies much as to hairiness Lavanille's and Lindley's figures represent it as very hairy *Jacquinii* as glabrous. Our wild specimens, which are numerous are most of them glabrous or the stems sparsely with a few hairs besides those at the nodes but some are nearly and others quite as hairy as represented by Lavanille and Lindley so that I conclude them all to be one species common in the Mexican - Texan region varying as to hairiness and also as to the leaves usually very narrow and entire but sometimes, especially under cultivation a few becoming broader and toothed. We have no specimen of my *S. leptophylla* which I suspect is a variety of *S. lanceolata* Wright is certainly *S. angustifolia* or *S. reptans* Jacq.

The garden plant of which fragments just received seems to be notwithstanding its shorter corolla, a form of *S. tuberosa* Cav. which it agrees with in every other respect. We have certainly no nearer match but

To Compton I am very much obliged
for your note and should be very thankful
for more - the worst is I have very little
time to write any details for you to remark
upon. I shall go over several Asteroids again
and think that notwithstanding Harvey &
must keep out the small shrubby Asteroides
& Agathocas from Aster as their pappus very
much interferes with the generic characters
the worst is there are intervening species but
those we have every where. I am better satisfied
with Malvaceae of which I made ten subtribes

- * H. g. dum adgit. pedicellis. sinuosa v. rara involucrata.
1. Tarchonanthes. Capitula diaica. Inv. bractea rufa v.
lobatae (All. P. Apicea or Shanacea)
2. Muehlenbeckia. Capitula austrocypha. Inv. bractea rufa v. lobatae
3. Tetragoniae. Capitula austrocypha fl. & prevalentibus paleis neoplanae
subtenui v. involucrata. ~~fl.~~
4. Gaophaea. Capitula austrocypha fl. & prevalentibus paleis
nudis. Inv. bractea scaricariae
5. Kelikopae. Capitula austrocypha fl. & prevalentibus v. nuda.
gama, non glomerata
6. Chrysanthem. Capitula homogama in glomerulis capituliforme
aggregata
old world * H. g. dum adgit. ligulata v. rarae involucratae (All
old world) 7. Bellidium capitula aggregata v. disticta. Tolia parva v. torta
supra nec subtus concava v. incisa. (All. L. Apicea)
8. Asterio. Capitula disticta Tolia normalia. Recept. nudum.
Nigri rami truncati
9. Eriophyllum. Capitula disticta. Tolia normalia. Recept. nudum
Nigri rami apicis rotundatae.
10. Daphnelema Capitula disticta Tolia normalia Recept.
paleaceum. Nigri rami apicis rotundatae v. truncatoe.

There are of course varying characters by
constant and always at every where else some exception
to the supposed constant characters but upon the whole
the genera do better than the Asteroidae

The following are the short characters for the Malvaceae

- * Ixiasia Achaeae longis latiori 2.6. angustatis v. ex. costata
annua Geranoides
Exera Cyathodromi Olyparinum et Othocissum
** Juncea Achaeae parvis costatis bracteis Gynephalaedae
Eury H. g. v. sessili receptaculi paleis subtenui subtruncatis
v. nudis v. sessili unica paleorum circumdata. Pappus v.

Trichocarpa. H. g. multiseriata in receptaculi depresso glo.
boni paleis cyathiformibus arcte inclusi, v. nudis Pappus v.

Micropus. H. g. uni. v. pauci. sericei in receptaculi cypria.
dorsi elongati paleis cyathiformibus arcte inclusi, v. nudis v. paleis
planis subtenui. Pappus v. v. nuda v. rata perspiciens
fuga cibis

subgenus Glechoma monotypis 1. Bombycilia H. g.
brevi capite stipitata paleis non ciliatis inclusi, v. nudis; v.
Ornitholema. H. g. v. sericei sericei paleis ciliatis longatis pubescens
v. cum paleis paucis scariosis intermixtae v. digitis cyathiformibus levigatis
Notes 1. v. 2.6. f. 4.6. 3. H. g. v. sericei paleis non ciliatis inclusi v. paleis
angustis subtenui v. H. polystachys. H. g. v. sericei paleis non ciliatis
inclusi v. cum paleis paucis intermixtae v. Obnius euphorbiifoliae Agray.
Chos. Digitosimbi v. paleis rotundis. circumdatae. cuspeditati.

Dicaperia Flores v. v. sericeata paleis concavis subtenui
v. paleis involutis v. subtili. Pappus v.

Micropae Flores v. v. sericeata paleis concavas subtenui v. paleis
involutis. Pappus corona formis.

Hibiscus H. g. v. sericei capitulis v. omnes palei subtenui v. subtili-
rotundatae. Pappus setosus v. nudis. Pappus fl. v. omnium setosus
Hibiscus (Trichogyne) H. g. v. sericei paleis hirsutis subtenui v. nudis
Pappus fl. v. setis plumosis. fl. v.

but then there are Madren and others
which I have not yet began upon - In all
the above genera except a few such as
Helianthus, *Aedes*, a *Peltanthus* I have had
to work up almost every species and to examine
a great many specimens of one - fortunately
cold water does to soften the flowers,

I perceive I have taken two sheets of
paper for one and must now conclude
I have not patience to read over what I
have said so you must allow for dryness of
the pen

Ever your sincere
George Bentham

To Adelais

I do not like the breaking up of Rudbeckia
some species left in Rudbeckia seem to be nearer
to *Dracopis* and others, to *Echinacea* and *Peltoceras*
than they are to each other. *Echinacea heterophylla*
does not the receptacle pale of *Echinacea*
and is very near *Rudbeckia californica*. I think
the whole together make one very good natural
genus divisible into 5 if not 6 sections.

Balsamorhiza, *Willdenowia*, ~~and~~ *Mirabilis* Ch.
Dip. (*Sithonia* *ruberrima* Desv. and *Lalova* Ch. Dip.)
and *Borrichia* must I think remain unbroken

In *Olinocella* I should include *Nigogyna*
the true *O. gigan* & *O. Mexican* are perhaps not different
from the typical *O. thomsonii*. The plants I thought
were distinct species of these names when I did the Flora
Niger are very different and true *Coronocarpus*

Wedelia including with some hesitation *Wolffia*
I have examined nearly 40 species besides several of
Host. and his & others which belong to other genera

Coronocarpus (which is *Wedelia* with neutral
ray flower) comprises about 30 species African
and American including *C. monopterum* Ch. (except
C. cyclocephala which is a *Wedelia*) and a considerable
number of hardy *Nigrogyne*. The scale at the base
of the achene which Ch. Dip. makes such a fuss
about occurs in several sp. of *Wedelia* *leptophylla*
and others

Ogyria (*Regelia* Ch. Dip.) only differs from
Coronocarpus in the habit small head with
the rays wanting or very minute. *Gymnaxis*
microcephala Gardn. is nothing but the common
Ogyria.

Please Siphochata as you have settled it

Zeyheria with near 30 species differing from *Wedelia* & *Blainvillea* in the more or less winged exserts should I think include as a section *Sesamotheca* DC under which I should enumerate among others your *Nespechia monosperma*, *V. aurea* DC, *Tithonia ovata* Benth. May etc.

Pedoea with about 22 species is *Zeyheria* with neutral ray fl. It includes a few of Gardner and my Viguiera and one of Gardner's *Terpeas* - (the other is a Viguiera)

Wyethia and *Tithonia* remain untouched except that the latter must be limited to *T. tagetiflora* and *T. tubiformis* - unless Benth. 1865 be a third sp. & possibly *Therberia* H. Goo a fourth. (including *Lupinus aduncus* Karpovsk)

Viguiera with between 50 & 60 sp., is but very little different in char. from *Tithonia* - From the Cuban specimens reported to be B.A.R.'s original species (Determined by Grisebach) the common Cuban one must be the same

To *Heleanthus*, besides your N. American herbaceous species, I think we cannot help adding some half dozen Andean shrubby species

Of *Dorymenium* we have I believe 10 sp. Mexican and Peruvian

To *Heleanthaea* I am much disposed to add the African *Lipotriches* with ♀ rays and the South African *Eckloniocephala*, and Abyssinian *Heteroschistella* with neutral rays. The whole make a little genus of

about 8 species very natural and easily characterized.

Encelia as I think you have pretty well shown makes a very good genus if it includes as sections *Boratia*, *Geocoma* and *Luisia*.

Salmea, *Heleanthella* and *Aetionemis* must I think all remain, as near to but distinct from *Perberia*. I should divide the latter into four distinct sections, *Everberia*, *Hamulium*, *Malapteris* and *Ximenesia*

Podochecnum Benth. (*Normophyllum* Ch. Dic.) must stand good as well as *Spilanthella*

All the above will I think go into a subtribe *Perberinae* - the following into *Coccocephidae*

Guizotia (including *Nelumbia*) *Lynedochia* and *Microloma* all little distinct genera have the most of *Perberia* with the adaxials dorsally flattened of *Coccocephidae*

Coccocephis besides the genera you have referred to it must comprise *Bretschneidera* which is not even sectionally distinct from *Agavea*

Dahlia which Ch. Dic. unites with *Coccocephis* though allied to it is as good a genus as most others.

I find but little to add in *Heleanthemum*, *Conicosia*, *Oidens*, *Glossogyne* (all old world for *P. brentiana*, *Leontine* is an *Frontinella*) *Froeligma*, *Chrysanthellum*, *Heteroperium*, *Glossocardia*

This is as far as I have gone except some genera about which I have not yet made up my mind and I have not formed yet any general scheme for the division of *Heleanthemum* in which I now see at least five groups, *Melampodium*, *Hebebea*, *Coccocephidae*, *Agavea* and *Heleanthemum*.



Bentham, George. 1871. "Bentham, George Feb. 19, 1871." *George Bentham letters to Asa Gray*

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