

ART. XLIV.—*Studies in the Cyperaceæ*; by THEO. HOLM.
XX. "*Greges Caricum.*"*

Of the two methods adopted for the classification of species, and especially of those pertaining to large genera, the artificial system, of course, has the advantage of being the most convenient, but seldom leads further than to their immediate determination. The natural classification is, on the other hand, much more difficult by being based upon supposed affinities between the species themselves, thus excluding such morphological characters as are common to a number of species, but of no importance from a biological point of view. Let us, for instance, consider Linnæus' classification of the species of *Carex*. When he treated the genus, "*Vignæ*" had not yet been invented, and the "*Indicæ*" were not known. And with the object in view to render the determination of the species as easy as possible, Linnæus arranged these in accordance with the inflorescence, this being a single spike: staminate, pistillate or androgynous, or the spikes being several: androgynous or with the sexes separate, the pistillate spikes being either sessile or peduncled. Such classification is, of course, very artificial, considering the fact that the monostachyous species contain representatives of very different habit and of very different structure of the perigynium. But it is much less artificial than the system in which the species are simply classified as *Vignæ*: all those with two stigmata, and *Carices genuinæ*: those with three. For in the former, the *Vignæ*, if the number of stigmata be the most important character, the species must necessarily become badly mixed, since then *Carex vulgaris*, *lenticularis*, *angustata* and their numerous allies must be arranged side by side with *C. rosea*, *muricata*, *stellulata*, *vulpinoidea*, *stipata*, etc. The Linnæan method is still adopted in a number of manuals and systematic works, where it figures prominently in the artificial keys, and justifiably so. But it is rather surprising that the author, who treated the *Cyperaceæ* in the very modern and comprehensive work: "*Die natürlichen Pflanzenfamilien*," should not have felt called upon to give a more natural classification of the *Carices* than the one adopted, where

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the species appear in the old-fashioned sections: *Mono-*, *Homo-* and *Hetro-stachyæ* with the same distinction in regard to the distribution of the sexes as once proposed by Linnæus, and regardless of "natural affinities." We are told that *C. pauciflora* and *rupestris* together constitute one division "*Rupestris*," because they are monœcious and tristigmatic, while *C. cephalophora* and *Baldensis* represent the "*Bracteosæ*," because their inflorescence is capitate and subtended by leafy bracts, even if the former be distigmatic, the latter tristigmatic; moreover that *C. macrocephala* and *curvula* constitute the "*Curvulæ*" because both have three stigmata and a spicate-capitate inflorescence.

Almost a century after Linnæus had described the *Carices*, the genus became divided by Beauvais* in "*Vigneæ*" with two stigmata and a plano-convex achæmium and "*Careæ*" with three stigmata and a trigonous achæmium. As a subgenus or at least as a section "*Vigneæ*" has been preserved, but not as a genus. A third section became proposed by Tuckerman,† the so-called "*Vigneastræ*" including the *Indicæ*, and these were characterized as possessing androgynous, ramified spikes and two or three stigmata. This paper by Tuckerman actually contains the first attempt in combining the *Carices* in natural groups with names indicating the most characteristic type of each. Tuckerman did, however, begin his new system with the *Psyllophoræ*, the monostachyous, and passed from these over the *Vigneæ* and *Vigneastræ* to the *Legitimæ*, somewhat similar to the old method. And he omitted to write the diagnoses of his groups, leaving the reader to interpret the affinities. But in the appended "Annotationes" Tuckerman expressed his views regarding the affinities of a few types, and he suggested, for instance, that the *Psyllophoræ* might perhaps be referable to the *Vigneæ* and *Legitimæ*, that the *Dioicæ* might belong to the *Stellulatæ*, the *Scirpinæ* to the *Montanæ*, and the *Rupestris* to the *Digitatæ*; in other words, Tuckerman had evidently grasped the correct idea of eliminating the *Monostachyæ* altogether as a section and to classify them as lesser developed types of the *Stellulatæ*, etc.

This same idea we find expressed, but much more carefully worked out in the posthumous work "*Symbolæ Caricologicae*," published by Vahl under the auspices of the R. Danish Academy (1844). The author, Salomon Drejer, with remarkable skill undertook to treat the genus from a phyletic point of view, and he defined the transition from the lesser developed types to the more advanced in such a way as to overthrow the older, artificial classification. The number of stigmata, the

* In Lestiboudois' *Essai sur la famille des Cypéracées*, Paris, 1819, p. 22.

† *Enumeratio methodica*, 1843, p. 10.

distribution of the sexes and the form of the inflorescence had with him no weight unless they were in correlation with other characters which might be considered of biological importance, such as the structure of the perigynium (*utriculus*). In this way the species of the old section *Monostachyæ* became transferred to various plio-stachyous groups as representing "formæ hebetatæ" of these, and even the *Indicæ* with their manifold decomposed inflorescences, even these he did not feel inclined to preserve as distinct from the others. Only the *Vignææ* and *Carices genuinæ* were recognized, though with the understanding that the former should not be restricted to distigmatic species alone, nor the latter to tristigmatic species.

Characteristic of the *Vignææ* is, thus, not only the more or less dense-flowered, spicate or capitate inflorescence with commonly both sexes represented in each of the smaller spikes, or the normally two stigmata, but also the peculiar structure of the perigynium, being mostly plano-convex with the margins more or less prominent and the beak being usually slit deeper on the convex face, a structure that is, however, also met with in certain species of the *Carices genuinæ*, for instance among the *Stenocarpæ*. In the *Carices genuinæ* the perigynium exhibits three types, one in which the beak is very short, entire or submarginate, a second in which there is a distinct beak with the orifice hyaline, two-lobed or irregularly bifid, while in the third type the beak is quite prominent with the apex bifid or even bidentate.

These three types of perigynium were suggested by Drejer as being sufficiently valid for dividing all the genuine *Carices* in three primary sections, as already indicated in his little book: *Revisio critica Caricum borealium*.—But this general classification does not, however, seem feasible when we remember the several modifications that are noticeable among the lesser and higher developed types within the minor "greges." On the other hand, we must fully admit the recognition of these characters as being very important, when applied to the central, specific types of each "grex," and when taken in connection with the other characters, which Drejer suggested as fundamental for the establishment of his "greges." He enumerates, for instance, the consistence of the perigynium, membranaceous or spongy, its surface being glabrous or pubescent, the bracts being leafy or scale-like, sheathing or merely auriculate at base, the spikes being erect or drooping, contiguous or remote, and finally the distribution of the sexes; this last character he considered, however, to be of minor importance, since it appears inconstant in a number of cases.—With these characters in mind Drejer classified a number of *Carices genuinæ* in eleven "greges" with diagnoses appended, but as already

stated, his manuscript was left unfinished by his premature death, and none of the *Vignæ* had been treated, nor did he leave any notes upon these. However, the general idea which he had formed relating to the classification of the latter is so clearly expressed in the introduction of his paper, that the "greges" of these, the *Vignæ*, may be well constructed on the same basis as the others. But the method proposed by Drejer for the classification of these numerous species is so original and so distinct from any of the previous methods, for instance those suggested by Kunth, Fries and others, thus no comparison or combination of these seems possible.—If the *Vignæ* be treated and if some new "greges" be suggested as supplemental to the *Carices genuinæ*, the treatment must be carried out in accordance with the same principles as once suggested by Drejer, whenever we intend to adopt and follow his method.

Nevertheless, an attempt has been made* to classify the *Vignæ* and the *Carices genuinæ* in natural sections: the former in accordance with Fries, viz., *Acro-* and *Hyparrhenæ*, i. e. in accordance with the distribution of the sexes: with the staminate flowers borne at the top of the spikes or at the base of these, and the latter, the *Carices genuinæ*, in accordance with Drejer. It is readily perceived that these two methods are not to be combined, since the former, the one of Fries, is founded upon merely artificial characters, while the latter strives to be as natural as possible. Moreover, the interpretation of the "greges," proposed by Drejer, is far from correct, in spite of the fact that the diagnoses have been written in excellent Latin. Let us, for instance, examine the *Trachychlænæ* Drej., as interpreted by Professor Bailey. With Drejer this "grex" contained such species as *C. glauca*, *hispidæ* and *trinervis*, while Professor Bailey has made it a complex of utterly different types and with the exclusion of *C. glauca*, which this author, strange to say, has referred to the *Acutæ* of Fries. This section, the *Acutæ*, did not, however, with Fries contain such species as *C. glauca*, but only *C. acuta* and *prolixa*, while Fries himself had *C. glauca* as a member of "*Pallescentes*." And the treatment of the *Vignæ* by combining the various and very incongruous sections of Kunth, Fries, Nyman, Christ and Tuckerman has necessarily resulted in confusion.

A somewhat more successful attempt has been made by Rev. G. Kükenthal in his treatment of some South American *Carices*, in which the *Acro-* and *Hyparrhenæ* have become dissolved into groups that are more natural, and where the

* Bailey, L. H. Proceed. American Acad. Arts and Sci., vol. xxii, p. 59, 1886.

various sections or greges have been more correctly interpreted. However, the combination of *Microrhynchæ* and *Æorastachyæ* does not seem natural to us, and we can not either accept the *Bifurcatæ* Kükthl. as an alliance of two groups as distinct as the *Physocarpæ* and *Echinostachyæ*, nor can we accept the *Leptocephalæ* and *Physocephalæ* Bail. And the *Dactylostachyæ* Drej. were hardly intended for such divergent types as the *Oligocarpæ* or the *Laxifloræ*, nor does it seem natural to refer *Phyllostachys* as a whole or in part to the *Sphæridiophoræ* Drej. Whether the *Vigneastræ* be distinct from the *Vigneæ* and *Carices genuinæ* remains to be seen; the characterization of the *Graciles*, the *Polystachyæ* and *Indicæ* at least does not seem to warrant any such segregation. If the author had treated a larger number of species and from other parts of the world, he would no doubt have altered some of his views and enlarged the number of "greges," especially of the *Vigneæ*.

Similar to the system adopted by Professor Bailey, Mr. Kükenthal has made a number of combinations of groups formerly proposed by Kunth, Fries, Tuckerman and others. And as we have stated above, such combinations are not always feasible, when we bear in mind that the principles upon which these classifications were based are quite distinct. We might illustrate this by an example taken from the *Canescentes* of Fries, as accepted by Mr. Kükenthal and Professor Bailey.

Fries himself defined the *Canescentes* as "Hyparrhenæ β *canescentes*: typice albidæ" including such species as *C. canescens*, *remota*, *stellulata*, *tenuiflora* and a few others. With Mr. Kükenthal the *Canescentes* are species with: "utriculi neque alati neque marginati neque spongiosi brevirostres vel erostrati," and excluding *C. remota*, which is transferred to another section: the *Remotæ* of Ascherson.

With Professor Bailey the *Canescentes* Fr. is supposed to be identical with the *Elongatæ* Kunth, the *Tenuifloræ* Kunth, the *Heleonastæ* Kunth, the *Stellulatæ* Kunth, the *Deweyanæ* Tuckm., the *Loliaceæ* Nym., the *Monastes* Nym. and *Lagopinæ* Nym.

It would seem from the above statements that an independent treatment would be safer, since such contradictions as are liable to arise from combined systems would be averted. And with the object in view of establishing a classification of *Vigneæ* and *Carices genuinæ* in accordance with the principles suggested by Drejer, the writer has made an attempt to arrange a number of species from various parts of the world, but mostly from the northern hemisphere, and only such as have been directly accessible to study and represented by sufficient material. The result of our study is, as will be seen from the following pages, the maintenance of the *Vigneæ* and *Carices genuinæ*, while

the *Vigneastræ* appear to us as inseparable from these, especially from the latter. That we enumerate the *Vigneæ* before the *Carices genuinæ* must not be understood as if it were our idea that these are older than the others; we consider them both as two parallel groups that evidently developed from certain monostachyous types, branching out in several, more or less restricted "greges." In these, the "greges," we have begun with the simplest types, when such are represented in the shape of monostachyous species: "*formæ hebetatæ*." The supposed central types are so indicated, but besides these there are usually certain species which cannot be placed in direct sequence with these, and which to some extent show transition to other "greges;" these are enumerated as "*Desciscentes*."

As to the arrangement of the "greges" we have begun with those which we suppose are the least advanced in each group; among the "greges" themselves are several which to us appear as illustrating a parallel development, for instance *Athrochlænæ-Stenocarpæ* and *Podogynæ, Trichocarpæ-Echinochlænæ*, etc. When we compare the "greges" of the *Vigneæ* with those of the *Carices genuinæ* it is readily seen that there are several types among the latter which habitually remind us of the former, the *Vigneæ*; such analogies are not uncommon among the *Melunanthæ*, the *Athrochlænæ* and the *Chionanthæ*.

However these analogies do not extend beyond the mere composition of the inflorescence and especially in regard to the distribution of the sexes: the spikes being often androgynous or gynæcandrous as in the *Vigneæ*. While apparently typical to several species, androgynous or gynæcandrous spikes occur so frequently among the *Carices genuinæ*, the formerly so-called "*Heterostachyæ*," that this character seems too fallacious to be depended upon to any large extent. But some exceptions exist, and we have not, so far, observed a single case where the terminal spike was not gynæcandrous in such species as *C. triceps*, *virescens* and *Shortiana*, to which such structure seems to be typical, besides a number of others, i. e. *C. squarrosa*, *atrata*, *alpina*, *Buxbaumii*, etc., even if exceptions be not infrequent.

It seems, also, to be a marked characteristic of the so-called "*Vigneastræ*" that most of the spikes or sometimes all of them are androgynous; but as we have already stated, we have not felt induced to maintain this section, since none of the species, which we have had an opportunity of examining, proved distinct from the *Carices genuinæ*. While some of these *Vigneastræ* possess a habit that is very distinct from other *Carices*, it is not difficult to see several and very important analogies in their morphological structure by which the distinction becomes very faint and hardly sufficient for the

segregation of these as a special group. The following points may be taken into consideration: Tuckerman, who established the group, mentions the decomposed spikes as being branched and androgynous, and the number of stigmata varying from two to three, and of the four sections enumerated by him, the writer has examined representatives of the *Indicæ*, the *Polystachyæ* and the *Graciles*, all of which have been accepted by Mr. Kükenthal (l. c.).

Of these the *Graciles* should include distigmatic species with mostly simple and single spikes; the *Polystachyæ*, on the other hand, should possess numerous spikes, from two to four together from each sheath, and with two or three stigmata, while in the *Indicæ* the spikes constitute a widely ramified inflorescence of which the secondary and tertiary axes are developed from perigynium-like organs, and the stigmata being constantly three. Among the *Graciles*, *C. brunnea* Thunbg. is a good type, and it is true that all the spikes are androgynous, and that the spikes are very often only one or two together on the same peduncle, and that the stigmata are but two. Nevertheless, this species can by no means be segregated from the *Carices genuinæ* on that account, but is barely referable to any of the *Vignæ*, since the spikes are cylindrical, borne on long and slender peduncles, besides that the structure of the perigynium is very different from that of any member of the *Vignæ*, being ellipsoid, much flattened, prominently striate, hairy on the nerves, and abruptly narrowed into a linear, bifid beak. It happens, however, that the perigynium is sometimes glabrous in Non-Indian examples, as stated by Mr. Clarke, but even such specimens would hardly be referable to the *Vignæ* either.

Of the second section, the *Polystachyæ*, *C. Jamesonii* Boott shows us a plant with very long and slender, cylindrical, androgynous spikes, borne on long peduncles and more or less branched from the base. These branches are subtended by narrow bracts, somewhat longer than the scales but otherwise not different from these, and they all proceed from an ochrea-like perigynium, but of which the flower is not developed; each secondary branch is thus merely the rhacheola extended, as is very frequently observed in a number of *Carices genuinæ*, even if it may be somewhat abnormal in these. Furthermore, in *C. Jamesonii* there are several peduncles developed from each leaf-sheath, making the inflorescence ample and rich-flowered, but otherwise the principal structure is well comparable with that of the inflorescence of the *Carices genuinæ*; we suggest the affinity of this species to be with the *Hymenochlænæ*.

Much more singular in structure and habit are the *Indicæ*, of which we might consider *C. cladostachya* Wahl. The

culms are branched in almost their whole length and from the numerous leaf-sheaths long peduncled, androgynous spikes proceed, of which the secondary ramifications are sessile and developed from perigynia without flowers. These empty perigynia correspond, as we have described before,* with the basal ochreæ, but differ from these by their function and structure. Their function is to spread the lateral spikes into an horizontal position, and this takes place by means of a swelling of the base of these small organs. In other words, they represent prophylla with purely mechanical function, as we remember so well from the similar, but much higher developed, sheath-like prophylla in the umbels of *Cyperus*. The minor inflorescences of *C. cladostachya* may look more like those of a *Vignea*, but the presence of the empty perigynia with their special function makes the species better comparable with some of the *Carices genuinæ*, in which similar rudimentary and basal perigynia have been observed. The *Indicæ* contain, thus, the most singular types of the *Vigneastræ*, but we have, nevertheless, failed to find a single point in their combined morphological structure by which their segregation from the others might be warranted. The almost constant presence of both sexes in each spike is of course noteworthy, but such androgynous inflorescences are, as we know, not uncommon among the other *Carices*. And we think that such cases where a species with normally gynæcandrous spikes appears as inseparable from others which are truly heterostachyous, that such cases may be considered more anomalous than when we place the *Vigneastræ* as members of the various "greges" of *Carices genuinæ*.

We refer to *C. Magellanica*, of which the lateral spikes are normally gynæcandrous; still no one would doubt its affinity to be with *C. limosa* and *rariflora*. And we might, also, recall the singular *C. stenolepis* in which the lateral spikes are constantly gynæcandrous besides, not infrequently, the terminal, and the affinity of this species seems, notwithstanding, to be with the *Spirostachyæ*, as suggested by Drejer (l. c.).

Some few "*Carices genuinæ*," for no author has as yet segregated them from these, deserve just as much the distinction of being enumerated as *Vigneastræ* as those mentioned by Tuckerman, Bailey and Kükenthal, and these are: the plio-stachyous *C. Willdenovii*, *Stuedelii*, *Backii*, *illegitima*, *Linkii* and *pedunculata* with all the spikes androgynous and in no wise to be distinguished from the *Vigneastræ*; † the only difference which we see lies in their smaller size. There is, on the other hand, a species which we have enumerated as a member of the *Carices genuinæ*, and which, according to our opin-

* This Journal, vol. ii, 1896, 214, and vol. x, 1900, p. 33.

† This Journal, vol. x, 1900, p. 33.

ion, represents the most peculiar type among these; this is *C. Fraseri*. By the structure of its leaf, being destitute of sheath, ligule and midrib in connection with the characteristic inflorescence and rhizome,* this species would be better separable from the other *Carices* than any of the most highly developed *Vigneastræ*.

Synopsis of the "greges."

I. VIGNEÆ.

Brachystachyæ nob.

Spikes several, short, few-flowered, sessile, remote or the upper ones contiguous, gynæcandrous or, but seldom, androgynous; the bracts often conspicuous, but very narrow; scales mostly hyaline; perigynia somewhat spreading, green or light brown, ovate, mostly sessile, plano-convex, nervose, glabrous or a little scabrous along the upper margins, sometimes spongy at the base, the beak short, obliquely cut or almost entire; stigmata two.

Centrales: *C. trisperma* Dew., *tenuiflora* Wahl., *loliacea* Schk., *macilentata* Fr., *canescens* L., *vitalis* Fr., *helvola* Bl., *Bonanzenensis* Britt.

Desciscentes: *C. microstachya* Ehrh., *tenella* Schk.

Neurochlænæ nob.

Spikes several, short but many-flowered, sessile, mostly contiguous, gynæcandrous or the lateral wholly pistillate; bracts inconspicuous; scales brownish; perigynia erect, brownish or dark green, often shortly stipitate, elliptical to oval or roundish, plano-convex, nervose, glabrous or scabrous above, the beak very prominent, at least in the central types, slit on the convex face, the orifice hyaline; stigmata two.

Hebetatæ: *C. nardina* Fr., *oreophila* Mey., *ursina* Dew.

Centrales: *C. glareosa* Wahl., *lagopina* Wahl., *Pribylovensis* Macoun, *cryptantha* Holm, *neurochlæna* sp. n., † *heleonastes* Ehrh., *norvegica* Willd.

Argyranthæ nob.

Spikes several, mostly short and loose-flowered, sessile, contiguous or the lower ones remote, gynæcandrous or the lateral wholly pistillate; bracts short and narrow; scales hyaline or light brown; perigynia erect, membranaceous, light green, stipitate, lanceolate, plano-convex, nervose, serrulate along the narrow margins, the beak long, bidentate; stigmata two.

Centrales: *C. Deweyana* Schw., *bromoides* Schk.

* This Journal, vol. iii, 1897, p. 121.

† The diagnoses of the new species will be published in a subsequent paper in this Journal.

Astrostachyæ nob.

Spikes several, short and few-flowered, sessile, remote, gynæcandrous or the lower ones purely pistillate; bracts short and narrow; scales brownish; perigynia spreading, brownish, sessile, cordate or ovate, plano-convex, nervose, spongy at the base, winged, tapering into a serrulate, bidentate beak; stigmata two.

Hebetatæ: *C. dioica* L., *paralela* Læst., *gynocrates* Wormskj., *Davalliana* Sm., *exilis* Dew.

Centrales: *C. stellulata* Good., *scirpoides* Schk., *sterilis* Willd., *interior* Bail., *albata* Boott, *nubigena* Don, *elongata* L., *læviculmis* Meish.

Desciscens: *C. remota* L.

Acanthophoræ nob.

Spikes several, mostly short, but often dense-flowered, sessile, contiguous or remote, androgynous; bracts often long, but narrow; scales brownish; perigynia somewhat spreading, brownish, mostly sessile, ovate and acuminate to suborbicular and abruptly beaked, plano-convex, faintly nerved or nerveless, spongy at the base, narrowly winged, the beak serrulate, bidentate; stigmata two.

Centrales: *C. rosea* Schk., *divulsa* Good., *sparganioides* Muehl., *Muehlenbergii* Schk., *glomerata* Thunbg., *cephaloidea* Dew., *muricata* L., *tejorhyncha* Mey., *Hookeriana* Dew., *occidentalis* Bail., *vagans* sp. n., *trachycarpa* Cheesem., *Hoodii* Boott, *gravida* Bail., *alopecoidea* Tuckerm., *conjuncta* Boott., *vulpina* L., *phaeolepis* sp. n., *chrysoleuca* sp. n., *vitrea* sp. n.

Desciscentes: *C. cephalophora* Muehl., *vulpinoidea* Michx., *vicaria* Bail., *Maackii* Maxim., *gibba* Wahl.

Stenorhynchæ nob.

Spikes several in a dense-flowered, decompound panicle or head, sessile, contiguous, androgynous; bracts conspicuous, but usually narrow; scales green or light brown; perigynia spreading, light brown or greenish, stipitate, ovate, tapering into a very long, bidentate beak, plano-convex, nervose, the narrow margins serrulate; stigmata two.

Centrales: *C. crus corvi* Shuttlew., *stipata* Muehl.

Sychnocephalæ nob.

Spikes numerous in a dense-flowered head, sessile, gynæcandrous; bracts very long, leaf-like; scales green or light brown; perigynia erect, linear-lanceolate, acuminate, light green, stipitate, compressed, few-nerved, wingless, the beak very long, serrulate, bidentate; stigmata two.

Centrales: *C. cyperoides* L., *sychnocephala* Carey.

Xerochlaena nob.

Spikes many, rather large, in a dense-flowered, spicate inflorescence, sessile, mostly contiguous, androgynous; bracts often conspicuous, setiform; scales brownish; perigynia mostly erect, seldom spreading, brown, stipitate or sessile, broadly ovate to orbicular, plano-convex, nervose, more or less winged, serrulate, tapering into a distinct, bidentate beak; stigmata two, seldom three. Some species show tendency of becoming diœcious.

Centrales: *C. divisa* Huds., *marcida* Boott, *Sartwelli* Dew., *disticha* Huds., *repens* Bell., *arenaria* L., *arenicola* Fr. et Sav., *Kirkii* Petrie, *potosina* Hemsl., *Schreberi* Schr., *brizoides* L.
Desciscentes: *C. inversa* R. Br., *resectans* Cheesem., *Douglasii* Boott, *macrocephala* Willd.

Psyllophora Lois. ex p.

Spike single, brownish to light green, androgynous, lax and few-flowered, the pistillate portion squarrose at maturity; scales oblong, acuminate, those of the pistillate flowers deciduous; perigynium shining brown to greenish, erect, but reflexed at maturity, membranaceous, elliptical, shortly stipitate, obsoletely two-nerved, glabrous, tapering into a beak with hyaline, obliquely cut orifice; stigmata two.

Hebetatæ: *C. pulcaris* L., *macrostylon* Lapeyr., *sagittifera* Lowe.

Phænocarpæ nob.

Spikes numerous, small, in a dense-flowered panicle or spicate inflorescence, sessile, contiguous, androgynous; bracts short, filiform; scales brownish; perigynia erect or somewhat spreading, ovate to orbicular, shining brown, spongy at base, plano-convex, nervose, with thin margins and a serrulate, bidentate beak; stigmata two.

Centrales: *C. paradoxa* Willd., *teretiusecula* Good., *paniculata* L., *appressa* R. Br., *virgata* Soland., *decomposita* Muehl.

Athrostachya nob.

Spikes several in a dense-flowered head, or the lower ones somewhat remote, sessile, gynœcandrous; bracts seldom conspicuous; scales brownish; perigynia erect, lanceolate to ovate or suborbicular, brown, plano-convex, nervose, more or less broadly winged with a long, serrulate, obliquely cut or bidentate beak; stigmata two.

Centrales: *C. tribuloides* Wahl., *Crawfordii* Fern., *scoparia* Schk., *Muskingumensis* Schw., *leporina* L., *athrostachya* Olney, *festiva* Dew., *petasata* Dew., *pinetorum* Liebm., *siccata* Dew.; *pratensis* Drej., *adusta* Boott, *kaloides* Petrie, *viridis* Petrie, *œnea* Fern., *Liddonii* Boott.

Desciscentes: *C. Bonplandii* Kth.*

* = *illota* Bailey.

Pterocarpæ nob.

Spikes several, large, heavy and dense-flowered, contiguous or the lower ones remote, sessile, gynæcandrous; bracts inconspicuous; scales light brown or green; perigynia erect or slightly spreading, ovate to orbicular, light brown or greenish, compressed, nervose, broadly winged with a prominent, serrulate, bidentate beak; stigmata two.

Centrales: *C. cristata* Schw., *albolutescens* Schw., *mirabilis* Dew., *alata* Torr., *straminea* Willd., *straminiformis* Bail., *tenera* Dew., *Bicknellii* Britt., *silicea* Olney, *festucacea* Schk.
Desciscentes: *C. Bebbii* Olney, *foenea* Schk., *planata* Fr. et Sav., *neurocarpa* Maxim.

Microcephalæ nob.

Spike single, shining brown, very small, roundish to oval, dense-flowered, androgynous; scales broadly ovate, brown with hyaline margins; perigynia greenish, spreading at maturity, membranaceous, broadly ovate, sessile, nerveless, glabrous, tapering into a straight beak with hyaline orifice, slit on the convex face; stigmata two.

Hebetata: *C. capitata* L.

Cephalostachyæ nob.

Spikes several, reddish brown, androgynous, dense-flowered, sessile in a roundish or oblong head; bracts mostly inconspicuous, scales ovate to lanceolate, acute; perigynia shining brown, plano-convex, elliptical to ovate, sometimes turgid, stipitate to sessile, prominently many-nerved, scabrous along the beak, the orifice of which is bidentate or merely slit on the convex face; stigmata two.

Centrales: *C. foetida* All., *Colensoi* Boott, *stenophylla* Wahl., *chordorrhiza* Ehrh.

Sphærostachyæ nob.

Spikes several, androgynous, dense-flowered, sessile in a roundish head; bracts inconspicuous; scales broadly ovate, acute, shining brown with hyaline margins; perigynia yellowish, becoming fuscous at maturity, membranaceous, ovate, turgid, distinctly stipitate and diverging, nerveless or nearly so, glabrous or minutely scabrous along the prominent beak with obliquely cut orifice; stigmata two.

Centrales: *C. incurva* Lightf., *duriuscula* Mey.

II. CARICES GENUINÆ.

Melananthæ Drej.

Spikes several, dense-flowered, peduncled, but mostly contiguous, gynæcandrous, or the terminal staminate and the

lateral pistillate; bracts conspicuous, sheathless; scales mostly dark; perigynia erect, often purplish spotted or black, elliptical, sessile, somewhat compressed, few-nerved, minutely granular and, sometimes, scabrous along the upper margins, the beak short, entire or emarginate; stigmata three.

Hebetatæ: *C. alpina* Sw., *melanantha* Mey., *melanocephala* Turcz.

Centrales: *C. atrata* L., *ovata* Rudge, *aterrima* Hppe., *bella* Bail., *nigra* All., *chalciolepis* Holm, *nivalis* Boott, *obscura* Nees, *Mertensii* Presc., *Parryana* Dew., *stylosa* Mey., *accedens* nob.,* *Raynoldsii* Dew., *holostoma* Drej., *Buxbaumii* Wahl., *bifida* Boott, *quadrifida* Bail., *Gmelini* Hook.

Desciscentes: *C. ustulata* Wahl., *venustula* sp. n., *Montanensis* Bail., *microchaeta* sp. n., *Tolmiei* Boott, *nigella* Boott, *specabilis* Dew.†

Microrhynchæ Drej.

Spikes several, often dense-flowered, sessile or short-peduncled, contiguous or, sometimes, remote, the terminal staminate, the lateral pistillate or the uppermost staminate or androgynous; bracts foliaceous, sheathless; scales mostly dark and obtuse; perigynia erect, mostly light green, roundish to elliptical, often stipitate, compressed, more or less prominently nerved, granular and often scabrous along the upper margins, the beak short, entire to emarginate; stigmata two.

Hebetatæ: *C. rufina* Drej.

Centrales: *C. stricta* Good., *angustata* Boott, *rhomboidea* Holm, *prionophylla* Holm, *cæspitosa* L., *lugens* Holm, *Yukonensis* Britt., *Hindsii* Clarke, *decidua* Boott, *vulgaris* Fr., *Thunbergii* Steud., *gymnoclada* Holm, *tricostata* Fr., *turfosa* Fr., *limula* Fr., *anguillata* Drej., *Groenlandica* Lge., *rigida* Good., *Fyllæ* Holm, *hyperborea* Drej., *Warmingii* Holm, *chimaphila* Holm, *stans* Drej., *aquatilis* Wahl., *sphacelata* sp. n., *chionophila* sp. n., *nudata* Boott, *consimilis* sp. n., *cyclocarpa* sp. n., *interrupta* Beklr., *acutina* Bail., *limnocharis* sp. n., *variabilis* Bail., *lenticularis* Michx., *torta* Boott, *acuta* L., *prolixa* Fr., *Bueckii* Wimm., *Sitchensis* Presc., † *Nebrascensis* Dew., *pulchella* nob., § *notha* Kth., *laciniata* Boott.

Desciscentes: *C. scopulorum* Holm, *orbicularis* Boott.

Æorastachyæ Drej.

Spikes several, long and dense-flowered, long-peduncled, more or less drooping, remote, the terminal and uppermost lateral staminate, the others pistillate; bracts foliaceous and often very long, sheathless; scales mostly dark, acuminate to

* = *spretta* Bailey non Steudel.

† = *invisa* Bailey.

‡ = *Howellii* Bailey.

§ = *Hallii* Bailey non Boott.

aristate and longer than the perigynia; perigynia erect, mostly light green, oval to roundish, sessile, more or less turgid, faintly nerved, often granular, sometimes minutely scabrous along the upper margins, the beak short, entire to emarginate; stigmata mostly three.

Centrales: *C. subspathacea* Wormskj., *salina* Wahl., *hæmatolepis* Drej., *halophila* Nyl., *Drejeriana* Lge., *cryptocarpa* Mey., *capillipes* Drej., *Lyngbyei* Hornem., *macrochaeta* Mey., *nesophila* sp. n., *scita* Maxim., *ternaria* Forst., *phacota* Sprgl., *prælonga* C. B. Clarke, *aperta* Boott,* *crinita* Lam., *gynandra* Schw., *maritima* L., *glaucescens* Ell., *pruinosa* Boott, *picta* Boott, *Kiotoensis* Fr. et Sav., *incisa* Boott, *Schottii* Dew.,† *magnifica* Dew., *lacunarum* sp. n., *Magellanica* Lam., *limosa* L., *laxa* Wahl., *rariflora* Sm., *stygia* Fr., *littoralis* Schw.

Cenchracarpe nob.

Spikes several, loose-flowered, peduncled, but erect, mostly remote, the terminal staminate, the lateral pistillate; bracts foliaceous, sheathing; scales dark or greenish, obtuse; perigynia erect, glaucous, oval to elliptical, nearly sessile, trigonous, turgid, more or less distinctly nerved, glabrous, the beak mostly short with entire or obliquely cut orifice; stigmata three.

Hæbetatæ: *C. bicolor* All., *aurea* Nutt.

Centrales: *C. intermedia* Miq., *panicca* L., *livida* Willd., *Californica* Bail., *sparsiflora* Wahl., *tetanica* Schk., *Meadii* Dew., *Crawii* Dew., *vaginata* Tausch.,† *polymorpha* Muehl.

Desciscentes: *C. granularis* Muehl., *pallescens* L., *Torreyi* Tuckm., *rigens* Boott.

Lejochlænce nob.

Spikes several, lax and few-flowered, peduncled, erect or somewhat drooping, remote, the terminal staminate, the lateral pistillate; bracts foliaceous, sheathing; scales hyaline, mucronate; perigynia erect, pale green, often glaucous, elliptical, stipitate, trigonous and turgid, many-nerved, glabrous, the beak distinct and often curved, the orifice oblique; stigmata three.

Hæbetatæ: *C. polytrichoides* Muehl., *Geyeri* Boott, *multicaulis* Bail., *ambigua* Link.

Centrales: *C. digitalis* Willd., *plantaginea* Lam., *Careyana* Torr., *laxiflora* Lam., *Hendersonii* Bail., *platyphylla* Carey, *Hitchcockiana* Dew., *olbiensis* Jord., *laciculmis* Schw., *ptychocarpa* Steud., *siderosticta* Hance.

Desciscentes: *C. grisea* Wahl., *oligocarpa* Schk., *conoidea* Schk., *glaucodea* Tuckm.

* = *turgidula* Bailey. † = *obnupta* Bailey. ‡ = *Saltuensis* Bailey.

Dactylostachyæ Drej.

Spikes several, lax and few-flowered, peduncled, erect or somewhat drooping, contiguous, seldom remote, the terminal staminate, the lateral pistillate; bracts sheathing, but often bladeless; scales reddish brown, obtuse; perigynia erect, dark green, elliptical, trigonous, stipitate, nervose, pubescent, the beak short, straight with oblique orifice; stigmata three.

Hebetatæ: *C. grillatoria* Maxim., *heteroclita* Fr. et Sav., *humilis* Leyss.

Centrales: *C. digitata* L., *ornithopoda* Willd., *ornithopodioides* Hsm., *concinna* R. Br., *amphora* Fr. et Sav., *Brenneri* Christ., *pediformis* Mey., *lanceolata* Boott, *Richardsonii* R. Br., *conica* Boott, *pedunculata* Muehl., *Hulleriana* Asso, *Boottiana* Benth., *Baltzellii* Chapm., *Linkii* Schk., *illegitima* Cesati, *cryptostachys* Brongt.

Desciscens: *C. triquetra* Boott.

Trachychlænæ Drej.

Spikes several, cylindrical, dense-flowered, peduncled and nodding, remote or the upper ones contiguous, the terminal staminate, the lateral androgynous or wholly pistillate; bracts foliaceous with very short sheaths; scales dark, acute; perigynia somewhat spreading at maturity, purplish spotted, ovate to subglobose, sessile, faintly nerved, minutely hairy or scabrous, the beak short, emarginate to subbidentate; stigmata mostly three.

Centrales: *C. glauca* Scop, *virescens* Muehl., *triceps* Michx., *trinervis* Degl., *hispida* Schk., *setigera* Don.

Desciscens: *C. spissa* Bail.

Microcarpæ Kuekthl.

Spikes several, cylindrical and often very long, more or less dense-flowered, peduncled, nodding, remote or the upper ones contiguous, the terminal staminate, the lateral pistillate or, sometimes, the upper ones androgynous; bracts foliaceous with long sheaths: scales hyaline to light green or brown, acute; perigynia often small to the size of the plants, somewhat spreading at maturity, light green, elliptical, trigonous and sometimes turgid, sessile, nervose, glabrous, the beak short with the orifice entire, oblique; stigmata three.

Centrales: *C. microcarpa* Bertol., *Mendocinensis* Olney, *strigosa* Huds., *gracillima* Schw., *maxima* Scop.

Desciscentes: *C. oxylepis* Torr. et Hook., *Davisii* Schw. et Torr., *formosa* Dew.

Athrochlænæ nob.

Spike single, androgynous, dense-flowered, the pistillate portion squarrose at maturity: scales lanceolate or oblong, obtuse, deciduous; perigynia shining brown, erect, but reflexed at

maturity, membranaceous, fusiform or ovate, prominently stipitate, nerveless, glabrous, tapering into a long beak with the orifice hyaline and obliquely cut; stigmata mostly three.

Hebetatæ: *C. pyrenaica* Wahl., *nigricans* Mey.

Stenocarpæ nob.

Spikes several, slender and not very dense-flowered, borne on long peduncles, often drooping, remote or the upper ones contiguous, the terminal and, sometimes, the uppermost lateral staminate, the others pistillate; bracts mostly filiform and short, sheathing; scales purplish or brown, acuminate; perigynia purplish, slightly spreading, membranaceous, attenuated at both ends, triquetrous, faintly few-nerved, glabrous or a little scabrous above, the beak prominent, bidentate with erect teeth or obliquely cut, often hyaline; stigmata three.

Hebetatæ: *C. lejocarpa* Mey., *circinata* Mey., *hakkodensis* Franch., *mucronata* All., *curvula* All.

Centrales: *C. sempervirens* Vill., *frigida* All., *ferruginea* Scop., *tristis* M. Bieb., *luzulæfolia* W. Boott, *luzulina* Olney, *ablata* Bail., *firma* Host., *hirtella* Drej., *hispidula* Gaud., *gynodynama* Olney, *tenax* Reut., *setosa* Boott, *juncea* Willd., *psychrophila* Nees, *petricosa* Dew., *stenantha* Fr. et Sav.

Desciscentes: *C. tenuis* Host, *misandra* R. Br., *cruenta* Nees, *longicruris* Nees.

Podogynæ nob.

Spikes several, the terminal and, sometimes, the uppermost lateral (1 or 2) staminate, clavate, long-peduncled, the others pistillate, very robust, dense-flowered, globose to ovoid or cylindrical, long-peduncled, drooping, contiguous or somewhat remote; bracts foliaceous, narrow, sheathless; scales purplish black, lanceolate, acuminate to emarginate, often aristate; perigynia light green, purplish above, spreading on very long, ciliate stipes, membranaceous, lanceolate, compressed, two-nerved, ciliate, the beak prominent, bidentate; stigmata two.

Centralis: *C. podogyna* Fr. et Sav.

Lamprochloenæ Drej.

Spikes several, short and few-flowered, sessile or peduncled, erect, contiguous, the terminal staminate, the lateral pistillate; bracts narrow, sheathing; scales brownish, broad, mucronate, the margins hyaline; perigynia shining brown, erect, ovate or elliptical to almost orbicular, somewhat turgid, trigonous, sessile, faintly nerved, glabrous to minutely scabrous, the beak short with hyaline, oblique orifice; stigmata three.

Hebetatæ: *C. rupestris* All., *obtusata* Liljeb.

Centrales: *C. obesa* All., *nitida* Host, *pedata* Wahl., *eburnea* Boott, *alba* Scop., *villosa* Boott, *pilosa* Scop., *depauperata* Good.

Chionanthæ nob.

Spikes several, snow-white, androgynous, the staminate portion dense-flowered, the pistillate few-flowered, almost sessile in a roundish or oval head; bracts foliaceous with long and green blades; scales white, ovate, acute or obtuse; perigynia white with a few minute, purplish streaks and spots above, oblong, trigonous, sessile, two-nerved, glabrous, somewhat inflated, the beak very short, entire, but erosely denticulate around the orifice; stigmata three; rhacheola not developed.

Centralis: *C. Baldensis* L.

Leucocephalæ nob.

Spike single, snow-white, androgynous, dense-flowered; scales of staminate flowers elliptical, those of the pistillate broad and obtuse to emarginate, all white; perigynia somewhat spreading, membranaceous, whitish, elliptical, sessile, faintly nerved, glabrous, the beak very short, obliquely cut; stigmata three; rhacheola well-developed; leaves destitute of sheath, ligule and midrib.

Centralis: *C. Fraseri* Andrews.

Elymanthæ nob.

Spike single, androgynous, the pistillate portion few-flowered; scales brown, very broad, amplexant; perigynia membranaceous, whitish to brown, erect, oval to obovoid, obtusely triangular in cross-section, sessile, faintly two-nerved, pubescent above, the beak short, but distinct, with hyaline entire or obliquely cut orifice; stigmata three.

Hebetatæ: *C. filifolia* Nutt., *elynoïdes* Holm.

Sphæridiophoræ Drej.

Spikes several, the terminal staminate, clavate, the lateral pistillate and roundish, few-flowered, sessile or the lowest one peduncled, erect, contiguous to remote; bracts foliaceous, narrow, sheathless; scales brownish or purplish, acuminate, often mucronate; perigynia dark green, slightly spreading, elliptical to obovate or globose, trigonous, sessile or shortly stipitate, obscurely nerved, more or less pubescent, the beak short, emarginate to bidentate with the teeth erect; stigmata three.

Hebetatæ: *C. scirpoïdea* Michx.

Centrales: *C. ericetorum* Poll., *membranacea* Poll., *polyrrhiza* Wallr., *præcox* Jacq., *montana* L., *Moorcroftii* Boott, *varia* Muehl., *communis* Bail., *pilulifera* L., *breviculmis* R. Br., *deflexa* Hornem., *Rossii* Boott, *pennsylvanica* Lam., *verecundula* nob., * *turbinata* Liebm., *Floridana* Schw., *leucodonta* nob.†

* = *inops* Bail. non Kunze.

† = *rigens* Bailey non Boott.

Desciscentes: *C. tomentosa* L., *globularis* L., *Chapmanii* Sartw., *dasycarpa* Muehl., *Whitneyi* Olney, *pubescens* Michx., *Coulteri* Boott, *pisiformis* Boott.

Trichocarpæ nob.

Spikes several, cylindrical and more or less robust, dense-flowered, sessile or the lowest ones peduncled, but erect, remote, the terminal and uppermost lateral staminate, the others pistillate; bracts foliaceous, often very long, sheathing; scales purplish or brown, mucronate to aristate; perigynia brownish or dark green, erect, ovate to ovate-lanceolate or elliptical, more or less turgid, sessile, nervose, more or less pubescent, prominently beaked, the beak bidentate with spreading teeth; stigmata three.

Centrales: *C. vestita* Willd., *Yosemitana* Bail., *hirtissima* W. Boott, *Oregonensis* Olney, *hirta* L., *filiformis* L., *lanuginosa* Michx., *evoluta* Hartm., *Houghtonii* Torr., *trichocarpa* Muehl., *aristata* R. Br., *striata* Michx., *Pierotii* Miq., *pumila* Thunbg., *Wahuensis* Mey., *psilocarpa* Steud.

Desciscentes: *C. nutans* Host, *paludosa* Good., *riparia* Curt., *subdola* Boott, *trifida* Cavan., *Songorica* Karel. et Kir., *baccans* Nees, *Myosurus* Nees, *composita* Boott, *brunnea* Thunbg.

Echinochlænæ nob.

Spikes several, cylindrical, dense-flowered, sessile and erect, remote, the terminal staminate or sometimes andro- to gynæcandrous, the lateral pistillate, often with a few staminate flowers at the base or apex; bracts foliaceous and often very long, sheathing; scales light purplish to brown, mucronate to aristate; perigynia shining reddish brown, seldom grayish, erect, elliptical to oval, plano-convex or trigonous, sessile, nerved, the beak short, bidentate and prominently spinulose; stigmata two or three.

Centrales: *C. lucida* Boott, *Lambertiana* Boott, *Buchanani* Berggr., *Wakatipu* Petrie, *dipsacea* Berggr., *dissita* Sol., *uncifolia* Cheesem., *Petriei* Cheesem., *testacea* Sol., *Neesiana* Endl.

Desciscentes: *C. decurtata* Cheesem., *Raoulii* Boott., *comans* Berggr., *cirrrosa* Berggr.

Hymenochlænæ Drej.

Spikes several, cylindrical, slender and not very dense-flowered, peduncled and drooping, remote, the terminal staminate, the lateral pistillate; bracts foliaceous, the lowest sheathing; scales hyaline with green, excurrent midrib; perigynia light green, erect to slightly spreading, membranaceous, oval to ellip-

tical, turgid and trigonous, stipitate, faintly nerved or nerveless, scabrous along the prominent, bifid or bidentate beak with hyaline orifice; stigmata three.

Hebetata: *C. rhizopoda* Maxim., *Stuedelii* Kth., *Willdenowii* Schk., *Backii* Boott, *macroglossa* Fr. et Sav., *filipes* Fr. et Sav. *parciflora* Boott, *longerostrata* Mey.

Centrales: *C. arctata* Boott, *vacillans* Sol., *debilis* Michx., *silvatica* Huds., *elata* Lowe, *Cherokeensis* Schw., *Arnellii* Christ, *transversa* Boott, *curvicollis* Fr. et Sav., *anisostachys* Liebm., *longirostris* Torr., *Turczaninowiana* Meinsh., *flexilis* Rudge, *capillaris* L., *Krausei* Beckl., *Williamsii* Britt.

Desciscentes: *C. Assiniboinesis* W. Boott, *prasina* Wahl., *Chinensis* Retz., *scabrata* Schw., *confertiflora* Boott, *dispalatha* Boott, *olivacea* Boott, *amplifolia* Boott, *speciosa* Kth., *Jamesonii* Boott.

Spirostachyæ Drej.

Spikes several, cylindrical, but rather short, dense-flowered, peduncled, but mostly erect, remote, the terminal staminate, the lateral pistillate; bracts foliaceous, sheathing; scales brownish, acuminate; perigynia mostly greenish, more or less spreading at maturity, oval to elliptical, somewhat turgid, sessile, nervose, glabrous or scabrous along the beak, which is quite long and bifid; stigmata three.

Centrales: *C. Hornschuchiana* Hppe., *dihuta* M. Bieb., *punctata* Gaud., *distans* L., *binervis* Sm., *lævigata* Sm., *Camposii* Boiss. et Reut., *Lemmonii* W. Boott, *extensa* Good., *Mairii* Coss. et Germ., *aphanolepis* Fr. et Sav., *trichostyles* Fr. et Sav., *Ringgoldiana* Boott, *Michelii* Host, *brevicollis* D. C., *flava* L., *Oederi* Retz., *viridula* Michx., *Morrowii* Boott.

Desciscentes: *C. squarrosa* L., *typhina* Michx., *stenolepis* Torr.

Echinostachyæ Drej.

Spikes several, cylindrical, robust and dense-flowered, the terminal staminate often gynæcandrous, the lateral pistillate, peduncled and drooping, contiguous, squarrose at maturity; bracts foliaceous and very long, the lowest one sheathing; scales lanceolate, light brown or greenish, mucronate to aristate; perigynia greenish, reflexed at maturity, membranaceous, ovate to elliptical-ovate, somewhat inflated, trigonous, stipitate, prominently nerved, glabrous, the beak distinct, bidentate; stigmata three.

Hebetata: *C. microglochis* Wahl., *pauciflora* Lightf.

Centrales: *C. subulata* Michx., *Pseudocyperus* L., *Forsteri* Wahl., *alopeuroides* Don, *Doniana* Sprgl., *fascicularis* Sol., *Schweinitzii* Dew., *hystricina* Muehl., *retroscia* Schw.

Physocarpæ Drej.

Spikes several, cylindrical, sessile or the lowermost peduncled, erect, remote, the terminal and, sometimes, the uppermost lateral staminate, the others pistillate; bracts foliaceous, but mostly narrow, sheathless; scales lanceolate, acuminate, brownish or purple; perigynia shining, light green to dark purplish, almost black, spreading, but not reflexed, membranaceous, globular to oblong-elliptical, membranaceous, inflated, sessile, nervose, glabrous, the beak short, bidentate to merely emarginate; stigmata three, seldom two.

Hebetatæ: *C. Engelmannii* Bail.

Centrales: *C. ambusta* Boott, *oligosperma* Michx., *miliaris* Michx., *ampullacea* Good., *lævirostris* Fr., *rotundata* Wahl., *utriculata* Boott, *physocarpa* Presl., *physochlæna* sp. n., *vesicaria* L., *pulla* Good., *Olneyi* Boott, *mirata* Dew., * *compacta* R. Br.

Physocephalæ Bail. ex p.

Spike single, oval to globose, androgynous; scales lanceolate, reddish brown with broad hyaline margins; perigynia reddish brown, spreading, membranaceous, much inflated, sessile, faintly nerved, glabrous, the beak short with hyaline, obliquely cut orifice; stigmata three.

Hebetatæ: *C. Breweri* Boott.

Rhynchophoræ nob.

Spikes several, cylindrical, very robust and dense-flowered, sessile or short peduncled, mostly erect, contiguous, the terminal staminate, the others pistillate or, sometimes, the uppermost lateral staminate; bracts foliaceous and very long, the lowermost with a short sheath; scales pale, lanceolate, aristate or mucronate; perigynia greenish, erect or ascending, membranaceous, ovate, much inflated, stipitate, strongly nerved, glabrous or scabrous along the very prominent beak, which is sharply bidentate; stigmata three.

Hebetatæ: *C. uda* Maxim., *Michauxiana* Bckl., *folliculata* L.

Centrales: *C. intumescens* Rudge, *Grayii* Carey, *Idzuroei* Fr. et Sav., *monile* Tuckm., *Halei* Carey, *bullata* Schk., *Tuckermanni* Boott, *lupulina* Muehl., *gigantea* Rudge, *virida* Wahl., *Dickinsii* Fr. et Sav.

Desciscens: *C. rhynchophysa* Mey.

Brookland, D. C., Aug., 1903.

* = *exsiccata* Bailey.