

CYPER.

Bulbostylis barbata

Spikelets variously paniculate, with 1 to 3 hermaphrodite flowers but usually the lowest alone fertile. Glumes few, imbricate all round, 1 to 3 or very rarely 4 outer ones empty, and usually a small one above the perfect flower, either empty or with an imperfect flower, the flowering glume not shorter than the outer empty ones. No hypogynous bristles. Stamens 3 or rarely fewer. Style deciduous, sometimes dilated at the base but continuous with the ovary; stigmatic branches 3, rarely 2, filiform. Nut ovoid or oblong, terete or obtusely triquetrous, smooth but rarely shining, crowned by the adnate base of the style often undistinguishable except by a slight discoloration; endocarp usually hard, exocarp either thin or more or less thickened and corky especially at the apex.—Perennials, with horizontal or creeping rhizomes. Stems sometimes tall and leafy throughout or at the base only, sometimes rushlike with all the leaves reduced to sheathing scales. Leaves, either terete, and continuous or marked with transverse septa, or vertically flattened, very rarely with the involute margins of *Gahnia*.

The genus in its typical form extends over the tropical and temperate regions of both the New and the Old World, but consists of but two or at most three species

amongst which the Australian one is common over a great part of the generic area; but the more numerous section *Baumea* is probably limited to the Old World and is chiefly Australasian. Of the 15 Australian species five are also in New Zealand and one or two of these extend to some of the Pacific islands, the other ten appear all to be endemic.

SECT. I. **Eucladium**.—Panicles densely corymbose. Outer empty glumes about 4. Flowers 2, 1 or rarely both fertile, and usually no terminal empty glume.

Stems tall, leafy throughout. Leaves flat 1. *C. mariscus*.

SECT. II. **Baumea**.—Panicles loose or thyrsoid or narrow. Outer empty glumes 1 to 3, and usually a small terminal glume either empty or with a rudimentary flower. Leaves chiefly at the base of the stem or none.

Spikelets 2- or 3-flowered (flowers all apparently perfect but only one fertile).

Leaves 6 ft. (flat?). Panicle broad, loose, with very numerous spikelets 2. *C. insulare*.

Leaves terete, transversely septate. Panicle very large, somewhat drooping. Spikelets very numerous but not clustered. Glumes not ciliate 3. *C. articulatum*.

Leaves terete, septate. Panicle erect, rigid. Spikelets scarcely clustered. Glumes ciliate 4. *C. arthrophyllum*.

Leaves terete, continuous or obscurely septate. Panicle erect, rigid. Spikelets densely clustered. Glumes ciliate 5. *C. glomeratum*.

Leaves vertically flattened. Stems much flattened. Glumes not ciliate. Western species.

Stems 3 to 4 ft. Leaves broad. Panicle often 1 ft. long 6. *C. Preissii*.

Stems 1 to 2 ft. Leaves narrow. Panicle 2 to 4 in. 7. *C. laxum*.

Spikelets 1-flowered.

Panicles thyrsoid or loosely branched, erect. Leaves few long and erect. Spikelets numerous.

Leaves biconvex, 2 to 3 lines broad. Panicle long and loose 8. *C. riparium*.

Leaves terete, about 1 line broad. Panicle thyrsoid 9. *C. teretifolium*.

Leaves angular or flat with a prominent midrib, 1 to 2 lines broad. Panicle thyrsoid 10. *C. tetraquetrum*.

Panicle narrow, almost spikelike or with few erect branches. Spikelets few. Nut smooth and shining.

Leaves vertically flattened but narrow. Stem under 1 ft. 11. *C. schanoides*.

Stems leafless except short points to the sheaths, usually above 1 ft. high, rarely intermixed with a few radical stemlike leaves.

Flowering glume spreading, twice as long as the nut 12. *C. Gunnii*.

Flowering glume appressed, about as long as the nut.

Stems slender, 1 to 2 ft. high 13. *C. junceum*.

Stems stout, 3 ft. high or more 14. *C. vaginae*.

Leaves erect, terete, acute. Stem $\frac{3}{4}$ to 1 $\frac{1}{2}$ feet 15. *C. elynanthoides*.

Spikelets densely crowded in the axils of leafy bracts, forming a long narrow almost spikelike panicle.

Leaves and bracts with involute margins and long subulate points. Nut narrow triquetrous 16. *C. flum.*

CYPER.

Cladium procerum

CYPER.

Crosslandia setifolia

Spikelets with several often numerous flowers rarely reduced to 3, 2, or 1, all hermaphrodite or the terminal flower rarely male. Glumes distichous, concave or navicular and keeled, all nearly equal and flowering except the lowest 2 or 1 usually smaller and empty. No hypogynous scales or bristles. Stamens 3 or fewer. Style continuous with the ovary, not thickened at the base, deciduous, deeply or shortly divided into 2 or 3 filiform stigmatic branches or rarely almost or quite entire. Nut sessile, without any hypogynous disk, flattened biconvex or triquetrous, smooth or (frequently in the same species) minutely granular.—Perennials either tufted or forming horizontal or creeping rhizomes, rarely annuals. Stems simple under the inflorescence, Leaves few at the base of the stem or rarely covering it half way up with their sheaths, long or short or sometimes all reduced to the sheaths, of which the lower ones are scale-like covering the rhizome or leaving annular scars when they fall away. Spikelets in clusters heads or spikes, very rarely solitary at the ends of the rays or branches of a simple or compound irregular umbel, sometimes occupying the whole of the secondary rays, the central clusters or spikes always sessile in the centre of the umbel, the rays very unequal and sometimes the whole inflorescence contracted into a dense sessile compound cluster or head of spikelets, the general rhachis of the inflorescence rarely shortly produced, showing an interval between each ray. Under each ray is a persistent bract, one, two or more of the outer ones usually long and leaf-like forming an involucre round the inflorescence, the inner bracts and those which subtend the secondary rays and the spikelets usually small and scale-like, those under the spikelets rarely entirely wanting.

A very large and widely spread genus, second in the Order to *Carex* only in point of numbers, but much more prevalent than that genus in the tropical and subtropical regions both of the New and the Old World where it is everywhere abundant. It is represented also by a few species in more temperate regions, but quite disappears in the extreme north and south as well as on Alpine heights. Of the 64 Australian species only 30 are believed to be endemic or have not yet been identified out of the territory. Of the remaining 34, one is only known out of Australia in New Caledonia, 1 in Norfolk Island, 1 in New Zealand and South Africa, 1 in Africa, 9 are tropical Asiatic species which have not been ascertained to extend further, 10 are generally spread over the tropical regions of the Old World, 11 more tropical species common in the Old World are also in America, and, amongst those set down here as endemic in Australia or peculiar to the Old World, there are a few which are represented in America by closely allied if not absolutely identical species.

The genus differs from those groups of *Scirpus* which having no hypogynous bristles formed Brown's genus *Isolepis*, solely in the distichous arrangement of the glumes, and this character is not constant in *Cyperus pygmaeus*, whilst in *Scirpus cyperoides* the glumes are often very nearly distichous. From *Schaenus* it is generally distinguished by the habit and inflorescence, the flowers more numerous in the spikelets, the flowering glumes more regularly distichous and the straighter rhachis of the spikelet, but none of these characters are absolutely constant. A few exceptional intermediates occur among the species of both genera.

SECT. I. *Pycreus*. Spikelets flat with navicular keeled glumes. Style usually 2-cleft. Nut more or less flattened, with one edge next the rhachis.

Nut ovate or obovate, not exceeding half the length of the glume.

Dwarf tufted annual. Spikelets in loose clusters in an umbel of 3 to 6 rays. Keel of the glumes produced into a straight or recurved point, the sides nerveless

1. *C. pumilus*.

Perennial mostly under 1 ft. Spikelets 1 to 1½ lines broad, in a single loose cluster or rarely 1 or 2 short umbel-rays. Glumes broad, obtuse, the sides dark or with a dark patch

2. *C. eragrostis*.

Annual or perennial much under 1 ft. Spikelets 1 to 1½ lines broad, few in the clusters in an umbel of few rays or all in one cluster. Glumes broad, obtuse, very pale or yellowish green

3. *C. flavescens*.

Perennial, mostly under 1 ft. Spikelets narrow, in heads or clusters all sessile or in an umbel of few rays. Glumes rather narrow, almost acute, the sides of a pale brown

4. *C. globosus*.

Perennial, 1 to 2 ft. Spikelets 2 lines broad, the clusters in an umbel of few rays. Glumes broad, rather acute, shining green or yellowish

5. *C. unioloides*.

Nut oblong, not exceeding half the length of the glume.

Spikelets narrow, very numerous, in a dense sessile compound cluster, rarely with 2 or 3 elongated umbel-rays

6. *C. polystachyus*.

Nut broad, almost as long as the glume. Tall perennial.

Spikelets loosely spicate and distichous along the rays of a large compound umbel

7. *C. flavicomus*.

SECT. II. *Juncellus*. Spikelets flattened but usually thick. Style 2-cleft or rarely 3-cleft. Nut ovate or broad, with a flat or concave face next the axis, the back convex or with a raised central angle.

Spikelets very numerous and closely packed in a small compound head with an involucre of long leafy bracts.

Dwarf annual. Involucre of several bracts. Pericarp not thickened

8. *C. pygmaeus*.

Perennial, often 1 ft. high. Involucre of 2 very long bracts. Pericarp thickened at the base into a white prominent 2- or 3-lobed mass

9. *C. cephalotes*.

Spikelets few, in a single cluster, apparently lateral, the involucre bract continuing the stem

10. *C. laevigatus*.

Spikelets in clusters in a dense umbel of several short rays. Style hairy

11. *C. platystylis*.

Spikelets small numerous, in dense spikes along the rays of a large compound umbel

- Spikelets numerous, in a single small dense globular head, with an involucre of long slender bracts 13. *C. pulchellus*.
- Spikelets spreading, pale-coloured, in a single sessile cluster or solitary. Glumes obtuse or very shortly pointed. Nuts short. (**Graciles**).
- Annual not exceeding 2 in. Spikelets 1 or 2 apparently lateral, one involucre bract continuing the stem . . . 14. *C. tenellus*.
- Slender perennials. Spikelets or clusters terminal. Glumes with 3 or 4 prominent nerves on each side and scarcely any nerveless margins 15. *C. gracilis*.
- Glumes with 1 or 2 nerves on each side near the keel and broad nerveless margins. Leaves almost filiform.
- Spikelets clustered. Nuts more than half the glume 16. *C. enervis*.
- Spikelets solitary or 2 together. Nuts scarcely half the glume 17. *C. debilis*.
- Glumes with 1 nerve on the middle of each side. Leaves linear, often 1 line broad 18. *C. laevis*.
- Spikelets numerous, clustered or capitate, the clusters or heads solitary or in an umbel of few rays. Glumes with a prominent straight or recurved point. Small annuals (**Squarrosi**).
- Keel of the glumes ending in a short slightly recurved point, with a nerve on each side. Nuts narrow . . . 19. *C. castaneus*.
- Keel of the glumes ending in a long recurved point, the sides nearly nerveless. Nuts rather broad . . . 20. *C. cuspidatus*.
- Glumes 3- or 5-nerved, tapering into a long recurved point, without nerveless margins. Nuts broad . . . 21. *C. squarrosus*.
- Spikelets dark-coloured, clustered or capitate in an umbel of few rays or the clusters rarely solitary. Nuts broad, as long as the glume (**Nigricantes**).
- Spikelets small and numerous in dense globular heads. Glumes orbicular not $\frac{1}{2}$ line long 22. *C. difformis*.
- Spikelets spreading, in clusters of 3 to 6. Glumes above 1 line long 23. *C. tetraphyllus*.
- Spikelets pale or brown, clustered capitate or solitary on the rays of an umbel. Nuts broad, not above $\frac{1}{2}$ the glume (except *C. filipes*) (**Compressi**).
- Involucral bracts few, unequal, 1 or 2 longer than the inflorescence or all short.
- Umbel-rays few. Stems weak. Spikelets oblong. Glumes acutely keeled, with 1 nerve in the middle of each side 24. *C. trinervis*.
- Umbel-rays numerous.
- Stems erect, very angular or flat. Spikelets small, linear, acute 25. *C. Haspan*.
- Stems erect, leafy at the base. Spikelets very flat, ovate or oblong. Glumes brown with white edges 26. *C. concinnus*.
- Involucral bracts 6 or more long leafy and unequal. Umbel rays long numerous and slender.
- Spikelets solitary on each ray 27. *C. filipes*.
- Spikelets in clusters of 3 or 4 on each ray 28. *C. pedunculatus*.
- Involucral bracts about 6, nearly equal, rigid, erect or spreading. Umbel many-rayed or reduced to a dense cluster. Stem leafless 29. *C. vaginatus*.
- Spikelets pale or dark brown, clustered on the rays of an umbel. Nut narrow, nearly or quite as long as the glume (**Fulvi**).
- Spikelets small and few-flowered, in little globular clusters in a compound umbel 30. *C. holoschaenus*.
- Spikelets very flat, long and narrow linear, clustered in a compound umbel. Glumes mostly obtuse 31. *C. daetyloides*.
- Spikelets very flat, linear, clustered in a simple umbel or compound cluster. Glumes tipped with fine points 32. *C. Gilesii*.
- Spikelets rather thick, oblong or lanceolate. Glumes obtuse or scarcely acute. Stems obtusely triquetrous.
- Spikelets 8 to 12-flowered. Glumes imbricate though rather loose 33. *C. fulvus*.
- Spikelets 10 to 30-flowered. Glumes spreading scarcely imbricate 34. *C. carinatus*.
- Spikelets of *C. carinatus*. Stems stout, acutely 3-angled. Involucral bracts 1 or 2 very long and scabrous 35. *C. alterniflorus*.
- Spikelets usually numerous, in loose spikes along the rays of a simple or compound umbel (**Ornati**).
- Spikelets flat, usually pale, the rhachis of the spike minutely hairy 36. *C. pilosus*.
- Spikelets flat, of a rich brown. Glumes bordered by a scarious hyaline membrane 37. *C. ornatus*.
- Spikelets flat, pale brown or yellowish green, very irregularly spicate. Glumes very obtuse, loosely imbricate 38. *C. Iria*.
- Spikelets flat, pale, densely spicate. Glumes loosely imbricate, the keel produced into a short point . . . 39. *C. eleusinoides*.
- Spikelets very narrow-linear, loosely spicate and spreading, the glumes very narrow and distant . . . 40. *C. distans*.

SECT. IV. *Papyrus*.—Spikelets flat or terete, the rhachis bordered by scarious wings, either persistent or at length more or less detached as small scales. Glumes imbricate. Style 3-cleft. Nut equally triquetrous.

- Spikelets shortly spicate or clustered on the rays of a simple or compound umbel. Nut not exceeding half the length of the glume (**Corymbosi**).
 Stems leafless or the sheaths bearing a very short lamina.
 Glumes concave, not at all or scarcely keeled. Nut more or less dorsally flattened 41. *C. tegetiformis*.
 Glumes keeled. Nut equally triquetrous.
 Stems transversely septate 42. *C. articulatus*.
 Stems continuous 43. *C. diphyllus*.
 Stems leafy at the base.
 Spikelets rather flat, usually acute, shortly and rather loosely spicate or clustered 44. *C. rotundus*.
 Spikelets linear, very flat, densely clustered or shortly spicate 45. *C. stenostachyus*.
 Spikelets slightly flattened, in very dense short spikes or clusters. Stems acutely 3-angled. Leaves rather broad with long points 46. *C. congestus*.
 Spikelets very narrow, scarcely flattened, in dense clusters. Stems obtusely triquetrous. Leaves very narrow 47. *C. subulatus*.
 Spikelets clustered or shortly spicate on the rays of a simple or compound umbel. Nut usually nearly as long as the glume (**Lucidi**).
 Spikelets small, 5 to 8-flowered, in little globular clusters. Stems obtusely triquetrous 48. *C. sporobolus*.
 Spikelets linear, scarcely flattened, 10- to 20-flowered, in close clusters or heads.
 Stems obtusely triquetrous. Spikelets usually few in the heads 49. *C. angustatus*.
 Stems stout, acutely 3-angled. Spikelets numerous in the heads 50. *C. Novæ Hollandiæ*.
 Spikelets flat, of a rich brown.
 Spikelets in globular clusters or heads, usually 8- to 12-flowered 51. *C. Gunnii*.
 Spikelets distinctly spicate, mostly 5- to 8-flowered 52. *C. lucidus*.
 Spikelets in lengthened spikes along the rays of a compound or rarely simple umbel.
 Spikelets flat. Glumes loosely imbricate. Nut more than half the length of the glume.
 Spikelets pale-coloured, 10- to 16-flowered, the rhachis scarcely winged 39. *C. eleusinoides*.
 Spikelets of a rich brown, 3 to 8-flowered, the rhachis distinctly winged 52. *C. lucidus*.
 Spikelets flat. Glumes closely imbricate. Nut less than half the length of the glume (**Exaltati**).
 Spikelets thick, $1\frac{1}{2}$ to 2 lines broad, pale-coloured, 4- to 8-flowered 53. *C. pennatus*.
 Spikelets very flat, under 1 line broad, usually rich brown, 10- to 20-flowered 54. *C. exaltatus*.
 Spikelets narrow, linear-terete, 10- to 20-flowered. Nut less than half the length of the glume.
 Spikelets densely crowded, $\frac{1}{2}$ in. long or more. Glumes prominently 7- or 9-nerved 55. *C. hæmatodes*.
 Spikelets loosely spicate, mostly under $\frac{1}{2}$ in. Glumes obscurely 3-nerved 56. *C. auricomus*.

SECT. V. *Didlidium*.—Spikelets narrow, terete or nearly so, often flexuose, sometimes 1-flowered, the rhachis bordered by hyaline wings embracing the nuts. Flowering glumes distant, narrow, closely appressed to the rhachis. Style 3-cleft. Nuts triquetrous.

- Spikelets rather rigid, with 6 or more flowers, in elongated spikes in a large compound umbel 57. *C. ferax*.
 Spikelets almost subulate, with 6 or more flowers, in short close spikes in an umbel of few rays 58. *C. Bowmanii*.
 Spikelets filiform, 3- or 4-flowered, in loose spikes in a large compound umbel 59. *C. trichostachys*.
 Spikelets mostly 2- or 3-flowered, in ovoid globular spikes in a simple umbel of few rays. Stems smooth 60. *C. leiocaulis*.
 Spikelets 1- or 2-flowered, in ovoid or cylindrical spikes in a compound umbel of many rays. Stems scabrous 61. *C. scaber*.

SECT. VI. *Mariscus*.—Spikelets small, numerous, terete or scarcely flattened, 1- or 2-flowered, the short enclosed rhachis bordered by hyaline wings. Flowering glumes imbricate when more than one. Style 3-cleft. Nut triquetrous.

- Spikelet usually with 2 perfect flowers, in small globular clusters in a compound umbel of many rays 62. *C. decompositus*.
 Spikelets with 1 or rarely 2 perfect flowers, in loose cylindrical spikes in a compound umbel 63. *C. Armstrongii*.
 Spikelets usually with 1 perfect flower, in dense cylindrical spikes either sessile or pedunculate in a simple umbel 64. *C. umbellatus*.
 Spikelets usually with 1 perfect flower, in dense ovoid or 3-lobed heads in a simple umbel 65. *C. conicus*.

The following species have been supposed to be Australian by Kunth and Bœckeler, on the authority of specimens of Sieber's *Agrostotheca*, which however all prove to be West Indian.

Mariscus parviflorus, Nees in Sieb. *Agrostoth.*, n. 101 = *Cyperus luzula*, Rottb.
Cyperus microcephalus, Nees in Sieb. n. 103 (*C. Sieberinus*, Spreng. *Syst. Cur. Post.* 29) = *C. surinamensis*, Rottb.

Carex Sieberi, Nees in Sieb. n. 104 (*Mariscus rigidus*, Spreng. *Syst. Cur. Post.* 29) = *Cyperus flavus*, Bœckel. (*Mariscus flavus*, Vahl).

Cyperus ligularis, Linn.; Sieb. *Agrostoth.* n. 106.
C. spectabilis, Schreb.; Kunth, *Enum.* ii. 73, was published as an Australian

plant on the authority of one received at the garden of Erlangen from the Jardin des Plantes at Paris under the name of *C. Paramatta*, Mart. No such name occurs in the Catalogues of the Jardin, and Bœckeler in *Linnaea*, xxxv. 605, identifies the plant with a Mexican species.

or. *C. carinatus*, *H. Br. Prod.* 216.—Stems 6 in. to 1½ ft. high, obtusely triquetrous. Leaves much shorter, crowded in the tufts, rather broad, tapering to a fine point. Spikelets in dense clusters or heads in an umbel of few rays, the longest 1 to 2 in. long. Involucral bracts 3 or 4, of which 1 or 2 longer than the inflorescence and 1 often very long. Spikelets spreading, linear or linear-lanceolate, flat but rather thick, with a loose pinnate aspect, 4 to 6 lines long or when old

rather longer, nearly 2 lines broad, 10- to 30-flowered, the rhachis not winged or scarcely perceptibly bordered. Glumes not closely imbricated, short and rather broad, spreading, obtuse, the keel prominent and often produced into a short straight or recurved point; the sides 3- or 4-nerved. Stamens 3. Style 3-cleft. Nut obovate-oblong, 3-angled, more than half the length of the glume.

N. Australia. North Coast, *R. Brown*; M'Adam Range, *F. Mueller*; between Norman and Gilbert Rivers, *Gulliver*.

Queensland. Springsure, *Wuth*.

N. S. Wales. Liverpool range, *Leichhardt*; New England, *C. Stuart*; Mudgee, *Taylor*.

The species is very near *C. fulvus* with which it is united by *F. Mueller*, but the glumes are much shorter and broader as well as looser in the spikelets, giving the inflorescence a very different aspect approaching that of *C. alterniflorus*.

88. *C. conicus*, Bæckel. in *Linnaea*, xxxviii. 371.—Stems 1 to 1½ ft. high, rather rigid, often much thickened at the base. Leaves often as long, rather rigid, ending in long subulate points, the margins scabrous and sometimes almost spinulose-denticulate. Spikelets very numerous, usually in dense sessile ovoid or conical heads, often 3-lobed at the base, 4 to 6 lines long and often as broad, in a simple umbel of 6 to 10 rays, the longest 1½ to 2 in. long. Involucral bracts 3 to 5, long and tapering into long subulate points. Spikelets narrow-oblong, nearly 1½ lines long, with 1 perfect flower. Glumes imbricate, the lowest empty glume small, very broad and cupshaped, scarious, remaining usually with the subtending small glume-like bract persistent after the spikelet has fallen off, the second empty glume ovate obtuse striate more than half the length of the spikelet; flowering glume almost acute, striate, closely enveloping the broadly winged rhachis and the base of a fourth glume which is empty or contains a male flower. Style 3-cleft. Nut ovoid, triquetrous, nearly as long as the glume.—F. Muell. *Fragm.* viii. 268; *Mariscus conicus*, R. Br. *Prod.* 218.

N. Australia. Gulf of Carpentaria, R. Brown; Port Darwin, Schultz, n. 603, 709.

Queensland. Port Curtis, M'Gillivray; Bokhara Creek, Leichhardt; Bowen Downs, Birch.

W. Australia. Murchison River, Oldfield.

Var. *ramosus*. Heads of spikelets branching into dense pyramidal panicles. Leaves numerous, broad at the base.—Sweers Island, Henne; Port Denison, Fitzalan.

C. glaucinus, Bæckel. in *Flora*, 1875, 89, from Port Mackay, Amalia Dietrich, from the character given does not appear to differ from *C. conicus*.

C. tetracarpus, Bæckel. l. c. 88, also from Port Mackay, Amalia Dietrich, must be very near the same species in many respects, but the spikelets are said to contain 4 or 5 flowers, which would remove it from the section *Mariscus*, where it is placed by Bæckeler next to *C. glaucinus*.

20. *C. cuspidatus*, H. B. et K.; Kunth, Enum. ii. 22.—A small tufted annual, resembling *C. castaneus* and *C. squarrosus* in habit, but the clusters of spikelets not so dense, and the glumes different. Stems mostly 2 to 4 in. long. Leaves very narrow or setaceous, sometimes as long as or longer than the stem. Clusters of spikelets solitary and sessile or in an umbel of few rays. Involucral bracts 2 or 3 longer than the inflorescence. Spikelets linear, spreading, from a pale green to a rich brown, 3 to 6 lines long, scarcely above $\frac{1}{2}$ line broad, with 12 to 20 or even more flowers, the rhachis not winged. Glumes rather narrow, prominently 3-nerved, the keel or dorsal nerve produced into a long recurved or spreading point, the sides bordered by a nerveless brown or hyaline margin terminating often abruptly below the recurved point. Stamen usually 1. Style 3-cleft. Nut obovoid but narrower than in *C. squarrosus*, prominently 3-angled.—Bæckel. in Linnæa, xxxv. 496; *C. squarrosus*, F. Muell. Fragm. viii. 262 but not of Linn., and not the var. *stenocarpus*.

Queensland. King's Creek and Herbert Creek, Bowman.

The species is widely spread over tropical Asia and Africa, extending northwards to S. China, and is also abundant in South and Central America east of the Andes.

31. *C. dactyloides*, *Benth.*—Stems usually rather stout and 2 to 3 ft. high, but sometimes more slender and scarcely above 1 ft., terete or obtusely 3-angled. Leaves rather long, but only 'sent with very few specimens. Spikelets numerous in dense clusters or heads, in a usually compound but very variable umbel, the longest rays often 6 in. long, the partial umbels very dense. Involucral bracts several, of which 2 to 4 longer than the inflorescence and 2 to 4 lines broad at the base. Spikelets linear, flat, very regular, usually 6 to 9 lines but sometimes at least 1 in. long, scarcely 1 line broad, of a light brown sometimes almost golden colour, with 30 to 50 or even more flowers, the rhachis not winged. Glumes loosely imbricate, not very broad, obtuse or the keel produced into a minute point, the sides more or less distinctly 2- or 3-nerved, without scarious margins. Stamens 3. Style 3-cleft. Nut narrow, 3-angled, nearly as long as the glume.

N. Australia. Attack Creek, *M'Dougall Stuart*.

Queensland. Maranoa, *Woolfs*; Barcoo Downs. *Schmidt, Birch*; Armadillo, *Barton*.

ST. CHRYSOMIS, *Donn.*; *Donn.*, *Enum.* n. 58.—Stems tufted, 6 in. to 1½ ft. high, rather slender. Leaves sometimes as long as the stem but usually shorter, and sometimes all reduced to loose sheaths. Spikelets very numerous, in dense globular heads of ¼ to ½ in. diameter, the heads in a loose umbel of few rays, rarely contracted into a compound cluster, the rays usually slender. Involucral bracts 1, 2 or 3, very variable in breadth. Spikelets narrow-linear, flat, 1½ to 2 lines long, remarkable for the numerous very small almost orbicular and very obtuse glumes, at first of a rich brown, but becoming variegated by their pale or almost white margins, the rhachis not winged. Stamens 1 or 2. Style 3-cleft. Nut obovoid, acutely 3-angled, as long as the glume or nearly so.—Rottb. *Descr. et Ic. Pl.* t. 9, f. 2; Sibth. *Fl. Gr.* t. 46; Reichb. *Ic. Fl. Germ.* t. 284; Bœckel. in *Linnæa*, xxxv. 586; R. Br. *Prod.* 215; F. Muell. *Fragm.* viii. 262.

Queensland. Keppel Bay, *R. Brown*; Rockingham Bay, *Dallachy*; Rockhampton, *Bowman*, *Thozet*, *O'Shanesy* and others; Moreton Bay, *F. Mueller*, *Leichhardt* and others; beyond Mount Murchison, *Bonney*.

N. S. Wales. Grose River, *R. Brown*; in the interior *A. Cunningham*; New England, *C. Stuart*; Clarence River, *Wilcox*.

Victoria? Murray River, *F. Mueller*.

South or Central Australia. Charlotte Waters, *Giles*.

Widely spread over the tropical and subtropical regions of the Old World, extending northwards to the Mediterranean region, where however it is rare and generally replaced by the nearly allied *C. fuscus*.

23. *C. haspan*, Linn.; Kunth, Enum. ii. 34.—Stems tufted or shortly creeping, 6 in. to above 1 ft. rarely 2 ft. high, acutely 3-angled or flat but usually weak. Leaves all reduced to sheathing scales, or with a flat lamina shorter than the stem. Spikelets small, few together in loose clusters in a simple or compound umbel of slender usually numerous rays, the longest 2 to 3 in. long or sometimes all short. Involucral bracts 2 or 3, shorter than the inflorescence or one rather longer, flat and rather broad. Spikelets linear, flat, acute, 2 or at length 3 or even 4 lines long, scarcely $\frac{1}{2}$ line broad, of 12 to 20 or rarely more flowers, the rhachis not winged. Glumes appressed but loosely imbricate, narrow, obtuse, or with the prominent keel produced into a short point, the sides brown or pale, obscurely nerved. Stamens usually 3. Style 3-cleft. Nut obovoid or almost globular, obtusely 3-angled, less than half the length of the glume.—Rottb. Descr. et Ic. Pl. t. 6, f. 2; Boeckl. in Linnæa, xxxv. 574; F. Muell. Fragn. viii. 260; *Scirpus autumnalis*, Rottb. Descr. et Ic. Pl. 58, t. 17, f. 3, not of Linn.; *Cyperus pulcherrimus*, Willd.; Kunth, Enum. ii. 35; Boeckl. in Linnæa, xxxv. 573; *C. platyculmis*, R. Br. Prod. 214, altered to *C. laticulmis*, Spreng. Syst. i. 228.

N. Australia. Brunswick Bay, *A. Cunningham*; Upper Victoria River and M'Adam Range, *F. Mueller*; Port Darwin, *Schultz*, n. 310; islands of the Gulf of Carpentaria, *R. Brown*.

Queensland. Cape York, *Daemel*, *M. Gillivray*; Lizard Island, *M. Gillivray*; Rockingham Bay, *Dallachy*; Rockhampton and neighbourhood, *Bowman* and others; Moreton Bay, *F. Mueller*, *C. Stuart* and others.

N. S. Wales. Tweed River, *Eaves*.

Abundant in the tropical regions of the New and the Old World, replaced in S. Africa by the closely allied but evidently distinct *C. denudata*, Linn., but extending northwards in America to Florida, New Orleans and Mexico.

30. *C. holosericeus*, *R. Br. Prodr.* 215.—Stems from a thick horizontal or creeping rhizome, 1 to 2 ft. high, obtusely 3-angled. Leaves rather narrow, sometimes nearly as long as the stem. Spikelets small, in dense globular clusters or heads 2 to 3 lines diameter, in an irregularly compound umbel of 4 to 8 or even more rays, the longest 2 to 3 in. long. Involucral bracts 3 or 4, narrow, 1 to 2 of them longer than the inflorescence, the heads or clusters subtended by glume-like bracts. Spikelets flat, pale brown, shortly lanceolate or oblong, 1 to $1\frac{1}{2}$ lines long, and fully 1 line broad, with 5 to 8 or rarely more flowers, the rhachis not winged or with an exceedingly narrow border. Glumes loosely imbricate, obtuse or almost acute, of a thin pale texture, striate with 2 or 3 fine nerves on each side. Stamens 3. Style 3-cleft. Nut obtusely 3-angled, nearly or quite as long as the glume.—**F. Muell.** *Fragm.* viii. 262.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; Arnhem Land and Upper Victoria River, *F. Mueller*; between the Norman and Gilbert Rivers, *Gulliver*.

Queensland. Barcoo Downs, *Birch*.

tufted perennial. Stems from under 1 ft. to above 2 ft. high, triquetrous but not very stout. Leaves narrow, much shorter than the stem, with short broad sheaths. Inflorescence usually crowded into a dense sessile head or cluster with numerous spikelets, but sometimes forming a loose irregular umbel approaching that of some varieties of *C. rotundus*. Involucral bracts 2 to 4, of which 1 or 2 longer than the inflorescence. Spikelets narrow-linear, flat, rather acute, 4 to 6 lines long and under 1 line broad, usually pale-brown, 20- to 30-flowered, the rachis angular and often slightly winged. Glumes closely distichous, rather narrow, obtuse or with the keel produced into a short point, the sides indistinctly nerved. Stamens usually 2. Style 2-cleft or very rarely here and there 3-cleft. Nut narrow, biconvex, not half so long as the glume.—R. Br. Prod. 214; Kunth, Enum. ii. 13; Bœckel. in Linnæa, xxxv. 477; F. Muell. Fragm. viii. 265.

Queensland. Northumberland Islands, *R. Brown*; Sir C. Hardy Island, *Henne*; Cape York, *Daemel*; Rockingham Bay, *Dallachy*; Port Curtis, *M'Gillivray*; Brisbane River, Moreton Bay, *F. Mueller*; Rockhampton and various localities in S. Queensland, *Bowman*, and many others.

N. S. Wales. Port Jackson, *R. Brown*, *Woolfs*, and others; New England, *C. Stuart*; Clarence River, *Beckler*; Richmond River, *C. Moore*.

Var. ? *laxiflora*. Spikelets loosely clustered, often stipitate and almost racemose or corymbose in an umbel of 6 to 10 slender rays, the longest often 2 to 3 in. long. Nut rather broader.—*C. aquatilis*, F. Muell. Fragm. viii. 270, not of R. Br.

N. Australia. Arnhem's Land, *F. Mueller*.

Queensland. Daintree River, *Fitzalan*; Rockingham Bay, *Dallachy*.

This variety has much resemblance with some of the looser flowered forms of *C. rotundus*, with small pale spikelets, but is readily distinguished by the style and nut. It may be a distinct species but is connected with the typical form by several Indian specimens. The species is common in the warmer regions of both the New and the Old World, extending northward to the Mediterranean and S. China in the Old World and to the Southern United States in America.

48. *C. sporobolus*, R. Br. *Prod.* 215.—Stems usually rigid but not very stout, obtusely triquetrous, from under 1 ft. to $1\frac{1}{2}$ ft. high. Leaves much shorter. Spikelets in little globular heads or clusters in a compound umbel of 5 to 10 very unequal rays, the longer ones 1 to 3 in. long, the clusters or heads at first 2 to 3 lines diameter but expanding to 4 or 5 lines. Involucral bracts few, of which 2 or 3 much longer than the inflorescence and sometimes very long. Spikelets spreading, flat, rarely above 2 lines long, with 5 to 8 flowers, the rachis very short, but more or less distinctly bordered by hyaline wings. Glumes rather narrow, spreading, strongly several-nerved, the keel sometimes produced into a minute point. Style 3-cleft. Nut oblong, triquetrous, more than half as long as the glume.

N. Australia. Islands of the Gulf of Carpentaria, R. Brown; N. W. coast, *Hughan*; Upper Victoria River, F. Mueller; Port Darwin, *Schultz*, n. 791; Sweers Island, *Henne*; the latter specimens with rather larger spikelets and very spreading glumes.

C. sexflorus and *C. microcephalus*, R. Br. l. c. both from the same localities in the Gulf of Carpentaria, appear to me to be slight varieties of *C. sporobolus*, with smaller heads of spikelets and fewer flowers in each spikelet.

aggl. syn. Pluken.—A small tufted annual, the stem rarely above 4 in. and sometimes under 1 in. high. Leaves mostly shorter than the stem, in some specimens $1\frac{1}{2}$ lines broad and tapering to a fine point, in others very narrow from the base. Spikelets numerous, in dense ovoid or globose heads either solitary and sessile or in an umbel of few rays, rarely 1 in. long. Involucral bracts 3 or 4, of which 1 or 2 much longer than the inflorescence. Spikelets flat, oblong or linear, 2 to 3 lines long, 10- to 20-flowered, the rhachis not winged. Glumes rather narrow, 5- or 7-nerved, tapering into a long recurved point, without any or scarcely any nerveless margin. Stamen usually 1. Style 3-angled. Nut narrow-obovoid or oblong, prominently 3-angled, varying from rather broad and under half the length of the glume, to narrow and longer than the half.—*C. aristatus*, Rottb. Descr. et Ic. Pl. 23, t. 6, f. 1; Kunth, Enum. ii. 23; Boeckl. in Linnæa, xxxv. 500; *C. inflexus*, Muehl.; Kunth, l. c. 22; F. Muell. Fragm. viii. 262; *C. uncinatus*, R. Br. Prod. 215; *C. Brownei*, Steud. Syn. Glum. ii. 53.

N. Australia. Dampier's Archipelago, *Walcott*; Gulf of Carpentaria, *F. Mueller*.
Queensland. Endeavour River, *Banks and Solander*; various localities in North Queensland, *Armitage, Wuth*; beyond Mount Murchison, *Bonney*.

South or Central Australia. Charlotte Waters, *Giles*.

Var. congestus. Spikelets few-flowered, very densely crowded in nearly globular heads.—Dry Beef Creek, *Leichhardt*.

Var. cylindraceus. Spikelets 3- to 6-flowered, in dense oblong-cylindrical heads under $\frac{1}{2}$ in. long.—*C. aristatus*, *F. Muell.* Fragm. viii. 261.—Port Denison, *herb. F. Mueller*; Rockhampton and Herbert's Creek, *Bowman*.

The species is widely spread over East India, tropical Africa, North America and Mexico, extending down the Pacific side of the Andes to Chile, but not in South America east of the Andes. It was very well characterised by Linnæus and is represented by a good specimen in his herbarium. Unfortunately he added a reference to *Plukenet* which belongs to a very different plant with the narrow somewhat flexuose spikelets and winged rhachis of the *Papyrus* section. This species, of which a small fragment is laid down in herb. Linn. by the side of the true *C. squarrosus*, is the *C. maderaspatanus*, Willd. described as *C. squarrosus* by Rottboell, Kunth, Boeckeler and others. It is common in India but not yet found in Australia.

annual. Stems weak and slender, from under 6 in. to 1 ft. long below the inflorescence. Leaves flat but not above 1 line broad, the longest often nearly as long as the stem, but sometimes all reduced to sheathing scales with or without a very short lamina. Spikelets in clusters of 3 or 4 or rarely more, in a simple or irregularly compound umbel of a few slender

rays, the longest sometimes 4 to 6 in. long, sometimes all under 1 in. or the inflorescence reduced to a sessile compound cluster. Involucral bracts usually 3, of which 1 or 2 longer than the inflorescence, but sometimes all short. Spikelets linear or oblong, very flat, pale coloured, in some specimens 2 to 3 lines long and 8- to 12-flowered, in others lengthening to 6 to 9 lines with numerous flowers, and at length appearing pedicellate from the fall of the lower glumes, usually about 1 line broad or rather more, the rhachis not winged. Glumes rather broad, short, regularly spreading, giving the spikelet a pinnate appearance, more or less acuminate, the keel acutely prominent, with 1 more or less conspicuous nerve in the middle of each side. Stamens 2 or 3. Style 3-cleft. Nut rather broad, acutely or at length obtusely 3-angled, not half so long as the glume.—Bœckel. in *Linnæa*, xxxv. 503; *C. flaccidus*, R. Br. l. c.; Bœckel. l. c. 502; F. Muell. *Fragm.* viii. 267; *C. imbecillis*, *C. aquatilis*, *C. inundatus* and *C. breviculmis*, R. Br. l. c. 213, 214; *C. Lessonianus* and *C. macellus*, Kunth, *Enum.* ii. 29, 30, according to Bœckeler.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; M'Adam Range and Fitzmaurice River, *F. Mueller*; Port Darwin, *Schultz*, n. 313 (scarcely in flower, and therefore doubtful); between Norman and Gilbert Rivers, *Gulliver*.

Queensland. Endeavour River, *Banks and Solander*, *A. Cunningham*; Shoalwater Bay, *R. Brown*; Rockingham Bay, *Dallachy*; Lizard Island, *M'Gillivray*; Rockhampton and numerous localities in S. Queensland, *Thozet*, *Bowman*, *Leichhardt*, *F. Mueller* and many others.

N. S. Wales. Hunter's River, *R. Brown*; New England, *C. Moore*; Clarence River, *Wilcox*; near Bulli, *Johnson*.

Victoria? Murray River, *F. Mueller*.

I do not quite identify this species with any extra Australian one, but it is very closely allied to *C. compressus*, which is common in tropical and subtropical regions. It is exceedingly variable in stature, in the degree of development of the inflorescence and in the number of flowers in the spikelets and consequently their shape. I have been unable to distribute the numerous forms before me into distinct varieties, but generally they may be placed in two series; one with long narrow spikelets and numerous flowers would include *C. aquatilis*, *C. imbecillis* and *C. trinervis*, Br., the other often a smaller or more slender plant, with broader shorter spikelets, fewer flowers and more spreading glumes would include *C. flaccidus*, *C. inundatus* and *C. breviculmis*. One of Cunningham's Endeavour River specimens looks at first sight very different, from the spikelets being only $1\frac{1}{2}$ to 2 lines long and 1 line broad with 8 to 12 flowers. A few specimens from the interior of N. S. Wales have a more rigid aspect, and some from Rockhampton have remarkably long spikelets with numerous flowers. All have the same pale 3-nerved glumes, though the lateral nerve is sometimes scarcely prominent.

ing rhizome, rigid, terete or slightly striate, 1 to 3 ft. high, leafless except a few brown sheaths at the base, the innermost of which sometimes 3 to 4 in. long with a short erect lamina. Spikelets numerous in dense globular heads of about $\frac{1}{2}$ in. diameter when fully out, in a simple umbel of several often many rays of $\frac{1}{2}$ to $1\frac{1}{2}$ in. or the inflorescence contracted into a sessile compound cluster. Involucral bracts usually 5 or 6, more nearly equal than in any other species, erect or spreading, usually rigid, 1 to 3 in. long. Spikelets very flat, of a rich brown, oblong lanceolate or linear, about 1 line broad, varying from 2 to 3 lines long with 12 to 20 flowers to 4 to 6 lines with 40 to 50 flowers, the rhachis not winged. Glumes closely imbricate but spreading, acute, the keel prominent and pale coloured, the sides brown and nerveless. Stamens 2 to 3. Style 3-cleft. Nut very prominently 3-angled, rather broad, acute, less than half the length of the glume.—Bæckel. in *Linnæa*, xxxv. 572.

N. Australia. Nichol Bay, *Herb. F. Mueller*; lagoons, Flinders River, *F. Mueller*.

Queensland. Plains of the Condamine, *Leichhardt*; various localities in South Queensland, *O'Shanesy*, and others.

N. S. Wales. Paterson's River, *R. Brown*; Lachlan and Macquarrie Rivers, *A. Cunningham*; New England, *C. Moore*, *C. Stuart*.

S. Australia. *Behr*; Spencer's Gulf, *R. Brown*; Torrens River, *F. Mueller*; Central Australia, *Gosse's Expedition*.

W. Australia. Murchison River, *Oldfield*.

Var. *densiflorus*. Stems not so stout and more evidently striate. Involucral bracts much shorter. Heads of spikelets small and crowded into a dense compound sessile cluster.—*C. gymnocaulos*, Steud. Syn. Glum. ii. 12 (erroneously described as digynous); *C. cruciformis*, Bæckel. in *Linnæa*, xxxv. 572.

Victoria. Lalbert Lake and Murray River, *F. Mueller*; Wimmera, *Dallachy*.

S. Australia. Port Lincoln, *Bowen*; Alice Springs, Central Australia, *Giles*.

W. Australia. *Drummond*, n. 63, 334, 942; Champion Bay, *Grey*.

F. Mueller, *Fragm.* viii. 261, refers this species to the South African *C. textilis*, Thunb., that species however has a much looser and more compound inflorescence, the involucral bracts longer and more numerous, and the glumes of a pale colour with hyaline margins. *C. vaginatus* is perhaps nearer to the *C. marginatus*, Thunb., but I think distinct from both.

In a few of *Leichhardt's* specimens and in one of *Gosse's* the spikelets are very long with numerous thin pale-coloured glumes scarcely keeled, but the flowers are all abortive and the spikelets therefore in an abnormal state.

Spikelet solitary, terminal, with many hermaphrodite flowers. Glumes imbricate all round the rachis, the lowest 1 or 2 empty. Hypogynous bristles about 3 to 8, usually scabrous or ciliate with reflexed hairs, rarely deficient. Stamens 3, 2 or 1. Style dilated at the base, divided to above or below the middle into 2 or 3 filiform stigmatic branches. Nut obovoid or nearly globular and 3-ribbed, or more or less flattened and biconvex with 2 marginal ribs, always crowned by the conical or depressed persistent base of the style, the remainder of the style falling away.—Stems simple, tufted, without perfect leaves, the barren stems often taken for leaves, the real leaves reduced to sheathing scales, of which the lowest are short brown and loose, the innermost (sometimes the only one) forming a long sheath closely appressed nearly or quite to its orifice. No involucre except the outer empty glume, which takes the place of a bract subtending the spikelet and is sometimes larger than the other glumes, very rarely produced into a short point.

Generally distributed over the tropical and temperate regions of the New as well as the Old World, two species extending to within the Arctic circle. Of the thirteen Australian ones three only are endemic, and one of these is scarcely more than a variety of a common one, three others are also in New Zealand and in some temperate regions in the northern or southern hemisphere, one has hitherto been only identified out of Australia in East India, the remaining six are common tropical or temperate species in the Old World and all, or all but one, are also in America.

SECT. I. *Limnocharis*. Spikelets cylindrical. Glumes obtuse, not at all or very obscurely keeled, rather rigid, with a hyaline border. Persistent base of the style forming a conical usually flat beak to the nut.

- Stems terete, appearing articulate from the transverse septa dividing the internal pith. 1. *H. sphacelata*.
- Stems continuous, obtusely triquetrous or terete.
- Glumes almost white, scarcely striate, the hyaline border very narrow and soon disappearing, the spiral arrangement very prominent. 2. *H. spiralis*.
- Glumes pale or dark, distinctly striate, the spiral arrangement not prominent. 3. *H. variegata*.
- Stems continuous, acutely 3- or 4-angled. 4. *H. fistulosa*.

SECT. II. *Scirpidium*. Spikelet cylindrical or tapering upwards, usually smaller than in *Limnochloa*. Glumes with a distinct green centre or prominent keel. Persistent base of the style shortly conical.

- Stem slender, acutely 4-angled. 5. *H. tetraquetra*.
- Stem obtusely angled, or terete and striate.
- Inner leaf-sheath truncate at the orifice with a small erect point. Nut biconvex.
- Spikelet pale-coloured, obtuse. 6. *H. cylindrostachys*.
- Spikelet usually dark coloured and rather acute. 7. *H. acuta*.
- Inner leaf-sheath oblique at the orifice without the dorsal point.
- Spikelet 6 to 8 lines long. No hypogynous bristles.
- Nut biconvex. 8. *H. atricha*.
- Spikelets 3 to 5 lines long. Hypogynous bristles usually longer than the nut. Nut 3-ribbed. 9. *H. multicaulis*.

SECT. III. *Heleogenus*. Spikelet ovoid-conical or small and few-flowered. Glumes keeled. Persistent base of the style short and depressed. Leaf-sheath oblique at the orifice, often scarious.

- Nut biconvex, very smooth. Glumes deciduous, usually numerous.
- Spike dense, many-flowered, pale coloured. Stems mostly above 6 in. high. Glumes broad, with a green centre. 10. *H. capitata*.
- Spike loose, dark-coloured, the glumes not very numerous, prominently keeled. Stems under 3 in. 11. *H. atropurpurea*.
- Nut 3-ribbed and usually striate. Glumes not numerous.
- Stems short, filiform.
- Leaf-sheath appressed to the orifice, usually brown.
- Spikelet narrow. 12. *H. acicularis*.
- Leaf-sheath loose and scarious at the orifice. Spikelets rather broad. 13. *H. pusilla*.

H. (E.) chataria, Roem. et Sch.; Kunth, Enum. ii. 140, an East Indian plant, is given by Boeckl. in Linnæa, xxxvi. 429, as also Australian on the authority of Sieber's specimens, *Agrostotheca*, n. 24, which Nees had named *E. recurvata*, given by Kunth as a synonym of *H. (E.) depauperata*, a West Indian and South American closely allied if not identical species. The only specimens I have seen have the spikelets too imperfect to determine to what species they belong, and their origin whether Australian or West Indian is very uncertain. If Australian they may prove to be the same as *H. pusilla*, Br. with which they agree as to the leaf-sheath.

121. 225 (227) *Asplenium purpureum*, *Swartz*, *Enum.* n. 101.—Stems densely tufted, slender often filiform, 1 to 3 in. high. Inner leaf-sheath appressed, the orifice oblique, acuminate or lanceolate, in some specimens scarious and at length lacerated, in others green. Spikelet ovate, slightly compressed, attaining about 2 lines in length and $1\frac{1}{2}$ lines broad at the base, or in the smaller forms, 1 line long and $\frac{3}{4}$ line broad.

Glumes loosely imbricate or almost spreading, not numerous, deciduous, acute, the keel prominent and green, the sides dark brown and nerveless. Stamens 1 or 2. Style-branches 2. Hypogynous bristles usually 4 sometimes 5 to 8 in the typical form, and as long as the nut, very short or entirely wanting in some varieties. Nut small, obovate, biconvex, smooth and shining, at length dark brown or black, crowned by the small depressed persistent base of the style.—Böckel. in *Linnæa*, xxxvi. 458; F. Muell. *Fragm.* viii. 240.

N. Australia. Victoria River, *F. Mueller*.

Queensland. Brisbane River, *Bailey*.

N. S. Wales. Richmond River, *C. Moore*.

Var. *setiformis*. Stems filiform, under 2 in. high. Bristles very short or none.—Carron's Creek, Carpentaria, *Gulliver*; Rockhampton, *O'Shanesy*.

The species is spread over the tropical and temperate regions of the Old World, and is, perhaps, in America also.

20. 22. (22.) *capitata*, R. Br. Flou. 229.—Stems usually densely tufted, from under 6 in. to nearly 1 ft. high, slender, striate. Inner leaf-sheath short, appressed or rather loose, oblique at the orifice. Spikelet ovoid-conical or nearly globose, pale-coloured, rarely above 2 lines diameter. Glumes numerous, all including the 1 or 2 outer empty ones very deciduous, ovate, obtuse, more or less scarious, with a broad more opaque or greenish centre or dorsal nerve scarcely forming a prominent keel. Style-branches 2 or rarely 3. Hypogynous bristles 5 to 8, longer or shorter than the nut. Nut obovoid, biconvex or the inner face nearly flat, shining, crowned by the very small persistent depressed base of the style.—Kunth, Enum. ii. 150; Boeckl. in Linnaea, xxxvi. 461; F. Muell. Fragm. viii. 240.

N. Australia. Gulf of Carpentaria, R. Brown; Sea range and Victoria River, F. Mueller.

Queensland. Endeavour River, Banks and Solander.

W. Australia. Murchison River, Oldfield.

The species is widely spread over the warmer regions of the New and the Old World.

H. (E.) setacea, R. Br. l. c. (*Scirpus Brownii*, Spreng. Syst. i. 204) from Endeavour River, Banks and Solander does not appear to me to differ from slender specimens of *H. capitata*.

Eleocharis gracilis

(?) *sphacelata*, L. Br. 1804. 221.—Rhizome creeping or stoloniferous. Stems from under 2 ft. to 4 or 5 ft. high, 2 to 5 lines diameter, terete but appearing articulate from internal transverse septa, the principal nodes $\frac{1}{2}$ to 1 in. distant, but several minor ones often appearing between them. Spikelet cylindrical, 1 to $2\frac{1}{2}$ in. long; 2 to 4 lines diameter. Glumes closely imbricate, broadly obovate, very obtuse, scarcely striate but sometimes faintly 1-nerved, bordered by a narrow scarious margin and immediately under it by a brown zone or dark line. Hypogynous bristles 6 to 9, usually longer than the nut. Style-branches 2 or 3. Nut rather broad, minutely pitted or granular but not distinctly striate, the flattened beak rather narrow, with a narrow ring round its base.—Kunth, Enum. ii. 154; Bœckel. in Linnæa, xxxvi. 475; Hook. f. Fl. Tasm. ii. 85; F. Muell. Fragm. viii. 239; *Scirpus sphacelatus*, Spreng. Syst. i. 204; *Heleocharis plantaginea*, F. Muell. Fragm. viii. 238, not of R. Br.

N. Australia. Gulf of Carpentaria, *R. Brown*; Arnhem Land, *F. Mueller*.

Queensland. Rockhampton (the tubers of the rhizome alimentary) *O'Shanesy*; Brisbane River, *Bailey*.

N. S. Wales. New England, *C. Stuart*; Clarence River, *Beckler*, *Wilcox*; Camden county, *Miss Atkinson*.

Victoria. Wendu Vale, *Robertson*; Emu Creek, *Whan*; Mittagong, *Travers*.

Tasmania. Derwent River, *R. Brown*; abundant in lagoons near Formosa and other localities, *Gunn* and others.

S. Australia, Barossa Range and Lake Torrens, *F. Mueller*.

The species is also in New Zealand and apparently in the Fiji Islands. It is very closely allied to the true *H. (E.) plantaginea*, Br., which ranges over the warmer regions of the New and the Old World, but has not the dark mark at the end of the glumes, and, in the specimens examined at least, the beak of its nut is much shorter. The *H. (E.) bisepitata*, Steud. Syn. Glum. ii. 82 is probably the same as *H. sphacelata*.

Spikelets solitary capitate or irregularly umbellate, with several usually many flowers, all hermaphrodite or rarely the upper ones female only. Glumes imbricate all round the rachis or rarely distichous, the lowest 1 or 2 rarely 3 or 4 empty. No hypogynous bristles. Stamens 3, 2 or 1. Style flattened and ciliate or slender, with a conical or bulbous-shaped base, articulate on the ovary and falling off with the style, or (in *Oncostylis*) remaining persistent on the ovary long after the style has fallen away; stigmatic branches 2 or 3, filiform. Nut obovoid globular or more or less flattened and biconvex, often much contracted at the base.—Tufted annuals or perennials, never so large as the larger *Scirpi*. Leaves narrow, radical or at the base of the stem, sometimes reduced to membranous or rather rigid sheathing scales. Inflorescence terminal. Involucral bracts under the principal rays usually short, rarely 2 or 3 exceeding the inflorescence. Spikelets solitary on the stem or on the rays or rarely clustered, pale or dark brown or almost white, never black.

The genus extends all round the world, but chiefly in tropical or subtropical regions, and a larger proportion is Australian than in the case of *Scirpus* and *Heleocharis*. Of the fifty-six Australian species, thirty-nine are either really endemic or have not yet been identified with extra-Australian ones, three or four of them being however very closely allied to corresponding Asiatic species, sixteen are tropical Asiatic species, the majority of which extend into Africa, and seven of them are also in America, the remaining one species is also in New Zealand, and, perhaps, also in South Africa. Some three or four of the endemic species are as yet known by so few specimens that they may require further confirmation.

SECT. I. *Heleocharoides*.—Spikelet solitary, terminal. Glumes imbricate all round.

Nut biconvex, with transverse raised lines or wrinkles.

Style-branches 2 or rarely 3.

Spikelet erect, usually whitish.

One or two lower glumes empty.

Stems leafless but often intermixed with a very few leaves. Style-branches 2.

Stamen 1. Style glabrous 1. *F. acicularis*.

Stamens 3. Style ciliate 2. *F. acuminata*.

Leaves numerous, filiform. Style-branches 3 3. *F. punctata*.

About 4 lower glumes empty, all broad and obtuse.

Stems leafless 4. *F. rhyticarya*.

Leaves filiform, not numerous 5. *F. leucostachya*.

Spikelet nodding, usually brown 6. *F. nutans*.

Nut 3-angled or biconvex, smooth striate granular or tuberculate. Style-branches 3 or sometimes 2.

Spikelet oblong, lanceolate. Style-branches 3.

Spikelet about $\frac{1}{2}$ line broad. Leaves few or none.

No involucral bract. Nut tuberculate 7. *F. pauciflora*.

Spikelet about $1\frac{1}{2}$ lines broad. Leaves filiform.

No involucral bract. Nut minutely tuberculate. 8. *F. cardiocarpa*.

Spikelets about 1 line broad. Leaves setaceous.

Involucral bract often as long as the spikelet 9. *F. leucocolca*.

Spikelet ovate or oblong. Style-branches 2.

Spikelet 1 to $1\frac{1}{2}$ lines broad. Nut tuberculate.

Leaves numerous, filiform. Flowers all hermaphrodite 10. *F. polytrichoides*.

Stems leafless. Upper flowers female 11. *F. androgyna*.

Spikelet 2 lines broad. Nut (smooth?) rather broad. Leaves few, narrow 12. *F. subbulbosa*.

Spikelet 2 lines broad. Nut narrow-oblong, striate and cancellate. Stems leafless 13. *F. tetragona*.

Spikelet ovate, erect. Style-branches 3. Nut tuberculate. Leaves numerous.

Nut broad, 3-furrowed, on a long stipes 14. *F. trigastrocarya*.

Nut 3-ribbed, on a short stipes 15. *F. monandra*.

Spikelet globular, erect. Style-branches 3. Leaves numerous.

Spikelet white, 2 to 3 lines diameter. Nut flattened, often surrounded by a hyaline wing 16. *F. pterygosperma*.

Spikelet brown, 1 to $1\frac{1}{2}$ lines diameter 17. *F. sphærocephala*.

Spikelet nodding, brown, ovoid or cylindrical, 3 lines diameter. Leaves long and flat 18. *F. zyridis*.

(See also 35, *F. spiralis* and 37, *F. leptoclada*, which have sometimes solitary spikelets.)

SECT. II. *Abildgaardia*.—Spikelets solitary or few, flat with distichous glumes, or narrow and spiral in 2 or rarely 3 rows. Style-branches usually 3.

Spikelets solitary, narrow, usually spiral. Glumes long, cartilaginous or scarious.

Glumes scarious, acuminate, with erect points 19. *F. oxytachya*.

Glumes rigid, opaque, acute, closely appressed 20. *F. macrantha*.

Glumes rigid with long recurved points 21. *F. squarrolosa*.

Spikelets often several, very flat, regularly distichous or slightly spiral.

Leaves few, narrow-linear, rigid. Spikelets solitary or rarely 2 or 3, pale or nearly white 22. *F. monostachya*.

Stems tall, leafless. Spikelets 3 to 5, pale-coloured 23. *F. Brownii*.

Leaves numerous, narrow-linear. Stems 3 to 4 in.

Spikelets 4 to 6, rich brown 24. *F. Dallachyi*.

- Tufted annuals, leafy at the base. Stems under 1 ft.
 Nut smooth or very minutely striate or cancellate.
Style-bulb ciliate at the base, the hairs spreading or
 reflexed over the nut 25. *F. velata*.
Style-bulb glabrous 26. *F. æstivalis*.
 Nut with distinct longitudinal striæ or ribs and trans-
 versely cancellate.
 Spikelets numerous, under 2 lines long 27. *F. dichotoma*.
 Spikelets about 5 or fewer, above 2 lines long 28. *F. depauperata*.
 Perennials, often above 1 ft. high.
 Nut with distinct longitudinal striæ or ribs and trans-
 versely rugose. *Style* flat, ciliate. Leaves often
 numerous.
 Spikelets pale coloured, about 4 lines long. Leaf-
 sheaths hairy 29. *F. spiræstachya*.
 Spikelets usually brown, about 3 lines. Leaves
 glabrous 30. *F. diphylla*.
 Nut smooth or rugose.
Style distinctly ciliate.

- Stems leafless or with few leaves. Spikelets ovate-
 lanceolate, $1\frac{1}{2}$ to 2 lines broad. Nuts smooth 31. *F. ferruginea*.
 Stems leafless. Spikelets ovate or at length oblong,
 1 line broad. Nut usually rugose 32. *F. denudata*.
Style slender, nearly glabrous. Nut minute, smooth.
 Stem leafless. Spikelets lanceolate or oblong, 4 to
 6 lines long 33. *F. elata*.
 Leaves filiform, often numerous. Spikelets ovate,
 2 to 3 lines long 34. *F. cæspitosa*.

SECT. IV. *Trichelostylis*.—Spikelets several, usually numerous (rarely solitary in
F. spiralis and *F. leptoclada*). Glumes imbricate all round. *Style-branches* 3 (except
rarely in some *Glomeratæ*). Nut various.

SERIES I. *Oligostachyæ*.—Spikelets few, not clustered, occasionally solitary, above
2 lines long.

- Small annuals. Leaves numerous.
 Leaves setaceous. Spikelets narrow. Nuts tuberculate 35. *F. spiralis*.
 Leaves linear. Spikelets ovate, aristate. Nuts granular 36. *F. subaristata*.
 Stems long, leafless. Spikelets narrow. Nuts tuberculate.
 Spikelets 1 or 2, erect 37. *F. leptoclada*.
 Spikelets few on spreading umbel-rays 38. *F. debilis*.

SERIES II. *Polystachyæ*. Spikelets usually numerous in more or less compound
umbels, not clustered on the rays.

- Spikelets ovate, about 3 lines long or more.
 Nuts obovoid-clavate, smooth. Leaves and involucrel
 bracts long 39. *F. coryncarya*.
 Nuts tuberculate. Leaves few. Involucrel bracts
 short.
Style glabrous or nearly so. Nut narrow 40. *F. solidifolia*.
Style ciliate. Nut broad 41. *F. obtusangula*.
 Spikelets rarely 2 lines long, globular ovate or lanceolate.
 Spikelets globular, $\frac{3}{4}$ to $1\frac{1}{4}$ lines diameter. Stamens
 usually 1 42. *F. miliacea*.
 Spikelets globular, $1\frac{1}{2}$ to 2 lines diameter. Stamens
 usually 3 43. *F. rara*.
 Spikelets ovate or lanceolate, very numerous, under 2
 lines. Stamens 1 rarely 2 or 3 44. *F. microcarya*.
 Spikelets ovate or oblong 45. *F. quinquangularis*.
 Spikelets narrow, acute, 2- to 4-flowered (flowers more
 than 6 in all the preceding species) 46. *F. cyperoides*.

SERIES III. *Glomeratæ*.—Spikelets more or less clustered on the rays of the umbel,
and always a central cluster of 2 or more in lieu of the single central sessile spikelet.
Leaves usually numerous.

- Spikelets not above 2 lines long in clusters of 2 or 3, in-
terspersed usually with a few solitary ones.
 Leaves green, flaccid, flat. Spikelets rich brown, ovoid,
 about 2 lines long 47. *F. furva*.
 Leaves subulate, rigid, shining. Spikelets brown, 1 to
 $1\frac{1}{2}$ lines long 48. *F. cymosa*.
 Spikelets in clusters of 3 to 10.
 Leaves long, rather glaucous. Spikelets 1 to $1\frac{1}{2}$ lines
 long 49. *F. multifolia*.
 Leaves and inflorescence silky-hairy. Spikelets 2 lines
 long 50. *F. sericea*.
 Spikelets few but clustered, 3 to 4 lines long. *Style*-
 branches 2 51. *F. macrostachya*.
 Spikelets clustered, umbellate, 4 to 5 lines long. *Style*
 branches 3 52. *F. Neilsoni*.

SERIES IV. *Capitatæ*.—Spikelets collected in a single terminal head.

- Glumes obtuse, membranous. Involucrel bracts concealed
 under the head or rarely 1 prominent. Nut tuber-
 culate 53. *F. capitata*.
 Glumes mucronate. Involucrel bracts spreading, 1 to 3
 longer than the head. Nut smooth or nearly so 54. *F. Schultzei*.

SECT. V. *Oncostylis*.—*Style* bulbs persistent after the style has fallen but articulate
on the nut and often at length deciduous.

- Spikelets 6 to 10 in a terminal cluster. Leaf-sheaths
 ciliate at the orifice 55. *F. barbata*.
 Spikelets in a slightly compound or simple umbel. Leaf-
 sheaths not ciliate 56. *F. capillaris*.

Stems slender, densely tufted, 3 to 6 in. high, leafless except the sheathing scales at the base but frequently intermixed with tufts of 2 or 3 filiform leaves. Spikelet solitary, erect, narrow-oblong, 3 or sometimes 4 lines long, scarcely above 1 line broad in this variety. Glumes closely imbricate all round, lanceolate, acute, cartilaginous, the keel scarcely prominent but often 3-nerved, especially on the lower glumes, the lowest 1 or 2 glumes empty. Stamens 3. Style slightly flattened and ciliate; branches 2. Nut obovate, biconvex, marked with transverse raised wrinkles.—*F. acuminata*, *B. minor*, Boeckl. in Linnæa, xxvii. 4; *F. setacea*, Benth. in Hook. Lond. Journ. ii. 239.

Queensland. Moreton Bay, *F. Mueller*, *Bailey*; Fitzroy River, *O'Shanesy*; Rockingham Bay, *Dallachy*.

The typical *F. acuminata* has larger broader spikelets, the glumes more prominently keeled. It is spread over East India, Ceylon, and the Malayan Archipelago, the Australian variety is at least in the Archipelago.

Fimbristylis arthrostyloides

in. high, slender. Leaves very much shorter, rather numerous, setaceous. Umbel simple or slightly compound, the rays slender, $\frac{1}{2}$ to $\frac{3}{4}$ in. long. Involucral bracts very short and glume-like. Spikelets ovate or at length ovate-oblong, 2 to 3 lines long, nearly $1\frac{1}{2}$ lines broad. Glumes numerous, closely imbricate all round, membranous, ovate, obtuse or scarcely mucronate, the keel very slightly prominent, with a lateral nerve on each side in the lower glumes. Stamens 2 or 3. Style slender, scarcely ciliate; branches 2. Nut minute, biconvex, pale or dark coloured, smooth or under a strong lens minutely striate and cancellate.—*F. brachylæna*, F. Muell. Fragm. i. 199.

N. Australia. Arnhem Land and Gulf of Carpentaria, *R. Brown*; Upper Victoria River, *F. Mueller*; Sweers Island, *Henne*.

Queensland. Herbert River, *Armitage*.

F. Mueller, Fragm. ix. 9, unites this with *F. denudata* which it resembles in many respects, but the rather numerous setaceous leaves, the more numerous and differently shaped spikelets, and some other characters appear sufficiently to distinguish it.

O. r. cardiocarpa, *F. Muell. Fragm.* 1. 194.—Stems tufted and slender but rigid, 1 ft. high or more. Leaves much shorter, subulate,

with scarious sheaths. Spikelet solitary, erect, oblong or ovate-lanceolate, 4 to 5 lines long, $1\frac{1}{2}$ to 2 lines diameter. Glumes numerous, imbricate all round, thin, almost hyaline, minutely dotted with brown, 2 outer ones empty almost ovate, the keel produced into a long point, the flowering ones narrow, 2 to 3 lines long, obtuse or the keel very slightly produced, the sides nerveless. Style slender, glabrous below the branches; branches 2, ciliate. Nut small, obovoid almost turbinate, truncate, with 3 prominent ribs and minutely tuberculate.

N. Australia. Upper Victoria River, *F. Mueller*.

Fimbristylis cephalophora

Fimbristylis cinnamometorum

39. *N. corynocarya*, *F. Muell. Fragm.* 1. 191. — Apparently perennial, glabrous. Stems angular or flattened, about 2 ft. high. Leaves almost distichous, very narrow, 2 or 3 as long as the stem or longer. Umbel compound, the longest rays 2 to 3 in. long. Involucral bracts very narrow, dilated at the base, 2 or 3 of them longer than the inflorescence and those of the partial umbels often rather long. Spikelets broadly ovate, pale brown, about 3 lines long and 2 lines broad. Glumes numerous, but rather loosely imbricate all round, broad, rather acute, rigid and obscurely 3-nerved in the centre, the broad sides thinly scarious and ciliate. Stamens 3. Style slender, minutely ciliate; branches 3. Nut obovoid-clavate, contracted into a long stipes, very prominently 3-ribbed, perfectly smooth.

N. Australia. Depot Creek, Upper Victoria River, *F. Mueller*, a single specimen in his herb.

20. 2. *Cyperoides*, L. 27. 1700. 220.—Stems from a creeping rhizome slender but rigid, 6 in. to above 1 ft. high. Leaves not numerous, very narrow or subulate, erect, with long open sheaths. Umbel compound, with filiform rays, the longest about 1 in. long. Involucral bracts few, subulate, the longest much shorter than the inflorescence. Spikelets not clustered, narrow, acute, brown, 2 to 3 lines long, $\frac{1}{2}$ to $\frac{3}{4}$ line broad, with 2 to 4 flowers. Glumes imbricate all round, erect, lanceolate, acute, membranous, keeled, the flowering ones about 2 lines long, 2 or 3 outer empty ones shorter, and 1 or 2 small empty ones above the flowers. Stamens 3. Style glabrous or nearly so, the bulbous base continuous and falling off with it as in the normal species;

branches 3. Nut obovoid-oblong, faintly 3-ribbed, whitish, rugose.—*F. cinnamometorum*, Kunth, Enum. ii. 229; (Bœckel. in Linnæa, xxxvii. 35;) *Abildgaardia cinnamometorum*, Thw. Enum. Pl. Zeyl. 347; *Abildgaardia fusca*, F. Muell. Fragm. viii. 273, not of Nees; *Fimbristylis biflora*, Bœckel. in Linnæa, xxxviii. 393.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; Providence Hill, *F. Mueller*; Port Darwin, *Schultz*, n. 658.

Queensland. Wide Bay, *Bidwill*; Rockingham Bay, *Dallachy*.

N. S. Wales. New England, *C. Stuart*; Clarence River, *Beckler*.

Also in the East Indian Peninsula and in Ceylon. It was by some mistake, probably from misnamed specimens, as are frequent among our Indian Cyperaceæ, that Thwaites referred the *Abildgaardia fusca*, Nees, to *A. cinnamometorum*, instead of to the *A. fulvescens*, Thw. The *F. cyperoides* is anomalous in the genus in its few flowers and the proportional number of empty glumes nearer that of *Rhynchospora*, but the style and other characters are quite those of *Fimbristylis*.

82. *F. cuneolata*, R. Br. *Frou. 241*.—Perennial and glabrous. Stems densely tufted, slender but rigid, 6 in. to nearly 1 ft. high, leafless except short sheathing scales or very rarely intermixed with a very few long setaceous leaves. Umbels simple, of 3 to 6 spikelets or one of the lateral rays bearing 2 spikelets distant from each other, the branches or rays as well as the spikelets erect. Involucral bracts short and glumelike or rarely produced into a short point. Spikelets brown, at first ovate-oblong and about 2 lines long, at length nearly cylindrical and 3 to 5 lines, scarcely 1 line diameter. Glumes numerous, imbricate all round, ovate or oblong, obtuse or shortly mucronate, the keel very prominent, the sides membranous. Stamens 2 or 3. Style flattened, ciliate; branches 2. Nut minute, obovate, biconvex, smooth or under a strong lens slightly rugose.—F. Muell. *Fragm. ix. 9.*

N. Australia. Arnhem Land, N. coast, *R. Brown*; Victoria River, *F. Mueller*; between Norman and Gilbert Rivers, *Gulliver*.

N. Australia. Arnhem Land, north coast, *R. Brown*.

N. Australia. Arnhem Land, north coast, *R. Brown*.

and apparently annual. Stems from a few inches to nearly 1 ft. high. Leaves shorter, rather numerous, very narrow linear but flat, quite glabrous or the sheaths slightly ciliate. Umbel nearly simple or compound but not usually large, the longest rays $\frac{1}{2}$ to 1 in. Involucral bracts narrow-linear, 2 or 3 longer than the inflorescence. Spikelets ovate, from 1 to $1\frac{1}{2}$ lines long. Glumes imbricate all round but not very numerous, ovate, membranous, with a very prominent keel produced into a short erect point. Stamen 1. Style flattened, ciliate but the base glabrous; branches 2. Nut broadly obovate, biconvex, with 10 to 12 prominent longitudinal striæ and transversely cancellate. —Bœckel. in Linnæa, xxxvii. 12; Reichb. Ic. Fl. Germ. t. 315; F. Muell. Fragm. ix. 10; *F. parviflora*, R. Br. Prod. 227.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*.

Queensland. Tarampa Creek, *F. Mueller*; Rockingham Bay, *Dallachy*; Herbert's Creek, *Bowman*; Moreton Bay, *C. Stuart*.

N. S. Wales. Richmond River, *C. Moore*; Glendon, *Leichhardt*.

Extends over the warmer regions of both the New and the Old World.

and smooth. Stems rigid, striate, often slightly compressed, 1 to 2 ft. high. Leaves few, the narrow-linear lamina often erect and shorter than the brown membranous sheath. Umbel simple or slightly compound. Involucral bracts few, either all very short or 1 or 2 slightly exceeding the inflorescence. Spikelets few, rarely reduced to 1 or 2 or increased to about 12, dark or light brown, always rather large but varying in size from 4 lines long and $1\frac{1}{2}$ lines broad to above $\frac{1}{2}$ in. long and fully 2 lines broad. Glumes numerous, closely imbricate all round, broadly ovate or almost orbicular, membranous with a rather fine but prominent keel often produced into a short point, the sides nerveless or faintly striate, often minutely hoary-pubescent. Stamens 3. Style ciliate; branches 2. Nut obovate, much compressed but biconvex, usually with a thickened margin, quite smooth or under a strong lens very minutely striate and cancellate.—Bœckel. in Linnæa, xxxvii. 16; F. Muell. Fragm. ix. 10; *F. brevifolia*, R. Br. Prod. 228.

N. Australia. Near Providence Hill, *F. Mueller*.

Queensland. Rockingham Bay, *Dallachy*; Rockhampton, *Thozet* and others; Brisbane River, Moreton Bay, *F. Mueller*, *Leichhardt*.

N. S. Wales. Botany Bay, *Banks* and *Solander*; Richmond River, *Mrs. Hodgkinson*; near Mount Murchison, *Bonney*.

W. Australia. Murchison River, *Oldfield*.

Var. *foliata*. Leaves long though few and often only one, the sheaths often pubescent. Spikelets large.—*F. arvensis*, Vahl; Kunth, Enum. ii. 237; *F. tristachya*, R. Br. Prod. 226; *F. paucispicata*, F. Muell. Fragm. i. 197. Gulf of Carpentaria, *R. Brown*; Upper Victoria River, *F. Mueller*; Bowen Downs, *Birch*; Springsure, *Wuth*.

Fimbristylis littoralis

Stems tufted, slender, angular, from 3 to 4 in. to above 1 ft. high. Leaves much shorter, rather numerous, flat and rather flaccid, from $\frac{1}{2}$ line to nearly $1\frac{1}{2}$ lines broad, with short open sheathing bases. Umbel

slender, irregular, but very compound, the rays and pedicels filiform, the longest rays 1 to 2 or rarely 3 in. long. Involucral bracts narrow and leafy but shorter than the rays. Spikelets not clustered but numerous, the smallest in the genus, brown, narrow-lanceolate, about $\frac{1}{2}$ line long when first out, lengthening to 1 or $1\frac{1}{2}$ lines or very rarely rather longer when old, not $\frac{1}{2}$ line broad, with 6 to 12 or rarely more flowers. Glumes loosely imbricate all round, acuminate, the point sometimes slightly spreading, the keel very prominent and sometimes slightly ciliate, especially in the outer ones, one only empty. Stamen 1. Style nearly glabrous, branches 3. Nut obovoid, whitish, with 3 prominent ribs, usually tuberculate.—*F. cyperoides*, F. Muell. Fragm. ix. 11, not of R. Br.

N. Australia. Sturt's and Depot Creeks, Upper Victoria River, *F. Mueller*; between Norman and Gilbert Rivers, *Gulliver*.

Queensland. Port Denison, *Fitzalan*; Boyd River and Dry-Beef Creek, *Leichhardt*; Herbert's Creek, *Bowman*; Rockhampton and neighbourhood, *Thozet*, *O'Shanesy*; Springsure, *Wuth*.

Stems tufted, slightly or very prominently 4-angled, 6 in. to about 2 ft. high. Leaves from much shorter to nearly as long, linear, tapering to a fine point; the sheathing base broad and open. Umbel compound, sometimes small with the longest ray about 1 in., sometimes above 6 in. long and very compound, the ultimate rays or pedicels usually horizontally spreading. Involucral bracts small and linear or rarely 1 nearly as long as the ray. Spikelets globular or nearly so, from $\frac{3}{4}$ to nearly $1\frac{1}{2}$ lines diameter. Glumes numerous, closely imbricate all round, broadly ovate, membranous, obtuse or scarcely mucronate, the keel fine but prominent, and frequently a broad brown streak on each side, the margins pale, sometimes hyaline. Stamen 1. Style glabrous; branches 3. Nut small, obovoid, whitish, 3-ribbed, granular tuberculate or almost muricate.—Bœckel. in Linnæa, xxxvii. 43; F. Muell. Fragm. ix. 12; *Trichelostyles miliacea*, Nees; Hook. f. Fl. Tasm. Præf. 48.

N. Australia. Upper Victoria River and near M'Adam Range, *F. Mueller*; between Norman and Gilbert Rivers, *Gulliver*.

Queensland. Rockhampton, *O'Shanesy*.

Common in tropical Asia, the Mascarene Islands and in tropical America, but the Senegambian plant referred to it by J. D. Hooker is probably different.

52. **F. Neilsoni**, *F. Muell. Fragm.* 12. 13.—GLABROUS. Stems 1 ft. high or more. Leaves shorter, narrow, with broad scarious sheaths obtuse at the orifice. Spikelets large, in a dense cluster of 3 to 5, with 2 or 3 short lateral rays or pedicels, bearing each 3 or 4, forming a simple umbel. Involucral bracts rarely longer than the inflorescence. Spikelets ovate, 4 to 5 lines long. Glumes rather loosely imbricate, ovate, obtuse, membranous, hyaline towards the margin, the lower ones 2 lines long. Stamens 3. Style slender, glabrous; branches 3. Nut clavate-pyriform, 3-angled, pale-coloured, tuberculate.

N. S. Wales. In the interior, between the Darling and Barcoo Rivers, *Neilson*, between Rome and the Barcoo, *Birch*. Very closely resembles *F. macrostachya*; but differs in the thinner glumes, with broad hyaline margins, and in the slender glabrous and 3-branched styles.

19. **F. oxystachya**, *F. Muell. Fragm.* 1. 195.—Stems densely tufted, slender, smooth, 4 in. to near 1 ft. high. Leaves much shorter, few and filiform, the sheathing scales at the base of the stem often scarious. Spikelet solitary, erect, oblong or narrow-lanceolate, slightly flattened, 5 to 6 lines long, 1 to 1½ lines broad. Glumes irregularly spiral or almost distichous, rigid but much thinner than in *F. monostachya* and almost scarious, lanceolate, acuminate or acute, the keel prominent and green, the sides pale brown or whitish and nerveless, the flowering ones nearly 3 lines long, 3 or 4 outer empty ones gradually shorter and broader, the lowest very small. Stamens 2 or 3. Style very shortly pubescent; branches 3. Nut obovoid, stipitate, 3-ribbed, prominently tuberculate.

N. Australia. Upper Victoria River, *F. Mueller.*

F. 2. pauciflora, *ib. 27. 1799. 220.* — Stems densely branched, filiform, 3 to 6 in. high or rarely more. Leaves few and filiform, or all reduced to sheathing scales with scarcely any lamina. Spikelets solitary, erect, very narrow-oblong, nearly white, about 2 lines long and $1\frac{1}{2}$ line broad. Glumes few but imbricate all round and very deciduous, cartilaginous, acute, keeled, the sides veinless, the 2 outer ones empty and more acuminate with the keel more or less distinctly 3-nerved. Stamen usually 1. Style not at all or scarcely ciliate; branches 3, rarely 2. Nut obovoid-globular, 3-ribbed, tuberculate or almost muricate.—*F. filiformis*, Kunth, Enum. ii. 221; Boeckl. in Linnæa, xxxvii. 23; *F. pumila*, Benth. in Hook. Lond. Journ. ii. 239.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; near M'Adam Range, *F. Mueller*; Regent's and Hunter's Rivers, *A. Cunningham*.
Queensland. Rockingham Bay, *Dallachy*.

Also in the Malayan Archipelago and peninsula. The plant closely resembles the var. *setacea* of *F. acuminata*, but the spikelets are narrower and the style and nuts quite different. Brown describes the style as 2-branched, Kunth says it is 3-fid or rarely 2-fid; in the specimens I have examined I have found it 3-branched, but I believe all to belong to the same species.

Fimbristylis phaeoleuca

Stems 6 to 9 in. high. Leaves much shorter, numerous, narrow-linear, almost setaceous with short open sheathing bases or the inner ones with short scarious sheaths. Spikelet solitary, erect, oblong, 4 to 5 lines long, $1\frac{1}{2}$ to 2 lines diameter, pale coloured. Glumes closely imbricate all round, rather rigid, above 2 lines long, obtuse but the broad prominent keel produced into a short erect very obtuse point, the sides smooth and veinless, 1 or 2 outer ones empty with rather longer points. Stamens 2 or 3. Style flattened, ciliate in the upper part; branches 3, short. Nut broadly obovate, biconvex, whitish with a few raised transverse ridges or wrinkles and minutely pitted all over.

Queensland. East coast, *R. Brown*.

In the specimens examined there certainly were 3 style-branches as described by Brown, although the nut showed no trace of a third angle or rib.

45. **F. quinquangularis**, *Kunth, Enum. ii. 229.*—Stems tufted, rather slender, more or less distinctly 4- or 5-angled, 1 ft. high or more, smooth or scabrous. Leaves sometimes nearly as long, narrow, flat or concave, glabrous, sometimes all reduced to loose sheathing scales, tapering into short erect laminæ. Umbels compound, with very numerous small spikelets not clustered, the rays sometimes all short though slender, sometimes the longer ones attaining 3 in. Involucral bracts short or one nearly as long as the inflorescence. Spikelets ovoid or at length oblong, pale or dark brown, $1\frac{1}{2}$ to 2 lines long, 6- to 12-flowered. Glumes loosely imbricate all round, ovate, obtuse or shortly mucronate, the broad keel prominent and usually with a dark line on each side, the sides membranous and the margins sometimes scarious. Stamens 1 or 2 (rarely 3?). Style slender, nearly glabrous: branches 3. Nut ovoid-globular, obtusely triquetrous, tuberculate.—Bæckel. in *Linnaea*, xxxvii. 42; *Trichelostyles quinquangularis*, Nees; Hook. f. Fl. Tasm. Præf. 48.

N. Australia. Upper Victoria River, *F. Mueller*.

Common in East India, extending to the Mascarene Islands. The Australian specimens have paler spikelets than the Indian ones, but I can perceive no other difference.

45. *F. rara*, *N. Br. Prodr.* 221. — Apparently annual. Stems angular, 1 to 2 ft. high. Leaves much shorter, few, the inner ones or sometimes all reduced to sheathing scales with short erect laminæ or points. Umbel compound, rather loose, 2 to 4 in. broad, the pedicels slender. Involucral bracts very short. Spikelets shortly ovoid, $1\frac{1}{2}$ to 2 lines long, 1 line diameter. Glumes not near so numerous as in *F. miliacea*, loosely imbricate all round, broad, obtuse or shortly acuminate, keeled, the sides with broad hyaline margins. Stamens 3. Style glabrous; branches 3. Nut ovoid, 3-ribbed, granular-tuberculate.—*F. trachycarya*, F. Muell. *Fragm.* i. 199.

N. Australia. Arnhem Land, north coast, *R. Brown, Kinlay*; Depot Creek, Upper Victoria River, *F. Mueller*.

United by F. Mueller, *Fragm.* ix. 12, with *F. miliacea*, but the shape and structure of the spikelets, and the shape of the glumes, appear to me to be different, and I always find 3 stamens, whilst I have never seen more than 1, in the Australian specimens at least, of *F. miliacea*.

F. salbundia

SE. F. SCHULTZ, *Botan. in Linnæa*, xxxviii. 391.—Stems culms, slender, 4 to 6 in. high. Leaves much shorter, rather numerous, narrow-linear but flat, with short open sheaths. Head of spikelets terminal, globular or at first hemispherical, 3 to 5 lines diameter. In-

volucral bracts 4 or more, linear, spreading or reflexed, 1, 2 or sometimes 3 longer than the head. Spikelets numerous, sessile, ovate, more or less flattened, $1\frac{1}{2}$ to 3 lines long, about $1\frac{1}{2}$ lines broad. Glumes not numerous, loosely imbricate, the prominent keel produced into a short or long more or less recurved point, the sides nerveless, thin with scarious hyaline margins. Stamens 2 or 3. Style glabrous; branches 3. Nut obovoid, 3-ribbed, minutely granular or almost smooth.—*F. platystachys*, Bœckel. in Linnæa, xxxviii. 390.

N. Australia. Sturt's Creek, *F. Mueller*; Port Darwin, *Schultz*, n. 96, 792.

The two numbers gathered by Schultz are distinguished as species by Bœckeler, and the separation is apparently justified by the specimens in the Berlin herbarium, but those of the Kew herbarium differ much less from each other, and *F. Mueller's* specimens are quite intermediate in most respects. The length of the involucral bracts and the points of the glumes upon which the distinctions are chiefly founded are so variable, that I am unable to give tangible characters even for two distinct varieties.

F. semileris

50. *F. sericea*, R. Br. *Flora*. 228.—Rhizome or stock thick and covered with the remains of old leaf-sheaths. Stems 6 in. to 1 ft. high, rigid, angular, striate, silky-pubescent or at length glabrous. Leaves much shorter, crowded at the base of the stem, linear, thick, 1 to 2 lines broad, obtuse, silky-pubescent on the underside and sheaths. Umbel irregularly compound, the longer rays about $1\frac{1}{2}$ in., the spikelets in little clusters of 3 to 10. Involucral bracts lanceolate, acuminate, silky-hairy, much shorter than the rays. Spikelets about 2 lines long, with 2 or 3 perfect flowers. Glumes lanceolate or ovate-lanceolate, acute, navicular, prominently keeled, the sides nerveless, 2 outer ones shorter and empty and 1 or 2 upper ones also empty. Stamens 3. Style very shortly hairy; branches 3 (or 2). Nut not seen.—Bœckel. in Linnæa, xxxvii. 22.

N. Australia. Gulf of Carpentaria, R. Brown; Upper Victoria River, F. Mueller; Port Darwin, Schultz, n. 602.

Bœckeler refers to this species the *F. decora*, Nees, Kunth, Enum. ii. 240, from S. China and Java, in which he is probably right. The Australian plant has generally but not always 3 style-branches as described by Brown, whilst in the Chinese ones I have found only 2 in the spikelets examined, as described by Nees, Kunth, and Bœckeler.

F. signata

40. **F. solidifolia**, *F. Muell. Fragm.* 1. 1898.—Glabrous and perhaps annual though 1 to 1½ ft. high. Leaves few, narrow, erect, flat or nearly terete, the longest sometimes as long as the stem. Umbels slightly compound, of few rays, the longest 1 to 1½ in. long. Involucral bracts narrow, shorter than the rays or 1 as long. Spikelets 1 to 3 on each ray, pale brown, broadly ovate and about 3 lines long, but the rhachis lengthening as the lower glumes fall away. Glumes numerous, imbricate all round but very concave and distinct, obtuse, the keel prominent but not thick, with usually a nerve on each side. Stamens 3. Style nearly glabrous; branches 3. Nut narrow-obovoid, clavate, 3-ribbed, prominently tuberculate almost muricate.

N. Australia. Sturt's Creek, *F. Mueller.*

17. **F. sphærocephala**, *Benth.*—Stems densely tufted, uniform, 5 to 6 in. high. Leaves much shorter, numerous, filiform, glabrous or minutely pubescent, with short open sheaths. Spikelet solitary, erect, globular and 1 to $1\frac{1}{2}$ lines diameter, or at length ovoid and 2 lines long, brown. Glumes numerous, closely imbricate all round, broadly obovate or orbicular, obtuse, membranous almost hyaline, shortly ciliate, the midrib or keel slightly prominent and in the 1 or 2 outer empty glumes produced into a short point. Stamen 1. Style hairy

but scarcely flattened; branches 3. Nut not seen ripe but showing 3 prominent ribs as in *F. monandra*.

N. Australia. Victoria River *F. Mueller*; Camden Harbour, *Martin*.
Queensland. Sunday Island, near Cape York, *A. Cunningham*.

21. *F. squarrosa*, *F. muell. Fragm.* 1. 210.—Stems curved, 1 to 1½ ft. high, slender but rigid, leafless except the short erect subulate points of the sheathing scales, but intermixed with a few long narrow radical leaves. Spikelet solitary, erect, narrow-oblong, scarcely flattened, 6 to 9 lines long, scarcely 2 lines broad. Glumes not numerous, almost distichous or irregularly spiral, cartilaginous, the keel prominent and tapering into a spreading point, the sides nerveless or minutely striate, the longer flowering ones about 4 lines long, about 4 outer empty ones gradually shorter and broader. Stamens 3. Style scarcely dilated, minutely ciliate; branches 3. Nut stipitate, ovoid, obtuse, slightly 3-ribbed, prominently tuberculate when quite ripe.—*Abildgaardia schœnoides*, R. Br. Prod. 229.

N. Australia. Gulf of Carpentaria, *R. Brown*; Victoria River, *F. Mueller*.

F. stellata

36. **F. subaristata**, *Benth.*—Apparently annual, glabrous. Stems slender, tufted, 3 to 4 in. high. Leaves much shorter, numerous, narrow-linear, spreading. Umbel simple, of few spreading rays on pedicels not exceeding $\frac{1}{2}$ in. Involucral bracts linear-subulate, 1 often as long as the rays. Spikelets pale-coloured, ovate-lanceolate, 2 to 3 lines long. Glumes loosely imbricate all round, ovate or ovate-lanceolate, the keel very prominent and produced into a spreading point, often rather long and awn-like in the lower ones, shorter on the uppermost ones, the sides membranous, brown and sometimes with white scarious margins. Stamens 2 or 3. Style slender, glabrous; branches 3. Nut broadly obovoid, almost obcordate, very prominently 3-ribbed, granular-tuberculate, the granules usually in regular vertical rows.

N. Australia. Sturt's Creek, *F. Mueller.*

15. *F. tetragona*, *ib.* *ib.* 1700. 220.—Stems 3 in. to above 1 in. high, slender, often thickened into a bulb at the base, leafless except short loose sheathing scales at the base. Spikelets solitary, erect, ovoid, obtuse, 3 to 4 lines long and 2 lines diameter, the rhachis at length sometimes longer but denuded at the base, the lower glumes having fallen away. Glumes numerous, closely imbricate all round, oblong or rather broad, very obtuse, very finely striate but otherwise nerveless, thinly cartilaginous, 4 to 6 of the lower ones empty. Stamens 3. Style flattened, ciliate; branches 2 or rarely 3. Nut narrow-oblong, scarcely flattened, longitudinally striate and transversely cancellate.—*F.* Muell. *Fragm.* i. 194, viii. 274; *F. cylindrocarpa*, Kunth, *Enum.* ii. 222; Boeckl. in *Linnaea*, xxxvii. 7; *Trichelostylis xyroides*, Arn.; Hook. f. *Fl. Tasm. Præf.* 48.

N. Australia. Islands of the Gulf of Carpentaria, *F. Brown*; Providence Hill and Depot Creek, Upper Victoria River, *F. Mueller*.

Spreads over East India, Ceylon, and the Malayan Archipelago.

14. *F. trigastrocarya*, *F. Muell. Fragm.* 1. 194. —Densely tufted, apparently annual. Stems filiform, 4 to 8 in. high, minutely pubescent. Leaves much shorter, filiform, with short open sheaths. Spikelet solitary, erect, ovoid or at length oblong-lanceolate, pale-brown, 3 to 4 lines long, nearly $1\frac{1}{2}$ lines diameter. Glumes numerous, imbricate all round, membranous almost hyaline and spotted with brown, ovate or oblong, obtuse, nerveless except the midrib or keel, often produced

in the lower ones into a short point, the lowest 1 or 2 glumes or involucre bracts subulate, but shorter than the spikelet, and sometimes with scarious margins at the base, the lower part of the rachis often denuded, the glumes and nuts being very deciduous. Stamens 3. Style scarcely flattened, glabrous; branches 3. Nut marked with 3 deep furrows so as to be almost 3-lobed, tuberculate, tapering at the base into a smooth stipes.

N. Australia. Depot Creek, Upper Victoria River, *F. Mueller*.

Spikelets clustered, with several usually many hermaphrodite flowers. Glumes imbricate all round the rachis, the lowest 1 or rarely 2 empty. Hypogynous scales 3, broad, usually 3-nerved, often alternating with small bristles. Stamens 3; anthers small. Style deciduous, with 3 stigmatic branches. Nut 3-angled.—Perennials or annuals with leafy stems. Leaf-sheaths crowned with an annular membrane. Clusters of spikelets terminal and in the upper axils, usually forming an irregular narrow terminal panicle or the clusters few and distant. Spikelets usually pubescent or hirsute.

The genus consists of but few species dispersed over the warmer regions of the New as well as the Old World, the Australian ones having both a general distribution over nearly the whole area.

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|--|--------------------------|
| Leaves glabrous. Glumes shortly pointed. Hypogynous scales contracted at the base but sessile or nearly so, without bristles | 1. <i>F. umbellata</i> . |
| Leaves pubescent or at least ciliate. Glume-points long, often recurved. Hypogynous scales cordate at the base, stipitate, usually alternating with bristles | 2. <i>F. glomerata</i> . |

Fuirena ciliaris

2. *F. glomerata*, Lam.; Kunth, Enum. ii. 184.—Apparently annual. Stem weak, rarely above 1 ft. high. Leaves more or less pubescent or at least ciliate on the edges. Spikelets rather larger than in *F. umbellata*, either in a single terminal cluster with a leafy bract at the base, or more frequently with the addition of 1 or 2 almost sessile clusters in the upper axils. Glumes obovate, 3-nerved, produced into a rather long usually spreading or recurved point. Hypogynous scales very variable, but always distinctly stipitate and more or less cordate, usually truncate at the top and sometimes with a long terminal seta, white and thickened towards the apex or brown and membranous throughout, alternating with bristles sometimes as long as themselves, sometimes very short. Style-branches occasionally 2 only but usually 3. Nut obovoid, acutely 3-angled.—Boeckl. in Linnæa, xxxvii. 107; R. Br. Prod. 220; F. Muell. Fragm. viii. 238; *Scirpus ciliaris*, Linn.; Rottb. Descr. et Ic. Pl. t. 17. f. 1; *F. arenosa*, R. Br. Prod. 220.

N. Australia. Upper Victoria River and Providence Hill, F. Mueller; Port Darwin, Schultz, n. 256 and 282 (the latter a long very slender starved state); between Norman and Gilbert Rivers, Gulliver.

Queensland. Endeavour River, Banks and Solander, A. Cunningham; Keppel Bay, R. Brown; Cape York, Daemel; Rockingham Bay, Dallachy; Rockhampton and neighbourhood, Thozet, Bowman and others; Brisbane River, Moreton Bay, F. Mueller, Bailey; Dry-beef Creek, Leichhardt. Brown's *F. arenosa* was founded upon old weak specimens from Point Lookout, Banks and Solander, from which the flowers and glumes have mostly fallen away.

1. *F. umbellata*, *Wotton. Descr. et. Ic. Fl. 70, t. 19, f. 3.*—Perennial. Stems $1\frac{1}{2}$ to 3 ft. long, 4- or 5-angled, glabrous. Leaves glabrous, the larger ones 4 to 6 in. long, 4 to 5 lines broad, the lowest with long sheaths and short laminæ, the upper ones passing into small floral leaves or sheathing bracts. Spikelets brown-green, usually 3 to 4 lines long, sparingly hirsute, in very dense clusters, of which 1 or 2 terminal, the others 1 or 2 together pedunculate in the upper axils. Glumes ovate, very prominently 3-nerved, produced into an erect or slightly recurved point, much shorter than in *F. glomerata*. Hypogynous scales brown, obovate, nearly $\frac{1}{2}$ line long, truncate and mucronate at the top, contracted at the base but nearly sessile without any intervening bristles. Nut rather broad, acutely triquetrous, mucronate with the slightly thickened persistent base of the style.—Kunth, Enum. ii. 185; Boeckl. in Linnæa, xxxvii. 110; R. Br. Prod. 220; F. Muell. Fragm. viii. 238.

N. Australia. Providence Hill and sources of the Limmen-Bight River, F. Muell.

Queensland. Endeavour River, *Banks and Solander*; Port Curtis, *M'Gillivray*; Rockingham Bay, *Dallachy*; Rockhampton, *Bowman*.

Tuncellus

Juncellus cephalotes

J. pygmaeus

6. LIPOCARPHA, R. Br.

Spikelets in a terminal cluster or head, with numerous hermaphrodite flowers. Glumes imbricate all round the rhachis, the lowest 1 or rarely 2 empty. Hypogynous scales 2, parallel to the glume, as long as or longer than the nut and enclosing it. Stamens 1 or 2 (rarely 3?). Style deciduous, slender, with 2 or 3 stigmatic branches. Nut oblong, somewhat compressed, obtuse or crowned by a very small persistent base of the style.—Annuals or perennials, the stems leafy at the base only. Spikelets few, small, sessile. Involucral bracts leaflike narrow unequal, spreading.

A small genus spread over the tropical regions of the New and the Old World. Both the Australian species are also in the Malayan Archipelago, and one of them has a very wide tropical range.

In the Flora Hongkongensis, misled by the approximation of the genus by some botanists to *Kyllinga* and by others to *Hypolytrum*, I described the flowers as 1-flowered spikelets, enclosed in heads resembling spikelets, but a closer examination convinces me that it is really very close to *Scirpus* (*Isolepis*), and connects that genus with *Fuirena*. The two hypogynous scales are never lateral and carinate like the outer scales or bracteoles of *Hypolytrum*, but appear to correspond in every respect with the scales of *Fuirena*, *Hemicarpha*, and of *Scirpus littoralis*, differing in number, usually 1 in *Hemicarpha*, 2 in *Lipocarpa*, 3 in *Fuirena*, and 4 in *Scirpus littoralis*.

Usually perennial, often above 1 ft., with linear leaves.

Glumes spatulate or broadly cuneate, scarcely pointed. 1. *L. argentea*.

Annual, under 6 in., with filiform leaves. Glumes narrow, with spreading points 2. *L. microcephala*.

2. *S. microcephala*, Kunth, *Enum.* ii. 208.—A tufted annual, the very slender stems usually from 1 or 2 to 6 in., but sometimes nearly 1 ft. high. Leaves shorter, very narrow, with rather broad striate sheaths. Spikelets usually 3, but varying from 1 to 5 or very rarely more. Involucral bracts very narrow, the longest 1 to 2 in. long. Spikelets ovoid-conical, $1\frac{1}{2}$ to 2 lines long. Glumes very numerous, narrow, slightly cuneate, acuminate, the green keel produced into a short usually spreading point. Hypogynous hyaline scales narrow. Stamens 1 or 2. Style-branches 2. Nut oblong-linear, compressed, rather acute or almost obtuse, rather shorter than the hypogynous scales.—Böckel. in *Linnæa*, xxxvii. 118; *Hypælyptum microcephalum*, R. Br. Prod. 220; F. Muell. Fragm. viii. 238; *Scirpus leptocarpus*. F. Muell. in Trans. Phil. Soc. Vict. i. 109, and in Hook. Kew Journ. viii. 334.

N. Australia, Arnhem S. Bay, *R. Brown*; between Norman and Gilbert Rivers, *Gulliver*; Port Darwin, *Schultz*, n. 78.

Queensland. Rockingham Bay, *Dallachy*; Herbert Creek, *Bowman*; Dry-beef Creek, *Leichhardt*; Rockhampton, *O'Shanesy*.

Victoria. Murray, Ovens, and King's Rivers, *F. Mueller*.

Pycnus

Pycnops albomarginatus

Spikelets capitate or paniculate, with 1 or 2 hermaphrodite flowers and often 1 or 2 males, oblong, more or less acuminate. Glumes imbricate all round the rhachis; 3, 4 or more outer ones shorter and empty, and 1 or 2 above the flowering ones enclosing male flowers or empty. Hypogynous bristles 6, rarely fewer, sometimes more. Stamens 3 or fewer. Style slender, conically dilated at the base; stigmatic branches 2. Nut globular or more or less flattened, crowned by the persistent conical or elongated base of the style, which is sessile and continuous or separated by a constriction but not distinctly articulate.—Stems simple under the inflorescence, usually leafy. Spikelets usually of a rich brown, more or less clustered, in terminal or axillary heads or corymbs sometimes forming large terminal panicles.

The genus is widely spread over the tropical and temperate regions of the New and the Old World. Of the five Australian species three have a very extended tropical range, two at least if not the third being common in America as well as in the Old World. The two others have not yet been identified with extra-Australian species.

Spikelets clustered in a compound panicle, the partial panicles corymbose or cymose.

Spikelets 3 to 4 lines long, very numerous, the terminal corymb 3 to 4 in. diameter. Beak of the nut long and thick, usually furrowed 1. *R. aurea*.

Spikelets 2 to 3 lines long, in loose corymbs of $\frac{1}{2}$ to 1 in. diameter. Beak of the nut not longer than the nut and closely sessile 2. *R. glauca*.

Spikelets in a single dense terminal head.

Hypogynous bristles shorter than the nut. Nut smooth, broadly obovoid, with a very short beak. Stem usually above 1 ft. 3. *R. Wallichiana*.

Three at least of the bristles much longer than the nut. Nut oblong. Stem usually under 1 ft.

Spikelets 4 to 5 lines long. Nut tuberculate or hispid, the beak closely sessile and often as long as the nut. Leaves shorter than the stem 4. *R. longisetis*.

Spikelets about 3 lines. Nut smooth or nearly so, the beak short and constricted at the base. Leaves often as long as the stem 5. *R. tenuifolia*.

R. tenerrima, Nees in Spreng. Syst. Cur. Post. 26, correctly referred to the *R. setacea*, Boeckl. (*Schoenus setaceus*, Rottb. *Dichromena*, Kunth), was supposed to be Australian on the authority of Sieber's specimens, Agrostoth. n. 116, which are however evidently West Indian.

Rhynchospora affinis

5. *R. tenuiroia*, *Benth.*—Very near *R. longisetis*, but with smaller spikelets and a different fruit. Stems slender, 6 to 8 in. high. Leaves numerous, very narrow and often longer than the stem, the outer ones with open sheaths scarcely ciliate, the inner sheaths longer and more closed. Inflorescence and involucre bracts as in *R. longisetis*, but the spikelets scarcely above 3 lines long when fully out. Hypogynous bristles 3 nearly as long as the glume, 3 scarcely longer than the nut. Nut oblong, slightly biconvex, bordered by a nerve-like margin, smooth or scarcely tuberculate, the beak not half so long and abruptly contracted at the base so as to appear stipitate.—*R. longisetis*, F. Muell. Fragm. ix. 17, not of R. Br.

N. Australia. Victoria River, *Elsley*.
Queensland. Rockingham Bay, *Dallachy*.

Spikelets variously capitate paniculate or solitary, with 2 or more (rarely 6) flowers, all hermaphrodite and fertile or the uppermost sterile. Glumes distichous, several outer ones or sometimes only 2 or 1 empty, the rhachis very short and straight between the empty glumes, more or less elongated and curved between the flowering glumes and flexuose, the flowers seated in the alternate notches, and the rhachis shortly produced above the last flower bearing a small empty glume. Hypogynous bristles or sometimes scales 6, or few and unequal, or none, often ciliate at or near the base, rarely much longer than the nut. Stamens 3 or very rarely 4 to 6 or only 1. Style slender or rarely slightly thickened towards the base, deciduous; stigmatic branches 3, filiform, sometimes almost plumose. Nut obovoid ovoid or rarely oblong or globular, more or less distinctly 3-angled or 3-ribbed, smooth reticulate foveolate or tuberculate.—Usually perennials, the stems often rigid and leafless below the inflorescence. Leaves either radical or at the base of the stem, narrow or subulate or reduced to the brown sheaths, or in a few species the stem leafy, either tall and rigid or short and weak or filiform and floating. Spikelets when capitate in sessile clusters within the head, the clusters and spikelets subtended by glume-like bracts, and the outer bracts of the head forming an involucre with or without leaflike laminæ; when paniculate the peduncles spikelets or branches of the panicle clustered within sheathing bracts, with or without leaflike laminæ, the lower ones usually distant. Glumes frequently dark-coloured or black.

The genus is almost limited to the Old World and is chiefly Australian, but represented by a few species in the temperate regions of the northern hemisphere, in extra-tropical South America, in South Africa and New Zealand, and one in the Malayan Archipelago. Of the fifty-five Australian species three are also in New Zealand and one of them in South America; the remainder are as far as known all endemic.

I have found it impossible to maintain the distinction between *Schœnus* and *Chaetospora* founded on the absence or presence of the hypogynous bristles, for still more than in *Scirpus*, there are several species where they are quite inconstant, and in many cases two very closely allied species would have to be placed in different genera. The flexuose rhachis, always produced beyond the fertile flower or flowers which are seated in the notches thus formed, appears to me to be a more constant character. In this respect and in the frequent decurrence of the upper flowering glumes forming a wing on each side of the rhachis, *Schœnus* approaches the sections *Dididium* and *Mariscus* of *Cyperus*, differing chiefly in the inflorescence, the brown or black more membranous glumes, the more numerous distichous empty ones and the few flowering ones less distinctly distichous, the frequent presence of bristles, etc., no one of these characters being constant although one or the other of them prevalent, so that difficult as it is to assign special distinctive characters the two genera appear never to have been confounded.

Numerous as are the Australian species of *Schœnus*, I have been unable to divide them into distinct sections founded on any essential character. The variations in the number of glumes, in the hypogynous bristles, in the number of stamens, in the nuts, etc., are specific only, and I have felt obliged to arrange the species into series only, derived chiefly from inflorescence.

SERIES I. Macrocephalæ.—Spikelets narrow, 5 to 6 lines long, sessile in a single oblong or ovoid terminal head with erect involucre bracts. Hypogynous bristles present. Leaves tufted at the base of the stem. Western species.

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|---|---------------------------|
| Outer bract broad and black at the base. Glumes glabrous, 2 outer empty ones. Hypogynous bristles slender . . . | 1. <i>S. cruentus</i> . |
| Outer bract brown and rather narrow at the base. Glumes glabrous, 1 outer empty one. Hypogynous bristles short, ciliate . . . | 2. <i>S. compressus</i> . |
| Outer bract narrow. Glumes woolly on the edge, about 4 outer empty ones. Hypogynous bristles longer than the nut, plumose . . . | 3. <i>S. lanatus</i> . |

SERIES II. Sphærocephalæ.—Spikelets 1 to 3 lines long, very numerous and sessile in a globular or broadly turbinate head, with spreading subulate involucre bracts. Hypogynous bristles rarely deficient. Leaves tufted at the base of the stem.

Heads globular. Western species.

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|---|----------------------------|
| Spikelets about 3 lines. Glumes acute or aristate, 5 or more outer empty ones. Leaves not above 2 or 3 in. | |
| Spikelets black. Hypogynous bristles as long as the nut, ciliate . . . | 4. <i>S. curvifolius</i> . |
| Spikelets brown. Hypogynous bristles scarcely any, or very small and fine . . . | 5. <i>S. subbulbosus</i> . |
| Spikelets about 2 lines. Glumes acute, only 1 or no outer empty one. Hypogynous bristles none or very minute. Leaves long and capillary . . . | 6. <i>S. setifolius</i> . |

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| Spikelets about 1 line. Glumes obtuse, 2 outer empty ones. Leaves few, erect, rigid. Hypogynous bristles as long as the nut or small . . . | 7. <i>S. Drummondii</i> . |
| Heads broadly turbinate. Spikelets about 3 lines. Glumes acute, 3 or 4 outer empty ones. Hypogynous bristles as long as the nut. Leaves capillary. Eastern species . . . | 8. <i>S. turbinatus</i> . |

the head sometimes only 2 or 3, or if numerous spreading or the head loose. Hypogynous bristles none except in *S. brevisetis*; and then very short.

Spikelets above 3 lines long. Western species.

Involucral bracts 2 or 3, subulate curved and longer than the head.

Bract-sheaths densely bearded. Spikelets 2 to 4 in the head 9. *S. barbatus*.

Bract-sheaths glabrous or nearly so. Spikelets 6 or more in the head 10. *S. flavus*.

Involucral bracts short or only 1 exceeding the head and rigid.

Leaf-sheaths bearded. Spikelets 5 or 6 lines, 2 to 4 in the head. Hypogynous bristles present but very short and ciliate 11. *S. brevisetis*.

Leaf-sheaths crowned by a membrane, not bearded. Spikelets scarcely 4 lines, several in the head. No hypogynous bristles 12. *S. armeria*.

Spikelets 3 lines or shorter. Involucral bracts short or only 1 exceeding the head. Eastern species.

Leaf-sheaths not bearded, the points very short. Spikelets 2 lines. Stamens 4 to 6 13. *S. aphyllus*.

Leaf-sheaths not bearded, the points or laminae subulate. Spikelets 3 lines. Stamens 3 14. *S. imberbis*.

Leaf-sheaths bearded, the subulate points short. Spikelets 3 lines. Stamens 3 15. *S. ericetorum*.

SERIES IV. Laterales.—Spikelets not above 2 lines long, in a single lateral head or cluster or rarely solitary, the erect involucral bract continuing the stem. Hypogynous bristles ciliate.

Leaf-sheaths not bearded. Spikelets brown. Glumes obtuse. Bristles longer than the nut 16. *S. nitens*.

Leaf-sheaths bearded. Spikelets black. Glumes very acute. Bristles very short 17. *S. cygneus*.

(The head of spikelets is also sometimes slightly oblique with an erect bract in 11. *S. brevisetis* and some others of the *Isoschaneae*).

SERIES V. Oligostachyæ.—Dwarf plants, rarely above 6 in. Spikelets solitary or 2 rarely 3 or 4 together, all terminal and erect. Hypogynous bristles none or short. Western species.

Stems under 2 in. Spikelets 2 to 3 lines. Stamens 3.

Leaf-sheaths with very short points. Spikelets 1 or 2, two lines long. Involucral bract short. No hypogynous bristles 18. *S. minutulus*.

Leaves subulate, as long as the stem. Spikelets 1 or 2, 2 lines long. Involucral bract long and subulate 19. *S. trachycarpus*.

Leaves filiform, shorter than the stem. Spikelets 2 to 4, 3 lines long. Involucral bract short. Hypogynous bristles present 20. *S. nanus*.

Stems 3 to 6 in. Spikelet solitary, brown, 4 lines long. Bract short. No hypogynous bristles. Stamens 4 to 6 21. *S. pleiostemonous*.

Stems under 1 in. Leaves and involucral bracts long. Spikelets 2, pale-coloured, 6 to 7 lines long. No hypogynous bristles. Stamens 3. 22. *S. breviculmis*.

Stems 2 to 5 in. Leaf-sheaths bearded, with short laminae. Spikelets solitary, about 5 lines. Hypogynous bristles present 23. *S. deformis*.

Stems 6 to 9 in. Leaves short, often woolly. Spikelets solitary, 1 in. long. Bract short. Hypogynous bristles present 24. *S. unispiculatus*.

Stems filiform 10. Leaf-sheaths with very short points. Spikelet solitary, 5 to 8 lines long. Hypogynous scales present 25. *S. tenuissimus*.

SERIES VI. Strictæ.—Leaves usually long. Spikelets erect or on erect peduncles in a narrow panicle, sometimes shortened into a spike but the lower flowering sheaths often distant. No hypogynous bristles. Stamens 3. Species all Western except *S. Moorei* and *S. villosus*.

Spikelets 1 to 3 in each bract. Outer empty glume 1 or none. Leaves at the base of the stem.

Stems 3 to 6 in. Leaves much shorter, obtuse, $\frac{1}{2}$ to 1 line broad, not ribbed. Spikelets 5 to 6 lines 26. *S. obtusifolius*.

Stems 6 to 12 in. Leaves rather long, with 2 or 3 prominent ribs on each side. Spikelets 5 to 6 lines 27. *S. grammatophyllus*.

Stems 9 to 18 in. Leaves slender, subulate-acuminate. Spikelets 4 to 5 lines 28. *S. asperocarpus*.

Stems 6 to 9 in. Leaves rather shorter, almost subulate, not ribbed. Spikelets 4 to 5 lines 29. *S. Moorei*.

Spikelets many, clustered in the upper bracts. Outer empty glumes several.

Leaves at the base of the stem. Spikelets 4 to 5 lines. Glumes woolly-ciliate 30. *S. villosus*.

Stem tall, leafy. Spikelets 8 to 9 lines, glabrous 31. *S. grandiflorus*.

SERIES VII. Calostachyæ.—Spikelets large (except in *S. acuminatus*), pedunculate in distant sheaths, solitary or very few in each sheath. Outer empty glumes numerous, regularly distichous. Stamens 3.

Spikelets 1 in. Glumes acute. Hypogynous bristles present. Sheathing bracts with leafless laminae 32. *S. calostachyus*.

Spikelets $\frac{3}{4}$ to 1 in. Glumes obtuse with gland-like tips. No hypogynous bristles. Sheathing bracts with very short obtuse points.

Peduncles scabrous. Outer empty glumes 5 or 6. Eastern species 33. *S. scabripes*.

Peduncles smooth. Outer empty glumes 10 to 12. Western species 34. *S. multiglumis*.

Spikelets $\frac{1}{2}$ to $\frac{3}{4}$ in. Glumes acute. No hypogynous bristles. Sheathing bracts with short acute points 35. *S. efoliatus*.

Spikelets under $\frac{1}{2}$ in. Glumes acute. No hypogynous bristles. Sheathing bracts with short points 36. *S. acuminatus*.

(See also 24. *S. unispiculatus*.)

SERIES VIII. **Paniculate**.—Spikelets under $\frac{1}{2}$ in. long, usually dark brown or black, often falcate, all pedunculate, either numerous in a panicle usually secund or rarely few in a terminal cluster.

- Panicle or cluster short and dense. Stems rushlike.
 Leaf-sheaths at the base only with very short points.
 Leaf-sheaths bearded at the orifice. Spikelets few, 5 to 6 lines long. Hypogynous bristles present 37. *S. pedicellatus*.
 Leaf-sheaths bearded. Spikelets numerous, 4 to 5 lines long. No hypogynous bristles. 38. *S. fascicularis*.
 Leaf-sheaths not bearded. Spikelets numerous, about 5 lines. No hypogynous bristles 39. *S. brevifolius*.
 Panicle loose but narrow. Leaf-sheaths bearded, with short or subulate points. Hypogynous bristles none or fine and rare.
 No leaf-sheaths between the basal and floral ones. Spikelets black, flat, 3 to 4 lines. Nut granular, tuberculate 40. *S. melanostachyus*.
 Leaf-sheaths few on the stem, with short subulate points. Spikelets brown, acute, scarcely flattened, 4 lines. Nut smooth 41. *S. sparteus*.
 Leaf-sheaths several, distant, with linear laminæ. Spikelets brown, scarcely flattened, about 5 lines 42. *S. vaginatus*.
 Panicle loose and much branched with very numerous spikelets. Stem leafy, the lower leaves very long. No hypogynous bristles.
 Leaves nearly 2 lines broad at the base, tapering into long points. Spikelets 4 to 6 lines 43. *S. falcatus*.
 Leaves subulate from the base. Spikelets 2 lines 44. *S. punctatus*.

SERIES IX. **Laxe**.—Spikelets under $\frac{1}{2}$ in. long, few on slender pedicels. Hypogynous bristles present. Leaves at the base of the stem very narrow or subulate. Western species.

- Stems loosely hairy in the lower part. Spikelets dark-brown, about 3 lines long 45. *S. indutus*.
 Stems glabrous. Spikelets black, very flat, 4 to 5 lines long 46. *S. bifidus*.

SERIES X. **Microcarpe**.—Spikelets small in a terminal loose cluster or irregular umbel or clustered in the axils of distant leafy bracts. Nuts (except in *S. fluitans*) very small and white. Small or slender and weak plants with flaccid leaves.

- Spikelets black, in a terminal cluster or irregular umbel, with few axillary clusters lower down.
 Hypogynous bristles present. Nut smooth or nearly so. Eastern species 47. *S. Brownii*.
 No hypogynous bristles. Nut smooth. Eastern species 48. *S. ericetorum*.
 No hypogynous bristles. Nut deeply foveolate-reticulate. Western species 48. *S. odontocarpus*.
 Spikelets pale-coloured, 2 to 3 $\frac{1}{2}$ lines long, very narrow, in distant clusters, the lower bracts leafy. Western species.
 Hypogynous bristles ciliate, almost plumose 49. *S. humilis*.
 Hypogynous bristles none or very rare and not ciliate 50. *S. sculptus*.
 Spikelets 1 line long in the axils of distant leaves or leafy bracts. Hypogynous bristles present 51. *S. axillaris*.
 Spikelets 2 to 5 lines long, very narrow, one terminal and usually 1 or 2 lower down.
 Stems short and filiform. No hypogynous bristles. Stamen 1 52. *S. tenellus*.
 Stems long and floating. Stamens 3.
 Hypogynous bristles ciliate, almost plumose. Western species 53. *S. natans*.
 No hypogynous bristles. Eastern species 54. *S. fluitans*.

Schoenus falcatus

44. **S. punctatus**, *R. Br. Prod.* 232.—Stems 2 ft. high or more, leafy. Lower leaves very long, floral bracts gradually shorter, all subulate-filiform almost from the sheath. Panicle 6 in. to 1 ft. long, leafy, slender and loose. Spikelets very numerous, all pedicellate, lanceolate, slightly falcate, more or less flattened, scarcely 2 lines long, rather pale brown, with 2 flowers. Glumes thinly membranous, rather obtuse, 2 outer empty ones shorter. No hypogynous bristles. Stamens 3. Nut ovoid-oblong, obtusely 3-angled, marked with impressed dots (*R. Brown*), not ripe in the spikelets examined.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*.

(*Isolepis*, Br. ; *Malacochaete*, Nees.)

Spikelets clustered, irregularly umbellate or rarely solitary, with several usually many hermaphrodite flowers. Glumes imbricate all round the rhachis, all flowering or the lowest 1 rarely 2 empty. Hypogynous bristles none or 3 to 8, ciliate with minute reflexed hairs or flattened into plumose scales. Stamens 3, 2 or 1. Style deciduous, more or less divided into 2 or 3 filiform stigmatic branches, the base scarcely thickened, continuous with the nut and remaining as a small point or tubercle. Nut obovoid globular triquetrous or flat.—Small tufted annuals, or if perennials sometimes tall and stout, the rhizomes often creeping or sometimes slender long and floating. Leaves few at the base of the stems or in tufts on the rhizome; sometimes reduced to an appressed sheath with or without a short lamina, sometimes very long. Inflorescence sometimes terminal with 2 or more unequal long involucral bracts as in *Cyperus*, more frequently more or less lateral with one erect involucral bract continuing the stem, in a few species the bract subtending the solitary terminal spikelet is short and glume-like.

The genus is truly cosmopolitan, thriving alike within the tropics, and in Arctic, Antarctic, and Alpine regions, mostly in marshes, sometimes actually in water, rare in dry localities. Of the twenty-three Australian species eight only are endemic, four more are also found in New Zealand or South Africa or both, and one of these also in extratropical South America, the remaining eleven belong generally to the tropical temperate or cold regions of the Old World, at least seven of them being also found in America.

I have followed Asa Gray and Bœckeler in reuniting *Isolepis* with *Scirpus*, for the sole character by which they are distinguished, the absence of the bristles in the former, is variable in two or three species, and in other instances separate species so closely allied that Bœckeler has united them as varieties. In the great majority of species however the character is so constant and so frequently attended by a difference in inflorescence, that there is a convenience in retaining the two groups at least as artificial sections. On the other hand, Nees' section or genus *Oncostylis*, retained by Bœckeler in *Scirpus*, appears to me to be much more naturally referred by Asa Gray to *Finbristylis*, of which it has the inflorescence, and the bulbous base of the style, although often long persistent on the nut, is articulate with it, and often falls off from the perfectly ripe fruit.

SECT. I. *Isolepis*.—No hypogynous bristles (except very rarely in *S. supinus*). Small or slender plants (except the last few species).

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|---|-------------------------------|
| Spikelets small, in numerous dense heads, almost radical in a tuft of grass-like filiform involucral bracts . . . | 1. <i>S. humillimus</i> . |
| Spikelets solitary. Style-branches 2. Nut biconvex. Stamens usually 3. | |
| Spikelet narrow, few-flowered, 1 to 2 lines long. Stem or filiform rhizome often elongated and floating . . . | 2. <i>S. fluitans</i> . |
| Spikelet ovate, dark-brown, under 2 lines long. 10-16 flowered. Glumes broad many-nerved . . . | 3. <i>S. arenarius</i> . |
| Spikelet ovate, pale-brown, under 2 lines long, 3- to 5-flowered . . . | 4. <i>S. lenticularis</i> . |
| Spikelet ovate, 2 to 4 lines long, many-flowered. Nut orbicular, biconvex in the centre only, the edge thickened . . . | 5. <i>S. crassiusculus</i> . |
| Spikelets solitary or clustered. Style-branches 2. Nut very flat. Stamens 2. Spikelet compressed. | |
| Spikelet solitary ovate and terminal . . . | 6. <i>S. brizoides</i> . |
| Spikelets clustered or rarely solitary, narrow-oblong usually lateral . . . | 7. <i>S. cyperoides</i> . |
| Spikelets solitary or clustered, small, (1 to 2 lines) ovoid or ovoid-oblong, terminal or nearly so. Style-branches 3 rarely 2. | |
| Stamens 3 rarely 2. Glumes prominently keeled. Nut very small, obovoid globular or 3-ribbed; marked with longitudinal furrows. Spikelets 1 to 3 . . . | 8. <i>S. setaceus</i> . |
| Nut very small, obtusely triquetrous, smooth. Spikelets 1 to 3 . . . | 9. <i>S. riparius</i> . |
| Nut acutely triquetrous. Spikelets solitary or clustered . . . | 10. <i>S. cartilagineus</i> . |
| Stamens 1 or 2. Spikelets clustered. Glumes narrow with long recurved points. Nut very narrow . . . | 11. <i>S. squarrosus</i> . |
| Stamen 1. Spikelets usually clustered, sometimes proliferous. Glumes broad. Nut acutely triquetrous . . . | 12. <i>S. inundatus</i> . |
| Spikelets clustered, above 2 lines long, oblong or narrow. Style-branches 3. | |
| Spikelets in a terminal frequently proliferous cluster . . . | 13. <i>S. prolifer</i> . |
| Spikelets in a lateral cluster. | |
| Stems continuous, not thick. Spikelets few in the cluster. Nuts transversely wrinkled . . . | 14. <i>S. supinus</i> . |
| Stems pithy with transverse septa inside. Spikelets in dense clusters. Nuts smooth . . . | 15. <i>S. articulatus</i> . |

10. *I. articulatus*, Linn.; *Boeckl. in Linnaea*, xxvi. 702.—Stems terete, hollow, more or less distinctly septate inside so as to appear articulate, 2 or 3 in. to 2 ft. high. Spikelets numerous in a dense lateral cluster, the involucre bract erect and continuous with the stem, precisely like it and often as long as or longer than the true stem. Spikelets ovoid or oblong, 3 to 6 lines long, 2 lines diameter at the base or rather more, pale brown. Glumes broad, rather acute or mucronate, slightly striate, the keel scarcely prominent. Hypogynous bristles none or rarely few and minute. Stamens 3. Style-branches 3. Nut prominently and acutely 3-angled.—*Isolepis articulata*, Nees; Kunth, Enum. ii. 198; *I. praelongata*, Nees; Kunth, l. c. 199; F. Muell. Fragm. ix. 6.

N. Australia. Mouth of Victoria River, F. Mueller.
Queensland. Near Rockhampton, Thozet.

Common in tropical Asia and Africa.

Scirpus laevis

21. *S. littoralis*, Schrad.; Kunth, Enum. n. 166.—A tall stout species, with the habit and inflorescence of *S. lacustris*. Stems terete or 3-angled towards the apex, 2 to 5 ft. high, leafless except the sheathing scales at the base often ending in short erect laminae. Umbel looser and less compound than in *S. lacustris*, with fewer spikelets, the erect involucrel bract continuing the stem short or as long as the inflorescence, channelled along the inner side or more distinctly triquetrous. Spikelets oblong or cylindrical, often above $\frac{1}{2}$ in. long when full grown and about 2 lines diameter. Glumes broad, scarious, often pale coloured, entire or slightly emarginate. Hypogynous bristles or scales 4 or rarely 5 or 6, much flattened, plumose with soft rather long hairs directed upwards. Stamens usually 3. Style-branches 2. Nut broad, much flattened, tipped by a small point or tubercle.—Reichb. Ic. Fl. Germ. 309; F. Muell. Fragm. ix. 7; *S. plumosus*, R. Br. Prod. 223; *S. triqueter*, Gren. et Godr. Fl. Fr. iii. 373; Bœckel. in Linnæa, xxxvi. 716, not of Linn.; *Malacochæte littoralis*, Nees.

N. Australia. Gulf of Carpentaria, R. Brown, F. Mueller; Victoria River, F. Mueller; Roper River, Gulliver.

Queensland. Broad Sound, R. Brown; Brisbane River, Moreton Bay, C. Stuart, Henne.

N. S. Wales. Paramatta, Woolls.

Also in the Mediterranean region, at least I am unable to detect any difference in the specimens from the two distant areas. Grenier and Godron, misled by their interpretation of the Linnean character, referred this to his *S. triqueter*, which, however, as well by the specimen in his herbarium as by the figure of Plukenet's to which he refers, proves to have been correctly identified by Kunth and others with the plant described by Grenier and Godron under the name of *S. Pollichii*, the essential character distinguishing the two species derived from the hypogynous bristles or scales was overlooked both by Linnæus and by Schrader.

stout, very acutely 3-angled, 1 to 3 ft. high, leafless except the sheathing scales at the base, the innermost ones sometimes produced into a short point. Spikelets rather numerous, in a dense lateral sessile cluster; the erect involucre bract perfectly continuous with the stem and 1 to 2 in. long. Spikelets ovoid-oblong, 4 to 6 lines long, 2 to 3 lines diameter, pale brown. Glumes ovate, concave, obtuse or almost acute, membranous, more or less striate, the keel prominent and often green in the upper part. Hypogynous bristles 6 or fewer, usually longer than the nut. Style-branches 3. Nut rather small, generally dark coloured, the broad inner face flat, the back convex or angled.—R. Br. Prod. 223; Reichb. Ic. Fl. Germ. 303; Bœckel. in Linnæa, xxxvi. 703; F. Muell. Fragn. ix. 8.

Queensland. Brisbane River, Moreton Bay, *F. Mueller*, *C. Stuart*, *Bailey*; Daintree River, *Fitzealan*; Burnett River, *F. Mueller*; Rockingham Bay, *Dallachy*.

N. S. Wales. Paterson River, *R. Brown*; Clarence River, *Beckler*, *Wilcox*; Tweed River, *Robinson*; Richmond River, *Woolfs*.

Also in tropical and temperate Asia and in Europe.

14. *S. supinus*, Linn.; Bæker. in Linnæa, xxxvi. 699, excl. var β and γ .—Stems tufted, decumbent or erect, striate, from 2 or 3 in. to above 1 ft. long, leafless except a rather long sheathing scale often produced into a short narrow lamina. Spikelets 2 to 6 together in a lateral cluster, the outer involucral bract erect and continuous with the

stem often 2 in. long and only slightly dilated at the base. Spikelets oblong, 2 to 4 lines long. Glumes prominently keeled, acute or the keel produced into a conspicuous point, loosely imbricated and generally very deciduous. Hypogynous bristles none or very short and few. Stamens 2 or 3. Style-branches 3. Nut broad, prominently 3-angled, or rarely biconvex, prominently marked with transverse wrinkles.—Reichb. Ic. Fl. Germ. t. 302: *Isolepis supina*, R. Br. Prod. 221; Kunth, Enum. ii. 196; F. Muell. Fragm. ix. 6.

Queensland. Keppel Bay, R. Brown, Brisbane River, Bailey.

N. S. Wales. Nepean River, R. Brown.

Victoria. Lake Lalbert, F. Mueller.

Widely spread over the tropical and temperate regions of the Old World, more rare in the southern states of North America.

Flowers unisexual in unisexual or androgynous spikelets, the female flowers always solitary in the spikelet, the males usually several, placed above the female one in the androgynous spikelets. Glumes imbricate all round, 1 to 3 outer ones empty. No hypogynous bristles or scales. Stamens 1 to 3. Style slender, deciduous, with 3 filiform stigmatic branches. Nut globular or ovoid, usually white, raised on a thickened entire or more or less 3-lobed single or double disk.—Perennials or rarely annuals. Stems triquetrous, leafy, the leaf-sheaths often but not always terminating in a prominent ligula opposite the lamina. Spikelets in clusters or small corymbose or oblong panicles, terminal and axillary, or in a large compound terminal panicle.

The genus is generally spread over the tropical and subtropical regions of the New and the Old World, extending also into the temperate regions of North America. Of the thirteen Australian species five are widely spread over tropical Asia, two or three of them also in Africa, two are at least in the Malayan Archipelago or in the Pacific Islands, the remaining six appear to be endemic. No species has been found in New Zealand. The habit of the genus is very variable, but not more so than that of *Schænus*, and although it has been divided by Nees and others into about a dozen genera, chiefly founded on the form of the disk, I have been unable to discover any distinct sectional characters beyond those which separate single species, and the following series are founded chiefly on inflorescence.

SERIES I. Axillares.—Small annuals. Spikelets small, strictly unisexual, in little axillary or terminal sessile clusters, the males with 1 to 3 flowers.

Two upper glumes of the female spikelets enclosing the nut and 3-toothed 1. *S. caricina*.

Two upper glumes of the female spikelets enclosing the nut and entire. 2. *S. pygmæa*.

SERIES II. Laxe. Weak plants under 1 ft., probably annual. Spikelets strictly unisexual, in axillary clusters or few in loose spikes, the males with several flowers.

Spikelets in axillary clusters or small cymes. Outer persistent disk broadly cupular, inner adnate, very shortly 3-lobed 3. *S. rugosa*.

Spikelets few, small, in loose spikes. Outer disk scarcely prominent, inner adnate, shortly 3-lobed 4. *S. laza*.

SERIES III. Subspicatæ.—Perennials. Inflorescence scarcely branched. Fertile spikelets more or less androgynous or at least with empty glumes above the female flower.

Nut tuberculate. Disk-lobes broad, membranous, spreading 5. *S. Brownii*.

Nut smooth and shining. Outer persistent disk cupular, entire; inner obsolete 6. *S. lithosperma*.

Nut tuberculate or reticulate. Disk-lobes adnate, very short broad and thick 7. *S. tessellata*.

SERIES IV. Polystachyæ.—Perennials. Panicles branched, axillary and terminal. Spikelets unisexual or the fertile ones androgynous.

Leaf-sheaths with acute angles scarcely or not at all winged.

Panicles scarcely branched. Nut tuberculate or reticulate. Disk-lobes very short and broad 7. *S. tessellata*.

Panicles dense, with numerous spikelets. Nut smooth and shining. Disk-lobes broad, obtuse, entire 8. *S. margaritifera*.

Nut rugose or nearly smooth. Disk-lobes broad, denticulate at the end 9. *S. Græffiana*.

Leaf-sheaths distinctly winged on the angles. Panicles loose, not much branched. Disk-lobes acute 10. *S. hebecarpa*.

Panicle dense with numerous long subulate bracts. Disk-lobes broad, usually very obtuse 11. *S. chinensis*.

SERIES V. Macrostachyæ.—Panicle single, large, loose and very compound, on a long terminal peduncle.

Disk-lobes obscure 12. *S. oryzoides*.

SERIES VI. Dioicæ.—Spikelets strictly dioecious, small, densely clustered, in numerous short axillary and terminal panicles.

Disk-lobes broad, membranous, spreading 13. *S. sphacelata*.

S. setoso-asperula, Beckel, in Flora, 1875, 120, from Lake Elphinstone, Amalia Dietrich, is described as having the inflorescence and other characters of the *Subspicatæ*, with narrow leaves scabrous or setulose on the upper surface, small white nuts transversely undulate or plicate, and the disk obsolete. I do not identify it with any specimen I have seen.

high. Leaves long and narrow, rather rigid, very scabrous or nearly smooth, the sheaths often pubescent and slightly fringed at the orifice, the floral leaves or bracts similar, the upper ones shorter, but all leaf-like and distant. Spikelets androgynous or male, 2 to near 3 lines long, several together in axillary and terminal sessile or pedunculate clusters. Outer empty glumes 2 or 3, lanceolate, acuminate, the one under the female flower much dilated, very narrow under the males. Male flowers very few above the female in the androgynous spikelets, each with 1 or 2 stamens, more numerous with 3 stamens each in the male spikelets. Nut ovoid or globular, 3-ribbed, more or less tuberculate or granular, tipped with the short base of the style. Disk with 3 broad spreading membranous obtuse or truncate lobes, and often shortly aristate within or below the lobes or both.—Bœckel. in Linnæa, xxxviii. 453; F. Muell. Fragm. ix. 21; *S. distans*, R. Br. Prod. 240, not of Poir.

N. Australia. Arnhem South Bay, *R. Brown*; Port Darwin, *Schultz*, n. 37, 782.

Queensland. Rockhampton, *O'Shanesy* and others; Nerkool and Herbert's Creeks, *Bowman*; Oxley's Station, *Leichhardt*; Dawson and Burnet Rivers, *F. Mueller*.

S. pallidiflora, Bœckel. in Flora, 1875, 119, from Gladstone, *Amalia Dietrich*, is probably referrible to *S. Brownii*.

4. *S. laxa*, R. Br. *Prod.* 240.—Stems weak and slender, 6 in. to 1 ft. high. Leaves long and narrow, chiefly at the base of the stem, the floral ones similar but shorter. Spikelets unisexual, not numerous, in a terminal almost simple loose and interrupted spike, and a few similar spikes on long filiform peduncles in the axils of distant leafy bracts. Male and female spikelets equally sessile or nearly so, in little clusters usually of 2 males and 1 female, all under 2 lines long. Male flowers several, the glumes very narrow. Stamens usually 2. Glumes in the female spikelet 3 or 4, broader than in the males, membranous, acuminate, no empty ones above the flower. Nut ovoid-globular, white, reticulate. Disk adnate, with 3 short undulate lobes, at first sometimes rather acute, but thickened and obtuse with recurved sinuses under the ripe nut, the outer disk not prominent.—F. Muell. *Fragm.* ix. 21; *S. Novæ-Hollandiæ*, Bœckel. in *Flora*, 1875, 120 (from the char. given).

N. Australia. North Coast, R. Brown.

Queensland. Rockingham Bay, *Dallachy*; Brisbane River, *Bailey*; Port Mackay, *Amalia Dietrich* (if correctly identified.)

Scleria novea-hollandiae

3. *S. rugosa*, *n. Dr. Frod.* 240.—Weak and branching, apparently annual, 6 in. to 1 ft. high. Leaves grass-like, the lower ones sometimes longer than the stem. Clusters of spikelets axillary and terminal, sometimes almost sessile, solitary but compound, and often with 1 or 2 pedunculate clusters or flowering branches with the sessile one in the lower axils, the foliage and inflorescence either sprinkled with short hairs or quite glabrous. Male spikelets stipitate in the clusters, about 1 line long, with several flowers. Outer empty glumes usually 3, acuminate, with ciliate keels; flowering glumes very narrow and hyaline, not exceeding the outer empty ones. Stamens 1 or 2 in each flower. Female spikelets nearly sessile. Glumes usually 3, acuminate, with ciliate hirsute keels, about $1\frac{1}{2}$ lines long. No empty glumes above the flower. Nut globular, pitted and rugose. Disk double, the external persistent one broadly cupulate and entire, the inner adnate one with an undulate or obtusely 3-lobed margin.—*F. Muell. Fragm.* ix. 22.

N. Australia. Port Darwin, *Schultz, n.* 80; Upper Victoria River, *F. Mueller.*

Queensland. Endeavour River, *Banks and Solander*, Rockingham Bay, *Dallachy.*

This species closely connects the preceding with the following ones.