

A. AVENACEUM, Beauv. Root perennial; culm 2-4° high; leaves broad, flat; panicle elongated; glumes scarious, very unequal. — Meadows and lots; absurdly called *Grass of the Andes*. May-July. (Nat from Eu.)

36. HÓLCUS, L. (partly). MEADOW SOFT-GRASS. (Pl. 12.)

Spikelets crowded in an open panicle, 2-flowered; the boat-shaped membranaceous glumes enclosing and much exceeding the remotish flowers. Lower flower perfect, its papery or thin-coriaceous glume awnless and pointless; the upper flower staminate, otherwise similar, but bearing a stout bent awn below the apex. Stamens 3. Styles plumose to the base. Grain free. (A name in Pliny for a kind of grass, from *ὄλκος*, attractive, of obscure application.)

H. LANATUS, L. (VELVET-GRASS.) Perennial, soft-downy and pale; panicle oblong; upper empty glume mucronate-awned under the apex; awn of the staminate flower curved. — Moist meadows. June. (Nat. from Eu.)

37. AÏRA, L. HAIR-GRASS.

Spikelets very small, in an open diffuse panicle, of 2 perfect contiguous flowers. Glumes thin-membranaceous, the two lower persistent, nearly equal, acute, keeled; the flowering ones obscurely nerved, acutely 2-cleft at the apex, bearing a slender twisted awn below the middle. Stamens 3. Styles plumose to the base. Grain oblong, adnate. — Low annuals, with short setaceous leaves (An ancient Greek name for Darnel.)

A. CARYOPHYLLA, L. Culms 5-10' high, bearing a very diffuse panicle of purplish and at length silvery scarious spikelets. — Dry fields, Nantucket; also Newcastle, Del., *W. M. Canby*. (Nat. from Eu.)

A. PRÆCOX, L. Culms tufted, 3-4' high; branches of the small and dense panicle appressed; awn from below the middle of the glume. — Sandy fields, N. J. to Va.; rare. (Nat. from Eu.)

38. DESCHÁMPsia, Beauv. (Pl. 12.)

Spikelets small, panicle, of 2 perfect flowers and the hairy pedicel or rudiment of a third (rarely staminate); rhachis hairy. Empty glumes persistent, membranaceous and shining, carinate, acute, nearly equal; flowering glumes toothed or erose-denticulate at the truncate summit, usually delicately 3-5-nerved, with a slender twisted awn near or below the middle. Grain oblong, free. — Root perennial. (Named for *Loiseleur-Deslongchamps*, a French botanist.)

* Empty glumes somewhat shorter than the flowers.

1. **D. flexuosa**, Trin. (COMMON HAIR-GRASS.) (Pl. 12, fig. 1-3.) Culms slender, nearly naked (1-3° high) above the small tufts of involute bristle-form root-leaves (1-6' long); branches of the small spreading panicle capillary; awn longer than the palet, at length bent and twisted. (*Aira flexuosa*, L.) — Dry places; common. June. (Eu.)

2. **D. cæspitosa**, Beauv. Culm tufted (2-4° high); leaves flat, linear; panicle pyramidal or oblong (6' long); awn straight, barely equalling the glume. (*Aira cæspitosa*, L.) — Shores of lakes and streams; N. Eng. to Penn., Mich., and northward. June, July. (Eu.)

** Empty glumes longer than the flowers, 2-2½" long.

3. **D. atropurpurea**, Scheele. Culms 8-15' high, weak; leaves flat, rather wide; panicle of few spreading branches; awn stout, twice longer than the nerveless truncate ciliate-denticulate glume. (*Aira atropurpurea*, *Wahl.*) — Alpine summits of N. H. and N. Y., to Lab. and northward. Aug. (Eu.)

39. TRISËTUM, Persoon. (Pl. 12.)

Spikelets 2-several-flowered, often in a contracted panicle; the flowering glume compressed-keeled, of about the same thin-membranaceous texture as the empty glumes, bearing a bent or flexuous (rarely twisted) awn at or below the sharply 2-toothed or 2-pointed apex (whence the name, from *tris*, three, and *seta*, a bristle); otherwise nearly as in *Avena*. Ours are perennials.

1. **T. subspicatum**, Beauv., var. *mólle*, Gray. (Pl. 12, fig. 1, 2.) Minutely soft-downy; panicle dense, much contracted, oblong or linear (2-3' long); glumes about the length of the 2-3 smooth flowers; awn dorsal, diverging, much exserted. — Mountains and rocky river-banks, N. New Eng. to L. Superior, and northward. July. — About 1° high; leaves flat, short. (Eu.)

2. **T. palustre**, Torr. Smooth; panicle rather long and narrow (5' long), loose, the branches capillary; spikelets flat (3" long); lower glumes shorter than the two smooth lanceolate flowers; the upper flower on a slightly hairy joint of the rhachis, with a slender spreading or bent awn next the short 2-pointed tip, the lower commonly awnless or only mucronate-pointed. — Low grounds, southern N. Y. to Ill., and southward. June. — Culm slender, 2-3° high; leaves flat, short; spikelets yellowish-white, tinged with green.

40. AVËNA, Tourn. OAT. (Pl. 12.)

Spikelets 2-many-flowered, panicle; the flowers herbaceo-chartaceous, or becoming harder, of firmer texture than the large and mostly unequal empty glumes; the uppermost flower imperfect; rhachis and base of the flower often bearded. Flowering glume rounded on the back, mostly 5-11-nerved, bearing a long usually bent or twisted awn on the back or between the two acute teeth at the apex, proceeding from the mid-nerve only. Stamens 3. Grain oblong-linear, grooved on one side, usually hairy at least at the top, free, but invested by the palet. (The classical Latin name.)

* Spikelets large (1' long); annual.

A. FÁTUA, L. Resembling the common oat (*A. sativa*), the few spikelets in a loose panicle, mostly pendulous; flowering glumes covered with long brownish hairs and bearing a bent awn 1-2' long. — Wisc., Minn. (Nat. from Eu.)

** Smaller-flowered perennials.

1. **A. striata**, Michx. (Pl. 12, fig. 1, 2.) Glabrous and smooth throughout, slender (1-2° high); leaves narrow; ligule short, truncate; panicle simple, loose; spikelets (6" long) on capillary pedicels, 3-6-flowered, much exceeding the scarious-margined purple acute empty glumes; lower glume 1-, upper 3-nerved; rhachis smooth; flowers short-bearded at base; flowering glume 7-nerved, much longer than the ciliate-fringed palet (4" long), mostly shorter than its soon bent or divergent awn, which rises just below the tapering very sharply cuspidate 2-cleft tip. — Rocky, shaded hills, N. New Eng., N. Y., and northwestward. June.

2. **A. Smithii**, Porter. Taller (2½-4½° high), rather stout; leaves broadly linear (3-6" wide) and taper-pointed, flat, and with the sheaths and culm *retorsely scabrous*; ligule elongated, acute; panicle larger (6-12' long), the few branches at length spreading; empty glumes slightly purplish, the lower 3-nerved, the upper 5-nerved, scabrous on the nerves; rhachis minutely hispid;

flowers (3-5) naked at base; awn straight, $\frac{1}{2}$ - $\frac{1}{3}$ the length of the 7-nerved glume. — N. Mich. and Isle Royale, L. Superior. April, May.

41. **DANTHONIA**, DC. WILD OAT-GRASS. (Pl. 12.)

Flowering glume (oblong or ovate, rounded-cylindrical, 7-9-nerved) bearing between the sharp-pointed or awn-like teeth of the tip an awn usually composed of the 3 middle nerves, which is flattish and spirally twisting at base; otherwise nearly as in *Avena*. Empty glumes longer than the imbricated flowers. Ours perennials, 1-2° high, with narrow and soon involute leaves, hairy sheaths bearded at the throat, and a small simple panicle or raceme of about 7-flowered spikelets. (Named for *Danthoine*, a French botanist.)

1. **D. spicata**, Beauv. (Pl. 12, fig. 1-3.) Culms tufted, low; leaves short, very narrow; spikelets few, 3-5" long, *subspicate*; flowering glume loosely hairy, its teeth short and pointless. — Dry and sterile or rocky soil.

2. **D. sericea**, Nutt. Culms taller and not tufted (1-3° high), *terete*; leaves larger, at least the sheaths silky-villous; spikelets more numerous and panicle, 6-9" long; flowering glume very silky-villous, tipped with slender awn-pointed teeth. — Dry or moist sandy soil, southern Mass., N. J., and southward; rare. June.

3. **D. compressa**, Aust. Culms slender, 2° high, somewhat compressed, paler and subcaniculate on the narrower side; leaves elongated, very narrow, villous only at the summit of the sheath; spikelets 6-12, loosely panicle, 5" long; flowering glume loosely hairy or pubescent, the teeth very long-awned. — Dry banks; Vt. (*Pringle*); E. Mass., N. Y., Penn., and mountains of N. C.

42. **CYNODON**, Richard. BERMUDA OR SCUTCH-GRASS. (Pl. 9.)

Spikelets 1-flowered, with a mere naked short-pedicelled rudiment of a second flower, imbricate-spiked on one side of a flattish rhachis; the spikes usually digitate at the naked summit of the flowering culms. Empty glumes keeled, pointless, rather unequal; flowering glume and palet pointless and awnless, the glume larger, boat-shaped. Stamens 3. — Low diffusely branched and extensively creeping perennials, with short flattish leaves. (Name composed of *κύων*, a dog, and *δούς*, a tooth.)

C. DACTYLON, Pers. Spikes 3-5; flowering glume smooth, longer than the blunt rudiment. — Penn., and southward, where it is cultivated for pasturage. (Nat. from Eu.)

43. **CTENIUM**, Panzer. TOOTHACHE-GRASS. (Pl. 9.)

Spikelets densely imbricated in two rows on one side of the flat curved rhachis of the solitary terminal spike. Glumes persistent; the lower (interior) much smaller; the other concave below, bearing a stout recurved awn, like a horn, on the middle of the back. Flowers 4-6, all but one neutral; the one or two lower consisting of empty awned glumes, and the one or two uppermost of empty awnless glumes; the perfect flower intermediate, its glume membranaceous, awned or mucronate below the apex and densely ciliate toward the base, 3-nerved. Stamens 3. Stigmas plumose. (Name *κτενίον*, a small comb, from the pectinate appearance of the spike.)

1. **C. Americanum**, Spreng. Culm (3-4° high from a perennial root) simple, pubescent or roughish; larger glume warty-glandular outside, conspicuously awned. — Wet pine-barrens, S. Va. and southward. — Taste very pungent.

44. **GYMNOPOGON**, Beauv. (Pl. 9.)

Spikelets of one perfect flower, and the rudiment of a second (consisting of an awn-like pedicel mostly bearing a naked bristle), sessile and remotely alternate on long filiform rays or spikes, which form a crowded naked raceme. Glumes lance-awl-shaped, keeled, almost equal, rather longer than the membranaceous flowering glume, which is cylindrical-involute, with the midrib produced from just below the 2-cleft apex into a straight and slender bristle-like awn; palet nearly as long, with the abortive rudiment at its base. Stamens 3. Stigmas pencil-form, purple. — Root perennial. Leaves short and flat, thickish, 1-3' long. (Name composed of *γυμνός*, naked, and *πάγων*, a beard, alluding to the reduction of the abortive flower to a bare awn.)

1. **G. racemosus**, Beauv. (Pl. 9, fig. 1, 2.) Culms clustered from a short rootstock (1° high), wiry, leafy; leaves oblong-lanceolate; spikes flower-bearing to the base (5-8' long), soon divergent; awn of the abortive flower shorter than its stalk, equalling the pointed glumes, not more than half the length of the awn of the fertile flower. — Sandy pine-barrens, N. J. to Va., and southward. Aug., Sept.

2. **G. brevifolius**, Trin. Filiform spikes long-peduncled, i. e. flower-bearing only above the middle; flowering glume ciliate near the base, short-awned; awn of the abortive flower obsolete or minute; glumes acute. — Sussex Co., Del., and southward.

45. **SCHEDONNARDUS**, Steud. (Pl. 11.)

Spikelets small, acuminate, 1-flowered, appressed-sessile and scattered along one side of the slender rhachis of the distant sessile and divaricately spreading spikes. Empty glumes persistent, narrow, acuminate, more or less unequal, the longer usually a little shorter than the rather rigid acuminate flowering one. Stamens 3. Styles distinct. Grain linear. — A low slender annual, branching from the base, with short narrow leaves. (Name from *σχεδόν*, near, and *Nardus*, from its resemblance to that genus.)

1. **S. Texanus**, Steud. Stem (6-20' long) naked and curved above, bearing 3-9 racemosely disposed thread-like and triangular spikes 1-3' long; spikelets $1\frac{1}{2}$ " long. (*Lepturus paniculatus*, Nutt.) — Open grounds and salt-licks, Ill. to Mont., Col., and Tex. Aug.

46. **BOUTELOUA**, Lagasca. MUSKIE-GRASS. (Pl. 9.)

Spikelets crowded and closely sessile in 2 rows on one side of a flattened rhachis, comprising one perfect flower below and one or more sterile (mostly neutral) or rudimentary flowers. Glumes convex-keeled, the lower one shorter. Perfect flower with the 3-nerved glume 3-toothed or cleft at the apex, the 2-nerved palet 2-toothed; the teeth, at least of the former, pointed or subulate-awned. Stamens 3; anthers orange-colored or red. — Rudimentary flowers mostly 1-3-awned. Spikes solitary, racemed or spiked; the rhachis somewhat extended beyond the spikelets. (Named for *Claudius Boutelou*, a Spanish writer upon floriculture and agriculture.)

§ 1. **CHONDRISIUM**. Spikes pectinate, of very many spikelets, oblong or linear, very dense, solitary and terminal or few in a raceme; sterile flowers 1-3 on a short pedicel, neutral, consisting of 1-3 scales and awns.

1. *B. oligostachya*, Torr. Glabrous, perennial (6-12' high); leaves very narrow; spikes 1-5, the rhachis glabrous; glumes all sparingly soft-hairy, the lobes awl-pointed; sterile flower copiously villous-tufted at the summit of the naked pedicel, its 3 awns equalling the larger glume. — N. W. Wisc. to N. Dak., and south to Tex. and Mex. — Glumes obscurely if at all papillose along the keel, the middle lobe of the flowering one 2-cleft at the tip. Sterile flowers often 2, the second mostly a large awnless scale, becoming hood-like and coriaceous.

2. *B. hirsuta*, Lag. Tufted (8-20' high), perennial; leaves flat, lance-linear, papillose-hairy or glabrous; spikes 1-4; upper empty glume hispid with strong bristles from dark warty glands; flowering glume pubescent, 3-cleft into awl-pointed lobes; sterile flower and its pedicel glabrous, the 3 awns longer than the glumes and fertile flower. — Sandy plains, Ill., Wisc., Minn., and southward to Mex.

§ 2. *ATHEROPOGON*. Spikes short, numerous in a long and virgate one-sided spike or raceme, spreading or reflexed, each of few (4-12) spikelets; sterile flowers neutral, rudimentary.

3. *B. racemosa*, Lag. (Pl. 9, fig. 1, 2.) Culms tufted from perennial rootstocks (1-3° high); sheaths often hairy; leaves narrow; spikes $\frac{1}{2}$ or less in length, nearly sessile, 20-60 in number in a loose general spike (8-15' long); flowers scabrous; glume of the fertile with 3 short awl-pointed teeth; sterile flower reduced to a single small awn, or mostly to 3 awns shorter than the fertile flower, and 1 or 2 small or minute scales. (*B. curtispindula*, Gray.) — Dry hills and plains, southern N. Y. to Minn., and south to Tex. and Mex. July-Sept. — Passes by transitions into var. *ARISTOSA*, with spikes shorter; sterile flower of a large saccate glume, awned at the 2-cleft tip and from the lateral nerves, the middle awn exserted, and with a rudiment of a palet. — Ill. (*Geyer*), and southward.

47. *ELEUSINE*, Gaertn. CRAB-GRASS. YARD-GRASS. (Pl. 9.)

Spikelets 2-6-flowered, with a terminal imperfect flower or naked rudiment, closely imbricate-spiked on one side of a flattish rhachis; the spikes digitate. Glumes membranaceous, shorter than the flowers; flowering glume and palet awnless, the glume ovate, keeled, larger than the palet. Stamens 3. Pericarp (utricle) containing a loose wrinkled seed. — Low annuals, with flat leaves, and flowers much as in *Poa*. (Name from *Ἐλευσίη*, the town where Ceres, the goddess of harvests, was worshipped.)

E. INDICA, Gaertn. (DOG'S-TAIL or WIRE GRASS.) (Pl. 9, fig. 1-6.) Culms ascending, flattened; spikes 2-5 (about 2' long, greenish); glumes pointless; terminal flower a mere rudiment. — Yards, etc., chiefly southward. (Nat. from Ind.?)

E. Aegyptiaca, Pers. (Pl. 9, fig. 1-4, as *Dactyloctenium*.) Culms often creeping at base; leaves ciliate at base; spikes 4-5; lower glume awned and the flowering one pointed. (*Dactyloctenium Aegyptiacum*, Willd.) — Cultivated fields and yards, Va., Ill., and southward. (Adv. from Afr.?)

48. *LEPTOCHLOA*, Beauv. (Pl. 15.)

Spikelets 3-many-flowered (the uppermost flower imperfect), loosely spiked on one side of a long filiform rhachis; the spikes racemed. Glumes membranaceous, keeled, rarely awned, nearly equal; flowering glume 3-nerved,

sometimes simply awned, larger than the palet. Stamens 2 or 3. Seed closely enclosed. — Ours annuals. Leaves flat. (Name composed of *λεπτός*, slender, and *χλόα*, grass, from the long attenuated spikes.)

1. *L. mucronata*, Kunth. Sheaths hairy; spikes numerous (20-40, 2-4' in length), in a long panicle-like raceme; spikelets small; glumes more or less mucronate, nearly equalling or exceeding the 3-4 awnless flowers. — Fields, Va. to Ill., Mo., and southward. Aug.

49. *BÜCHLOË*, Engelm. BUFFALO GRASS. (Pl. 15.)

Spikelets dioecious (rarely monœcious), very unlike; the staminate 2-3-flowered, sessile in 2 rows in short 1-sided spikes, the empty glumes blunt, 1-nerved, very unequal, the flowering larger, 3-nerved, a little exceeding the 2-nerved palet; fertile spikelets 1-flowered, in a contracted, capitate, 1-sided spike, the large outer glumes indurated, 3-fid at the apex, united at base and resembling an involucre, the inner (lower) much smaller and membranaceous, or in the lowest spikelet resembling the outer; flowering glume narrow, hyaline, bifid or nearly entire, enclosing the 2-nerved palet. Styles distinct. Grain ovate, free. — A perennial, creeping or stoloniferous, with narrow flat leaves; staminate spikes (2-3) in a pedunculate spike, the pistillate pair sessile in the broad sheaths of the upper leaves. (Name a contraction of *Bubulochloë*, from *βούβαλος*, buffalo, and *χλόη*, grass.)

1. *B. dactyloides*, Engelm. Low (3-8' high) and broadly tufted; sterile spikes 3-6" long, the fertile heads 3" long. — Plains of the Sask. to Minn., Kan., and Tex. One of the most valuable grasses of the plains.

50. *TRIODIA*, R. Br. (Pl. 10.)

Spikelets 3-12-flowered, somewhat terete, the rhachis with bearded joints; terminal flower abortive. Empty glumes unequal; flowering glumes membranaceous or somewhat chartaceous, much larger than the 2-toothed palet, convex, 2-3-toothed or cleft at the apex, conspicuously hairy-bearded or villous on the 3 strong nerves, of which the lateral are marginal or nearly so and usually excurrent, as is the mid-nerve especially, into a short cusp or awn. Stamens 3. Stigmas dark purple, plumose. Grain oblong, nearly gibbous. — Leaves taper-pointed; sheaths bearded at the throat. Panicle simple or compound; the spikelets often racemose, purplish. (Name from *τρις*, three, and *ὀδός*, a tooth, alluding to the flowering glume.)

§ 1. *TRIODIA* proper. Glumes shorter than the crowded flowers, the flowering one 3-cuspidate by the projection of the nerves, and usually with intermediate membranaceous teeth; palet naked.

1. *T. cūprea*, Jacq. (TALL RED-TOP.) Perennial; culm upright (3-5° high), very smooth, as are the flat leaves; panicle large and compound, the rigid capillary branches spreading, naked below; spikelets very numerous, 5-7-flowered, shining, purple (4' long); the flowering glumes hairy toward the base, their points almost equal, scarcely exceeding the intermediate teeth, thus appearing 5-toothed. (*Tricuspis seslerioides*, Torr.) — Dry or sandy fields, southern N. Y. to Mo., and southward. Aug. — A showy grass, with the spreading panicle sometimes 1° wide.

§ 2. **TRIPLASIS**. *Glumes much shorter than the somewhat remote flowers, flowering glume and palet strongly fringe-bearded, the glume 2-cleft at the summit, its mid-nerve produced into an awn between the truncate or awn-pointed divisions.*

2. **T. purpurea**, Hack. (SAND-GRASS.) Culms many in a tuft from the same annual root, ascending (6–12' high), with numerous bearded joints; leaves involute-awl shaped, mostly short; panicles very simple, bearing few 2–5-flowered spikelets, the terminal one usually exserted, the axillary ones included in the commonly hairy sheaths; awn much shorter than the glume, seldom exceeding its eroded-truncate or obtuse lateral lobes. (*Tricuspis purpurea*, Gray.) — In sand, Mass. to Va. along the coast, and southward; also L. Erie, near Buffalo, and Ill. Aug., Sept. — Plant acid to the taste.

51. **DIPLACHNE**, Beauv. (Pl. 9.)

Spikelets several-flowered, narrow, erect and scattered along the slender rhachis of the long spicate spikes; flowers all perfect or the uppermost staminate. Empty glumes membranaceous, carinate, acute, unequal; flowering glume slightly longer, 1–3-nerved, 2-toothed, and mucronate or shortly awned between the teeth. Stamens 3. Styles distinct. Grain free. — Coarse grasses, with narrow flat leaves, and several or many slender spikes sessile upon an elongated peduncle. (Name from *διπλος*, double, and *ἀχνη*, in the sense of chaff, with reference to the 2-lobed glume.)

1. **D. fascicularis**, Beauv. Smooth; leaves longer than the geniculate-decumbent and branching culms, the upper sheathing the base of the panicle-like spike, which is composed of many strict spikes (3–5' long); spikelets slightly pedicelled, 7–11-flowered, much longer than the lanceolate glumes; flowers hairy-margined toward the base, the glume with 2 small lateral teeth and a short awn in the cleft of the apex. (*Leptochloa fascicularis*, Gray.) — Brackish meadows, from R. I. southward along the coast, and from Ill. southward on the Mississippi. Aug.–Sept.

52. **PHRAGMITES**, Trin. REED. (Pl. 11.)

Spikelets 3–7-flowered; the flowers rather distant, silky-villous at base, and with a conspicuous silky-bearded rhachis, all perfect and 3-androus, except the lowest, which is either neutral or with 1–3 stamens, and naked. Glumes membranaceous, shorter than the flowers, lanceolate, keeled, sharp-pointed, very unequal; flowering glume and palet membranaceous, slender, the glume narrowly awl-shaped, thrice the length of the palet. Squamulae 2, large. Styles long. Grain free. — Tall and stout perennials, with long running rootstocks, numerous broad leaves, and a large terminal panicle. (*Phragmites*, growing in hedges, which this aquatic grass does not.)

1. **P. communis**, Trin. Panicle loose, nodding; spikelets 3–5-flowered; flowers equalling the beard. — Edges of ponds. Sept. — Looks like Broom-Corn at a distance, 5–12' high; leaves 2' wide. (Eu.)

53. **ARÚND**, L.

Flowers all perfect; flowering glume bifid, short-awned between the teeth. Otherwise as *Phragmites*. (The Latin name of the species.)

A. DONAX, L. Very tall (10–18'); spikelets 3–4-flowered. — Closely resembling *Phragmites communis*. Cultivated for ornament, and naturalized in Bedford Co., Va. (A. H. Curtiss.) (Nat. from Eu.)

54. **MÚNROA**, Torr. (Pl. 15.)

Spikelets usually 3-flowered, few (2–4) and nearly sessile in the axils of floral leaves; flowers perfect, or the uppermost abortive. Empty glumes lanceolate, acute, hyaline and 1-nerved; flowering glumes larger, 3-nerved, rather rigid, the mid-nerve stout, excurrent, the lateral ones scarcely so. — Low or prostrate many-stemmed annuals, fasciculately branched, with crowded short flat rigid or pungent leaves, the short sheaths strongly striate. (Named for the English agrostologist, Maj.-Gen. William Munro.)

1. **M. squarrosa**, Torr. Glaucous, somewhat pubescent and villous at the nodes or glabrous; leaves 3–12' long. — Dry plains, central Kan. to the Dakotas, west to Mont., Utah, and New Mex.

55. **KOELERIA**, Pers. (Pl. 10.)

Spikelets 3–7-flowered, crowded in a dense and narrow spike-like panicle. Glumes membranaceous, compressed-keeled, obscurely 3-nerved, barely acute, or the flowering glume often mucronate or bristle-pointed; the empty ones moderately unequal, nearly as long as the spikelet. Stamens 3. Grain free. — Tufted with simple upright culms, the sheaths often downy; allied to *Dactylis* and *Poa*. (Named for Prof. G. L. Koeler, an early writer on Grasses.)

1. **K. cristata**, Pers. Culms 1–2° high; leaves flat, the lower sparingly hairy or ciliate; panicle narrowly spiked, interrupted or lobed at base; spikelets 2–4-flowered; flowering glume acute or mucronate. — **Var. GRACILIS**, Gray, with a long and narrow spike, the flowers usually barely acute. — Dry hills, Penn. to Ill. and Kan., thence north and westward. (Eu.)

56. **EATONIA**, Raf. (Pl. 10.)

Spikelets usually 2-flowered, with an abortive rudiment or pedicel, numerous, in a contracted or slender panicle, very smooth. Empty glumes somewhat equal in length, but very dissimilar, a little shorter than the flowers; the lower narrowly linear, keeled, 1-nerved; the upper broadly obovate, folded round the flowers, 3-nerved on the back, not keeled, scarious-margined. Flowering glume oblong, obtuse, compressed-boat-shaped, naked, chartaceous; the palet very thin and hyaline. Stamens 3. Grain linear-oblong, not grooved. — Perennial, tall and slender grasses, with simple tufted culms, and often sparsely downy sheaths, flat lower leaves, and small greenish (rarely purplish) spikelets. (Named for Prof. Amos Eaton, author of a popular Manual of the Botany of the United States, which was for a long time the only general work available for students in this country, and of other popular treatises.)

* *Upper empty glume rounded-obovate and very obtuse; panicle usually dense.*

1. **E. obtusata**, Gray. (Pl. 10.) Panicle dense and contracted, somewhat interrupted, rarely slender; the spikelets crowded on the short erect branches; upper glume rough on the back; flowers lance-oblong. — Dry soil, N. Penn. to Fla., Mich., and far westward. June, July.

* * *Glume narrower, sometimes acutish; panicle more loose and slender.*

2. *E. Pennsylvanica*, Gray. Leaves mostly 3-6' long; panicle long and slender, loose, the racemose branches lax and somewhat elongated; glumes thin and broadly scarious, the lowest half the length of the flower, very narrow, the upper obtuse or bluntly somewhat pointed; the 2 (rarely 3) flowers lanceolate, with pointed glumes. — Varies, with a fuller panicle, 6-8' long, with the aspect of *Cinna* (var. *MAJOR*, Torr.); and, rarely, with the lower palet minutely mucronate-pointed! — Moist woods and meadows; common.

3. *E. Dudleyi*, Vasey. Culms very slender; leaves shorter, 1-2' long; panicle very slender, the branches few, short and mostly appressed; empty glumes nearly equal, the lower oblong, the upper broadly elliptical, apiculate; flowering glumes shorter than in n. 2, acutish. — Long Island to central N. Y., south to S. C.

57. *ERAGRÓSTIS*, Beauv. (Pl. 10.)

Spikelets 2-70-flowered, nearly as in *Poa*, except that the flowering glume is but 3- (rarely 1-) nerved, not webby-haired at the base, and is deciduous; palet persistent on the rachis after the rest of the flower has fallen. — Culms often branching. Leaves linear, frequently involute, and the ligule or throat of the sheath bearded with long villous hairs. Panicle various. (Name from *ἔρα*, spring, and *ἄγροστις*, a grass.)

* *Prostrate and creeping, much branched; root annual; spikelets flat, imperfectly diœcious, clustered, almost sessile, in the more fertile plant almost capitate.*

1. *E. réptans*, Nees. Spikelets linear-lanceolate, 10-30-flowered; flowers lance-ovate, acute; leaves short, almost awl-shaped. — Gravelly river-borders; common. Aug. — Flowering branches 2-5' high.

* * *Diffusely spreading, or the flowering culms ascending, low (6-15' high), annual; spikelets often large, flat, forming a narrow crowded panicle.*

E. MINOR, Host. Sheaths often hairy; leaves flat, smooth; spikelets short-pedicelled, lance- or oblong-linear, 8-20-flowered, lead-colored (2-5" long); flowers ovate, obtuse, the lateral nerves becoming evident, and keel smooth. (*E. poæoides*, Beauv.) — Sandy waste places, eastward; rare. (Nat. from Eu.)

E. MAJOR, Host. Sheaths mostly glabrous; spikelets larger (3-10" long), becoming linear, whitish when old, 10-50-flowered; flowers more spreading, their glumes larger, with very strong lateral nerves and rough on the keel. (*E. poæoides*, var. *megastachya*, Gray.) — Similar situations, and more common. Aug. — Emits a sharp, unpleasant odor. (Nat. from Eu.)

* * * *Erect, or in group — diffusely spreading and ascending; panicle open, its branches capillary; spikelets proportionally small, sometimes minute. (Number of flowers in the spikelet very variable, according to age, etc.)*

+ *Annual; culms slender, branching and decumbent or spreading at base; leaves narrow, flat, soft; branches of the narrow panicle rather short and thickly-flowered, not bearded in the axils, or sometimes the lowest sparingly.*

E. PILÓSA, Beauv. (Pl. 10, fig. 1-4.) Panicle elongated-oblong, with rather erect branches (except at flowering-time); spikelets 5-12-flowered (2-4" long, purplish-lead-color), becoming linear, about equalling their pedicels; empty glumes (small) and flowering ones obtuse, the latter broadly ovate, 1-nerved (lateral nerves obsolete). — Sandy or gravelly waste places, S. New Eng. to Ill., and southward. Aug. — Plant 6-12' high. (Nat. from Eu.)

2. *E. Fránkii*, Meyer. Much branched and diffuse (3-8' high); panicle ovate-oblong, rather dense, spreading; spikelets 2-5-flowered (1-1½" long), on slender pedicels; glumes very acute; the flowering one ovate, acute, rather obscurely 3-nerved. — Low or sandy ground, S. Penn. to Kan., and southwestward. Aug.

3. *E. Púrshii*, Schrader. Sparingly branched at the decumbent base, then erect (½-2° high); panicle elongated, the branches widely spreading, very loose; spikelets 5-18-flowered, oblong-lanceolate, at length linear (2-4½" long), mostly much shorter than their capillary pedicels; glumes all ovate and acute, or the flowering ones acutish, 3-nerved. — Sandy or sterile open grounds, Penn. to Mo., and southwestward; also introduced northward.

+ *Culms simple, or branching only at the very base, firm, erect, mostly forming thick tufts; leaves very long; panicle very large, compound, often longer than the culm, with elongated loosely-flowered branches, their axils often bearded. (Doubtful perennials, or n. 5 annual.)*

4. *E. ténuis*, Gray. Panicle virgately elongated (1-2½" long), very loose, the spreading branches bearded in some of the lower axils, their remote divisions and long diverging pedicels capillary; spikelets 2-6- (sometimes 7-12-) flowered, pale or greenish; lower glumes lanceolate or awl-shaped, very acute (1½-2" long), membranaceous, as are the oblong-lanceolate acute flowers; flowering glume distinctly 3-nerved; the upper ciliate-scarious. — Sandy soil, Ohio to Ill., Kan., and southward. Aug.-Oct. — Leaves rather rigid, 1½-2° long, glabrous or sparingly hairy; the sheaths hairy or glabrous; the throat strongly bearded; flowers much larger than in the next, fully 1½" long.

5. *E. capillaris*, Nees. Panicle widely expanding, usually much longer than the culm, its spreading branches (mostly naked in the axils) and long diverging pedicels capillary; spikelets rather terete, very small, 2-4-flowered, greenish or purplish; glumes and flowers ovate, acute (less than 1" long); flowering glume obscurely 3-nerved, scarcely keeled; the palet rough-ciliate. — Sandy dry soil and fields; common, especially southward. Aug., Sept. — Leaves and sheaths very hairy, or nearly glabrous; the former about 1° long, not rigid; panicle 1-2° long, soon diffuse.

6. *E. pectinacea*, Gray. Panicle widely diffuse, its rigid divergent main branches bearded in the axils; the capillary pedicels more or less appressed on the secondary branches; spikelets flat, 5-15-flowered, becoming linear, purple or purplish; glumes and flowers ovate or oblong-ovate, acutish; flowering glume strongly 3-nerved; palet hirsute-ciliate. — Leaves long, rigid, mostly hairy, the sheaths especially so; plant 1-3° high; spikelets 2-3" long, 1" wide, closely flowered. — Var. *SPECTÁBILIS*, Gray. Leaves and sheaths mostly glabrous; branches of the panicle (the lower reflexed with age) and pedicels shorter; spikelets rather larger. — Sandy dry ground, from E. Mass. near the coast, and from Ohio and Ill., southward. Aug.-Oct.

7. *E. campéstris*, Trin. Glabrous or the sheaths villous at the throat; culm short, bearing an elongated and very open panicle with divaricate branches bearded at base; spikelets linear, flat, 8-12-flowered, sessile or nearly so along the branchlets; glumes very acute or acuminate, 3-nerved, roughish on the keel; palet minutely ciliate. (*E. pectinacea*, var. *refracta*, Chapm. *Poa refracta*, Ell.) — Del. and Md. to Fla. and Ala.

58. *MÉLICA*, L. MELIC-GRASS. (Pl. 10.)

Spikelets 2-8-flowered; the 1-3 upper flowers imperfect and dissimilar, convolute around each other, and enwrapped by the upper fertile flower. Empty glumes usually large, scarious-margined, convex, obtuse; the upper 7-9-nerved. Flowering glume papery-membranaceous, dry and sometimes indurating with age, rounded or flattish on the back, 5-many-nerved, scarious at the entire blunt summit. Stamens 3. — Perennials with soft flat leaves. Panicle simple or sparingly branched; the rather large spikelets racemose-one-sided. (An old Italian name for Sorghum, from *mel*, honey.)

1. *M. mutica*, Walt. (Pl. 10.) Slender, with usually narrow leaves, the panicle often reduced to a simple raceme; lower glumes nearly equal and almost equalling the spikelet; fertile flowers usually 2; flowering glumes broad, smooth, obtuse. — Rich soil, Penn. to Fla., west to Wisc., Iowa, and Tex.

2. *M. diffusa*, Pursh. Taller, 2½-4° high, with mostly broader leaves and a more usually compound and many-flowered panicle; lower glumes more unequal, the outer very broad; fertile flowers usually 3; flowering glumes somewhat scabrous and more acute. (*M. mutica*, var. *diffusa*, Gray.) — Penn. to Ill., and southward.

59. *DIARRHËNA*, Raf. (Pl. 10.)

Spikelets several-flowered, smooth and shining, one or two of the uppermost flowers sterile. Empty glumes ovate, much shorter than the flowers, coriaceous; the lower much smaller; flowering glume ovate, convex on the back, rigidly coriaceous, its 3 nerves terminating in a strong and abrupt cuspidate or awl-shaped tip. Squamulæ ovate, ciliate. Stamens 2. Grain very large, obliquely ovoid, obtusely pointed, rather longer than the glume, the cartilaginous shining pericarp not adherent to the seed. — A nearly smooth perennial, with running rootstocks, producing simple culms (2-3° high) with long linear-lanceolate flat leaves toward the base, naked above, bearing a few short-pedicelled spikelets (2-3" long) in a very simple panicle. (Name composed of *dis*, two, and *ῥῥην*, man, from the two stamens.)

1. *D. Americana*, Beauv. Shaded-river-banks and woods, Ohio to Ill., and southward. Aug.

60. *UNIOLA*, L. SPIKE-GRASS. (Pl. 11.)

Spikelets closely many-flowered, very flat and 2-edged; 3-6 of the lowest glumes empty, lanceolate, compressed-keeled; flowering glume coriaceous-membranaceous, strongly laterally compressed and keeled, striate-nerved, usually acute or pointed, entire, enclosing the much smaller compressed 2-keeled palea and the free laterally flattened smooth grain. Stamen 1 (or in *U. paniculata* 3). — Upright smooth perennials, growing in tufts from strong creeping rootstocks, with broad leaves and large spikelets in an open or spiked panicle. (Ancient name of some plant, a diminutive of *unio*, unity.)

* Spikelets large (½-2' long), ovate or oblong, 9-30-flowered; panicle open.

1. *U. paniculata*, L. (SEA OATS.) Culm and panicle elongated (4-8° high); leaves narrow, when dry convolute; spikelets ovate, short-pedicelled; glumes glabrous, bluntnish, several of the lower sterile; stamens 3. — Sand-hills on the sea shore, S. Va. and southward.

2. *U. latifolia*, Michx. (Pl. 11, fig. 1-3.) Culm 2-4° high; panicle loose; leaves broad and flat (nearly 1' wide); spikelets at length oblong, hanging on long pedicels; glumes acute, ciliate on the keel, all but the lowest with perfect monandrous flowers. — Shaded slopes, S. Penn. to Ill., and southward.

* * Spikelets small; panicle contracted, wand-like; perfect flowers long-pointed.

3. *U. gracilis*, Michx. Culm 3° high, slender; spikelets short-pedicelled (2-3" long), broadly wedge-shaped, acute at base, 4-8-flowered; glumes ovate and divergently beaked, long, the 3 lowest empty. — Sandy soil, from Long Island to Va., near the coast, and southward. Aug.

61. *DISTÍCHLIS*, Raf. SPIKE-GRASS. (Pl. 10.)

Spikelets and numerous flowers compressed, crowded in a densely spiked or capitate panicle. Glumes herbaceous or membranaceous, the lower faintly many-nerved; flowering glumes rather coriaceous, laterally much flattened, faintly many-nerved, acute. Ovary stalked. — Flowers dioecious, rather large. Leaves crowded, involute, usually rigid. (Name from *distichos*, two-ranked.)

1. *D. marítima*, Raf. Culms tufted from creeping rootstocks (9-18' high); spike oblong, flattened (1' long); spikelets ovate or oblong, 5-10-flowered; glumes smooth and naked; grain pointed. (*Brizopyrum spicatum*, Hook.) — Salt marshes and shores. Aug. — Glumes of the pistillate flowers more rigid and almost keeled; stigmas very long, plumose; the staminate glumes smaller and somewhat rounded on the back.

62. *DÁCTYLIS*, L. ORCHARD GRASS. (Pl. 10.)

Spikelets several-flowered, crowded in one-sided clusters, forming a branching dense panicle. Glumes all herbaceous, keeled, awn-pointed, rough-ciliate on the keel; the flowering one 5-nerved, the upper most commonly smaller and thinner. Stamens 3. Grain lance-oblong, acute, free. — Stout tufted perennial; leaves keeled. (*Dactylos*, a name in Pliny for a grass with digitate spikes, from *δάκτυλος*, a finger.)

D. glomerata, L. Rough, rather glaucous (3° high); leaves broadly linear; branches of the panicle naked at base; spikelets 3-4-flowered. — Fields and yards, especially in shade. June. (Nat. from Eu.)

63. *BRÏZA*, L. QUAKING GRASS. (Pl. 10.)

Spikelets many-flowered, ovate or heart-shaped, flattish-tumid; the flowers closely imbricated. Glumes roundish, unequal, purplish, very concave or ventricose, 3-5-nerved; the flowering ventricose on the back, heart-shaped at the base, papery-membranaceous and becoming dry, scarious-margined, obscurely many-nerved; the palea much smaller, ovate, flat. Stamens 3. Stigmas branched-plumose. Grain flattened parallel with the glumes, adhering to the palea. — Leaves flat; panicle loose, diffuse, with large showy spikelets often drooping on delicate pedicels. (*Bríza*, the Greek name of a kind of grain.)

B. media, L. Panicle erect, the branches spreading; spikelets 5-9-flowered (3" long); lower glumes shorter than the first flowering one; root perennial. — Pastures; sparingly eastward. June. (Adv. from Eu.)

64. *PŌA*, L. MEADOW-GRASS. SPEAR-GRASS. (Pl. 10.)

Spikelets ovate or lance-ovate, laterally compressed, several (2-10) flowered, in an open panicle. Empty glumes mostly shorter than the flowers, the

lower smaller; flowering glume membranaceous-herbaceous, with a delicate scarious margin, compressed-keeled, pointless, 5-nerved (the intermediate nerves more obscure or obsolete); the principal nerves commonly clothed with soft hairs at and toward the often cobwebby base; palea membranaceous, 2-toothed. Stamens 2 or 3. Stigmas simply plumose. Grain oblong, free. — Culms tufted, from perennial roots, except n. 1. Leaves smooth, usually flat and soft. (Πόα, an ancient Greek name for grass or fodder.)

* Low and spreading (3-6' high) from an annual or biennial root, flaccid; branches of the short panicle single or in pairs.

P. ANNUA, L. (LOW SPEAR-GRASS.) Culms flattened; panicle often 1-sided, usually short and pyramidal, sometimes more slender (*P. cristata*, Chapm.); spikelets crowded, very short-pedicelled, 3-7-flowered. — Cultivated and waste grounds, everywhere. April-Oct. (Nat. from Eu.)

** Low; the culms (6-20' long) geniculate-ascending from a running rootstock, rigid, very much flattened; panicle simple and contracted.

P. COMPRÉSSA, L. (WIRE-GRASS. ENGLISH BLUE-GRASS.) (Pl. 10, fig. 1-4.) Pale, as if glaucous; leaves short; panicle dense and narrow, somewhat one-sided (1-3' long), the short branches mostly in pairs; spikelets almost sessile, 3-10-flowered, flat. — Dry, mostly sterile soil, in waste places; rarely in woods. (Nat. from Eu.)

*** Low alpine or alpestrine species, erect, in perennial tufts.

+ Soft and flaccid, smooth or nearly so, even to the branches of the panicle; leaves short and flat, short-pointed; ligule elongated.

1. **P. alpina**, L. Culms rather stout (8-14' high); leaves broadly linear, especially those of the culm (1½-2' long, 1½-3" wide); panicle short and broad; spikelets broadly ovate, 3-9-flowered (about 3" long); flowering glume villous on the midrib and margins. — N. Maine (?), Isle Royale and north shore of Lake Superior, and northward. (Eu.)

2. **P. lãxa**, Haenke. Culms slender (4-9' high); leaves narrow; panicle somewhat raceme-like, narrow, often one-sided and nodding; spikelets 2-4-flowered, one half smaller. — Alpine mountain-tops of Maine, N. H., and N. New York, and high northward. (Eu.)

+ + More strict and rigid, roughish, especially the panicle; ligule short.

3. **P. nemoralis**, L. Culms 6-20' high; leaves narrow, short, soon involute; branches of the panicle 2-5 together, very scarious; spikelets purplish (or sometimes pale), 2-5-flowered; lower glumes ovate-lanceolate and taper-pointed, the flowering lanceolate, somewhat webby at base, villous on the keel and margins below the middle, its nerves obscure. (*P. cæsia*, Smith.) — The more common form has a usually narrow somewhat nodding panicle, with short ascending branches, the small pale or purplish spikelets 2-flowered. Lab. to N. Maine and N. Vt.; Lake Champlain (*Pringle*); N. shore of L. Superior to N. Iowa, and westward. — A form with somewhat stouter and stricter habit, the darker or often pale spikelets 3-5-flowered (*P. cæsia*, var. *strictior*, Gray), corresponds nearly to the European *P. cæsia*. High mountains of N. H. and Vt., and Gardner's Island, L. Champlain (*C. E. Faxon*), Isle Royale and N. shore of L. Superior, and westward. — Also a form with the branches of the short panicle broadly divaricate; N. Wisc. (*Lapham*). (Eu.)

*** *Talier* (1-3°) meadow or woodland grasses; panicle open.

+ Spikelets mostly very numerous and crowded on the rather short rough branches (usually in fives) of the oblong or pyramidal panicle, green, or sometimes violet-tinged; flowers acute, crowded, more or less webbed at base.

4. **P. serótina**, Ehrhart. (FALSE RED-TOP. FOWL MEADOW-GRASS.) Culms tufted without running rootstocks; leaves narrowly linear, soft and smooth; ligules elongated; spikelets 2-4 (rarely 5-) flowered (1-2" long), all short-pedicelled in an elongated panicle, often tinged with dull purple; flowers and glumes narrow; flowering glume very obscurely nerved. — Wet meadows and low banks of streams; common, especially northward. July, Aug. — A good grass for moist meadows. (Eu.)

5. **P. pratensis**, L. (JUNE GRASS. SPEAR GRASS. KENTUCKY BLUE GRASS.) Culms sending off copious running rootstocks from the base, and the sheaths smooth; ligule short and blunt; panicle short-pyramidal; spikelets 3-5-flowered, crowded, and mostly almost sessile on the branches, ovate-lanceolate or ovate; flowering glume 5-nerved, hairy on the margins as well as keel. — Common in dry soil; imported for pastures and meadows. Indigenous in mountain regions from N. Penn. to New Eng., and northward. May-July. (Eu.)

P. TRIVIALIS, L. (ROUGHISH MEADOW-GRASS.) Culms erect from a somewhat decumbent base, but no distinct running rootstocks; sheaths and leaves more or less rough; ligule oblong, acute; panicle longer or with the branches more distant; spikelets mostly 3-flowered, broader upward; flowering glume prominently 5-nerved, naked at the margins; otherwise nearly as in the preceding. — Moist meadows, etc. July. (Nat. from Eu.)

+ + Spikelets fewer and more scattered, on slender pedicels; plants soft and smooth, flowering early. (No running rootstocks, except in n. 10.)

+ + Spikelets small (1-2" long), pale green, rather loosely 2-4-flowered; flowers oblong, obtuse; flowering glume scarcely scarious-tipped; culm-leaves lance-linear, acute, 1-3' long.

6. **P. sylvestris**, Gray. Culm flattish, erect; branches of the oblong-pyramidal panicle short, numerous, in fives or more; flowering glumes villous on the keel its whole length, and on the margins below the middle, sparingly webbed at base. — Rocky woods and meadows, western N. Y. to Wisc., Kan., and southward. June.

7. **P. débilis**, Torr. Culms terete, weak; branches of the small panicle few and slender (the lower 1½-2' long to the few spikelets), in pairs and threes; flowers very obtuse, smooth and glabrous, except a sparing web at base. — Rocky woodlands, R. I. to Penn. and Wisc. May.

+ + Spikelets 2" long, light green; oblong-lanceolate flowers and glumes acute.

8. **P. alsódes**, Gray. Leaves rather narrowly linear, acute, the uppermost (2½-4' long) often sheathing the base of the narrow and loose panicle, the capillary branches appressed when young, mostly in threes or fours; flowering glume very obscurely nerved, villous on the keel below, and with a narrow cobwebby tuft at base, otherwise glabrous. — Woods, on hillsides, N. Eng. to Penn. and Va., west to Wisc. May, June.

+ + + Spikelets larger (3-4" long), pale green, rarely purple-tinged, few and scattered at the ends of the long capillary branches (mostly in pairs or threes) of the very diffuse panicle; flowers 3-6, loose, oblong and obtuse, as

is the larger glume; flowering glume conspicuously scarious at the apex, villous below the middle on the keel and margins; culms flattish, smooth.

9. *P. flexuosa*, Muhl. (not of Wahl.) Culms 1-3° high, tufted, its leaves all linear (2-5' long), gradually taper-pointed; panicle very effuse (its branches 2-4' long to the 4-6-flowered spikelets or first ramification); flowering glume prominently nerved, no web at the base. — Dry woods, Penn. and Del. to Ky., and southward. Feb.-May. — Near the last.

10. *P. brevifolia*, Muhl. Culms 1-1½° high from running rootstocks, 2-3-leaved, the upper leaves very short (½-2' long), lanceolate, all abruptly cuspidate-tipped; branches of the short panicle mostly in pairs; spikelets 3-4-flowered; flowering glume rather obscurely nerved, cobwebby at base. — Rocky or hilly woodlands, Penn., Va., and sparingly westward to Ky. and Ill. April, May. — Culm scarcely surpassing the long root-leaves.

65. GRAPHÉPHORUM, Desv. (Pl. 10.)

Spikelets 2-4-flowered, compressed, the rhachis pilose on one side, jointed, produced above the flowers into a hairy pedicel. Empty glumes thin-membranaceous, acute, carinate, mostly nearly equalling the remote flowers; flowering glume thin and membranaceous or scarious, convex, scarcely keeled, faintly nerved, entire, pointless and awnless. Stamens 3. Stigmas plumose. Ovary glabrous. — Perennial, with linear flat leaves, their sheaths closed at base, the spikelets in a loose panicle. (Named from *γραφς*, a pencil, and *φέρω*, to bear, from the terminal hairy pedicel.)

1. *G. melicoideum*, Desv. Culm 1-2° high; leaves roughish; panicle open; glumes unequal, lanceolate, their midrib and the pedicels rough. — N. Maine, N. Vt., Upper Mich., and northward; rare. — Var. *major*, Gray, is a luxuriant form, 2-3° high, with ampler panicle; borders of a swamp, Macomb Co., Mich. Aug.

66. SCOLÓCHLOA, Link. (Pl. 15.)

Spikelets 2-4-flowered, subterete. Rhachis hairy at the base of the flowers, ending in a naked pedicel. Empty glumes concave, membranaceous, unequal, the outer 3-nerved, acute, the inner 5-nerved, toothed at the apex, nearly equaling the flowers; flowering glume more rigid, prominently 7-nerved, toothed at the apex; nerves all parallel. Stamens 3. Stigmas plumose. Ovary hairy. — Tall perennials, growing in water, with loosely sheathing leaves, and spikelets in a lax panicle. (Name probably from *σκόλος*, a prickle, and *χλόα*, grass.)

1. *S. festucacea*, Link. Stout, 3-4° high, smooth; leaves rough on the margins; panicle suberect; spikelets 3-4" long. (*Festuca borealis*, Hook.) — Emmet Co., Iowa (*Cratty*), and northward.

67. GLYCÈRIA, R. Br. MANNA-GRASS. (Pl. 10.)

Spikelets terete or flattish, several-many-flowered; the flowers mostly early deciduous by the breaking up of the rhachis into joints, leaving the short and unequal 1-3-nerved membranaceous lower glumes behind. Flowering glume and palet naked, of a rather firm texture, nearly equal; the glume rounded on the back, scarious (and sometimes obscurely toothed) at the blunt or rarely

acute summit, glabrous, prominently 5-7-nerved, the nerves parallel and separate. Squamulae fleshy and truncate, or none. Stamens commonly 2. Styles present; stigmas compoundly plumose. Ovary smooth. Grain oblong, free, the furrow very narrow or none. — Perennial smooth marsh grasses, mostly with creeping bases or rootstocks; spikelets paniced. (Name from *γλυκερός*, sweet, in allusion to the taste of the grain.)

* Spikelets ovate, oblong, or linear-oblong, 1-3" in length,

+ At length nodding in an open panicle, flattish laterally but turgid.

1. *G. Canadensis*, Trin. (RATTLESNAKE-GRASS.) Culm stout, 2-3° high; leaves long, roughish; panicle oblong-pyramidal, at length drooping; spikelets ovate, at length very broad and tumid, Briza-like, 2" long, pale, with purplish glumes; flowering glume acute or blunt-pointed, firm, with not very prominent nerves, longer than the rounded palet. — Bogs and wet places; common from Penn. to E. Kan., and northward. July.

+ + Erect in a narrow contracted panicle, somewhat flattened and turgid.

2. *G. obtusa*, Trin. Culm stout, 1-2° high, very leafy; leaves long, smooth; panicle narrowly oblong, dense (3-5' long); spikelets 3-7-flowered, 2-3" long; flowering glume obtuse. — Bogs, E. New Eng. to Penn. and southward, near the coast.

3. *G. elongata*, Trin. Leaves very long (1° or more), rough; panicle narrowly racemose, elongated (1° long), recurving; the branches and 3-4-flowered spikelets appressed; flowering glume obtuse. — Wet woods, N. Eng. to Mich., Minn., and northward; Roan Mt., N. C. (*Scribner*). July-Aug.

+ + + Diffuse; flower-glume truncate-obtuse, strongly 7-nerved; palet 2-toothed.

4. *G. nervata*, Trin. (FOWL MEADOW-GRASS.) (Pl. 10, fig. 1-3.) Culm erect, 1-3° high; leaves rather long; branches of the loose panicle capillary, at length drooping, the numerous small spikelets (1-2" long, commonly purplish) ovate-oblong, 3-7-flowered. — Moist meadows; common. June.

5. *G. pallida*, Trin. Culms slender, 1-3° long, ascending from a creeping base; leaves short, sharp-pointed, pale; branches of the rather simple panicle slender, erect-spreading, rough; the spikelets usually few, somewhat appressed, oblong-linear, 5-9-flowered (pale, 2-3" long); flowering glume minutely 5-toothed; the palet lanceolate, conspicuously 2-toothed. — Shallow water; Maine to Va., west to Ky., Ind., and Mich.; common, especially northward. July.

6. *G. grandis*, Watson. (REED MEADOW-GRASS.) Culm stout, upright, 3-5° high; leaves large (1-2° long, ½-¾" wide); panicle much branched, ample (8-15' long), the numerous branches ascending, spreading with age; spikelets oblong or linear-oblong, 3-6-flowered (usually purplish, 2-3" long); flowering glume entire. (*G. aquatica* of Amer. authors.) — Wet grounds; N. Eng. to western N. Y., Mich., Minn., and westward.

* * Spikelets linear (½-1' long), pale, appressed on the branches of the long narrow racemose panicle, terete except during anthesis; palets minutely roughish, the upper 2-toothed; squamulae unilateral or united; ligule long; culm flattened (1-5° high), ascending from a rooting base. (*Glyceria*, R. Br.)

7. *G. fluitans*, R. Br. Panicle 1° long; the simple branches appressed, finally spreading below; leaves short and rather broad, very smooth; spikelets