in pairs, densely flowered nearly or quite to the base. Empty glumes lanceolate, pale straw-colored and sometimes tinged with purple, the upper 3-nerved, mucronate and often 3-toothed at the tip, 2½ lines long, one-half a line longer than the acute, one-nerved lower glume. Flowering glume 2 lines long, pilose below on the back, and for nearly ⅔ its length on the margins, terminating in a slender awn 6–10 lines long; palea nearly as long as its glume and similarly pilose. Stamens 1½ line long, pale purple.

This species resembles *M. gracilis*, Trin., in habit, but is distinguished at once by its very long involute leaves and light colored, more loosely flowered panicle.

Summits of the Santa Rita Mts., Arizona.

This is a Mexican grass, not before observed in the distributed collections made within the limits of the United States, and perhaps now found for the first time within our limits. It should be added that identification of Pringle's specimens with *M. virescens*, Trin., is based upon descriptions of that plant only.

33. **Muhlenbergia debilis*, Trin., Agrost., ii., 49; Thurber, Bot. Cal., ii., p. 277; *M. purpurea*, Nutt., Pl., 180.

Foot-hills, Santa Catalina Mts. April.

34. *Muhlenbergia sylvatica*, Torr., var. *Pringlii* (vel *n. sp.*)—Culms densely caespitose, terete, erect, simple, rather rigid, about 1 foot high. Leaves involute, filiform, about 7 to each culm, minutely scabrous outside, especially towards the tip, strigose scabrous within, 4–6 inches long, the lower ones shorter; ligule broader than the leaves, decurrent along the sheath, ½ line long, irregularly cut, continued on each side into two lanceolate, acute teeth or auricles one line long. Panicle slender, contracted, 2–3 inches long, rather densely flowered. Empty glumes nearly equal, 1-nerved, with slender acuminate points, 1 line long. Flowering glume nearly or quite smooth at the base, 3-nerved, scabrous on the keel above, 1½–2 lines long, terminating in a slender awn 4–6 lines long; palea nearly equalling its glume.

Dry Cliffs, Santa Rita Mts.; alt. 7,000 feet. July. (480.)

The specimens are not mature, but are developed sufficiently to show the above-enumerated character. Later, the panicle, the base of which is enclosed in the upper sheaths, may become exserted, and the culms, though now strictly simple, may become branched. It is referred to *M. sylvatica* because of the resemblance of the panicle and minute characters of the spikelets to that species. It is distinct from No. 731 of C. Wright's Texan coll., called *M. monticola* by Buckley, and referred to *M. sylvatica* by Munro.

Girard College, Philadelphia. F. Lamson Scribner.

The Brittle Branches of Salix were recently referred to by Mr. Thomas Meehan. Ordinary wood-cells are long, and possess tapering extremities which overlap each other. This overlapping occurs all along the wood, about as much in one place as in another. In brittle willows the cells mostly end abruptly at the place where the branch snaps off. At first thought, this might seem to be a defect in the structure of the plant. Notwithstanding this peculiarity, such

trees produce branches enough. The wind, weight of snow or other forces frequently bring down the young branches. The trees mostly grow in moist soil, frequently near streams. These branches may take root in the soil where they drop, or be carried down stream by the current and lodge on the shore below. With this view, the brittleness is a very effectual means of multiplying and distributing the species. Analogous examples are not uncommon. The fleshy buds in the axil of the leaves of the tiger-lily separate spontaneously and produce independent plants where they fall in suitable places. *Sempervivum globiferum* produces some slender branches a foot or more in length, and these bear a couple of small thick leaves at the end, within which are rudiments of other leaves. These leafy tips spontaneously separate and produce new plants where they strike soil. If my memory is not at fault, the slender branch then dies, as is the case with the runner of a strawberry after it produces a new plant at the end. Doubtless many similar examples are familiar to most botanists and horticulturists.

Michigan Agricult. College, Lansing. W. J. Beal.

Brittle Branches of Salices.—In the June number of the Bulletin Mr. Thomas Meehan has opened a subject of considerable interest. Several of the willows (especially old trees) beside *Salix sericea* have branches brittle at the base, or rather which semi-articulate above their true base. This I have noticed for years in *S. sericea* and in *S. Babylonica*, but supposed it was a case of true brittleness as set forth in our manuals.

E. C. Howe.

Dicentra Canadensis.—Since I wrote the note on *Dicentra Cucullaria* for the April number of the Bulletin, I have had occasion to examine the "tubers" (as they are called in our manuals) of *D. Canadensis*, and have found that they, too, are simply very much enlarged petiole-bases. There are also some very minute, abortive leaves formed at the base of the fully developed leaves, but they do not grow into small bulblets as in *D. Cucullaria*, and therefore this species has no bulb-like rootstock; but the large, round bulblets are scattered singly on the more or less elongated, thin, scaly rhizoma. On the top of each, the scar left when the upper portion of the leaf has withered away, is plainly visible.

Hoboken, May, 1882. Jos. Schrenk.

Multiplication of Spadices in Arisaema.—I have to report a monstrosity quite new in my experience. In my small garden, I have growing a number of wild plants, among them *Arisaema triphyllum* in quantity. The "pulpit" of one of these is occupied by *two* "preachers." To speak after the manner of botanists, there are within the spathe two spadices, confluent only in the lower flower-producing part. The flowers are all pistillate and apparently normal. Of the two "Jacks," one is taller than his clerical brother, while the lesser one is deformed, that is, somewhat flattened below and dilated above. He has a somewhat subdued look beside his more arrogant