PLATE II

Common Panicle Branch Types

whorled or verticillate branches

pedicel

rachis

nooding

widespread

ascending

one sided

spike like (interrupted)

rachis

appressed

subdigitate

digitate

peduncle

Spikelet Detail

pedicel

rachilla

palea

stigma caryopsis

anther

lemma

upper glume (2)

lower glume (1)

lemma of 2nd floret

lemma of 1st floret

upper glume

lower glume

Typical Paniceae Spikelet
Various Andropogonae inflorescence arrangements

- Top row: heteromorphic spikelet units
- Bottom row: homomorphic spikelet units

A–E: Rame segments  F: Raceme segment

Various shapes mentioned for lemmas, leaves and overall outline of spikelets

- Acute tip
- Linear base
- Lanceolate
- Flabellate
- Bifid tip
- Aristate tip

Plate III

[Drawings of various shapes and parts of plants]
Left The typical Pooid spikelet showing the pedicel, glumes and nine florets. The paleas are not visible being obscured by the larger lemmas, nor is the rachilla visible. The lower glume (g1) is always below the first (lower) floret. Florets can vary from one to numerous. Awns may or may not be present.

Right Three Drawings Hordeum murinum of the Tribe Triticeae is common around Tucson. In this species the rachis disarticulates along with three spikelets. The upper drawing shows the adaxial or inner side. The darkened areas of the rachis segment are scars remaining from where the rachis segments attach. The shorter awns are on the glumes. In the central floret is what looks like an awn but is a continuation of the rachilla, probably vestigial from a progenitor that had more than one floret per spikelet. Hordeum sp. Only have one floret.

The bottom drawing illustrates the abaxial side. Most grasses have opposed glumes but in this species the glumes of the central spikelet are seen to be adjacent and long ciliate. If this segment is rotated about 90 degrees it would be seen that the glumes of the lateral spikelets are also adjacent with one being ciliate.

In this case the inflorescence is a raceme because the lateral spikelets have a short pedicel. The central spikelet is sessile, but the rachilla is evident for some distance between the glumes and the lemma, somewhat pedicel like.

Many of the species of this tribe do not have disarticulating rachises but all have spikes or spike like racemes. In the various species distances between spikelets or spikelet groups is highly variable.
1-3. Typical distichous spikelet with one floret at anthesis. 1. Scabrous upper glume always below the palea. 2. Floret with palea on left and lemma on right. 3. Lower glume (usually shorter) always below the lemma. 4-6. Phalaris minor. Laterally compressed spikelet with winged glumes much longer than the floret. 5. Cross section of glumes showing wing.

6. Shiny fertile upper floret with single, sterile almost bristle like rudimentary floret below right. 7. Somewhat typical genus Cenchrus fascicle (non bur type) with 2 florets surrounded by numerous scabrous outer bristles, a few longer ciliate inner bristles and one longer primary bristle which is long-ciliate below. In bur type Cenchrus sp. Some of the bristles are thickened and indurate forming sharp stout spines in various configurations. 8. Piptochaetium sp. Cross section of floret illustrating the groove in the palea into which the lemma edges fit. 9-14. Cross section of a somewhat typical panicoid spikelet always with two florets. 9. Lower glume usually shorter and narrower above than the spikelet. 10. Lower lemma usually very similar to the upper glume (14). 11. Lower palea, absent in some species, but often fairly small, tongue shaped and laying against the upper palea (12). 13. Upper lemma edges usually clasp the upper palea. 14. Upper glume about the same length as the upper floret and usually overlapping the similar lower lemma (10).

PLATE V