

- 1a: Pollen shed in clumps (tetrads/polyads); grains generally triangular, with an annulus subtending the porate apertures (go 34)
- 1b: Pollen generally dispersed as single units (monads); grains seldom if ever with annulus.
- 2a: Apertures porate, always lacking colpi
- 3a: grain outline from equatorial view circular
- 4a: Pores distributed along the equator.
 - 5a: Pores > 5 (stephanoporate)
 - 6a: Ornamentation homobrochate (~ *MENTZELIA*)
 - 6b: Ornamentation otherwise (~ *POLYGALA*)
 - 5b: Pores < 5 (*CURRENTLY OPEN*)
- 4b: Pores +/- distributed across grain (pantoporate)
 - 7a: Ornamentation with striate ornamentation (~ *POLEMONIUM*)
 - 7b: Ornamentation otherwise
 - 8a: Ornamentation, slightly irregular - without regularly repeating features (scabrate) (~ *STELLARIA*)
 - 8b: Ornamentation forming regularly repeating (reticulate) cells of varying shapes.
 - 9a: spacing between the grid cells large (lophate), the walls of the cells with another set of projecting ornamentation (~ *OPUNTIA*)
 - 9b: spacing between cells small, the wall of the cells without projecting features.
 - 10a: Pores extending beyond the reticulate grids (~ *ARENARIA*)
 - 10b: Pores extending beyond the reticulate grids (~ *PHLOX*)
- 3b: Outline from equatorial view otherwise (usually slightly triangular)
 - 11a: Outline elliptic (*CURRENTLY EMPTY*)
 - 11b: Outline not elliptic, grains often with acute, if rounded, angles along sides (e.g., triangular, polygonal) (*EMPTY*)
- 2b: Apertures with colpi, occasionally also with pores in addition (colporate)
 - 12a: Grains with bristles tapering to points (echinate), and tri-colporate.
 - 13a: Grains uniformly echinate, less the apertures. (Asteraceae 1)
 - 13b: Grains with echinate bristles on ridges of lophae (Asteraceae 2)
 - 12b: Grains without echinate ornamentation - this lead includes projections with ornamentation with round tips.
 - 14a: Grains with either less than 3 apertures, or with two distinct ornamentation types (generally ½ psilate, ½ reticulate).
 - 15a. Grains apparently lacking any apertures. (~ *IRIS*)
 - 15b. Grains aperturate
 - 16a. Ornamentation on one face of grain psilate, the other homobrochate (~ *ZIGADENUS* + *ANTICLEA*)
 - 16b. Ornamentation psilate across both faces of grain (~ *ERYTHONIUM*)
 - 14b. Grains with either 3 or more apertures, or with an elongated spiral like aperture
 - 17a. Grain with spiral like colpi
 - 18a. Spiral with deep well-defined furrows (~ *ERYTHRANTHE GUTTATA*, syn. obsolete. *MIMULUS*)
 - 18b. Spirals without well-defined grooves, ornamentation evidently perforate (~ *RANUNCULUS ALISMIFOLIUS*)
 - 17b. Grains with colpi these not forming irregular spiral motifs.
 - 19a. Grains elliptic, essentially perfectly cylindrical along longest axis, except for minor inundations along equatorial region. Apertures, of two types (heteroaperturate). (~ *BORAGINACEAE*)
 - 19b Grains shaped similar or not, but never heteroaperturate.
 - 20a. From a polar view, grains notably polygonal (hexagonal), also evident when seldom seen from a equatorial view. (~ *PHACELIA*/ maybe *Hydrophyllaceae*, *Hydrophyllum* not sampled)
 - 20b. From a polar view, grains not with 6 convex apices