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PALYNOLOGICAL DELINEATION OF THE DEVONIAN - CARBONIFEROUS BOUNDARY, WEST-CENTRAL MONTANA

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A palynological analysis of the upper Three Forks, Sappington, and lower Lodgepole formations at the classic Logan Gulch location in Horseshoe Hills of west-central included twenty-nine fine-grained clastic samples. Green shale of the lower Trident Member (Three Forks Fm.) yielded low diversity palynoassemblages (LAs1), with variable preservation that are mostly composed of cosmopolitan, long-ranging phytoplankton species of Frasnian to Strunian age (e.g., *Gorgonisphaeridium ohioense*, *G. absitum*, *G. plerispinosum*, *Maranhites britoi*, *Unellium piriforme*) and few spores (*Auroraspora macra*, *Grandispora echinata*, *Retusotriletes incohatus*). However, it is likely pre-Strunian – Famennian in age. A sample from the upper Trident Member (LAs2) yielded only leiosphaerids and *Botryococcus*, along with an external mold of a clymenid ammonoid. Basal Sappington black shale samples were barren. Age-diagnostic taxa (LAs3) from Unit 4 - the middle Sappington shale lithosome that many workers place in a transgressive system tract – include spores (e.g. *Grandispora echinata*, *G. praecipua*, *Endoculeospora setacea*, *Retispora lepidophyta*, *Verrucosisporites nitidus*, *Vallatisporites* spp.) and phytoplankton species (e.g. *Dictyotidium fairfieldense*, *Gorgonisphaeridium winslowiae*) indicating a Strunian LN zone. Upper Sappington (Cottonwood Canyon Fm.) Unit 6 black shale samples (LAs4) and false Bakken dark brown shales above the basal Scallion limestone in the lower Lodgepole Formation (Pole Canyon, LAs5), yielded scarce, badly preserved, dark brown to black trilete spores and quite abundant *Botryococcus braunii*. A Tournaisian age is given to them based on biostratigraphically useful species such as *Waltzispota polita*, *Leiotriletes* cf. *sphaerotriangulus*, *?Punctatisporites glaber* and *Botryococcus*. The palynological record at Logan Gulch, like early and concurrent conodont studies support hiatuses in the Late Famennian and earliest Tournaisian near the D/C boundary. Cratonic systems in the CMT reflect both subtle regional epeirogeny and significant glacioeustasy.