Glaucnate is a mineral that an important indicator of sedimentary environments. It generally occurs in relatively shallow water with low rates of sedimentation and iron reducing conditions. Glaucnate can occur as void fills in a variety of fossils (steinkerns) and as altered fecal pellets. How exactly glauconite comes to be involved in fossilization is not clear. To help shed light on this problem, we document the unique occurrence of glauconitized bryozoans from the Mississippian of Illinois.

The specimens that are the source of this study were collected from a now lost locality near Plainsville, IL, from the Burlington Limestone. The Burlington Limestone is a commonly a crinoidal limestone (encrinite), notably it has micritic horizons with dispersed glauconite. The bryozoans preserved with glauconite comprise several species of fenestrate bryozoans. All traces of the calcite skeleton are gone. In thin section, the glauconitic bryozoans are fairly uniform with regards to their glauconite filling. One thin section shows some structure within the glauconite filling—it is unknown whether this represents glauconite crystal growth within a void or some relict bryozoan structure mimicked by the glauconite.