REDISTRIBUTION OF GEORGIA TEKTITES AS CHANNEL LAG DEPOSITS. Edward F. Albin, Department of Space Sciences, Fernbank Science Center, 156 Heaton Park Drive (NE), Atlanta, Georgia 30307 (ed.albin@fernbank.edu).

Georgiaites are late Eocene splash-form tektites that occur in east-central Georgia. Since all georgiaites are found on deposits younger than the age of the tektites, they must have been reworked from an older source formation; therefore, it has been suggested that the term "strewn-field" be abandoned when referring to Georgia tektite occurrence [1]. The relatively old formation age of the tektites requires that they were eroded from a parent stratum, transported, and emplaced with the younger deposits. To date, all Georgia tektites have been recovered from an area that is generally to the southeast and downslope from upper Eocene exposures.

In nearly all cases, georgiaites are recovered from the Altamaha Formation. This Miocene sedimentary deposit covers a large part of the central and eastern Coastal Plain of Georgia. The formation averages between 30 and 60 meters in thickness and is "a thin to thick bedded or cross-bedded, well-sorted to very poorly sorted, variably feldspathic, sporadically pebbly or gravelly, argillaceous sand, sandstone, sandy clay, clay, and claystone [2]." Much of the Altamaha Formation is of fluvial origin with channel cut-and-fill structures present.

The cut-and-fill deposits of the Altamaha Formation include channel lags which consists of gravel- and pebble-sized sediment. It is suggested that the georgiaites of the Altamaha Formation were deposited as channel lag. Several tektites have been documented with little surface sculpture, smooth edges, and the general appearance of having been water-worn (Figure 1). Continuous migration of a river channel provides a constant source of lag material, including tektites, as the river erodes its banks in the tektite source area.

Figure 1. A georgiaite from Dodge County, Georgia, with a smooth water-worn appearance. Very little surface sculpture remains on this 25.6 g specimen (Smith Collection).

After removal from an upper Eocene source, the tektites were transported by fluvial activity and deposited along with other coarse-grained sediments. If present in the deeper portions of a channel, the tektites would accumulate with pebbles and gravel to form thin discontinuous lenticular patches. Such accumulates would be preserved as they are eventually covered by finer-grained sediments. This may explain why georgiaites often occur in clusters on surface exposures of the Altamaha Formation. Once emplaced, the tektites were subjected to etching by soil acids (Figure 2).

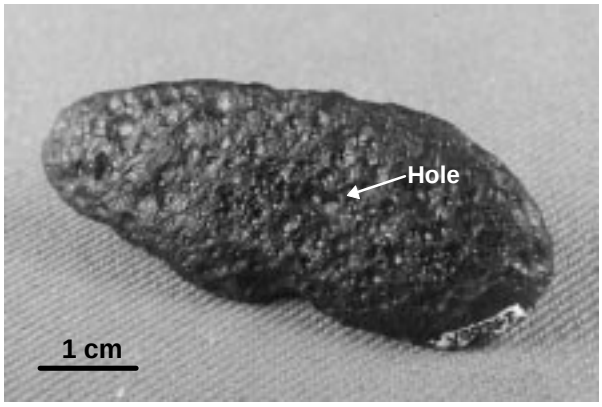

Figure 2. A 12.5 g boat-shaped georgiaite. The heavily etched tektite has a hole in the center (Yeomans Collection).

Georgiaites were derived from upper Eocene sediments located to the north and upslope from Altamaha Formation. These sediments are found in a belt that trends from the southwest to the northeast. Outcroppings of upper Eocene deposits occur across the following counties: Houston, Bleckley, Twiggs, Wilkinson, Laurens, Washington, Jefferson, Burke, and Richmond. The Coastal Plain in this region has been heavily dissected by large rivers and their adjoining tributaries. Erosion has dissected three upper Eocene formations: Dry Branch, Tivola Limestone, and Clinchfield Formations. In addition, erosion has exposed underlying lower Tertiary and Cretaceous deposits. If the georgiaite stratigraphic horizon resides near the base of the Dry Branch Formation [3], there has been ample opportunity for tektites to have been removed and redeposited in the Altamaha Formation.

It is suggested that georgiaites are now derived in four areas in east-central Georgia where the upper Eocene deposits are naturally uncovered at the surface. Each of these source regions is associated with one of the following major river basins: Ocmulgee, Oconee, Ogeechee, and the Savannah. These rivers and their tributaries are responsible for the extensive dissection of upper Eocene sediments (Figure 3). One tektite source region is related to the Ocmulgee River and is located in southern Jones and northern Twiggs Counties. A second source area for georgiaites is in Wilkinson and western Washington Counties. At this locality, the Oconee River has extensively eroded upper Eocene deposits. The third tektite source is associated with the Ogeechee River in eastern Washington, Glascock, and northern Jefferson Counties. The last tektite source is found in eastern Georgia (northeastern Jefferson, Burke, and Richmond

Counties) and is linked with Brier Creek and lesser tributaries that feed into the Savannah River.

While documenting new tektite finds in Washington County, the author learned of the discovery of a tektite in northern Jefferson County. This georgiaite is a 2.3 g drop-shaped specimen and is the only tektite known from Jefferson County. The small georgiaite was found at an elevation of 100 m among pebbles and gravel on an exposure of the Oligocene Tobacco Road Sand Formation. The occurrence of this georgiaite with gravel deposits indicates that it was transported from its original resting place. Moreover, this is an important find since it is very near the upper Eocene source deposits.

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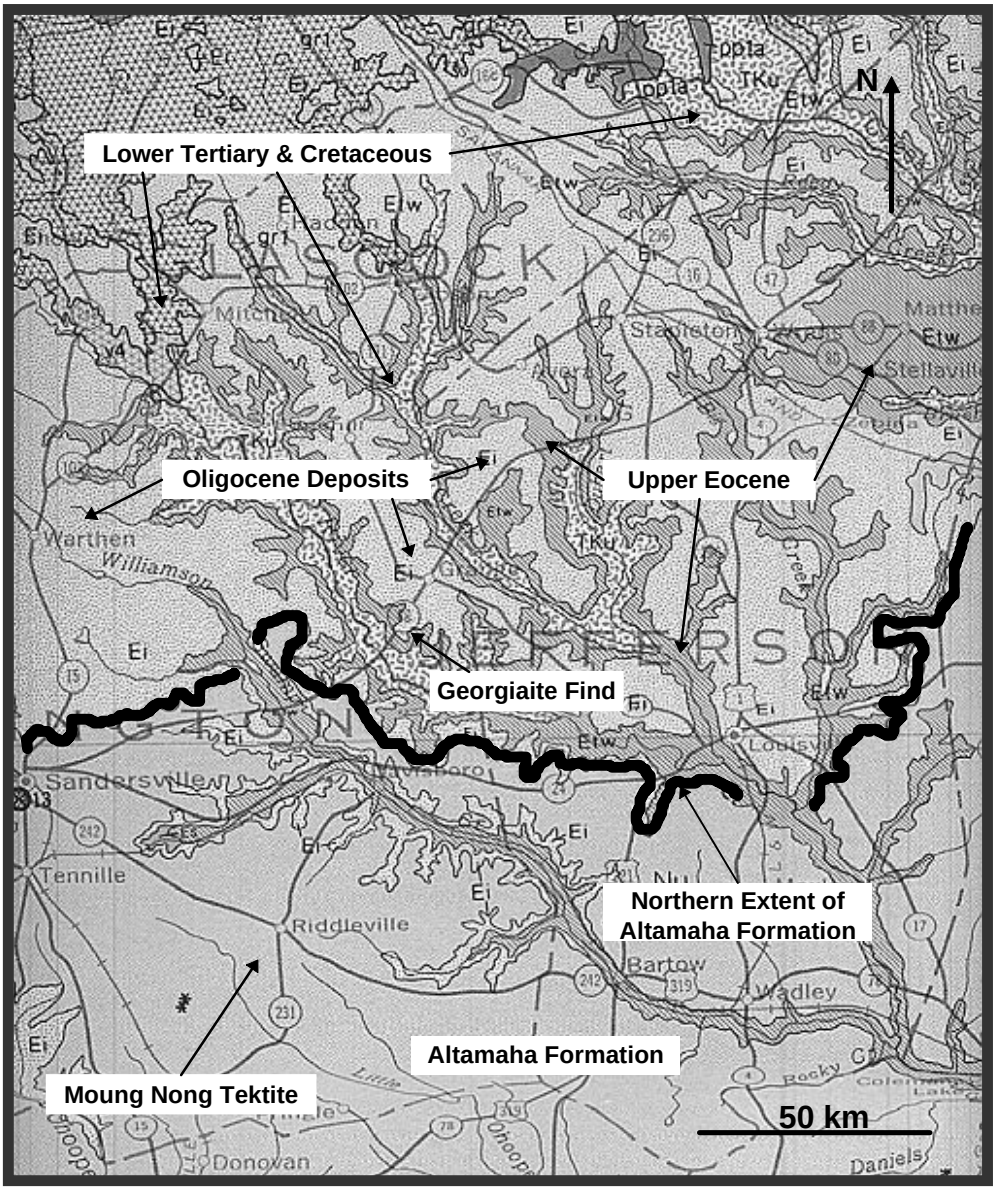

Figure 3. A map of the Ogeechee River and its tributaries in eastern Washington, Glascock, and northern Jefferson Counties, Georgia. The only Moung Nong georgiate [4] was recovered just south of the small town of Riddleville. A tektite was found southwest of the small town of Grange, on the Tobacco Road Formation, not far from the Ogeechee River. Dark line indicates northern extent of the Altamaha Formation. Base map after Lawton [5].