Cleburne County

Comprising approximately 561 square miles, Cleburne County lies in the northeastern area of the state, wholly within the Piedmont physiographic section. It is bounded to the north by Cherokee County, to the east by the state of Georgia, to the south by Randolph and Clay counties, and to the west by Talladega and Calhoun counties.

The heavily forested Shoal Creek Ranger District of the Talladega National Forest covers a large portion of the western half of the county. The Tallapoosa River runs along the southeastern county border.

Though Cleburne County was largely agricultural during the nineteenth century, the area was also a leading producer of valuable minerals. During the 1830s, discovery of gold brought in thousands of miners. The enterprise failed when folks left for California in 1849, but it is estimated that more than $1 million in gold was mined out of the county's streams. Copper and mica were also found in the latter part of the century, but little effort was made to capitalize on the discovery.

Today, Cleburne County offers visitors abundant outdoor activities and provides hikes with scenic views. The 102-mile Pinhoti Trail ends in the county and part of Cheaha State Park extend into its boundaries.

Super Site Selection Criteria

Cleburne County was selected as a Super Site for this series on the basis of information reported in *Rocks and Minerals of Alabama – A Guide for Alabama Rockhounds (Circular 38, 1966)*. The guide lists four specimens available for collection near Micaville: feldspar, muscovite, pegmatite, and tourmaline.

Featured Rocks and Minerals

Feldspar – ($KAlSi_3O_8$ – $NaAlSi_3O_8$ – $CaAl_2Si_2O_8$) – a group of rock-forming tectosilicate minerals.

Derived from the German "feld" meaning *field* and "spath" meaning *"a rock that does not contain ore",* feldspar was named in 1747 by J.G. Wallerius.

The feldspars form a significant group of rock-forming minerals, and usually constitute about 60 percent of the earth's crust. In sum, any glassy mineral that's slightly softer than quartz is very likely to be a feldspar. There are two distinct groups: the orthoclase-microcline group and the plagioclase group.

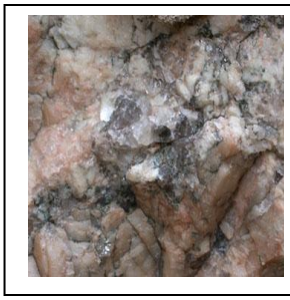
Feldspars fit within the triclinic or monoclinic crystal system and all are relatively hard minerals. In fact, feldspar is the standard for hardness level 6 on the Mohs scale. They are generally light-colored, including white, pink, tan, green, or gray. The color varies due to impurities within the crystal structure. Luster is vitreous and the streak is white. Cleavage is in two directions—at or near right angles—and upon weathering the feldspars can accumulate as sand but will ultimately disintegrate to kaolin or clay. Feldspar minerals occur in pegmatite, granite, gneiss, and schist, as well as in all igneous rocks. Of special noteworthiness, feldspar is the mineral that gives granite its pink, green or gray color.

In Alabama, feldspar crystals are found in pegmatite in the Piedmont area.

Feldspar is an important economic mineral; it is mined for use in the ceramic industry, glass industry, soap, paint fillers, and ornamental stone. Some varieties of feldspar are prized as gemstones.

Muscovite – Note: this mineral was previously profiled in the Clay County section of the *Learning Series: Alabama's Rocks and Minerals – "The Super Sites"*. Please see the April 2012 issue for complete details. It is available at www.wiregrassrockhounds.com.

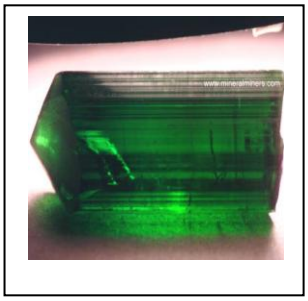
Pegmatite – a common plutonic rock type.



The term “pegmatite” relates more to texture than to mineralogy or composition. Formally, pegmatite is defined as a rock bearing abundant interlocking crystals three centimeters or larger. However, the mineralogy of a pegmatite is in all cases dominated by some form of feldspar and is frequently associated with mica and usually with quartz.

Often referred to as the “garbage can” of rock-forming processes, pegmatite forms in low pressure areas in metamorphic or igneous rock—possibly in structural voids or low-temperature areas—and can be composed of a variety of high quality minerals. As the main magma body cools, water originally present in low concentrations becomes concentrated in the molten rock. When this water-rich magma is expelled in the final stages of crystallization, it solidifies to form a pegmatite.

Minerals formed in pegmatites literally result from the slow crystallization of a rich chemical stew. Simple pegmatite contains few, if any, exotic minerals and have no economic value. The center zones of complex pegmatites, however, may contain tourmaline, topaz, garnet, spodumene, beryl, apatite, fluorite, zircon, and various other rare minerals making them highly sought after by collectors.



Tourmaline – $XY_3Z_6(T_6O_{18})(BO_3)_3V_3W$ – a complex silicate of boron and aluminum.

The word “tourmaline” is derived from the Sinhalese word “turamali” meaning *"stone attracting ash"* (a reference to its pyroelectric properties, i.e., when heated or rubbed it attracts dust and dirt particles).

Scientifically, tourmaline is not a single mineral, but a group of minerals; all having essentially the same crystal structure but with considerable variation in chemical composition and physical properties. There are eleven distinct mineral species of tourmaline based on chemical composition: buergerite, chromdravite, dravite, elbaite, feruvite, foitite, liddicoatite, olenite, povondraite, schorl *and* uvite. The most common species is schorl, which may account for 95% or more of all tourmaline in nature.

Tourmaline is distinguished by its three-sided prisms; no other common mineral has three sides. A transparent to nearly opaque member of the hexagonal crystal system, tourmaline has a vitreous luster and a colorless to gray streak. Cleavage is poor and it has a relatively high hardness (Mohs – 7.0 - 7.5).

The color in tourmaline is due to its crystal structure and the presence of metal ions (Fe, Mn, Cr, V, Ti and Cu). With more than 100 hues available, tourmaline has more colors than any other gemstone. It is rarely colorless, but bi-colored and multicolored crystals are common.

Tourmaline forms in a variety of geologic settings, but it occurs most often in granite pegmatites and in their immediate vicinity in the enclosing host rocks. It is collected as specimens and used in jewelry, but owing to its strong piezoelectric properties it is sought for use in the manufacture of pressure gauges.

Additional Minerals of Cleburne County

In addition to feldspar, muscovite, pegmatite and tourmaline, the www.mindat.org website currently lists the presence of 10 other mineral specimens or mineral specimen groups in Cleburne County: arsenopyrite, chalcopyrite, chlorite group, garnet, gold, graphite, limonite, pyrite, pyrrhotite, and quartz.

Over 90 mines are on record in Cleburne County. Most sites are clustered 10 miles south of Heflin in a narrow band that extends from Hollis Crossroads on the west side to Ranburne on the east side.

Sources:

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