Tallapoosa County

Consisting of more than 700 square miles, Tallapoosa County is located in the east-central part of the state. The county is almost entirely within the Piedmont physiographic section. Tallapoosa County is bordered by Clay and Randolph counties to the north, Chambers and Lee counties to the east, Macon County to the south, and Elmore and Coosa counties to the west.

Farming was the prevailing occupation of Tallapoosa County until well into the twentieth century. Its broken and hilly landscape consists of light, clay soils on the ridges and rich loam in the valleys. In the 1840s, one of the first textile mills was established at Tallassee Falls. Gold mining also caused a boom in some areas, especially Goldville and New Site, during the two decades preceding the Civil War.

Today, there are several recreational opportunities for visitors to Tallapoosa County. It is home to Horseshoe Bend National Military Park, the site of the last battle of the Creek War, as well as Lake Martin and the Thomas Wesley Martin Dam. Spanning 1,445 acres along the shores of Lake Martin, Wind Creek State Park contains the largest state-operated campground in the United States. The rough falls of the river made early navigation difficult and delayed industrial development in the area, however, these falls now allow for a number of increasingly popular whitewater sporting activities. The Alexander City Jazz Fest in June is one of central Alabama's largest events. Each fall, Alexander City also hosts an Oktoberfest.

Super Site Selection Criteria

Tallapoosa 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 identified 12 different minerals— actinolite-tremolite, anthophyllite, chlorite, corundum, diorite, garnet, hornblende, magnetite, quartz, schist, talc, tantalite—as being prominent in five communities throughout the county:

Alexander City area – quartz and tantalite were associated with a field one mile east of Alabama State Highway 63 about 1.2 miles south of Our Town.

Dadeville area – anthophyllite, corundum, hornblende and talc were available just off a gravel road near the Central of Georgia Railroad overpass north of Dadeville on Alabama State Highway 49.

Dudleyville area – anthophyllite, chlorite, diorite and hornblende were found near Oziah Church about one mile northwest of Dudleyville just off Tallapoosa County Road 44.

Easton area – actinolite-tremolite, anthophyllite, hornblende, magnetite and talc were found near Mica Hill Store on Tallapoosa County Road 75, northeast of Dadeville.

Wind Creek area – chlorite, garnet and schist were associated with a field near the lake about 5.4 miles south of Our Town on Alabama Highway 63.

Featured Rocks and Minerals

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

Anthophyllite – (Mg, Fe)7Si8O22(OH)2 – an amphibole mineral.

Anthophyllite is a form of asbestos and is, therefore, a hydrous magnesium-iron silicate. It is metamorphic and found in gneisses and schists derived from magnesium rich igneous or dolomitic sedimentary rocks. It also forms from the metasomatic alteration of olivine and other ultramafic minerals when these minerals are subjected to pressure in the presence of water.

A member of the orthorhombic crystal system, anthophyllite is rarely found as distinct crystals; instead it is commonly lamellar or fibrous masses. Color is usually a shade of brown, e.g., yellow-brown, green-brown or brownish-gray, but specimens can also be green, off-white or gray. Though it has a brittle tenacity, it is elastic when fibrous. Anthophyllite is mid-range in hardness level, falling at 5.5 – 6.0 on the Mohs scale. Cleavage is good in two directions and fracture is easy and splintery. Luster is vitreous to dull, but can be silky in the fibrous forms. It streaks white to gray and is transparent to translucent.

Although it can be differentiated from other amphiboles by its white to brown color, anthophyllite is often indistinguishable from cummingtonite; they are polymorphs (a situation where two minerals share the same chemistry but have different structures).

Though there are several asbestos minerals, only the comparatively rare anthophyllite variety has been found in Alabama. While used in industry, the fibers are usually brittle and of relatively low tensile strength, making it unsuitable for spinning into asbestos fabric. It is used, however, for making asbestos cement and as an insulating and filtering material.

Individual, well-formed crystals of anthophyllite are very rare, but some aggregate specimens of anthophyllite are striking and can make nice collection pieces. In Alabama, anthophyllite specimens may be collected from an area 8 to 10 miles long in Tallapoosa County.

Chlorite – (Fe, Mg, Al)6(Si, Al)4O10(OH)8 – a magnesium, iron-aluminum silicate.

Chlorite is the group name for about 10 related minerals, however, the term chlorite can be used both to describe the group in general, or as a specific term to describe any member of the group. The above formula is only a generalization of the more common members of this group. The chlorites are common and widespread rock-forming minerals in clastic sediments and in hydrothermally altered igneous rocks. They are often considered a subset of the larger silicate group, the clays.

There are a great many names found in older literature for chlorites with small variations of chemical composition, but those are no longer used. The accepted names are: clinochlore (Mg-rich chlorite), chamosite (Fe-rich), nimite (Ni-rich), and pennantite (Mn-rich). Chlorite is usually green, but thanks to the various contaminants, can also be white, yellow, red, lavender and black.

A member of the monoclinic crystal system, it is usually found as alteration products of iron-magnesium minerals and as inclusions in other minerals. Rarely, it is found in large individual barrel or tabular crystals with a hexagonal outline. Those crystals are translucent to transparent and have a vitreous, dull or pearly luster. All minerals in the Chlorite Group are relatively soft, falling at 2.0 to 3.0 on the Mohs scale. Streak is pale green to gray or brown. Cleavage is perfect in one direction and fracture is lamellar. Chlorite looks like a mica, however, when you split off its thin sheets, they are flexible rather than elastic—that is, they bend but do not spring back—whereas mica is always elastic.

For collectors, the chlorite inclusions in clear quartz are particularly interesting when they form as a coating on a crystal early in its development. If the crystal later grows larger, the effect will produce a “phantom crystal”, or a crystal that appears to have a smaller crystal inside it.

In Alabama, an irregular belt or wide vein of chlorite schist occurs in the western part of the Piedmont area and extends intermittently form Georgia southwest to Thorsby in Chilton County. Chlorite is generally too soft to be used as construction material, but chlorite schist and gneiss have been used as ornamental stone in buildings.

Corundum – Al2O3 – a crystalline form of aluminum oxide.

Corundum is a very hard, tough, and stable form of aluminum oxide. It contains traces of iron, titanium and chromium, and as a rock-forming mineral it is found in igneous rocks such as syenite, nepheline syenite, and pegmatite, and in metamorphic rocks where aluminous shales or bauxites have been exposed to contact metamorphism. In addition, schist, gneiss and marble produced by regional metamorphism will sometimes contain corundum. Its toughness, hardness and chemical resistance enable it to persist in sediments long after other minerals have been destroyed. It is thereby concentrated in alluvial deposits where it is routinely mined.

A member of the trigonal crystal system, corundum is typically found as steep bipyramidal, tabular, prismatic or rhombohedral crystals—either massive or granular in form. It is the defining mineral for hardness level 9 on the Mohs scale. Specimens can be transparent, translucent or opaque and have an adamantine to vitreous luster. Its fracture is conchoidal to uneven and it has no cleavage. Since corundum is harder than the streak plate, it produces a scratch on the plate rather than leaving a residue of its own. Pure corundum is colorless and clear if transparent, or pale white if opaque, but various impurities produce stones that are gray, brown, pink to pigeon-blood red, orange, yellow, green, blue to cornflower blue, and violet.

For many years, its high hardness made corundum especially useful as an abrasive. Crushed corundum was screened to produce uniformly-sized grits and powders. These were used as grinding media and for manufacturing polishing compounds, sand papers, grinding wheels and cutting tools. However, corundum is now being replaced by manufactured abrasives such as silicon carbide which has a Mohs hardness of 9.0 to 9.5, is inexpensive, and often performs better than abrasives made from corundum.

Pure and perfect specimens of corundum are sought by collectors, however, a very small amount of the mineral has a transparency, purity and color that make it suitable for use as a gemstone. The best known gem varieties, ruby and sapphire, are scientifically the same mineral. Ruby is the red variety, and sapphire encompasses all other colors, although the most popular and valued color of sapphire is blue. The term “sapphire” is also only used to describe the gem variety; otherwise, it is simply called corundum.

Diorite – Note: this mineral was previously profiled in the Coosa County section of the *Learning Series: Alabama’s Rocks and Minerals – “The Super Sites”*. Please see the June 2012 issue for complete details. It is available at: www.wiregrassrockhounds.com.

Garnet – 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.

Hornblende – Note: this mineral was previously profiled in the Coosa County section of the *Learning Series: Alabama’s Rocks and Minerals – “The Super Sites”*. Please see the June 2012 issue for complete details. It is available at: www.wiregrassrockhounds.com.

Magnetite – Fe3O4 – a ferrimagnetic mineral.

Magnetite is one of several iron oxides and a member of the spinel group. It is the most magnetic of all the naturally occurring minerals on earth and is a widespread substance, commonly found as a minor accessory mineral in igneous rocks and in iron-magnesium rich crystalline-metamorphic rocks. In fact, small grains of magnetite occur in almost all igneous and metamorphic rocks. It also occurs in many sedimentary rocks and, as such, is a detrital heavy mineral in beach and river sand deposits. In some parts of the United States and the world, magnetite occurs in high enough concentrations that it is mined for iron ore. Beyond Planet Earth, it is found in meteorites and presumably in asteroids.

A member of the cubic or isometric crystal system, magnetite is usually black, but can appear gray with a brownish tint in reflected sun. It has an indistinct cleavage, a conchoidal fracture and a brittle tenacity.

Crystals are opaque and have a metallic to dull luster. They are typically octahedrons but can occasionally be found in rhombododecahedron form. In the field, magnetite is usually found as small, roughly square-shaped crystals embedded in other rocks. It streaks black and falls at 5.5 – 6.5 hardness level on the Mohs scale.

Though not a component of ordinary rust, magnetite may form a yellow-brown rust coating if washed or kept in a moist area. Another interesting fact about magnetite is that sparks from welding operations are due to the rapid and exothermic oxidation of tiny particles of iron into magnetite. The same is true of sparks generated from iron striking a hard surface, as when it is held against a spinning grinder.

This mineral is of significant scientific interest. Because of its special magnetic properties it has been very important in understanding the conditions under which rocks form.

Magnetite's perfect crystals are also popular among mineral collectors, especially the naturally magnetized pieces known as lodestone. Because they will attract small pieces of iron, lodestones were used as an early form of magnetic compass.

Quartz – SiO_2 – crystallized silicon dioxide.

Quartz is ubiquitous, plentiful and durable. Minable deposits are found throughout the world. There are more variety names given to quartz than any other mineral. Although the feldspars, as a group, are more prevalent than quartz, as an individual mineral, quartz is the most abundant oxide in the earth's crust. It forms at all temperatures and is a prominent ingredient in sand, gravel, sandstone, metamorphic rocks, and many igneous rocks.

A member of the trigonal crystal system, quartz occurs in virtually every color, though the most common colors are clear, white, gray, purple, yellow, brown, black, pink, green and red. It has a vitreous luster and is usually transparent to translucent, though some specimens can appear almost opaque. It has no cleavage and typically breaks with a conchoidal fracture. Tenacity is brittle. It is relatively hard and falls at 7.0 on the Mohs scale. That level of hardness results in a white to colorless streak because the mineral is more or less as hard as the streak plate.

Quartz occurs in hydrothermal veins as gangue along with ore minerals, and it occurs in two distinct types: macrocrystalline (large crystals and massive varieties) and cryptocrystalline (very fine crystals and chalcedonic varieties). Note that most geodes have an inner layer of larger crystalline quartz and an outer layer of chalcedony or banded agate. When free to crystallize, quartz occurs in the hexagonal (six-sided) system with one or both ends terminated in a pyramid. (An example of doubly terminated crystals are New York state's Herkimer diamonds.) Large quartz specimens are found in pegmatites and well-formed crystals may reach several meters in length and weigh as much as 1,400 pounds.

In Alabama, many small crystals have been found in cavities in limestone and dolomite in the Paleozoic area. Massive quartz fragments occur in most stream gravels throughout the state. Stream-gravel quartz has been tumbled and worked smooth by the abrasion produced by the action of smaller particles suspended in the water as the rocks moved downstream.

Quartz is an important mineral with numerous uses. It is chemically inert in contact with most substances and about ten billion high-quality quartz crystals are used every year for optical or electronic purposes. High purity silica sands are used in the glassmaking industry. Lesser grades are used for sand blasting, scouring cleansers, grinding media, and grit for sanding and sawing. Being resistant to both chemicals and heat, it is often used as foundry sand and as refractory brick. In the petroleum industry quartz sand slurries are forced down oil and gas wells under very high pressures in a process known as hydraulic fracturing. Quartz sand is used as filler in the manufacture of rubber, paint and putty. A very fine-grained sand known commercially as Tripoli is used for a variety of mild abrasive purposes which include soaps, toothpastes, metal polishing compounds, jewelry polishing compounds and buffing compounds.

In addition to all the practical uses, quartz makes an excellent gemstone. It is hard, durable and usually accepts a brilliant polish. Many varieties are faceted as gems. Amethyst and citrine are the most well-known gem varieties. Rose Quartz, Smoky Quartz, Rock Crystal, and Aventurine are also cut or polished into gems. Quartz is very popular among collectors; some of whom specialize their collection entirely on quartz alone.

Schist – 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.

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

Talc – $Mg_3Si_4O_{10}(OH)_2$ – magnesium silicate hydroxide.

Talc is a mineral of secondary origin formed by the alteration of other magnesium silicate minerals and often contains small amounts of nickel. It is usually found in the metamorphic rocks of convergent plate boundaries and may constitute the entire rock mass. It forms from at least two processes. Most large talc deposits in the United States formed when heated waters carrying dissolved magnesium and silica reacted with dolomitic marbles. A second process of talc formation occurred when heat and chemically active fluids altered rocks such as dunite and serpentinite into talc.

A member of the monoclinic crystal system, talc has a soapy feel to the touch which contributes to its value as a high temperature lubricant. It is able to survive at temperatures where oil-based lubricants would be destroyed. Usually talc is found in compact or lamellar masses, but very rarely as small platey to pyramidal crystals; the crystals being transparent and the masses opaque. Color is green, gray and white to almost silver, and luster is dull to pearly or greasy. As the softest known mineral—easily scratched by a fingernail but can leave a mark on paper—it serves as the defining mineral for 1.0 hardness level on the Mohs scale. Cleavage is perfect in one direction and cleavage flakes are slightly flexible, but not elastic. Talc has an uneven to lamellar fracture and a sectile tenacity, meaning it can be cut with a knife. It streaks white to pearl green. Talc is not soluble in water, but it is slightly soluble in dilute mineral acids.

A carvable form of talc known as "soapstone" is used to make ornamental and practical objects such as sculptures, bowls, countertops, sinks, hearths, pipe bowls, etc., but the most widely known form of talc is talcum powder. Although talcum powder and soapstone are two of the more visible uses of talc they account for a very small fraction of talc consumption.

Most people do not realize they use products made from talc every day. Its resistance to heat, electricity and acids make it an ideal surface for lab countertops and electrical switchboards. Talc is used as an extender and filler in paints. The platy shape of talc particles helps the liquid paint adhere to a wall without sagging. Finely-ground talc is added to pulp in the paper industry because it fills in spaces between the fibers resulting in a much smoother writing surface, all while improving the opacity, brightness and whiteness of the paper and its ability to absorb ink. Talc is used as the powder base of many cosmetic products. The tiny platelets readily adhere to the skin, but can be washed off easily and its softness allows it to be repeatedly applied and removed without causing skin abrasion. Roofing materials are made more weather-resistant by talc and when dusted onto the surface of roll roofing and shingles it prevents sticking. Powdered talc is also used as a carrier for insecticides and fungicides because it can easily be blown through a nozzle, readily sticks to the leaves and stems of plants, and its softness reduces wear on application equipment.

Most talc in the United States is produced from an open pit mine where the rock is drilled, blasted and partially crushed in the mining operation; great care being taken to avoid contaminating the talc with other rock materials. Estimated 2011 production was 615,000 metric tons with a value of about $20 million.

From a rock collector standpoint, mineral specimens are not very common since it does not form very large crystals. However, talc often replaces other minerals on an atom by atom basis and forms what are called pseudomorphs.

Additional Minerals of Tallapoosa County

In addition to actionolite-tremolite, anthophyllite, chlorite, corundum (ruby and sapphire), diorite, garnet, hornblende, magnetite, quartz (milky and smoky), schist, talc and tantalite the www.mindat.org website currently lists the presence of 51 other mineral specimens in Tallapoosa County. They include: albite (var: cleavelandite), 'allanite', andalusite (var: chiastolite), arsenopyrite, 'asbestos', barite, 'bauxite', beryl, chalcopyrite, chromite, churchite-(Y), covellite, enstatite (var: bronzite), epidote, epsomite, fluorite, galena, 'garnierite', gold, graphite, gypsum, hematite, hypersthene, ilmenite, kyanite, limonite, magnesite, malachite, marcasite, margarite, 'mica group', microcline, 'monazite', muscovite (var: sericite), 'olivine', paragonite, pyrite, 'pyroxeme group', pyrrhotite, scheelite, 'serpentine group', sillimanite, 'soapstone', sphalerite, spinel, sulphur, 'tourmaline', tremolite, vermiculite, 'wad', and zaratite.

Over 100 mines are on record in Tallapoosa County. There are two primary clusters of sites which extend in a southwest to northeast line across a large portion of the county. The smaller cluster begins just north of Alexander City and continues to the northern edge of the county. The larger concentration begins just east of Jackson's Gap and extends to the eastern county line (essentially southeast of Horseshoe Bend National Military Park).

Sources:

http://www.mindat.org/lsearch.php?from=nsearch&loc=alabama
http://www.mindat.org/loc-65641.html
http://www.encyclopediaofalabama.org/face/Article.jsp?id=h-1339
http://en.wikipedia.org/
http://www.galleries.com/
http://geology.com/
http://www.minerals.net/
http://www.britannica.com/