

# THE RUTHERFORD MINES

By Dick Grier, Jr. 2/12/94

Rutherford Mines Nos. 1, 2, and 3 were a series of world famous excavations into pegmatite bodies in the vicinity of Amelia Courthouse, Amelia Co., VA. The earliest recorded mining was for muscovite in the No. 1 mine in 1873, but operation in prehistoric times has been indicated (Morrill, 1967). From 1912 to 1932, 15 tons of gem amazonite were taken from the No. 2 mine by the American Gem and Pearl Company of New York. Commercial operations ceased in late 1959. Until his death, the mine properties were owned by Crawford Keener of Amelia, VA. The mines are located approximately 0.6 mile off of the WSW side of VA Rt.609. At present, the mine dumps are all but exhausted, and are not often bull-dozed. The mine dumps are open over the Labor Day weekend each fall, and, for a fee, collectors are invited to hunt the remaining surface material and screen.

During their active period, the mines provided collectors and museums throughout the world with an assemblage of over 50 rare and exotic pegmatite minerals. A fairly complete listing of the mineral assemblage follows (Glass, 1935): albite, bavenite, oligoclase (moonstone, sunstone), cleavelandite, microcline, microlite-pyrochlore, muscovite, monazite, tantalite-columbite, manganotantalite, allanite, fluorapatite, bertrandite, beryl, calcite, cassiterite, cerussite, chalcocite, chalcopyrite, fluorite, fergusonite, galena, spessartine, almandine, helvite, phenacite, pyrite, topaz, schorl, zircon, pyrrhotite, stibnite, arsenopyrite, molybdenite, ilmenite, rutile, gahnite, magnetite, chromite, hatchetolite, euxenite, samarskite, chlorophane, ankerite, anglesite, scorodite, triplite, autunite, wolframite, analcime, chabazite, quartz (amethyst, smoky, clear, milky). The underscored minerals ranged from common to uncommon during the 1970s, when I was collecting there on a yearly basis.

Amazonite, or amazonstone, a greenish-blue variety of microcline, is a popular semiprecious gem and ornamental material. The mineral was abundant in Rutherford No. 1 and No. 2 mines. Its color ranges from pale to intense green and to bluish-green. The amazonite from No. 1 mine is regarded as among the finest gem grade found anywhere (Sinkankas, 1968). In the 1970s, 1/8-1/4 in. fragments of the finest gem color could easily be found on the No. 1 mine dumps. The gem grade is relatively free of lineations caused by polysynthetic twinning. The amazonite in mine No. 2 is generally paler in color and more corroded. Fracture-free partial crystals of amazonite found here have reached 25-30 cm.

Cleavelandite, a variety of albite (plagioclase feldspar) which forms densely-reticulated crystalline aggregates was commonly found in the wall zone of the pegmatite bodies surrounding the core. Masses of up to 5 feet in length were once common on the dumps (1930s). More recently, masses of up to 3 inches were obtainable. In the interstices of cleavelandite are found numerous exotic pegmatite minerals. The writer has found microlite, monazite, heivite, fluorite, spessartine, bavenite, muscovite, columbite-tantalite, and allanite crystals' in such association. The reticulated crystal networks make attractive specimens by themselves.

Outstanding specimens of microlite occur at the Rutherford Mines, finds having been re-



*Cleavelandite with Amazonite*

corded as early as 1881. Masses weighing at least 8 lbs. were observed in No. 1 mine, and well-formed octahedra up to 7 cm across were found in No. 2 mine (Mitchell, 1977). The author has several Rutherford specimens in his collection: one twinned crystal measuring 5 cm across, and a group of 3 crystals, each measuring 1.5 cm. Microlite is ordinarily found in extremely small crystals, some of microscopic size, hence, the name. Although the theoretical composition for microlite is  $(\text{Ca,Na})_2\text{Ta}_2\text{O}_6(0,\text{OH},\text{F})$ , the actual composition is quite variable. The composition of Rutherford microlite approaches that of the Nb end-member of the series, pyrochlore. All of the microlite specimens are radioactive due to trace amounts of uranium. The crystals vary from opaque to nearly transparent. They are brown, greenish-brown, brownish-yellow or reddish-brown in color. The crystals occur both in the interstices of cleavelandite and in the blocky albite. The major faces of the crystals are those of the octahedron (111), sometimes with smaller modifying faces.



*Garnet var. Spessartine*

Adamantine partial crystal masses of orange-yellow spessartine garnet have long been uncommon finds on the Rutherford dumps. These masses are undoubtedly derived from the cleavelandite interstices. The spessartine crystal faces may either be etched or show repeated dodecahedral growth patterns. Many Rutherford spessartine specimens have yielded beautiful faceted stones. W.D. Baltzley, the new proprietor of the Morefield Mines of Amelia, VA, recently found a fine spessartine crystal of over 100 carats on the Rutherford

dumps.

Oligoclase (plagioclase series) occurs in two forms at the Rutherford Mines, both of which are semiprecious gems. These are moonstone and sunstone. Moonstone is present as white aggregates with a somewhat sugary texture. They exhibit an intense electric blue adularescence when properly oriented in the sunlight. The sunstone occurs in white masses which exhibit a similar effect, except that it is white to slightly yellowish. It was not uncommon to find masses of moonstone of up to 8 cm and sunstone masses of up to 4 cm in the early 1970s.

Specimens of columbite-tantalite composition were formerly common finds on the dumps. Columbite-tantalite crystals are prismatic in habit with dipyrnidal terminations. Columbite (Nb end-member) crystals are black, while inclining toward brown with increasing Ta content (tantalite). A rare Mn-variety, manganotantalite, could be found in partial crystals with an intense blood-red color.

In addition, the author has found a light blue fluorite octahedron with dodecahedral truncations in cleavelandite; greenish-brown helvite  $\text{Mn}_4\text{Be}_3(\text{SiO}_4)_3\text{S}$  in highly-modified isometric crystals; bavenite crystals with acicular habit; and allanite crystals as slender, black, slightly radioactive, prisms. Beryl crystals up to 4 ft. in length have been reported from the mines, as was blue topaz in crystals (Sinkankas, 1959).

#### References

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