

RHODE ISLAND

During the late 1960's and early 1970's a great deal of road construction took place in Rhode Island with a resultant bonanza for collectors. Gilbert ("Gil") George a co-founder and first president of MMNE collected frequently at these road cuts and reported on them in the MMNE Newsletter.

New Find at Route 295 Road Cut in Cranston, R.I.

#1

Most mineral collectors had thought that Rhode Island was, but for minor exceptions, devoid of unusual mineral specimens. There are only a few operating quarries in Rhode Island. However, recent finds at the new federally sponsored roads have changed all that. In 1967 a new circumferential road, Rte. 295, around Providence was started. Not much showed up until construction was started at the intersection with Phenix Ave., Cranston. This road cut is next to one of the few operating quarries in the state, from which road metal is obtained.

Many veins of quartz occur in the rock at this location. Some of the veins had pockets of smoky quartz crystals. Many different minerals have been found here and new ones are being found continually, most of them being micro in size. In December a quartz vein was found that had the mineral galena as the principal sulphide. The galena had been originally granular, which led to its being altered more easily. Many beautiful specimens have been removed since its discovery. The quartz vein continues to yield good specimens. Most of the minerals here are the same as those found at the Manhan River location in Easthampton, Mass.

The most common alteration mineral is pyromorphite. This occurs in many colors from light green to almost an emerald green, yellow, gray, brown, pink, and almost colorless. It is usually found as a botrioidal group of radiating crystals, although it occasionally occurs in straight to tapering as well as bulging hex prisms. Many of the hex prisms have a darker colored tip of green. Many of them seem to have replaced cerussite crystals.

The next common alteration mineral is wulfenite, which occurs here in orange to orange-brown to rarely yellow crystals. Pieces with wulfenite crystals on the green pyromorphite make a striking specimen. The wulfenite here occurs in tetragonal prisms, squares, square plates, tapering prisms, dipyramidal crystals and in hopper forms - in short, it occurs in all the forms listed in Dana.

The next most common secondary mineral found is cerussite, which can be colorless, tan, white, greenish and blackish from inclusions, and pink. It occurs here in many crystal forms, tabular to complex twins, many pseudo-hexagonal (dipyramidal), rarely twinned into a spline shape. These are well formed crystals, and are plentiful at this location.

Another secondary mineral that occurs here is anglesite. It is found mostly as coatings that are yellow, greenish to colorless, but occasionally it occurs in small crystals. Anglesite from here fluoresces an orange color. It is fairly common at this location.

Much of the galena contains silver. Quite a few specimens of both wire and crystal forms of native silver occur here in the cavities where galena was originally. Many of the native silver specimens seem to be half-breeds of silver and native copper. These specimens tarnish readily to a blackish color.

The primary minerals in this vein, are quartz, feldspar, galena, muscovite mica, chlorite, pyrite, chalcopyrite, marcasite, molybdenite and apatite. Other minerals have occurred as well but now only their casts are left.

Other secondary minerals that are found here are goethite, limonite, wad, pyrolusite, chrysocolla, montmorillonite, leucocene, anatase and rutile. Many other secondary minerals have been found, but have not yet been positively identified.

This exposure is small in size, about 30 by 15 feet. Considering its small size, a tremendous number of specimens have been collected here by members of the "Rhode Island Mineral Hunters", "The Micromounters of New England" and the "Boston Mineral Club."

Minerals Found in Quartz Vein from Diorite intruded into Carboniferous Schist, uncovered at the 295 South Lane Road Cut between Phenix Ave and Scituate Ave in Cranston, R.I.

Primary minerals

Quartz-milky some small xls-colorless
Muscovite mica-some small well formed xls
Feldspar-orthoclase some poorly formed xls
Chlorite-massive some seems to be replacing sphene xls
Galena-massive, good cubic cleavage, plentiful
Pyrite-massive, some small xls, minor
Chalcopyrite-massive, minor
Pyrrhotite-massive, some small xls, minor
Ilmenite-small plates, minor, most altered leaving casts
Molybdenite-small hex plates, minor
Apatite-small xls, colorless to yellow, mostly altered, minor

Alteration minerals

Anatase-small micro xls, almost black, colorless, minor
Anglesite-small micro xls, fluor orange, common
Cerussite-small xls, many forms, thin elongated plates, hex, dipyramidal, common
Goethite-reddish-brown coatings
Hemimorphite-small bladed xls, minor, colorless
Leadhillite-steep triangular plates, colorless
Pyromorphite-massive, small tapering xls, hex, prisms, opaque to transparent, green to greenish tint, common, colorful specimens, best in East
Pyrolusite-massive and in dendrites, common
Limonite-brownish coating, common
Stolzite-small colorless to white xls, minor?, cubic dipyramidal
Phosgenite-small colorless to white xls, minor?, tetragonal prisms
Wulfenite-small tetragonal tapering prisms, short prisms, dipyramidal short to long, square plates-some hopper, orange, common-colorful specimens. Best in East
Copper-native, in small xls, wiry groups of xls, rare
Silver-native, in small wiry groups of xls, rare
White radiating xls?

Gilbert George

THE RHODE ISLAND ROADCUT

#2

Route 114 Road Cut at Grant Mills, Cumberland, R.I.

In the late Fall of 1964 a portion of route 114 and the junction of route 121 at Grant Mills was reconstructed. This required blasting through an outcrop of rock near the intersection of the two roads. This rock is a portion of the Quincy granite that occurs in the northeast section of Rhode Island. It has long been known to contain rare minerals as at Quincy and Rockport, MA. Blasting revealed a pegmatite vein at the contact with the country rock. This vein is rich in the once rare mineral, danalite, both in massive form as well as in xls. A vein of basalt also occurs here and is probably of later age.

The minerals occurring here are: aegirine, anatase, astrophyllite, azurite, biotite, brookite, calcite, chalcopyrite, chlorite, chrysocolla, cryophyllite, copper (native), danalite, feldspar, fluorite, galena, goethite, greenockite, hematite, hornblende, hyalite, ilmenite, magnetite, malachite, pyrite, pyrolusite, parisite, quartz, riebeckite, siderite, smithsonite, sphalerite, zinnwaldite, zircon and probably more not noted.

The rare mineral, danalite, occurs here in micro to 3" xls as well as massive. Prior to being found at this location, danalite was usually found as massive pieces or in micro xls. The first xl found was a 3/4" xl in quartz and was identified by Dr. Alonzo W. Quinn of Brown University. Single xls. to 3" (mostly crude xls in larger sizes) have been found at this location. Danalite can still be collected at this location. It is associated with fluorite, ilmenite, siderite, sphalerite, feldspar, quartz and rarely aegirine. The color at this location is usually some shade of red, mostly pink to reddish-brown. The xls are sometimes arranged in parallel groupings. The larger xls seem to be made up of many small xls with inclusions of fluorite, ilmenite and siderite.

Parisite is another rare mineral found here. It was found by Steve Cares of Sudbury, Mass., a real active micromounter. Parisite was found in one pocket and occurred here only in micro xls of a brownish-yellow color associated with feldspar. The xls are usually crude hexagonal prisms with horizontal striations like other members of the same rare earth group - cordylite and bastnaesite.

Brookite occurs as micro xls of a colorless to greenish color. These tabular xls often show color zoning or phantom structure. Brookite is a highly reflective mineral and it usually occurs with anatase in feldspar. The anatase occurs in long octahedral dipyrarnidal xls with horizontal striations. The color of the xls at this location is bluish to greenish. They are also highly reflective. These were also found by Steve Cares in one pocket.

Greenockite occurs as bright yellow earthy coatings on quartz and siderite. It is usually found near sphalerite from which it probably altered. No single xls of any size have been noted from here. It was positively identified by Harvard University. It is relatively common at this road cut.

Riebeckite occurs in dark blue prismatic xls with strong pleochroism; X-deep blue, Y-lighter blue, and Z-greenish. The color changes are only seen in small crushed fragments under high magnification as the color of the xls is so dark as to appear black. It is common at this location, where it occurs in quartz and feldspar. It also occurs in the old Granite Quarries nearby on Calumet Hill, as do most of the minerals found at the road cut. At the old quarries thetis hair stone (riebeckite in quartz) was used as a gem stone when the quarries were being worked. The fibrous blue variety crocidolite also occurs at Calumet Hill but was not found at the road cut, to my knowledge.

Aegirine occurs as green prismatic xls with a strong pleochrism; X-dark green, Y-light green and Z-yellow. It is common at this location. It occurs associated with quartz, feldspar, fluorite and rarely danalite.

The native copper occurs on quartz fractures where it was deposited after the alteration of chalcopyrite. Only a few specimens were found.

The feldspar, fluorite and some of the micas showed alteration. Some specimens of galena showed alteration. Several of the minerals listed were found only in minor amounts.

Zircon occurs in massive collections of extremely small xls and fluoresces a dull orange color.

Fluorite occurs usually in a dark purple color, although it also is found in a light blue to greenish hue. The purple fluorite is not fluorescent but is phosphorescent, after being exposed to a regular light bulb.

Many of the listed minerals can still be found both at the road cut and at the nearby Diamond Hill State Park where some of the rock was used for fill for the large parking lot. When collecting at the road cut, do not park on route 114 but please park on the nearby side street to avoid danger from passing cars.

