

## STRICKLAND'S QUARRY, PORTLAND, CONNECTICUT

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Undoubtedly the best pegmatite locality at present being operated in Connecticut, from the standpoint of the mineralogist, is Strickland's quarry in Portland. This interesting quarry is easily accessible, being located on the west slope of Collins Hill, about 4 kilometers ( $2\frac{1}{2}$  miles) northeast of Portland Station. Collins Hill is indicated on the Middletown topographic sheet. The best way to reach the quarry is to go to Middletown, board a trolley car marked Portland, and ride to the end of the line, at Gildersleeve Post Office. From here to the quarry is a walk of 3 km. (a little less than two miles) due east, with no possibility of getting lost, as the dump of the quarry is visible from the car line.

The quarry, which is operated for feldspar, is a large open pit on a lens of coarse pegmatite included in a purplish muscovite-biotite schist. The main pegmatite vein reaches an extreme width of about 20 meters. Two narrower parallel dikes occur and one of these has been quarried, but the interesting minerals are found only in the largest or main vein. The pegmatite is composed almost entirely of buff microcline and smoky quartz, often in irregular, coarse intergrowth. Graphic granite is not abundant and where it occurs is too coarse to yield good hand specimens, except in occasional blocks. Some of the feldspar crystals are very large, a single mass of pure spar 6 meters in greatest diameter being visible on one wall of the quarry. Muscovite, which is not abundant, occurs in plates up to 15 centimeters in diameter, nearly all of which show the twinning structure known as feathering. Biotite is not visible on the walls but is abundant in some parts of the dump in broad plates up to 6 decimeters in length by 3 decimeters in breadth and only about 1 cm. in thickness.

Beryl occurs in the solid pegmatite in dull but well bounded and doubly terminated crystals of a pale green color. Most of them are a decimeter or more long, and they make excellent cabinet material. Mr. Strickland has in his possession a single pink beryl and he reports having found a shattered transparent beryl of pale aquamarine color which cut a number of small

gems. Black tourmaline is widely distributed in the pegmatite and occasional good specimens can be secured, but the crystals are for the most part badly shattered. Uraninite has been found in beautifully sharp octahedral crystals. These have been carefully preserved and thirty-five specimens were disposed of to Wesleyan University. The uraninite is distributed in a plane parallel to and about a meter from one wall. Columbite occurs distributed sparsely and in well-defined crystals up to 3 cm. in diameter, also near the walls of the deposit. In the part of the quarry now being opened spodumene occurs in crystals up to 3 dm. in length, showing well defined cleavage. The material is mostly perfectly fresh with pearly luster and white to pale lilac in color. Other specimens are altered to a woody, fibrous substance like anthophyllite in appearance. The spodumene resembles typical Branchville material but apparently does not alter to the cymatolite aggregates here. Apatite occurs in well-defined small crystals of a gray to pinkish color.

The pegmatite is drilled by steam drills and blasted, the quarry being worked in steps. In the first 10 meter slice below the surface numerous pockets were found containing many beautiful tourmalines. In the next great slice 12 m. in vertical height and the whole length of the deposit, no tourmalines of any consequence were found, the pockets being filled with coarse quartz crystals. At the present time a third horizontal section is being cut and the part of the pit being worked is literally honeycombed with pockets. The largest pocket seen was in the floor of the quarry and was not well exposed, being merely a soft rusty spot in the ledge some two meters across, ribbed with veins of clevelandite between which were cellular sponges of iron-stained secondary albite cementing numerous transparent to translucent tourmalines. Apparently the tourmalines were badly broken and the parts separated before the cementing materials were deposited so that now the specimens are tourmaline breccias. The tourmalines are in large part perfectly transparent and most of them are green in color. Others are blue or blue gray to almost colorless and a few are typical "watermelons" with a green exterior and a purplish pink core. The prism faces are smooth and lustrous but the crystals are almost always broken at both ends, pieces 1 cm. in diameter and 3 cm. in length being the rule. Much larger crystals occur however. The writer picked up one mass weighing approximately three

kilograms and completely encrusted with the brown secondary crust. When split this mass was found to be a single crystal aggregate of tourmaline, purplish at the base, rubellite pink in the central portion and green in the upper third. Mr. Strickland concluded that he wanted this specimen, and it has since been purchased by Prof. Ford for the Brush collection. Another crystal found by the writer was 18 cm. long and 5 cm. in diameter, and broken in the middle. The lower half, which contained some gem material, was held at the quarry but the upper portion was retained by the writer. Another rough crystal 4 cm. by 5 cm., is pale green with an opaque pink core, and a third portion of a crystal 2 cm. in diameter is transparent and aquamarine blue with deep blue spots. A considerable amount of the cellular material from the pocket was collected and will be carefully examined for herderite and other rare minerals.

In the vicinity of the pockets the bladed variety of albite known as clevelandite occurs in great abundance in plates of a bluish white color ranging from several cm. broad down to aggregates so fine-grained that the individual plates are scarcely distinguishable. Opaque to translucent green tourmaline occurs near the pockets in aggregates of prisms which make handsome specimens. Here the crystals of muscovite are penetrated by bladed crystals of green tourmaline and bordered by a narrow band of pale pink lepidolite in parallel position. Lepidolite also occurs in considerable masses of fine scales of a beautiful deep purple color intergrown with quartz and clevelandite and in aggregates of coarser scales of a gray color. In the pocket zone crystals of black tourmaline are often bordered with opaque green, and opaque green tourmaline also occurs in intergrowth with large masses of brownish red garnet. Many of the pockets are lined with large quartz crystals which are rough and opaque in the exterior portion but are beautifully transparent and of a smoky to citrine yellow within. The rhodonite recently described by Professor Foye<sup>1</sup> was from this quarry. Specimens said to be the same as those obtained by Professor Foye examined by the writer proved to be a slightly manganiferous orthoclase of deep reddish brown color.

Mr. Strickland, who owns and operates the quarry, will extend courteous treatment to collectors who do not make too much

<sup>1</sup> *Am. Min.*, 4 (10), 124, 1919. A complete list of the minerals which have been found in the vicinity is included in this paper.

of a nuisance of themselves. It is best to meet him frankly and agree to allow him to examine what one has collected before leaving the quarry, and he will permit one to retain practically everything but gem material. The gems are preserved and cut and marketed irregularly. Especially good specimens of rare minerals are laid aside and sold to visiting collectors and students, at reasonable prices, it being necessary for the owner to take advantage of every source of revenue, at present cost of labor and materials, in order to keep an industry of this sort going. It is not necessary to buy any specimens, however, in order to bring away all one can carry of exceptionally fine mineralogical material. The quarry is better collecting ground now, perhaps, than it has ever been in the past and gives promise of improving as the work progresses.

### COLLECTING MINERALS IN CUMBERLAND, ENGLAND

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One of the most ideal districts for the mineral collector is the county of Cumberland, in the northwest corner of England. Let me guide you on a two weeks excursion to the old and new mines.

Taking a train from the old cathedral town of Durham up the Wear Valley, known to every collector for its fluorites, we cross the Kilhope to Nenthead. There was formerly a large plant located there for mining galenite. This mineral had considerable sphalerite associated with it, and at that time no commercial method of treating it was known, so it was thrown on the dumps. Very fine specimens of sphalerite are found there, besides galenite crystals which have been washed out from beneath, leaving a thin crust coated on the inside with corroded galenite on which small crystals of sulfur are sometimes found. Fluorite is also found there, but not in the highly developed crystals which occur on the other side of the hill, in Weardale, county of Durham. A very interesting variety of fluorite consists of fairly clear and colorless crystals containing a band of azure blue and then a green, these colors being formerly attributed to copper.

A few miles down the Nent valley are the barite mines of