

FAMOUS MINERAL LOCALITIES: THE DATOLITE
LOCALITY NEAR WESTFIELD, MASSACHUSETTS

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The beautiful crystallized datolite specimens which are found in all collections labeled "Westfield, Mass.," have come from the Lane quarries, midway between Springfield and Westfield. These quarries, which are three in number, are located in the Middle or Holyoke trap sheet which forms a long narrow elevation locally known as the Holyoke "Range." The locality is best reached from the Springfield-Westfield trolley line by way of the road which runs north past the State Sanitarium, the northernmost quarry being a little over a mile from the trolley line. The writer recently visited this locality and was able, with a little search, to obtain a number of specimens of very fine datolite. This locality is easily accessible and should, at any time, amply repay any one of mineralogical bent who spends a few hours seeking specimens.

The trap rock, which is quarried and crushed for road metal, etc., is a typical diabase of fine to medium grain. In the hand specimen the rock is rather dense and greenish-gray and, on fresh fracture, appears but little altered. It is everywhere divided into small blocks, partly by original cooling cracks but largely by fractures probably chiefly due to straining and fissuring under comparatively light overload. Indeed so thoroly intersected is the rock by close spaced joints that crushed stone is the only possible product of the quarries, as blocks large enough for building or even paving could scarcely be obtained. Quarrying is, as a consequence, a rather simple operation, a few widely-spaced drill holes at the bottom of the cliff face serving, when blasted, to bring down a great slice of the diabase in blocks small enough for the steam shovels to conveniently handle.

The trap in each of the three quarries is traversed by one or more well-defined shear zones from one to five feet in width and composed of greatly crushed, slickensided and altered fragments of diabase more or less veined and cemented by secondary minerals. In these zones are many white veins and stringers composed in the main of calcite and datolite. The first mineral deposited has in most cases been calcite but in some places there is a layer of a carbonate which weathers to a brown color and is

probably ankerite, followed by calcite in broad cleavage surfaces which, in turn, is followed by transparent pale green crystalline-granular datolite. In very few cases has there been sufficient open space in the shear zone itself to permit the formation of free crystal surfaces of datolite of any great size but these fissures have been the means of access for the mineralizing solutions and where these solutions have spread outward from the fissures and have found open spaces between the displaced blocks of trap, numbers of large datolite crystals have formed. Judging from the abundance of datolite fragments in the fine debris on the floor of the quarries, datolite must have been common and widely distributed in the trap. In the first, or southernmost, quarry only massive and imperfectly crystalline datolite was seen and this was confined to the zones of shearing where it was associated with fine to coarse granular calcite which, in places, contained a little pyrite and, in one place, cleavable yellow-green sphalerite. In another place, not directly associated with the datolite, a cavity in trap was lined with pale amethystine quartz crystals. The best datolite obtained by the writer was found in the middle quarry. Here there are at least three shear zones in which the trap is much crushed, bleached and serpentinized. In all of these calcite, in veinlets with small rhombohedral crystals, and crystalline-granular datolite are abundant. The best datolite was in a pocket between unaltered altho slickensided blocks of trap some thirty feet from the nearest shear zone. There was no external indication of this cavity, which was discovered quite by accident when a block of the trap was loosened. The hollow polygonal cavity contained some fifty pounds of fine transparent yellow-green datolite crystals. The only other mineral present was coarse-crystalline translucent calcite which, in part, occupied the center of the vug. The datolite crystals, when removed, left perfect molds in the calcite.

In the northernmost quarry, which is the largest, a wide shear zone is intimately traversed by a stockwork of veinlets of calcite and datolite, the latter being the most abundant. The calcite is, in part, crystallized in steep rhombohedral and scalenohedral forms. All of the datolite seen here was more or less friable due to movement along the fissure. Most of the datolite veins have a core of second generation calcite and the last deposit in one open space was a layer of bluish translucent chalcidony one eighth to one fourth inch thick.