NOTES AND NEWS

FLUORESCENT SODALITE

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Ultra-violet light is now used extensively to produce beautiful color effects in certain minerals, and as an aid in their identification. That it may also be useful in determining the distribution, manner of occurrence, and mode of origin of fluorescent minerals, is indicated by the results of work on the mineral sodalite.

Alonzo Quinn[1] has recently described the use of ultra-violet light in the identification, and determination of the distribution and abundance

FIG. 1. Nepheline syenite from Beemerville, New Jersey, under ultra-violet light. White is fluorescent sodalite of secondary origin, occurring in veinlets and in zones surrounding cores of nepheline.

of sodalite in the nepheline syenite of Red Hill, New Hampshire. Quinn found that fluorescence furnished a ready means of distinguishing sodalite from the associated nepheline, and that these two minerals showed marked contrast in a photograph taken of rock specimens while exposed to ultra-violet light.

The sodalite which occurs in the elaeolite syenite from Beemerville, New Jersey is also fluorescent. It glows with a brilliant red orange color. This rock has been described by Emerson,[2] Kemp,[3] Wolff,[4] Iddings,[5] and

Arousseau.[6] In the hand specimen the dark gray sodalite can not be distinguished from the nepheline, but under ultra-violet light its distribution can be readily observed. It shows as brilliantly glowing irregular patches on the broken rock surface, and as thin seams or veinlets intersecting the rock.

The seams, where sharply defined, are about 0.5 mm. in thickness. Seams with irregular boundaries are thicker. Where the trimmed rock surface follows a fracture, the sodalite shows as a thin coating. Rock fractures, prominent enough to control the break of the rock and along which some weathering has taken place, have a thicker and more continuous seam of sodalite.

The patches of sodalite which appear on the freshly broken rock surface have very irregular boundaries. In places a tiny core of non-fluorescent nepheline occurs inside the sodalite.

The general distribution of the sodalite as seen under ultra-violet light is suggestive of a secondary origin. This was verified by a microscopic examination of several thin sections. The seams of sodalite occur not only along the boundaries of minerals, but in places cut across several of the crystals. The patch-like areas show all gradations from small irregular borders around the nepheline with tongues extending inward along cleavage planes, to entire replacement of a whole nepheline crystal.

The only other fluorescent sodalite that was found in the rather limited collection at our disposal, occurs in the nepheline syenite from Red Hill, New Hampshire. This rock has been described in detail by Bayley[7] and Pirsson.[8] The color of the sodalite in hand specimen is light gray and quite indistinguishable megascopically from the nepheline.

Under ultra-violet light the Red Hill sodalite fluoresces with a brilliant pink orange color, readily distinguishable from the red orange of the Beemerville sodalite. It occurs only in rounded or angular grains with sharply defined outlines. Microscopically the mineral has a clear fresh appearance. It fills the interstices between, or partially surrounds, the other minerals. Although one of the last minerals to crystallize, it is of primary origin. The distribution of the mineral is clearly shown in Quinn's ultra-violet light photographs.[9]

Arousseau[10] states that the sodalite in the Beemerville syenite belongs to the hauynite-nosean series. Pirsson,[11] likewise, states that sodalite of the Red Hill syenite must contain a small amount of the nosean molecule. No SO_3 was found by the writer in either sodalite. However, the syenites at both localities show considerable variation and the composition of the sodalite may also vary in different facies of the rocks.

The two sodalites fluoresce with similar but readily distinguishable

colors. No other difference could be found except that the Red Hill sodalite is primary and the Beemerville is secondary in origin. Ultraviolet light reveals the distribution of sodalite within the host rock in detail, and consequently aids greatly in the determination of the primary or secondary character of the mineral.

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