NOTES AND NEWS

POSSIBLE AGE OF MONAZITE FROM MARS HILL, NORTH CAROLINA*

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The largest specimen of monazite thus far known was recently described by Schaller.[2] Through his kindness, portions of less perfect crystals accompanying the type specimen were given the writer for study. The mineral is reasonably fresh and unaltered in appearance, and the accompanying radiograph, Fig. 1, indicates a generally uniform distribution of radioactive material. The very low uranium content shown in the analyses is also to be taken as evidence that the degree of alteration is slight, according to Fenner.[3]

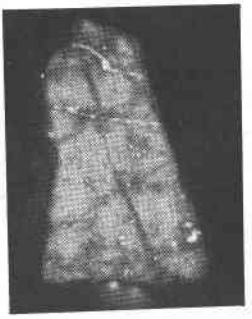

FIG. 1. Radiograph of representative crystal of Mars Hill, N. C., monazite. 1 week's exposure.

No attempt was made at a complete analysis, as the crystallographic and optical properties of the material were quite definite, and there are many monazite analyses available. The excellent analytical methods due to Fenner were used, slightly modified, with the following results.

TABLE 1

Sample in grams	$PbSO_4$, g.	≈%Pb	*Sample in grams*	ThO_2, g.	≈%Th
28.7857	0.0640	0.152	7.3428	0.4617	5.526
17.14108	0.04380	0.175	6.00088	0.38210	5.596

* Contribution from the Committee on the Determination of Geologic Time.

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[2] Schaller, W. T., *Am. Mineral.*, vol. **18,** pp. 435–9, 1933.

[3] Fenner, C. N., *Am. Jour. Sci.* [5] vol. **16,** pp. 369–81, 1928.

Sample in grams	U_3O_8, g.	≈%U	$\frac{Pb}{U+0.36\ Th}$	
6.9609	0.0016	0.019	0.076	Pb=207.90
5.73249	0.00108	0.016	0.086	Th=232.12
				U=238.14

Assuming the absence of "ordinary" lead from this material we may calculate its age as 584 million years, using the formula:—

$$\frac{\log (U+0.36\ Th+1.155\ Pb)-(\log U+0.36\ Th)}{6.6\times 10^{-5}} \text{ million years.}$$

It is hoped that the isotopic composition of the contained lead will be determined in the near future. Until this has been done, the above age is only an approximation. The field evidence would connect this monazite with the Cranberry Granite, presumably of pre-Cambrian age, a correlation in fair accord with the figure here found.

The courtesy of the Director of the United States Geological Survey and of the Assistant Secretary of the United States National Museum, for extending the facilities of their laboratories is gratefully acknowledged, as is the assistance of Dr. C. N. Fenner in the utilization of his analytical methods.

DICKITE FROM ST. LOUIS COUNTY, MISSOURI

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In a collection of geodes in the museum of St. Louis University, donated by V. Sosnovec in 1905, is one labeled "Flint Geode with Kaolin Endomorph, St. Louis County, Missouri." The writer has been aware for some time that the kaolin mineral in this geode is dickite, but postponed publishing a description of the occurrence until more exact information was available regarding the locality. Since the excellent paper by Tarr and Keller[1] on "Dickite in Missouri" has appeared it seems desirable to record this additional occurrence of dickite in Missouri even though the section of St. Louis county and the geologic formation furnishing the specimen are unknown. With the accepted hydrothermal origin of dickite, evidence is thus afforded that hydrothermal solutions reached east central Missouri during post-Mississippian time.

The geode (Fig. 1), which is approximately 4×6 centimeters, is composed of layers of chalcedony and quartz and encloses near the center a mass of dickite 8×18 millimeters, and near the side a smaller one 5×10 millimeters. No sulphides are associated with these minerals. The con-

[1] Tarr, W. A., and Keller, W. D., Dickite in Missouri: *Am. Mineral.*, vol. **21**, pp. 109–114, 1936.