

GADOLINITE FROM LOUGHBOROUGH TOWNSHIP, FRONTENAC CO., ONTARIO

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Several years ago a pegmatite dike on lot 11, con. IX of Loughborough Tp., Frontenac Co., was worked a short time for feldspar by the M. J. O'Brien interests, the feldspar being shipped from Perth Road Station on the Canadian National Railway. Mr. N. B. Davis who was in charge of the operations collected from this dike a few small specimens of euxenite and part of a crystal which subsequently proved to be gadolinite. No more of this material was found and operations ceased soon afterwards. Mr. Davis states that the dike was of the ordinary type mined for feldspar in this region, with no specially noteworthy features.

The gadolinite specimen weighs about a quarter pound. It appears to be a part of the end of a good sized crystal with rough but distinct faces deformed by contact with the matrix minerals and it is well preserved, being hard and in part very fresh and vitreous. Along some small fractures the mineral is dull and grayish, and this gray substance was at first taken to be some other mineral but on optical examination of a thin section it appears to be possibly an alteration of the vitreous material. Both parts appear to have an almost equal hardness of 6.5 or more, though the vitreous material may be slightly harder than the other. The vitreous material in small grains is clear and transparent like glass under the microscope, with very perfect conchoidal fracture, anisotropic character and index greater than 1.75. There is no sign of cleavage. In the hand specimen this material is black and vitreous. The grayish material under the microscope is somewhat cloudy but largely anisotropic also. It appears to be merely a less pure and less perfectly crystallized form of the other, or perhaps is the same material somewhat altered.

Before the blowpipe a fragment of standard size does not fuse, decrepitate, or swell up. The gray part becomes a dull white and the vitreous part takes on a greenish gray color, retaining its transparency to a great degree. A very thin splinter intensely heated in the blast becomes white and porcelainic, but does not show the least indication of incipient fusion. The powdered min-

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eral is slowly decomposed by hot mineral acids but without gelatinization. The specific gravity of the selected material used for analysis was 4.101 at 18.80°C.

It may be noted that this mineral seems to differ somewhat in some of its reactions from the typical gadolinites of mineralogical literature. Nevertheless, the chemical analysis indicates nothing unusual in its composition which agrees with that of many previously described occurrences.

An analysis of selected material yielded the following results:—

GADOLINITE, LOUGHBOROUGH TP., FRONTENAC CO., ONT.
ANALYST, H. V. ELLSWORTH

SiO ₂	25.97
ThO ₂	0.14
(Ce, La, Di) ₂ O ₃	2.85
Yt, Er) ₂ O ₃	46.47
Fe ₂ O ₃	2.34
FeO.....	5.82
MnO.....	1.17
BeO.....	10.29
Al ₂ O ₃	0.32
CaO.....	2.36
MgO.....	0.55
Na ₂ O }.....	0.09 ¹
K ₂ O }.....	
H ₂ O.....	1.23
P ₂ O ₅	trace
U.....	Not detected
	99.60

¹ Weight as chlorides.

This is the first and only gadolinite so far definitely identified from a Canadian locality.