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Examination of Talc Core Samples

THE ST. LAWRENCE UNIVERSITY
CANTON, NEW YORK

DEPARTMENT OF GEOLOGY
AND GEOGRAPHY

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Mr. R. S. McClellan
Gouverneur Talc Company
Gouverneur, New York

Dear Bob:

I have examined under the microscope the 3 core samples (D H #3, L B Talc, 409'-419'; D H #3 Soft L B Talc, 404'-409'; and D H #4, Hard Talc, 561'-569') and the 3 bulk samples (W. T. #5 Hard Talc; W. T. #5, Soft Talc; and W. T. #5, L. B) from the Western Talc property. These samples were examined by the immersion oil method and 4 of them were sliced and mounted to make thin sections. The so-called L B ore both in the core and bulk samples is too finely comminuted to make thin sections.

Among all 6 samples I identify in various proportions tremolite, talc, carbonate (dolomite?), and some quartz. A fifth mineral, I am inclined to call antigoritic talc because it lacks the high birefringence of talc and is too highly birefringent for antigorite. This mineral may be a mixed-layer combination of antigorite and talc or a talcose mineral containing more H₂O than talc and less H₂O than antigorite.

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Seven photomicrographs are enclosed. These photographs were all made in one-plane polarized light with a magnification of 80 X. Separately and together they show the variable fabric among the several samples and the variations in mineral composition. Among these photographs and in the slides generally a well developed foliation and crinkle-folds may be seen. At least some variation in mineralogy corresponds to these structures. Tremolite is best developed in microfold cores and talc is best developed along folia.

I identify no serpentines (colored) as such and no aluminous chlorite. Coloration seems to be attributable to some darkening (tinting) of the talc mineral, probably due to "antigoritization" or some hydration.

My petrographic examination indicates the ore body was formed by the replacement of dolomite by talc, tremolite, and antigoritic-talc. Conspicuous folia and minute crinkle-folds indicate deformation in which the body was subject to shear. Hence, the ore may vary considerably in mineralogy in 3 directions dependent upon the magnitude of the shearing structures. All of the samples contain

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some unreplaced carbonate mineral and some contain enough to effervesce copiously in cold dilute HCl. All of these samples and parts of all samples (see photographs) are extremely fine-grained. Some tremolite fiber is reasonably well developed (see photographs).

I hope these remarks and particularly the photographs will be useful to you. If needed, I will visit your office to talk with you.

Yours sincerely,

Robert O. Bloomer

ROB:vt

Enc: Photomicrographs

