

LABORATORY REPORT

TO: Peter Yost
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SUBJECT: Particle Identification
SPECIMEN: Bulk Sample
REFERENCE: Material Growing on Rock in a Home

INTRODUCTION

One set of material found growing on rocks part of a decorator wall were received for analysis. The wall was on the interior of a home in Vermont. The purpose of the analysis was to determine the nature, biogenic or mineral, and identity of the growth.

The material was examined under a stereoscopic microscope in its dry, as received condition. A portion of the material was then placed in deionized water and reexamined under the stereoscopic microscope and at higher magnification under a compound microscope.

RESULTS

The growth had finger-like projection about a centimeter long (half-inch). The growth appeared blackish with some evidence of yellowish tips. The growth was associated with a "sand" along the filaments and a thin, colorless film. Each finger had a reddish-brown stem surrounded by a whorl of very small dark leaves. These leaves were less than a millimeter in length, were a single cell thick at the margins, and just a few cells thick along the spine. The cells of the leaves were about 15 micrometers long, 10 micrometers wide, and rectangular in shape. The cells along the stem were more cylindrical, 15 to 20 micrometers long and about 5 micrometers in diameter.

The yellowish tissue at the termination of the stems are the gametophyte tissue. There were some embryonic capsule structures with longitudinal slits evident. In images provided along with the samples there was evidence of green thalloid protonemata in shadowed areas under the rocks in close association with the growth.

The thin, clear, colorless film associated with the fingers became cloudy and soft when placed in water. The "sand" was not water-soluble. The film was a mucoid layer. Most of the "sand" was calcitic agglomerates. There were some quartz fragments. The quartz fragments were relatively large at 10 to 20 micrometers and highly angular. The quartz was not biogenic. The calcitic agglomerates were more globular in shape with some more angular areas. The individual crystal zones were less than 5 micrometers and the agglomerates tended to be elongated up to about 50 micrometers with diameters of up to 30 micrometers. These may have a biogenic origin.

These characteristics are consistent with a moss of the genus *Andreaea*. There are over 100 species of this type of moss common to North America.

CONCLUSION

The growth is a moss of the genus *Andreaea*.

Thank you for this opportunity to be of service. If I can provide any further assistance please contact me.

Signed: *Russ Crutcher*
E. R. Crutcher, Consultant