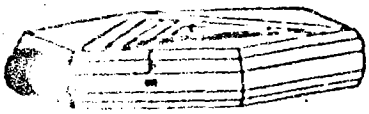
GRAPHITE



Ticonderoga, N. Y.

MICROMOUNTERS OF NEW ENGLAND

NEWSLETTER #66 October 13, 1981

The next regular meeting will be held at the Cares' home, at 18 Singletary Lane, Sudbury, MA (617-443-4180), on Saturday - October 24, from 10AM to 4PM.

A tentative schedule for the next year is as follows:

November 22	Boston Univ.
January 16, 1982	Anderson's
February 27	Harvard Univ.
April 11	Whitmore's
May 15	Springfield Museum
July 17	Reiner's
August	Sunapee Show

NEW MEMBER:

Harold B. Carter
4 Hillside Lane
Chelmsford, MA 01824
(617) 256-3026

If I remember correctly Harold recently moved here from California --- welcome aboard.

Ray Denicourt's new address is: 1837 Pebble Beach Blvd., Sun City Center, Florida 33570.

At the September meeting there was discussion regard us sponsoring a micromounters symposium. Part of the concern of some was whether anyone is willing to put in enough time to make it worthwhile. Another possibility is to have an "expanded" meeting at a central location, invite a speaker, have a good time, and go home; with the only preparation being the rental of a facility and advertising. What's your idea ---please respond on the enclosed sheet and bring it or mail it to Gerry Lindeyer.

→ Also, dues are due -- if you haven't paid please send a check for $3 to Janet Cares or bring it to the next meeting.

Finally, I would appreciate some good information or articles for the Bulletin --- my backup supply is getting low!

PS: The Palermo issue of Rocks and Minerals is out and 18 of the 25 specimens photographed are from the collections of our own members!!
THATS JUST GREAT -- CONGRATULATIONS

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#66

Shapes of Typical Cleavage Fragments

Number of Cleavage Directions	Characteristic Fragment	Example
0		Quartz
1		Muscovite
2		Augite
		Orthoclase
		Hornblende
3		Halite
		Anhydrite
		Calcite
4		Fluorite
6		Sphalerite

Dennen, W., "Principles of Mineralogy", Ronald Press, N. Y., 1959 (Out-of-print)

Some of our members were collecting at Francon and Newry over the long Columbus Day weekend. Perhaps we can get a report at our next meeting. Vandall King recently spent one day at Newry and found 49 species on the dumps!

#66

Bjarebyite, $(Ba, Sr)(Mn,Fe,Mg)_2Al_2(OH)_3(PO_4)_3$,

INTRODUCTION

The Palermo No. 1 pegmatite, near North Groton, New Hampshire, is famous for an extraordinarily long list of mineral species, of which no less than 50 phosphate species have been reported, about 60% of all known pegmatite phosphates (Moore, 1973). This apparently has resulted from a series of retrograde reactions, such as metasomatic and hydrothermal reactions over a range of temperatures upon primary phosphate giant crystals such as triphylite, graftonite and amblygonite. From the triphylite, low temperature oxidative reactions led to a large number of secondary phosphate hydrates such as laueite, strunzite and phosphosiderite. Where reducing conditions prevailed, ferrous phosphate hydrates arose such as ludlamite, phosphoferrite and vivianite, the reducing environment indicated by the presence of coexisting late sulfides. Hydrothermal attack upon amblygonite led to augelite, wardite and crandallite. Exchange reactions between triphylite and adjacent amblygonite produced compounds such as scorzalite and childrenite. Introduction of Ba^{2+} and Sr^{2+} at this stage resulted in such exotica as palermoite and bjarebyite, the latter a new species and the subject of this paper.

PARAGENESIS

We feel that a detailed account of the bjarebyite paragenesis is justifiable even though the species is at present most rare with but a few crystals discovered. This is because the Palermo pegmatite has received much attention from collectors and many examples of this paragenesis have been seen by the senior author in private collections suggesting that bjarebyite may be "discovered" in many collections upon closer scrutiny.

The type specimen was collected in 1947 by the late Mr. Gunnar Bjareby and bears the label "Dickinsonite (ND = (not determined)), No. 2260". The sample, originally 4 x 4 x 5 cm, was broken into four pieces to provide enough material for study. The mineralogy is extraordinarily complex and includes the species amblygonite, augelite, childrenite, siderite, scorzalite, quartz, minor sulfides, Fe-Mn oxides, bjarebyite and palermoite. It derived from a small metasomatized amblygonite-scorzalite pod which probably occurred in close association with triphylite crystals. Hydrothermal reaction at intermediate temperature would lead to exchange of cations between the triphylite and amblygonite to form scorzalite followed by augelite, childrenite and siderite. Such products appear brecciated and the mass has a nodular outline distinct from the subhedral outline of the parent phases. Bjarebyite and palermoite occur at the final stages as crystals in open cavities along the contact between the amblygonite-scorzalite remnants and the Fe-Mn oxides. Palermoite specimens show a similar paragenesis suggesting that bjarebyite may occur in close association with this mineral.

PHYSICAL PROPERTIES

The color of bjarebyite is emerald green with a faint bluish tinge, darker than ludlamite and brazilianite which the species closely resembles. It always appears as highly faceted and very complex crystals, usually pitted and etched. The luster is subadamantine, hardness 4^+ on Mohs scale, streak white. Two perfect cleavages, {010} and {100}, distinguish it from ludlamite and brazilianite. In addition, the ludlamite paragenesis is usually confined to a stage directly replacing triphylite, a primary phase which is absent in this sample.

NAME

The beauty of the crystals, the location and the source of the specimen provide us with the honor of naming the new species BJAREBYITE after the late Mr. Gunnar Bjareby of Boston, a talented artist and naturalist, who assembled a magnificent collection of hand specimens and micromounts, particularly of the New England pegmatites. He amassed a micromount collection of over 1,000 exquisite Palermo specimens and was a phosphate mineral student with extraordinary insight and knowledge. The care and detail of his investigations, unfortunately never published, place Mr. Bjareby among the most outstanding of 20th Century amateur mineralogists.

The species and its name have been approved by the International Commission of New Minerals and New Mineral Names, International Mineralogical Association. The type specimen shall be preserved in the United States Natural History Museum (Smithsonian Institution).

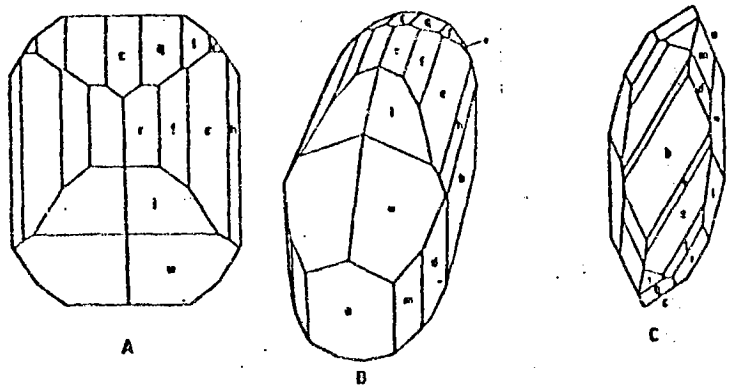

Fig. 1. Crystal of bjarebyite showing the forms *c* {001}, *a* {100}, *b* {010}, *m* {110}, *d* {120}, *r* {111}, *f* {121}, *e* {131}, *h* {141}, *w* {411}, *l* {211}, *t* {021}, *q* {011}, and *v* {031}. Palermo No. 1 mine.

A. Plan

B. Clinographic projection

C. Plan, orthoaxis polar