FRIENDS OF MINERALOGY - COLORADO CHAPTER

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Editor: Dub Crook

Well, this is the second edition (year) of the Colorado Chapter FM newsletter and appropriately enough, it is dedicated to Colorado minerals. Enclosed are several articles dealing with new finds from our state made by chapter members as well as some intersting mineral facts about Colorado. There was a very good response from the membership on this issue and I hope that this type of participation will continue. It makes my job what it should be, an editor and not a writer. I would like to continue the newsletter in issues dedicated to specific localities or subjects, so if any of you have any ideas for future newsletters, please let me know.

Chapter News

No meeting has been held since the November elections. The next scheduled meeting is Thursday, February 22, 7:30 PM at the Denver Museum of Natural History.

The National FM meeting will be held during the Tuscon mineral show, February 9-11. If you are planning to be at the Tuscon show, please take some time out and attend the National meeting so the views of the Colorado FM Chapter can be aired.

New Book on "Colorado Amazonstone"

A book has recently been written by Tom Odiorne of Littleton on "Colorado Amazonstone". The book includes 60 pages of text, 32 full-color illustrations, and maps, diagrams, and information dealing with the history of Colorado's amazonstone collecting sites, its crystallography, color, and mineral associations.

Anyone interested in purchasing this book can contact Tom at 794-5751 or send a check payable to Colorado Amazonstone, for $12.95 + .45 tax to Colorado Amazonstone, P.O. Box 1231, Littleton, Colorado 80160.

-Don & Dee Belsher

State Gem

Do you know what the state gemstone is? It's aquamarine, so designated on April 30, 1971. The reference is the Colorado Revised Statutes, Chapter 131, Article 8, (131-8-12), page 1221.

Recent Find at Mt. Antero Don & Dee Belsher

During the past summer, while collecting on the southwest ridge of Mt. Antero, we came upon a collapsed pocket. Most of the minerals found therein were not worth keeping. However, we did find two crystals of apatite. The color is light lavender. Both are single crystals with associated muscovite. One crystal is 7 x 9 mm and the other is 6 x 7 mm. The habit is prismatic and tabular.

To our knowledge, apatite has been reported in the literature as being found in only one pocket on Mt. Antero. We personally know of no one who has found apatite there. A couple of years ago on White Mountain, we did find a larger specimen with very small (2 mm) crystals of colorless apatite.

The two crystals mentioned above will be welcomed to our collection

Calaverite from the Idarado Mine Wilson W. Crook and Stanley G. Oswald

During this summer, Del Oswald, head of the department of mineralogy at the Carnegie Museum, acquired a 6 x 4 cm specimen from the head mine office at the Idarado Mine. The specimen was from a unmined area of the mine and supposedly part had been analyzed for gold by the mine owners. The analysis was locked in a safe with the idendity of the mineral unknown. Del requested that we take a look at the specimen and see what had stirred such a interest at the mine.

The sample was predominantly quartz, with some pyrite. Interlayered with the pyrite was a gray-white metallic mineral which on the outer surfaces had tarnished black. The mineral was subjected to both x-ray and electron microprobe analysis and found to be calaverite, $AuTe_2$.

The significance of the identification is that unlike the Cripple Creek district, the Telluride district of Colorado is essentially free of telluride minerals. So, even if there is only one known specimen, the Idarado Mine has now given the district a valid reason for its name!

The Mineral Phenacite Done & Dee Belsher

The mineral phenacite is a beryllium orthosilicate, Be_2SiO_4. Phenacite is tri-rhombohedral. Crystals are typically rhombohedral and or prismatic in habit. Twins are common.

The fracture is conchoidal. The mineral is quite brittle despite a hardness of 7½-8. Phenacite occurs in a colorless form, also bright wine-yellow, pale rose-red, and brown. According to the literature, it does not occur in blue crystals, however, we have at least one light blue crystal in our collection (the color is due to various inclusions). Bluish crystals have also been reported from Brazil.

Phenacite is most commonly found in pegmatites, associated with microcline (amazonite), topaz, muscovite, and quartz.

Phenacite occurs in the emerald and chrysoberyl mine on the Takowaja River, east of Ekaterinburg, in the Ural Mountains, U.S.S.R. and near Miask in the Ilmen Mountains. In Switzerland at Valais; and Alsace, France. Prismatic and twin crystals occur at Kragero, Norway. From Tanzania, East Africa, and in exceptional crystals from San Miguel di Piracicaba, in Minas Gerais, Brazil.

In the United States, phenacite occurs in Oxford County, Maine, and in Carroll County, New Hampshire. The Colorado localities include Topaz Butte, near Florissant, El Paso County, in flat rhombohedral crystals. It also occurs in prismatic crystals at Mt. Antero, Chaffee County.

Phenacite is named after the Greek word for "deceiver", in allusion to its having been mistaken for quartz.

Our son, Dan, found a pocket of phenacite crystals on Mt. Antero and didn't have time to clean it out before returning to Boulder. He called and asked if we'd like to help him finish. The quality of the crystals could have been improved, however, a total of approximately 850+ crystals of phenacite were removed from this one pocket - perhaps a world record for phenacite. We plan to get all of these crystals together, take a photograph, and hopefully get this information documented.

X-ray, chemical and morphological studies on amazonite from the Pike's Peak region, Colorado

-Eugene E. Foord

Amazonite, a blue or green variety of microcline or orthoclase occurs in pegmatite dikes within the Pike's Peak batholith and cogenetic satellitic stocks of Precambrian age (1040 ± 13 million years and 1048 to 980 m.y. respectively). The pegmatite dikes may be as much as fifty meters in length and several meters in thickness but generally are much smaller. Crystals of amazonite may occur either 'frozen' within the dikes or projecting from the walls of open cavities (pockets) and some have maximum dimensions in excess of 0.5 meter. Clear to buff-colored or red-brown overgrowths as much as 1 cm in thickness sometimes are present on crystal faces as well as broken surfaces of crystals occurring in pockets. Chemical etching and corrossion of some crystal faces has occurred. Crystals from individual pockets generally show restricted and preferential growth on certain faces, most commonly {001}.

Recent chemical, x-ray and morphological studies have provided additional data on amazonite and shed some additional light on the genesis of the mineral. The color of amazonite appears to be directly related to the concentration of lead ion (0.01 to 0.02%) which is probably substituting for K^+ in the feldspar structure.

Microprobe traverses on color-zoned crystals indicate that with increasing Pb content, the color changes from buff-tan to blue or blue-green. All of the amazonite specimens examined thus far have been structurally triclinic (microcline). However, the overgrowths which may or may not be present are usually structurally monoclinic (orthoclase). Some overgrowths may be single-phase orthoclase or a mixture of orthoclase and intermediate microcline interpreted as exsolution from single-phase orthoclase.

Galena may be found intergrown with flesh-colored microcline but is very rarely found associated with amazonite. Development of amazonite is controlled by silicate-sulfide system equilibria (qtz-fs-mica-galena and/or py) whereby depletion of sulfur in the remaining silicate melt + aqueous vapor phase with continued crystallization results in incorporation of the remaining lead into microcline forming amazonite rather than galena.

The caps or overgrowths noted on some crystals and showing variable amounts of development represent a drastic change in physico-chemical conditions within the pockets as reflected by the structural state, chemistry and morphologic data. These features are interpreted to indicate reopening of pegmatite pocket systems.