



FRIENDS OF MINERALOGY

Pennsylvania Chapter

NEWSLETTER

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Page 1

PRESIDENT'S MESSAGE

It was with great sorrow that we learned of the death of Paul Seel on April 28. It is certainly no secret that Paul was a great and continuing help to our organization, as he was to so many other groups who knew him as an active and contributing member. Not only a dear friend and a knowledgeable educator, Paul Seel was truly an ambassador to the world of mineral collecting.

The Board of Directors has decided to create a grant for geologists doing research or field work involving Pennsylvania mineralogy. Other board members share my feeling that we should give this grant in the name of Paul Seel, who was himself involved in many worthy causes, including the presidency of the American Federation Scholarship Foundation. It seems very appropriate that we express our appreciation of Paul's dedication in this way.

Paul Seel was an extraordinarily happy man. There is no doubt that the major force behind this happiness was the love that he shared with his wife, Hilde, who now faces one of the most difficult and painful times of one's life. We can only offer her our deepest sympathy and the hope that she will forever be comforted by her memories of Paul. We may also hope that Hilde will continue to be the great asset to our group, as well as to us as individuals, that she has always been.

Bryon Brookmyer, President

IN MEMORIAM

The Board of Directors of The Friends of Mineralogy, Pennsylvania Chapter, extends their sympathy and warm regards to the families of the four true "friends of mineralogy" who passed away this spring.

Each man will be remembered individually for a special interest in some aspect of mineralogy, and each shared with us an inspiring enthusiasm and personal warmth. One mineralogist and three collectors will also be remembered as sterling examples of the cooperation which continues to advance Pennsylvania mineralogy. They are a loss to us personally, and to the groups which they served so well, of which as few are mentioned below. We would like to honor:

Leonard Gerhart, Reading: Berks Mineralogical Society; past President and Director, Mineralogical Society of Pennsylvania.

William Reitenbaugh, Pottstown: Berks Mineralogical Society; Director, Mineralogical Society of Pennsylvania.

Paul Seel, Bala Cynwyd: Mineralogical Society of Pennsylvania, Friends of Mineralogy, Pennsylvania Chapter; Philadelphia Mineralogical Society; Eastern and American Federations of Mineralogical Societies; Wagner Free Institute of Science; Museum Advisory Council.

Edgar T. Wherry, Ph.D., Philadelphia: author of innumerable professional papers on geology, mineralogy, and botany; Fellow of the Mineralogical Society of America; Honorary Member of the Mineralogical Society of Pennsylvania.

Juliet C. Reed, Director

MEMBERSHIP INFORMATION

Dues: Send \$5.00 (\$3.00 for members over 62) for 1982 dues, which include those for the National organization, to: Friends of Mineralogy, Pa. Chapter, c/o Vincent Matula, R.D. #4, Allentown, PA 18103.

New Address: Martin Yohe, 357 Linman Terrace, Aliquippa, PA 15001
Jeanne Lawler, 6500 W. 43rd St., Apt. 1402, Houston, TX 77092
Mrs. Paul Smith, R.D. Box 11 A, Port Matilda, PA 16870

Permanent Address: Daniel Harris, 640 Ravencrest Rd., Pittsburgh, PA 15215

New Member: Thomas J. Confer, R.D. #1, Howard, PA 16841

TALKS

Jeri L. Jones, geologist and mineral collector, president of the York Club, and co-author of the York County Geologic Guide, offers the following talks to area groups: 1) Geology of York County, Pa.; 2) The Dillsburg Iron Mines; 3) Some New and Exciting Mineral Localities in York Co., Pa.; and 4) Geologic History of the Eastern United States (emphasizing Plate Tectonics and Piedmont Geology).

Jeri, who generously declines a fee, may be reached at Box 1962, York, PA 17405 (phone 717-757-6803).

TOLEDO, OHIO, SHOW

June King, Chairman of the Toledo, Ohio, Gem and Mineral Show, September 10, 11, and 12, 1982, has announced that one of the adjoining states to be honored by this year's theme and special exhibits is Pennsylvania. The Toledo Club will exhibit Pennsylvania mineralogy books and information, and would like very much to receive Pennsylvania minerals in bulk to be packaged and labelled for the many school children who attend the Show. If you are able to send minerals (postage to be arranged for) or can participate in the Show with a Pennsylvania mineral case, write June King, 3423 Percentum Rd., Toledo, OH 43607.

THE PAUL SEEL GRANT FUND

At the last meeting of the Board of Directors, the decision to form a grant fund for research involving Pennsylvania minerals was approved. The grant will be available to geology students working on their theses or dissertations, or to anyone doing research or field work involving Pennsylvania mineralogy.

At present, about four hundred dollars from gifts and the Spring Conference has been collected for this fund, which will remain separate from our Fm/PA operating funds. The grant, named for our late friend, Paul Seel, will be given on an annual basis, if possible.

We are presently in the process of writing an application detailing the criteria for eligible applicants. Dr. Robert C. Smith, Juliet C. Reed, and myself will screen the applications. More information will be available in a future Newsletter.

Members and friends are invited to help make this project a success. Your tax deductible donation to the Paul Seel Grant Fund will be used for that purpose only. Send your check or money order, made out to the Friends of Mineralogy, Pennsylvania Chapter, with a note, to our Treasurer, Thomas O'Neil, 1000 Tule St., Montoursville, PA 17754.

I sincerely hope that with this project we may all help to better Pennsylvania mineralogy, according to the ideals of our organization.

Bryon Brookmyer, President

MATULAITE AND CACOXENITE FROM THE GENERAL TRIMBLE MINE,
CHESTER COUNTY, PENNSYLVANIA

Editor's Note: A letter has been received concerning the discovery and identification of matulaite and cacoxenite from the site of the old General Trimble phosphate mine, East Whiteland Township, Chester County, Pennsylvania. A list of references is included at the end of the letter.

"Allen Heyl, Martin Anné, Eugene Foord, and Linda Davis would like to report to you and to the Friends of Mineralogy that matulaite was found in a field between two of the old General Trimble Mine pits by Martin Anné, Bryon Brookmyer, Bill Lorah, and Joe Varady, in late 1981. This new find, which makes the General Trimble Mine the second locality in Pennsylvania, and only the fourth in the world, for matulaite, occurs at an ingeniously relocated old locality.

"Marty deserves credit for recognizing the probable matulaite by physical characteristics. It was he who suspected that the sample was not the somewhat similar gibbsite, common at the Chester County locality. Marty also did some research in Gordon (1922, p. 57) and Genth (1875, p. 52). Checking the fine print, he noticed a footnote at the bottom of the page in the Gordon book, citing a mineralogical note of Genth and Penfield (1890, p. 206-207), in which Genth had analysed some of the gibbsite from the General Trimble Mine, provided by friends. Genth found that in addition to water the sample contained between 27.77% and 35.88% P_2O_5 and 34.6-42.64% Al_2O_3 . After six analyses, Genth (who did most of this study) concluded that the fine pearly scales upon wavellite and limonite from White Horse Station (the old name for the locality) "is a hydrous phosphate of unknown composition." Thus Genth realized that he had a probable new mineral, but that his analytical methods, as well as the small amounts available, were not good enough to identify the mineral and name it. Thus matulaite may have nearly been found (but not quite) approximately one hundred years ago!

"Marty realized, however, that these analyses were within a range very close to the type matulaite from Hellertown, Pa. (Moore and Ito, 1980), so he sent some to the rest of us in Colorado to find out if his strong hunch were correct. Allen Heyl took a look at the specimens that Marty had sent, then compared them with others from Bachman's Mine, the type locality. This examination indicated that we were looking at the same little pearly flakes in limonite. Those from the General Trimble Mine are coarser (up to 1 mm.) and better formed, but the physical appearance is identical. So Gene Foord and Allen Heyl, with the help of Linda Davis, set about verifying the identity of this General Trimble Mine material.

"We checked Marty's material on the Kevex machine. Aluminum and phosphorus were major, while low level amounts, slightly above background, of silica and iron also showed up. When we ran an X-ray diffraction powder pattern, with the help of Linda Davis, on some hand-picked flakes. The main lines listed below matched well with type matulaite in both 2θ and intensities. Our data for the six main lines are listed below, in addition to that from the Bachman Mine (Moore and Ito, 1980).

| <u>d</u> | <u>Bachman Mine (type)</u> | | <u>d</u> | <u>General Trimble Mine</u> | |
|----------|-----------------------------|----------|----------|-----------------------------|----------|
| | <u>2θ</u> | <u>I</u> | | <u>2θ</u> | <u>I</u> |
| 11.79 | 7.50 | 100 | 11.70 | 7.55 | 100 |
| 10.93 | 8.09 | 90 | 10.85 | 8.15 | 90 |
| 5.94 | 14.90 | 60 | 5.94 | 14.91 | 65 |
| 5.51 | 16.08 | 90 | 5.49 | 16.15 | 90 |
| 3.98 | 22.33 broad | 6- | 3.97 | 22.3 broad | 10 |
| 3.54 | 25.15 broad | 15 | 3.54 | 25.18 broad | 20 |

MATULAITE (cont'd)

"To completely verify the General Trimble Mine matulaite, Gene Foord used a 114 mm. Gandolfi camera to X-ray single crystal flakes from both the Bachman and General Trimble Mines. The complex lines (multiple) and intensities on the file are so closely matched from both localities that there is no doubt that the material from the East Whiteland Township locality is matulaite. The multiple line data is available from us on request.

"In the same filed between the two old pits at the General Trimble Mine, the group of collectors (Anné, Brookmyer, Lorah, and Varady) found wavellite in some quantity in clear white radiating crystal masses, as well as rare small golden yellow balls of lustrous cacoxenite, which had never before been reported from this locality.

"Another old analysis of the General Trimble Mine gibbsite (Hermann, 1869, p. 496) follows:

| | |
|-----|--------|
| AlO | 63.84% |
| FeO | trace |
| MgO | trace |
| SiO | 1.50% |
| PO | 0.91% |
| HO | 33.45% |

"Note the marked chemical difference from Genth's analyses and from our more general ones. On Allen Heyl's 19th century specimens, the gibbsite fits the old description of a grayish pearly subtranslucent coating on wavellite. Most of the matulaite is in white, coarse, radiating, pearly flakes in cavities in limonite, without any wavellite associated with it at all."

Allen V. Heyl, Evergreen, CO
Eugene Foord, Golden, CO
Martin Anne, Wrightsville, PA
Linda Davis, Broomfield, CO

REFERENCES

- Genth, F.A., 1875, Preliminary Report on the Mineralogy of Pennsylvania, Second Geol. Survey of Pa., p. 52b
Genth, F.A., and Penfield, S.L., 1890, "Contributions to Mineralogy, No. 49," Am. Jour. Sci., vol. XL, p. 206-207
Gordon, Samuel G., 1922, The Mineralogy of Pennsylvania, Acad. of Nat. Sci. of Phila. Spec. Pub. No. 1, p. 57, 170
Hermann, R., 1869, "Untersuchungen verschiedener Mineralien," Bull. Soc. Imp. des Nat. (Moscow), vol. 41, no. 2, p. 491-502
Moore, P.B. and Ito, Jun, 1980, "Jungite and Matulaite, Two New Tabular Phosphate Minerals," Aufschluss, vol. 31, p. 55-61
Oswald, D.L., 1978, "New Phosphate Species from Pennsylvania," Rocks and Minerals, vol. 53, no. 2, p. 115, "Corrections," vol. 53, no. 4, p. 193

NOTICE

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CATASAUQUA SLAG LOCALITY UPDATE

Since the original article on the Catasauqua slag occurrence was published in the newsletter (Jan.-Feb. 1982), some further specimen identification information was sent to Pete Dunn at the Smithsonian Institute, with the hope that perhaps something totally new might occur at the site. He called the writer several days later indicating that there appeared to be no new species among them, but that most of the specimens received belonged to the melilite series (akermanite-gehlenite). He also felt that these minerals (calcium-magnesium-aluminum silicates) would not be unexpected as furnace by-products. He also commented on the fine crystallization of the minerals.

The information was then passed along to David Hess, who was kind enough to verify the report and add some much desired detail. The following information is quoted from a letter dated February 15, 1982.

I've been working further on the furnace products from Northampton County and appreciated seeing your article in last FM Newsletter. I'm sending along some data plus X-ray diagrams for 2 samples pretty well verified, but 3 products are still troublesome, and will retain these X-rays for further study.

Verified:

(1) Gray, "glassy-looking crystals with some pseudocubic crystals nucleating on tetragonal crystals.

*These are antimonian gersdorffite. The 2.58 Å major peak is troublesome—a little off from 2.65 Å of melilite (gehlenite-akermanite) but all other peaks seem to fit melilite. The major peaks are 2.87 Å, 2.58 Å, and 1.75 Å in approximate order of intensity. I was confused by the 2.58 Å and a "sulfurous" odor, probably just H₂S gas giving a slightly fetid smell. The sample's density is too low for gersdorffite, but there is some excuse because of the three peaks listed above: **Optics:** Uniaxial negative, but many crystals with anomalous birefringence and biaxial interference figures. Colorless. $\omega = 1.695 \pm .002$ $\epsilon = 1.691 \pm .002$. Filtered white light at 25° C. Most crystals, first order gray.*

Gehlenite peaks are more pronounced, so compositionally, this melilite may be a little more towards gehlenite than akermanite. So Peter Dunn's identification is confirmed. Optics also confirms gehlenite.

Problem:

(2) Silky, gray-white spherules which effervesce in acid. Show rather high birefringence under polarizing microscope and a radiating acicular habit.

*Despite a superficial resemblance to aragonite, X-ray lines seem to rule out this species. The lines are close to carbonate-apatite (dahllite), but birefringence is **much too high**. So, more search is necessary. Major peaks are 2.78 Å, 2.676 Å, and 1.896 Å. I will retain this X-ray for more study.*

The reddish-pink matrix appears to be akermanite-gehlenite (melilite) with some glass.

Verified:

(3) Brownish, granular material with vesicles.

*This appears also to be akermanite-gehlenite with gehlenite—peaks more pronounced. Major peaks are 2.85 Å, 1.75 Å, and 2.04 Å. **Optics:** Uniaxial negative with some anomalous blue interference colors. Colorless. $\omega = 1.676 \pm .002$ $\epsilon = 1.670 \pm .002$. Filtered white light at 25° C. A golden phase has much higher indices and anomalous birefringence.*

Problem:

(4) Orange to yellow-orange platy crystals. Soluble in water.

X-ray patterns are still being interpreted. The solubility and bright colors indicate the unknown compound is probably a sulfate, phosphate, molybdate, or related compound. I will retain this X-ray for more study.

SLAG UPDATE (cont'd)

Problem:

(5) *Greenish-white spherules. Effervesces in acid, so carbonate is present. On same sample as orange, platy crystals.*

Identification of this is proving difficult. Definitely not aragonite or carbonate-apatite. There are some large angstrom peaks at 11.3 Å, 7.9 Å, and 7.1 Å. I will retain this X-ray.

This is all the data thus far. Maybe others can have a go at it.

At present it would appear that nothing "exotic" occurs at the slag locality. Pete Dunn also pointed out that the melilite group can be found in nature, and would not be unlikely in one of the Pennsylvania diabase occurrences. The Catasauqua occurrence is probably the first reported akermanite in Pennsylvania. Gehlenite was reported by Eyerman (1889) as occurring in "square prisms," in furnace slag near McVile, Armstrong County.

In the meantime, other interesting specimens from the locality continue to be found. The writer was recently shown a specimen collected at Catasauqua by Jim Quickel. The specimen was very deliquescent, and looked different than anything seen to date.

Jay Lininger

THE SPRING CONFERENCE

The Spring Conference at Pennsylvania State University was arranged by Margaret Kendall. Members, students, professors, and friends attended a get-together on Friday night and a fine series of lectures, tailored for the collector, at the University on Saturday, at both the Materials Research Lab and the Mineral Sciences Building. Dr. Deane K. Smith made the visitors welcome, then Dr. Robert E. Newnham started off the morning with "Mechanical Twinning in Quartz," which featured the sound as well as the sight of the twinning. Dr. Barry Sheets illustrated his talk on "Cave Mineralogy" with slides of the fascinating formations underground, and hinted that several minerals new to Pennsylvania may yet be found there, from the over seventy species already known from caves worldwide. In the afternoon, Robert J. Bodnar, a graduate student, told the meeting "What Fluid Inclusions Can Tell Us About Mineral Formation," and why this relatively new field of mineralogical study is becoming important in economic geology as well as in petrologic studies. Dr. Peter Dienes discussed "Isotopes in Geochemistry," showing how a change in the number of neutrons in the nucleus of an element can change its behavior in a compound such as water, or in minerals. During the break between talks during the day, visitors had a chance to tour the fascinating facilities of the Lab and Mineral Sciences Building, and to meet students and researchers.

On a glorious May Sunday morning, members and friends gathered at Port Matilda for a visit to a new phosphate locality, arranged by Charlotte Smith, who provided not only interesting collecting (Jay Lininger will report on the locality in the September NEWSLETTER), but a wonderful view!

Juliet C. Reed, Editor
336 Rockland Rd., Wayne, PA 19087

FALL SYMPOSIUM

Mineralogists, both amateur and professional, may again look forward to another fine program, get-together, banquet, and field trip during the Fall Symposium, arranged by Martin Anné, on November 5, 6, and 7, at West Chester State College. An article on last fall's very successful Symposium will appear in the September NEWSLETTER, as well as the 1982 program and registration information.