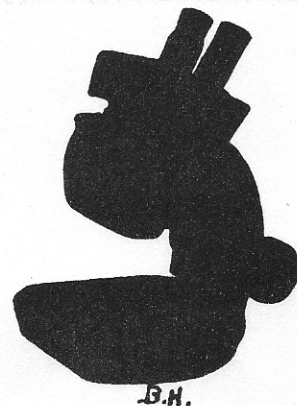




Northwest
Micro Mineral
Study Group



MICRO PROBE

FALL 1977

VOLUME IV, Number 2

NOTICE OF FALL MEETING

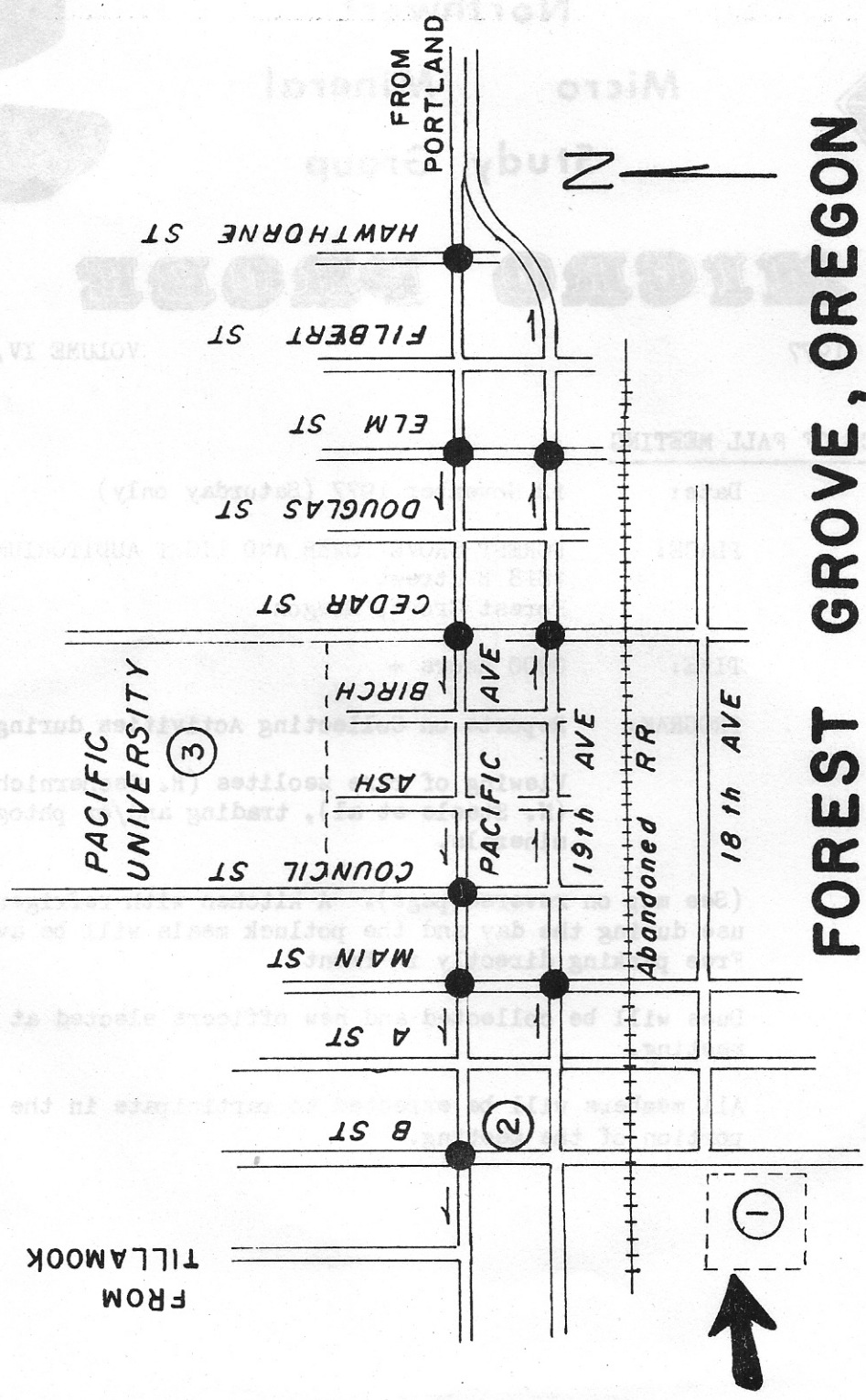
- Date: 12 November 1977 (Saturday only)
- PLACE: FOREST GROVE POWER AND LIGHT AUDITORIUM
1818 B Street
Forest Grove, Oregon
- TIME: 0900 hours +
- PROGRAM: Reports on Collecting Activities during the Summer.
Viewing of rare zeolites (R. Tschernich), slides
(N. Steele et al), trading and/or photographing
minerals.

(See map on reverse page). A kitchen with refrigerator for use during the day and the potluck meals will be available. Free parking directly in front.

Dues will be collected and new officers elected at the business meeting.

All members will be expected to participate in the "show and tell" portion of the meeting.

- ① Meeting location FOREST GROVE POWER & LIGHT COMPANY at 1818 B Street
- ② Landmark a large REDWOOD TREE
- ③ Previous meeting location on the campus of PACIFIC UNIVERSITY



ZEKSTERITE (zĕk' - stĕr - ĭtĕ')

FORMULA: $\text{LiNaZrSi}_6\text{O}_{15}$
 CRYSTAL SYSTEM: Orthorhombic (pseudo-hexagonal)
 CLASS: 2/m 2/m 2/m
 SPACE GROUP: Not determined
 LATTICE CONSTANTS: Not determined

HARDNESS: 6 Mohs

DENSITY: 2.78

CLEAVAGE: parallel to (100) and (010) perfect and easy

HABIT: euhedral crystals up to 37 x 35 x 15 mm, but usual size 4 to 15 mm. Dominant forms (100), (010) and (011). Most crystals are tabular on (100).

COLOR/LUSTER: Colorless to pink. Pearly luster on (100) and (011) and lightly striated parallel to the a axis. Sometimes coated with an iron oxide film. Streak is white.

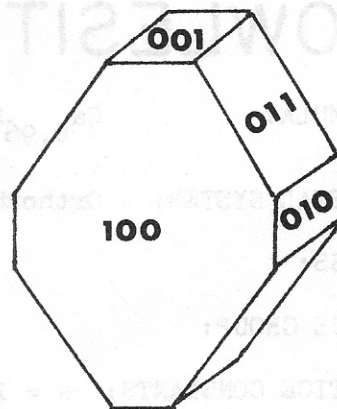
MODE OF OCCURENCE Withinmiarolitic cavities in the riebeckite granite of the Golden Horn batholith, Okanogan County, Washington (near Washington Pass) at elevations 4600 to 7400 feet.

Associated minerals include: Riebeckite, Astrophyllite, Perthite, Quartz (smoky), Monazite, Zircon, Bastnaesite, Aegirine, Limonite

REMARKS: Only one other mineral, TUAHALITE, is known to have the same chemical structure as ZEKSTERITE, however a whole series of compounds are theoretically possible. Recently tiny crystals of a compound $\text{NaLiFeSi}_6\text{O}_{15}$ with the same structure as ZEKSTERITE were obtained in a crystal growth experiment at Bell Laboratories

REFERENCE: Dunn et al, American Mineralogist, Vol 62 (1977) pp 416-420

Cannon, B., Zekster, J., Boggs, R., Ghose, S., Friends of Mineralogy Symposium "Mineralization in the Oxidation Zone", Portland, Oregon, October (1977)



COWLESITE

(köl - sIt)

FORMULA: $\text{Ca}_{0.96}\text{Na}_{0.09}\text{Al}_2\text{Si}_3\text{O}_{10}$

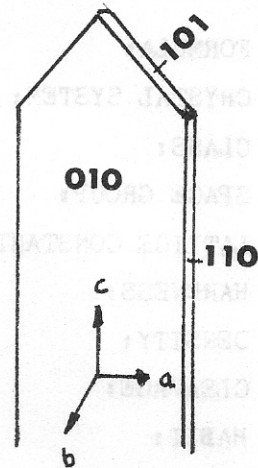
CRYSTAL SYSTEM: Orthorhombic

CLASS:

SPACE GROUP:

LATTICE CONSTANTS: $a = 11.27 \text{ \AA}$
 $b = 15.25 \text{ \AA}$
 $c = 12.61 \text{ \AA}$

OPTICAL CONSTANTS: $\alpha = 1.512 \pm .001$
 $\beta = 1.515 \pm .001$
 $\gamma = 1.517 \pm .001$
2V 44 to 53 degrees negative



HARDNESS: 2 Mohs ?

DENSITY: 2.14 ± .02

CLEAVAGE: parallel to (010) perfect and easy

HABIT: simple bladed crystals forming intergrowths that sometimes look like small hemispheres. Very small about 0.3 mm length, 0.1 mm width, and thickness .002 mm. Closely resembles THOMSONITE except it is much softer and usually more transparent.

COLOR/LUSTER: Colorless to white, appears gray to blue-gray when in place in the amygdules because the color of the cavity walls shows thru the transparent crystals.

MODE OF OCCURRENCE Within amygdules in basalts. Type location is Goble, Oregon. Also found at various locations in Northern Ireland: Beech Creek, Oregon; Spray, Oregon; Superior, Arizona; Monte Lake, British Columbia (Canada); Capitol Peak, Washington; and Table Mountain, Colorado.

Associated with other zeolites such as analcime, chabazite, garronite, heulandite, levyne-offretite, levyne-erionite, mordenite, phillipsite, stilbite, and thomsonite although it tends to form by itself.

REMARKS: Named for John Cowles of Rainier, Oregon.

REFERENCE: 1. Wise, W.S. and Tschernich, R.W., American Mineralogist, Vol 60, pp 951-956 (1975)

2. Tschernich, R.W., Microprobe, Vol IV, p 5 - 6 (1977)

ZEOLITE COLLECTING IN IRELAND AND SCOTLAND

BY Rudy Tschernich

During June and July this summer (1977) I spent a month collecting ZEOLITES in Northern Ireland and Scotland, visiting the famous museums in Glasgow, Edinburgh, London, and Belfast, and visiting with some of the mineral collectors in Northern Ireland and Scotland. This trip was to gain first hand knowledge of zeolite locations in the world and to photograph them for the "Zeolite Family Minerals" book which I am compiling. It was a successful trip with gracious hospitality extended to me in both North Ireland and Scotland.

After a short eight hour flight from Seattle to London (polar route) and a shuttle flight from London to Belfast, my first impression of North Ireland was that the country looked like the Northwest I had just left with similar trees and green hills. However, closer inspection showed some differences green on the hills is heather and all the buildings seemed to be made of red brick with slate roofs.

I stayed at the home of probably the only mineral collector in Northern Ireland. During my week in Ireland together we visited many of the active quarries, sea cliffs, and some of the older inactive quarries that have produced fine material in the past. Rock quarries are abundant, two or three on every hill, however only some contain good specimens and a great deal of exploration is needed to find those worth revisiting for mineral collecting. Access is no problem since there are few collectors, over collecting has not occurred.

Collecting is good, with numerous specimens of salmon colored GMEINITE, long white NATROLITE needles, colorless PHACOLITE habit of CHABAZITE, and THOMSONITE at many different locations. Normally these specimens are not large or impressive like those from India, but 50 x 50 mm (2 x 2 inch) specimens can be collected easily with larger specimens occasionally.

We visited the famous "Giants Causeway" on the northern coast (County Antrim) which is well known for it's large columnar jointing in the lavas. [See Figures 1,2, and 3] This area is very impressive, but is not good for collecting because it is part of the NATIONAL TRUST which is a non-governmental national park run by a charity which preserves the finest landscape areas in the country.

A few miles from Giants Causeway we collected in the sea cliffs at Dunseverick where we found COWLESITE, the mineral I found and named several years ago. This new zeolite is very abundant in the rocks at this location and during the trip we found a total of seven COWLESITE locations in Ireland, a place where mineralogists have collected for hundreds of years, yet had overlooked this inconspicuous mineral (which looks so much like Thomsonite). We found, ERIONITE as an overgrowth on LEVYNE crystals. This was a first association for Ireland. In all U.S. locations overgrowth on LEVYNE, if present, is the a closely related zeolite OFFRETITE. GISMONDINE was also present as white balls associated with CHABAZITE. In a few locations up to 25 mm (1 inch) CHABAZITE variety PHACOLITE was found.

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ZEOLITE COLLECTING IN IRELAND AND SCOTLAND (Contd)

Leaving Strontian, we headed for another famous zeolite area, Island of Skye, where zeolites are found in basalt similar to that in our Pacific Northwest (United States). Primary collecting location is at the Storr which is an impressive scenic group of basalt pinnacles. Vesicles in this rock are small, not over 50 mm (2 inches) lined with many of the common zeolites [See Figure 8]. After spending a day looking for some unusual zeolites at the Storr we headed for some collecting sites along the coastline. Unfortunately the weather turned bad and collecting was not good so we headed back to Edinburgh.

From Edinburgh I took another shuttle flight to London where I spent several days seeing tourist attractions, finally spending three days in the mineralogy department of the British Museum of Natural History. This museum has excellent displays, over 6000 specimens of fine quality on display and hundreds of thousands in the drawers beneath the show cases and in the back rooms. I spent most of my time studying the zeolites in the drawers...making notes on size, association, and locations which will become part of my book on the zeolite family. It took two full days just to see the zeolites. In addition, I was able to obtain several very rare zeolites from old locations by exchanging rare zeolites we find in the Pacific Northwest. For example, I was able to obtain a fine matrix specimen of EDINGTONITE from Old Kilpatrick. This specimen has 28 well formed micro crystals. Also, a fine DACHIARDITE specimen with nine twinned eightlings from the type location Elba, Italy...a fine ANALCIME with cube crystal form, and several fine HARMOTOME specimens from Strontian and Hartz.(Germany).

This trip was very rewarding for me. I found friendly people, and interesting collecting. In general collecting is better in the Pacific Northwest than in either Ireland or Scotland because we are now finding new material whereas their locations have been worked for such a long time that they are yielding less and there are fewer amateur collectors to pioneer new locations.

LIST OF FIGURES

[All photographs in this issue were taken by Rudy Tschernich in 1977]

- Figure 1 Giants Causeway, County Antrim, North Ireland. Lighter columnar basalt weathers differently than the darker columns because they are exposed to more air (sea covers the others part time)
- Figure 2 Giants Causeway, County Antrim, North Ireland.
- Figure 3 View from Giants Causeway. Note evidence for multiple basalt flows similar to Columbia River basalts in the Pacific Northwest.
- Figure 4 Glenariff Valley and Garron Plateau, North Ireland. Garronite is found on the talus slopes.
- Figure 5 Old Kilpatrick quarry, Scotland near Glasgow. This is type location for EDINGTONITE.
- Figure 6 Bells Grove Mine dump, Scotland.
- Figure 7 Bells Grove Mine dump, Scotland.
- Figure 8 The Storr on Island of Skye north of Scotland.



Fig. 1. Giants Causeway, North Ireland

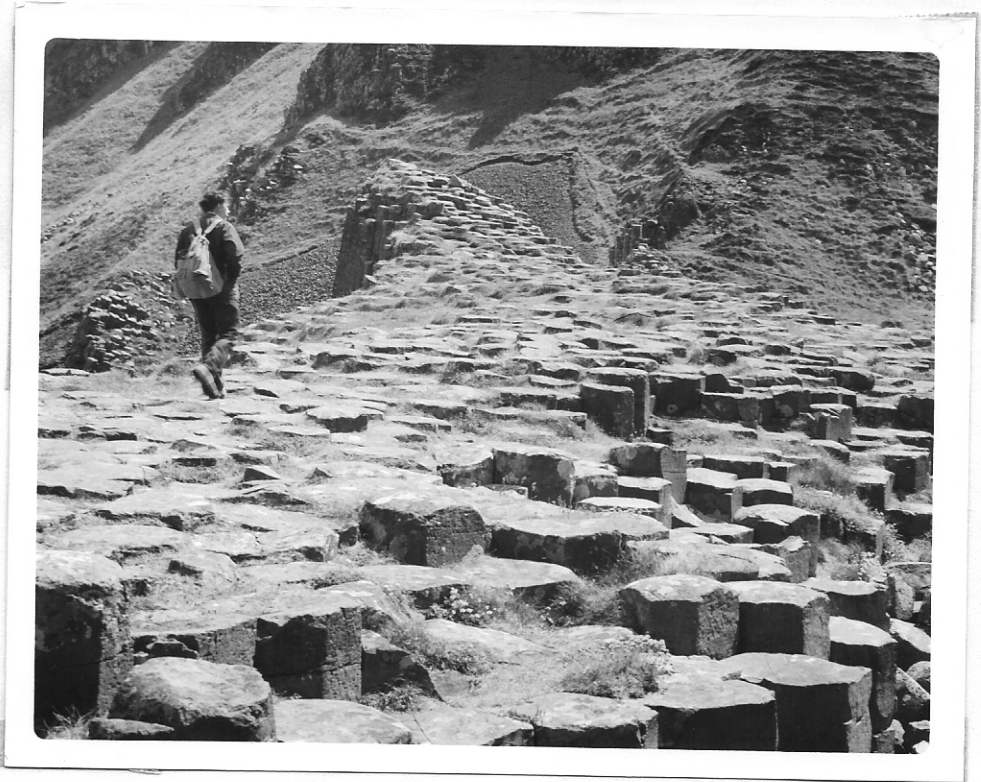


Fig 2. Giants Causeway, North Ireland



Fig. 3 View from Giants Causeway



Fig. 4 Glenmeris Valley and Garron Plateau
North Ireland

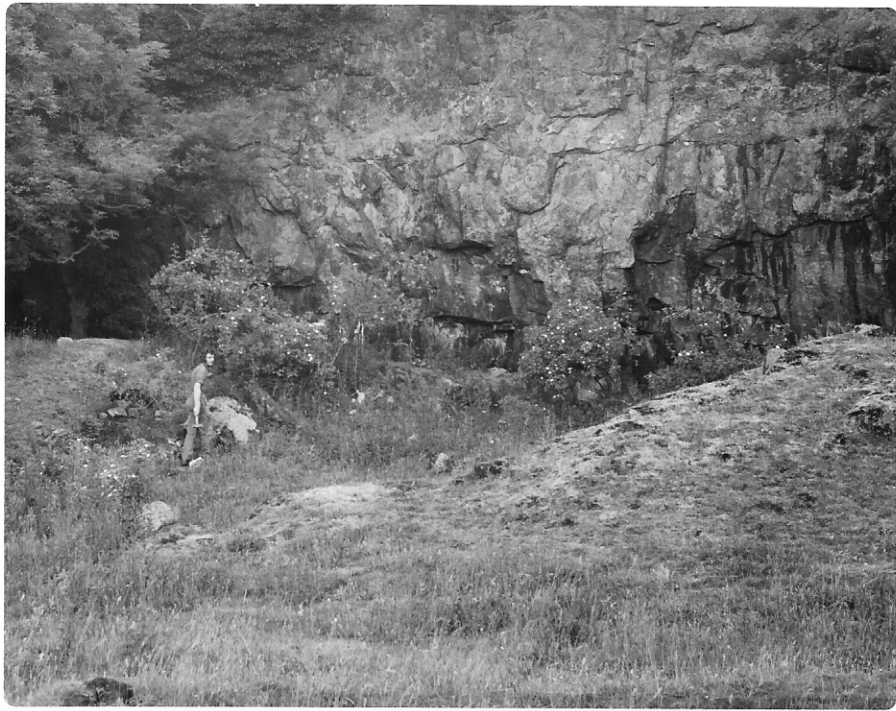


Fig. 5 - Old Kilpatrick quarry - Scotland near Glasgow



Fig. 6 - Bells Grove Mine Dump, Scotland



Fig 7 - Bellsgrove Mine Dump - Scotland



Fig 8 The Storr on island of Skye North of Scotland