

NEW YORK STATE GEOLOGICAL ASSOCIATION (NYSGA)

86th ANNUAL MEETING

October 10-12th, 2014



Aerial view of Bonnie Castle Resort located in beautiful downtown Alexandria Bay, Thousand Islands.

**GEOLOGY OF THE NORTHWESTERN ADIRONDACKS AND ST.
LAWRENCE RIVER VALLEY**

**Hosted by the St. Lawrence University Department of Geology
and
Bonnie Castle Resort**

Organized by J. Chiarenzelli and D. Valentino

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B-6 HISTORY AND GEOLOGY REVIEW OF MAGNETIC IRON MINING IN THE WESTERN ADIRONDACKS: J. Zaykoski:	p. 206-238.
B-7 SHORT COURSE WATER QUALITY TESTING BASICS FOR WORK IN THE ENVIRONMENTAL FIELD: A. Rygel	p. 239-263.
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OVERVIEW OF EVENTS**FRIDAY OCTOBER 10TH****Registration 4-6 pm****Welcoming Reception 5-6 pm**

Friday Evening Kick-off Lecture: 7:00 pm “THE BALMAT ZN DEPOSITS OF NORTHERN NYS: GRENVILLIAN AGE, UPPER AMPHIBOLITE GRADE POLYDEFORMATION AND KM-SCALE MOBILIZATION OF WORLD CLASS ZINC OREBODIES” **Mr. William deLorraine** (St. Lawrence Zinc Corporation)

SATURDAY OCTOBER 11TH**BREAKFAST 7:00-9:00 am****SATURDAY FIELD TRIPS**

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Cocktail Hour: 6-7 pm**Banquet: 7-10 pm**

Saturday Evening Key Note Address: 8:30 pm “FROM ENIGMATIC STRUCTURES IN THE WESTERN DESERT OF EGYPT TO TRAINING NASA ASTRONAUTS: USING GOOGLE EARTH AS A TOOL FOR RESEARCH AND TEACHING” **Dr. Barbara Tewksbury** (Hamilton College)

SUNDAY OCTOBER 12TH**BREAKFAST 7:00-9:00 am****SUNDAY FIELD TRIPS**

B-1 BLACK RIVER AND TRENTON GROUPS, NORTHWESTERN NEW YORK STATE: B. Selleck..... p. 114-132.

B-2 ULTRAMAFIC/MAFIC ROCKS OF THE PYRITES COMPLEX: J. Chiarenzelli, M. Lupulescu, and D. Bailey p. 133-161.

B-3 METAMORPHIC PETROGRAPHY BETWEEN TUPPER LAKE AND BLUE MOUNTAIN LAKE: R. Badger, J. Carl, and K. Ashley..... p. 162-182.

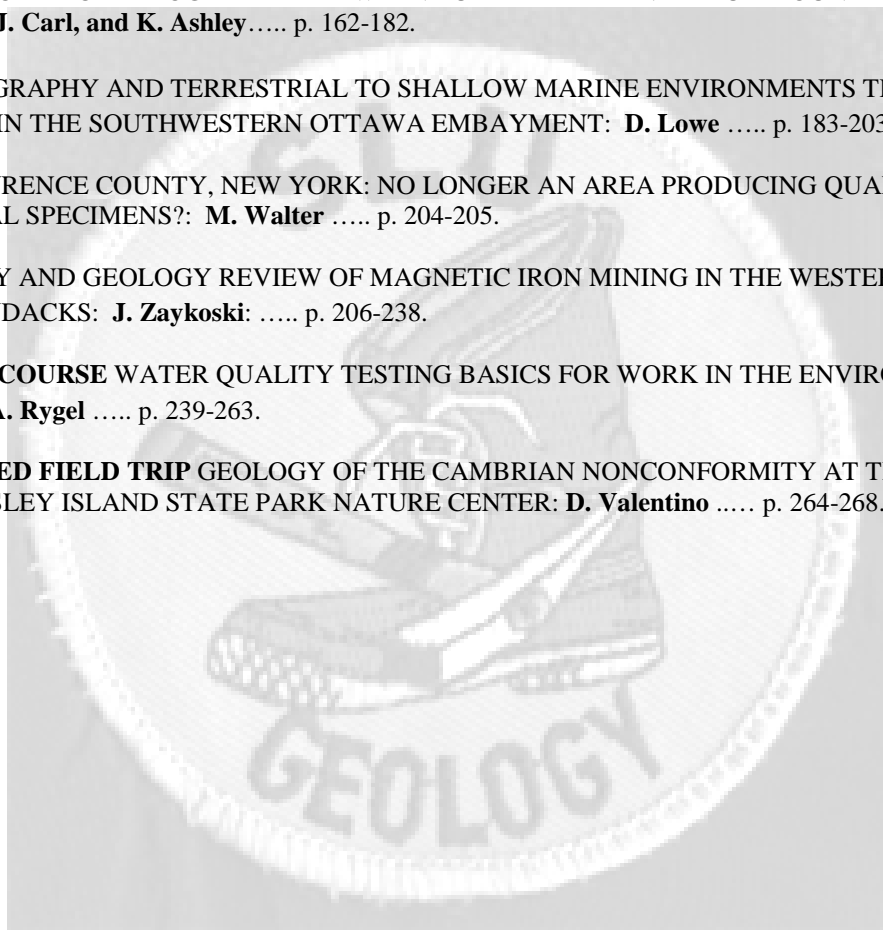
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B-5 ST. LAWRENCE COUNTY, NEW YORK: NO LONGER AN AREA PRODUCING QUALITY MINERAL SPECIMENS?: M. Walter p. 204-205.

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LIST OF FIELD TRIPS, SHORT COURSE, AND SELF-GUIDED TRIP**Saturday, October 11th**

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LOCATION AND TIMING OF EVENTS AT BONNIE CASTLE RESORTFriday, October 10th

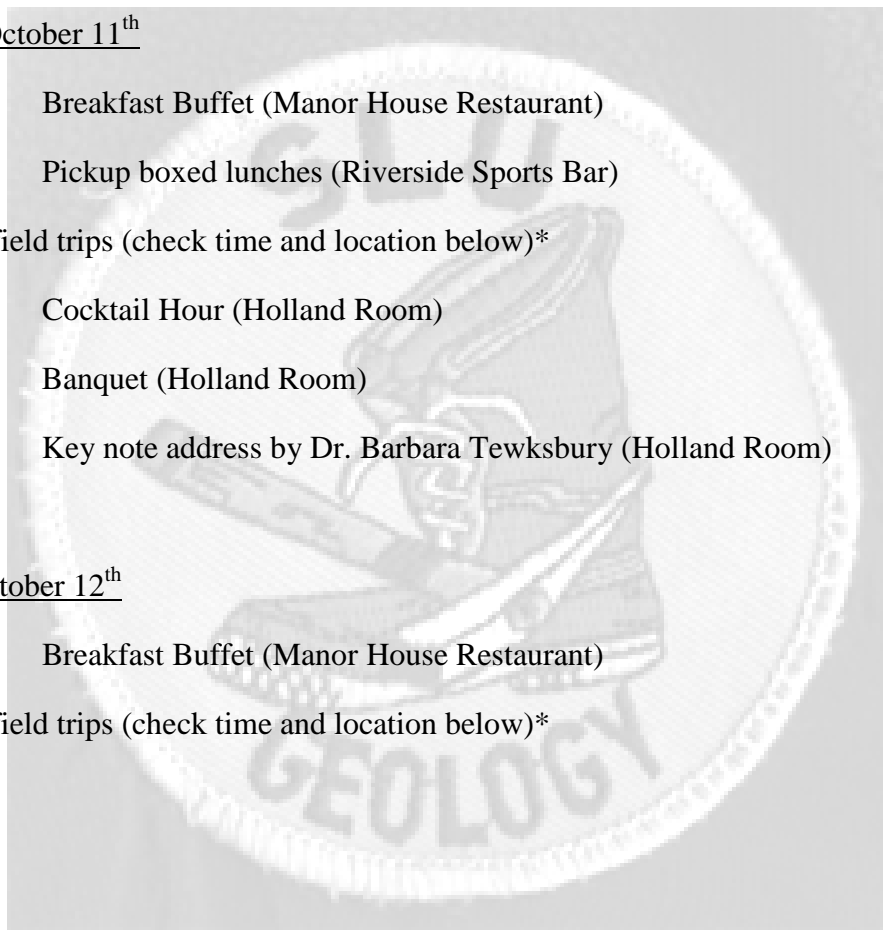
- 4:00 pm Registration table opens (Riverside Sports Bar)
5:00 pm Welcoming Reception (Riverside Sports Bar)
7:00 pm William deLorraine presentation (Holland Room)

Saturday, October 11th

- 7-9 am Breakfast Buffet (Manor House Restaurant)
8-9 am Pickup boxed lunches (Riverside Sports Bar)
Depart for field trips (check time and location below)*
6-7 pm Cocktail Hour (Holland Room)
7-10 pm Banquet (Holland Room)
~8:30 pm Key note address by Dr. Barbara Tewksbury (Holland Room)

Sunday, October 12th

- 7-9 am Breakfast Buffet (Manor House Restaurant)
Depart for field trips (check time and location below)*



***TRIP DEPARTURE TIMES AND RENDEZVOUS LOCATIONS**

- A-1 9:00 am , Bonnie Castle Resort parking lot
- A-2 11:00 am, Bonnie Castle Resort parking lot
- A-3 9:00 am, MacDonald's parking lot in Gouverneur
- A-4 8:00 am, Price Chopper Parking Lot intersection I81 and Rt. 12 Alexandria Bay
- A-5 10:00 am, Aubuchon Hardware parking lot in Gouverneur across from Kinney Drugs
- A-6 9:30 am , Along Rt.3 at the intersection of Richter Rd. across from church at east end of the village of Natural Bridge
- A-7 Cancelled
- B-1 8:30 am, Bonnie Castle Resort parking lot
- B-2 9:00 am, Alexandria Bay Big M Parking lot, ~0.5 miles west of traffic light on Rt. 12
- B-3 8:00 am, Bonnie Castle Resort parking lot
- B-4 9:00 am, Price Chopper Parking Lot intersection I81 and Rt. 12 Alexandria Bay
- B-5 9:00 am, Pierrepont Highway Department parking lot, intersection of CR 24 and 29
- B-6 9:00 am, Price Chopper Parking lot in Gouverneur, 389 E. Main Street
- B-7 8:30 am, 135 Nevaldine Hall (Rm. NS-135), SUNY Canton Campus, 34 Cornell Drive, Canton
- Self-guided geology tour: Anytime dawn to dusk, Wellesley Island State Park, Wellesley Island (must cross bridge onto the island), Minna Anthony Common Nature Center

FRIDAY NIGHT KICK OFF LECTURE**THE BALMAT ZN DEPOSITS OF NORTHERN NYS: GRENVILLIAN AGE, UPPER AMPHIBOLITE GRADE POLYDEFORMATION AND KM-SCALE MOBILIZATION OF WORLD CLASS ZINC OREBODIES**

by WILLAM deLORRAINE (ST. LAWRENCE ZINC CO.)

Abstract

Multiple lines of evidence suggest differentiation of sphalerite from stratiform massive sulfide ore lenses followed by cross-stratal mobilization as sulfide dikes over distances of several kilometers in rocks of the NW Adirondack Lowlands during the Upper Amphibolite facies Shawinigan (Grenville) Orogeny (ca. 1.20-1.15 Ga). This occurred within the siliceous dolomitic carbonate-evaporite sequence of upper marble prior to development of the host Sylvania Lake Syncline. "Daughter" orebodies formed when sphalerite "dikes" intruded syntectonic D2 macrofractures where they intersected stratiform massive "parent" lenses. Several daughter orebodies retain linkage to parents via thin, refolded, "durchbewegt" ore sheets traversing both stratigraphy and metamorphic fabrics. Long after intrusion of sphalerite dikes, recurrent strains partitioned along macrofracture surfaces tectonically milled, abraided and rounded admixed xenolithic fragments of wall rock contained within them. Daughter orebodies thereby acquired distinctive durchbewegung textures concomitantly nearly doubling their thicknesses while halving their tenors as macrofractures evolved into tectonic slides -- some with km-scale displacements.

Geochemical groupings of orebodies are consistent with three "SEDEX" source bed horizons. Each of these occurs a short distance stratigraphically above thick anhydrite layers of evaporite provenance. Parent sulfide lenses at these horizons are the progenitors of nearby constellations of metamorphic/metamorphosed daughter orebodies some of which occur along tectonic slides in other stratigraphic units. Lateral propagation of daughter sulfide was limited by intersection of macrofractures with anhydrite horizons wherein they dead-end. D3 tectonic dislocations on tectonic slides resulted in several daughter orebodies' dismemberment into halves offset by distances ranging up to 4000 feet/1.25km. Superposition of the nappe-scale Sylvania Lake syncline largely culminated polyphase deformation and overturned parent-daughter ore complexes on its upper limb. Long thought to have been the driving force or "tectonic engine" responsible for large scale sulfide mobilization to dilatant sites within its major and minor fold hinges, the Sylvania Lake syncline is now known to refold durchbewegt "daughter" ore sheets and thus is a relatively late stage feature in the evolution of orebodies in the district. Recognition of its status as a late stage regional isocline caused a shift in exploration focus for an undiscovered "Parent" or source bed orebody from the axial region to the upper limb of the Sylvania Lake syncline.

SATURDAY NIGHT KEY NOTE ADDRESS

FROM ENIGMATIC STRUCTURES IN THE WESTERN DESERT OF EGYPT TO TRAINING NASA ASTRONAUTS: USING GOOGLE EARTH AS A TOOL FOR RESEARCH AND TEACHING



DR. BARBARA TEWKSBURY

(HAMILTON COLLEGE)

