

# Voice of the Dinosaur

Newsletter of the Kawartha Rock and Fossil Club Inc.

Member of the Central Canadian Federation of Mineralogical Societies (CCFMS)

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Next Meeting: Tuesday December 11 at the Orientation Centre,  
Peterborough Zoo, 7:00 PM

## December 2007 Meeting Program

### Show and Tell Night

Bring in your finds from the past season and tell us about them. Every body enjoys a good mineral collecting story!!



**Molybdenite, 11 cm crystal**  
**Faraday Mine Property, Bancroft, Ontario**  
**Collected, May 1994**  
George Thompson Collection

## MEETING SCHEDULE FOR 2007 - 2008

### Revision 5 – OCT 2007

Meeting Date	Meeting Activity
Dec 11 <sup>th</sup> 2007	<b>Year-end Show &amp; Tell Night.</b> Bring along your best finds of the year – mineral or fossil. Tell us a little about them.
Jan 8 <sup>th</sup> 2008	AGM & Election Night
Feb 12 <sup>th</sup> 2008	Movie Night – Topic TBA.
Mar 11 <sup>th</sup> 2008	TBA

## Some Fossils from Nova Scotia

Bob and I were on a recent trip to Nova Scotia where we did some mineral collecting and exploring on the beaches. We spent an hour on the world famous Joggins Fossil Beach.



### Calamites

#### Joggins Fossil Beach

#### Joggins, Nova Scotia

This is the trunk of a tree approximately 35 cm in diameter. I didn't put a scale in this photo as the specimen was located underneath an unstable overhang. Telephoto lenses come in very handy for those of us not desiring the honour of winning a Darwin Award!!



## Calamites

**Joggins Fossil Beach**

**Joggins, Nova Scotia**

This is a branch of the calamites. Note the loonie for scale.

## The Amphiboles

- 1) Amphiboles are very common rock forming minerals.
- 2) They are the largest group of minerals consisting of over 60 members divided into five subgroups as follows:
 

Cummingtonite subgroup	Fe-Mg-Li clinoamphiboles
Anthophyllite subgroup	Fe-Mg-Li orthoamphiboles
Tremolite subgroup	Ca amphiboles
Richterite subgroup	Ca-Na amphiboles
Glaucophane subgroup	alkali amphiboles
- 2) Amphiboles are present in both igneous and metamorphic environments
- 3) They belong to the Inosilicate class of minerals and form the majority of double chained silicates. Double chained silicates have two parallel rows of silicate tetrahedra chemically bonded together to form a unit cell. This compares to the pyroxenes which form single chains of silicate tetrahedra.
- 4) General chemical formula of:  $XY_2Z_5(\text{Si,Al,Ti})_8\text{O}_{22}(\text{OH,F})_2$ 
  - X can be large ions such as Na, K or can be vacant
  - Y can be Na, Ca,  $\text{Fe}^{2+}$ , Li,  $\text{Mn}^{2+}$ , Al, and / or Mg; rarely Zn, Ni, or Co

Z can be Fe<sup>3+</sup>, Mn<sup>3+</sup>, Cr<sup>3+</sup>, Al, Ti<sup>4+</sup>, Fe<sup>2+</sup>, Mn<sup>2+</sup>, and Li.

The complex chemical formula allows a lot of variety within the amphibole group. This is why there are more than 60 species in the group.

- 5) Most are monoclinic; the anthophyllite subgroup is orthorhombic
- 6) When compared to the pyroxenes, they are formed at lower temperatures and in the presence of water
- 7) The amphiboles have very similar physical properties which makes it difficult to tell them apart in the field. Often, it requires detailed chemical analysis to determine the exact species you have. It is perfectly correct to label unknowns as amphibole group or call them "hornblende" in the field.
- 8) Cleavage is the best way of telling an amphibole from a pyroxene. Amphiboles cleave at nearly 60° and 120°, whereas pyroxenes cleave at 87° and 93°.

### The Physical Properties of Selected Amphiboles.

Mineral	Colour	Transparency	Lustre	Crystal System	Streak	Fracture	Hardness	Specific Gravity
<b>Actinolite</b>	green, white, gray	translucent, transparent	vitreous	monoclinic	white	uneven, splintery	5.5 – 6.0	2.9 to 3.3
<b>Tremolite</b>	white, gray, green	translucent, transparent	vitreous, silky, dull	monoclinic	white	uneven, splintery	5.0 – 6.0	2.9 to 3.1
<b>Fluorichterite</b>	black, dark green	translucent, opaque	vitreous, pearly, dull	monoclinic	white	uneven, splintery	6.0	3.0
<b>Edenite</b>	Green, black, gray, brown	translucent, opaque	vitreous, pearly, dull	monoclinic	white	uneven, splintery	5.0 – 6.0	3.06

Table showing the similarity in the physical properties of some amphiboles.

The above table demonstrates the difficulty in identifying the various amphiboles by sight. Note how similar the physical properties are between the different amphiboles. Detailed chemical analysis is required to obtain an exact identification of most amphiboles.

## **Coming Events**

(from the CCFMS Website)

### **Mar 1-2 2008**

#### **15th Annual Peterborough Gem, Mineral, and Fossil Show.**

Sat. 10-5, Sun. 10-5.

The Evinrude Centre, 911 Monaghan Road, Peterborough, Ontario.

Admission: \$3.00 for adults, children 12 or under are free & must be accompanied by an adult.

Directions: From Highway 115 at Peterborough, take the Parkway to Lansdowne St., then East 4 blocks to Monaghan Rd., then North 1 block. Or travel West on Highway 7 (Lansdowne St.), into Peterborough, turn right at the 6th traffic light onto Monaghan Rd., then North 1 block.

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Website: <http://www.rockandfossil.com/index.htm>

### **Mar 29 – 30**

#### **36th Annual Brantford Lapidary & Mineral Society Show**

Sat. 10-5, Sun. 10-5.; Paris Fairgrounds, 139 Silver Street, Paris, ON.

Features: Dealers from Across Canada, Crystals/Minerals/Faceted Gems, Fossils, Fluorescent Minerals, Hands-on Educational Learning, Gold and Silver Wire Working, Bead Supplies and Demonstrations, Industrial Archeology Exhibits, Jewellery & Giftware, Equipment/Tools & Related Supplies, Silent Auction, Free Parking, Wheel Chair Accessible, Hot Lunch Available

Admission: Adults \$3, Children \$1

Contact: Jenny Maracle-Jones at 519-750-0953 [turtlefeathers@brant.net](mailto:turtlefeathers@brant.net)

### **Oct 10 – 12**

#### **64th Annual Greater Detroit Gem, Mineral, Fossil & Jewellery Show**

Fri 9-7, Sat. 10-7, Sun 11-5; South Macomb Community College Expo Center, Building P, 12 Mile & Hayes, Warren, Michigan.

Features: Over 50 dealers; Exhibits from Museums and Universities; Silent Auction by Carnegie Museum; Lectures, School Trips, Demonstrations, Book Signing

Information: [show@michmin.org](mailto:show@michmin.org)

Website: <http://www.michmin.org>

### **Oct 25 – 26**

#### **University of Waterloo Earth Sciences' Annual Gem and Mineral Show**

Sat. 10-5, Sun. 10-5. University of Waterloo Earth Science Museum, Waterloo, ON.

Features: This years theme is "International Year of Planet Earth". Carvings, minerals, gemstones, rocks, fossils, lapidary, jewellery, etc. As well there are Sunday afternoon lectures and activities for kids.

Contact: 519-888-4567 x32469

Website: <http://www.openhouse.uwaterloo.ca>