



# The Rockblast

The Kitchener-Waterloo Gem and Mineral Club Newsletter

September 2010

## President's Message



What a delightful summer, but how quickly it passes!

We had plenty of heat, enough rain to keep everything green, and now some cooler weather to prepare us for the fall. The club field trip to Marmora in May was a great success. About a dozen members showed up at the quarry and spent a warm, dusty day looking for garnet crystals and other specimens. Aimee found a large boulder with lots of garnets buried in calcite. We were able to break off several pieces to bring home and etch, and were not disappointed. Hopefully everyone had some success collecting this summer.

I hear the June picnic went well. Following the picnic, everyone was invited to the Stonebridge Imports warehouse. The warehouse was filled with a large, impressive assortment of specimens closely packed together and too much to take in during a short visit. There were some real bargains.

Did I hear there was 50% off everything in the warehouse?

Our first meeting is **Friday, September 10th** (not September 3) at our usual place, the Waterloo Community Arts Centre. It is your chance to share your collecting adventures at our annual "Show and Tell" meeting.. Bring some of your specimens (minerals, fossils, crystals), or even photos of the one that got away. You will have a chance to explain your find, or just place them on the display table for others to admire.

The Central Canadian Federation of Mineralogical Societies annual general meeting is September 18th at the Scarborough Show. The CCFMS is the overarching group for all the rock clubs in the area. It organizes some of the field trips, such as the Dundas quarry, and provides liability insurance for any official field trips by member clubs. Thanks to Stan Jones for volunteering to be our representative.

We have a good program of speakers already lined up for the fall and early winter. Also see the invitation for the T-shirt contest, listed elsewhere in the RockBlast. Come and join the fun.

See you at the meeting! --- *Gary Partlow*

## Pictures from the June 2010 Meeting

by André Mongeon

Clockwise from upper left: outside the Stonebridge warehouse; 8-foot-tall amethyst cathedral from Brazil; our host Ulymar Rocha; the potluck; browsing the warehouse.



## Upcoming Club Meetings

All meetings start at 7:00 PM for trading specimens at the Waterloo Community Arts Centre, 25 Regina St. South, Waterloo. Typical schedule:

**7:00 - 7:30 PM:** trading and socializing

**7:30 - 7:45 PM:** a “mini-talk” about some aspect of the hobby

**7:45 - 8:00 PM:** announcements

**8:00 - 8:15 PM:** monthly raffle

**8:15 - 9:00 PM:** featured talk

**Friday, September 10 2010:** The annual Show-and-Tell event. Bring your specimens from your summer collecting trips!

**Friday, October 1 2010:** The incomparable Charles Gould will speak on "Collecting Fluorescent Minerals in Greenland".

**Friday, November 5 2010:** Our own **Rob Maric** will speak on "All you ever need to know about ground water: do we have enough?".

**Friday, December 3 2010:** The annual holiday auction of minerals, gems, fossils, and other items.

## Upcoming Events

This listing is provided as a service to club members. Events subject to cancellation. As always, double-check dates and times with the sponsors before leaving home!

**September 11 2010:** Open House and Rock Swap at Robert Hall Originals, Saturday, 10 AM - 5 PM. 138 Sugar Maple Road, St. George, Ontario. Fri-Sun, 10 AM - 5 PM. Free. For more info, phone (519) 448-1236 or (800) 360-2813, or e-mail [inquiry@roberthalloriginals.com](mailto:inquiry@roberthalloriginals.com) , or visit <http://www.roberthalloriginals.com> .

**September 18-19 2010:** 42nd Annual Scarborough Gem and Mineral Show, Saturday 10 AM - 6 PM; Sunday 11 AM - 5 PM. Don Montgomery Community Centre, 2467 Eglinton Avenue E., Scarborough, ON. Adults \$5, Children \$1. For more info: e-mail [scarbgemclub@lycos.com](mailto:scarbgemclub@lycos.com) or visit <http://www.scarbgemclub.ca> .

**October 1-3 2010:** Ancaster Gem, Mineral, Bead & Jewellery Show. Try on the latest in fashionable jewellery. See crystals, fossils & magnificent rocks from all over the world! Shop at over 30 dealers. Take a free seminar on rocks, fossils or crystals. Hours: Friday: 9:30 AM to 4:30 PM; Saturday: 10:00 AM to 6:00 PM; Sunday: 10:00 AM to 5:00 PM. Admission: \$6.00 per person, under 12 free. Location: Ancaster Fairgrounds, 630 Trinity Road, Ancaster, Ontario (corner of Hwy. 52 & Hwy. 53). For more info, phone: 519-448-1236 or 1-800-360-2813 or visit [www.roberthalloriginals.com](http://www.roberthalloriginals.com) or e-mail [rockshow@roberthalloriginals.com](mailto:rockshow@roberthalloriginals.com) .

**October 30-31 2010:** The University of Waterloo Gem and Mineral Show. 10 AM - 5PM Saturday and Sunday, CEIT Building, University of Waterloo. Saturday includes the annual Science Open House for K-12 chil-

dren and their families. Featured Speaker, Sunday 2:00 PM: Dr. Steve Evans will talk on the Haiti Earthquake. See [www.openhouse.uwaterloo.ca](http://www.openhouse.uwaterloo.ca) for more details.

**November 4-6 2010:** The CMMA Fall Mini-Conference, at the Burlington Arts & Cultural Centre, 1333 Lakeshore Road, Burlington, ON. Contact: Bill Lechner at 416-438-8908 or [bill.lechner@rogers.com](mailto:bill.lechner@rogers.com) . Website: <http://canadianmicrominerals.ca> .

**November 20-21 2010:** The London Gem and Mineral Show, Sat. 9AM-6PM, Sun 10AM-5PM. Western Fairgrounds (Western Fair Entertainment Centre - Special Events Building). Highway #401 to Highbury exit North, west on Florence, North on Rectory - Main entrance immediately on right hand side. Features: Over 35 dealers, demonstrators and educational talks. Admission: Adults \$5, Children \$2. Contact: Ken Dardano 519-846-5836 or [ken.dardano@sympatico.ca](mailto:ken.dardano@sympatico.ca) . Website: <http://www.gemandmineral.ca> .

## A Visit to Saskatoon

This summer your editor visited three different mineral exhibits: in Saskatoon, London (Ontario), and Oberwolfach, Germany. In this issue and future issues of the Rockblast, I'll show some pictures from these exhibits and give you my reactions.

First, Saskatoon. I visited the University of Saskatchewan in August for a conference, and our conference venue was in the Geology building, so minerals were close at hand!

Most of the minerals were part of the Marguerite and Winnard Ford Collection. As a sign at the exhibit revealed, this collection was "bequeathed to the University of Saskatchewan by the late Marguerite Lillian Ford who died on September 13, 1989. Mrs. Ford was predeceased by her husband, Winnard H. Ford, who died in 1984 and who owned and operated Ford's Pharmacy on Avenue H South [in Saskatoon]. For more than forty years, starting in the late 1930s, Mr. and Mrs. Ford spent their vacations



Manganocalcite, Treasury Tunnel, Telluride, Colorado



driving throughout much of the central and western United States and parts of Canada collecting minerals and rocks. Subsequently, Mrs. Ford spent much of her leisure time curating and cataloguing the more than 3,000 specimens they had acquired. By the time of her death, the basement of the Ford home on

Arthur Avenue, which housed the collection, had become a fine private museum.”

The Ford exhibit is very well-lighted, with minerals in two-sided glass cabinets that allow the visitor to walk around the front and back to see the minerals from all sides. Mineral names, locations, and chemical formula are provided for all specimens. The primary emphasis is on large, aesthetic specimens.

One innovation is a multi-sided glass display featuring minerals seemingly floating in air (see the picture).



This allows visitors to see the minerals from all sides.

There is also a small exhibit on the geology of Saskatchewan, discussing the economically important rocks and minerals, including uranium ore, coal, and potash.

Key Lake, Saskatchewan, is the largest uranium mill in the world, able to produce 8 million kilograms of uranium oxide a year. It was one of the richest deposits ever found, but today it is processing ore from the McArthur River mine and old stockpiles. Oddly enough, no uranium minerals were visible in the exhibit.

Potash has been in the news lately, with the Australian mining giant BHP making a \$39 billion take-over bid for Potash Corporation of Saskatchewan. Potash is the common name for potassium-bearing deposits such as Sylvite (KCl), and is in high demand for its use as fertilizer.



Finally, there is also an extensive exhibit of dinosaur fossils, featuring a large fiberglass replicas of Triceratops and Tyrannosaurus Rex.

Overall, this is a nice exhibit worth a visit of one

or two hours. It is well-lighted and spacious, with many places to sit and observe. Altogether, here is my evaluation of the exhibit at the University of Saskatchewan.

Attractiveness: A-

Scientific value: B.

Accuracy: A.

Specimen quality: A-

*Next month: the exhibit at the University of Western Ontario.*

# The Moon, the Stars and Pieces of Mars

by André Mongeon

A long time ago in a galaxy not far away, dust coalesced to form our solar system. That dust essentially came from previously exploded stars. Clues to the origin and composition of this early proto-planetary material are still found today in meteorites. They've been around and have come a long way.

Within the primordial cloud of dust, static charges formed due to friction. Much like lightning in our sky, large bolts of electrical energy zapped their way through the dust cloud. By this time, small lumps of material had formed. The heat had melted some of this material into liquid drops which quickly cooled into tiny mineral spheres. More of these spheres were created a bit later when still larger lumps of coalesced material collided with each other. These little round "balls" are called chondrules (pronounced "KON-drools"). They are among the oldest objects in our solar system, pre-dating the formation of the earth.



Chondrules and other dusty bits eventually formed still larger objects. Most of the material ended up in the sun and some ended up as planets. A large amount still floats around as asteroids, quite unchanged (apart from exposure to solar radiation) over billions of years. These leftovers hit the earth every day. They enter our atmosphere as meteors. Most burn up before they hit the ground. The ones that land are called meteorites.

Chondrites are a name given to meteorites that contain these chondrules. They also contain quite a few other components. Iron, nickel or other metals are often found as flecks in these meteorites. These metals did not arise from the dust cloud. They came from the core of a destroyed planet.

Also found as meteorites are chunks of almost pure iron/nickel alloys. This material could only form after a sufficiently large planet with a molten core created the condition necessary to separate and concentrate the iron from the random distribution in the rock. This process is called differentiation. Iron is heavier than many other elements and sinks to the center of a planet's molten core. At least one differentiated planet is thought to have broken up, forming the asteroid belt. It is also thought that the core had cooled and solidified before that break-up. When a sufficiently large molten iron planetary core cools, the metal can exhibit a phenomenon called "Widmanstätten lines". Iron meteorites, like the

Gibeon from Namibia, show distinct patterns when they are sliced. Slow cooling at great pressures are needed to create these features and would be virtually impossible to recreate them synthetically. Another large object is thought to have struck the young earth, with the debris eventually forming our moon. Luckily the earth survived and did not become another asteroid belt.

Meteorites are classed into three main categories: stony, iron and stony-iron. They often contain a reference to the location where they were found in their name. NWA stands for "North-West Africa", for example. With chondrites, iron content can be rated H (high-over 25%), L (low-under 25%) or LL (very low-under 21%). Chondrules are also rated on a scale from 3 to 7 based on the amount of alteration. A grade of 3 would have round chondrules. With a grade of 7, they would be quite damaged, perhaps no longer round. So "NWA 1279 LL 3.7" means a North-West African low iron chondrite with nearly pristine chondrules. Irons are quite straight forward, with location telling you much. Stony-irons are also thought to have formed within differentiated bodies. They contain iron with bit of stone or, even in some cases, minerals. Pallasite stony-irons contain olivine (peridot) in iron. Some people have even faceted this olivine and marketed it as the only gem from space.

Stony meteorites are divided into chondrites and achondrites. Chondrites contain chondrules and other bits. They are quite distinct. Achondrites are quite another matter. They resemble earth rocks and they are thought to be pieces of other planets. Verifying them is quite an involved process that requires the detection of minute quantities of rare radio-nuclides that could not be found in common earth rocks, at least not in the quantities present in space rocks.

Scientists have identified meteorites that are believed to have originated on the Moon (NWA 032 and Dhofar 081, for example) and on Mars (NWA 1460). It is theorized that large meteorite impacts there blasted rocks into space, where they floated around a long while before falling here as meteorites. Careful analysis predicts how long the rock spent in space being bombarded by solar radiation, among other characteristics. While not 100% proven, these meteorites have properties that can't be easily explained away as "weird earth rocks". These meteorites are rare and valuable. Most collectors can only obtain small fragments or tiny slices of them. The NWA 1460 specimen pictured here was obtained from the Hupé brothers, who had cut the original meteorite in order to send samples to the University of Washington for verification. This is a "crumb" recovered from the cutting process, and being the size of many micromounts, is best viewed under magnification.



Almost all meteorites came from low-oxygen, low-water environments. Meteorites tend to decay in the earth's environment. The iron rusts and the other components can crumble. Storage and preservation are concerns for many types of meteorites. Some people apply oil to iron meteorites and others store them in hermetically sealed containers. Even then they can corrode or crumble. Other types are fairly stable.



A sub-type of chondrite are ones with high carbon content, termed carbonaceous chondrites (starts with a C--- CV, for example). Scientists think they were formed in the outer reaches of the asteroid belt. They contain material that is thought to be similar to that found in comets. This material is thought to be very old and perhaps originated from comets. Some organic compound in these chondrites are even thought to be inter-stellar in origin, perhaps pre-dating the formation of our solar system. Maybe from a comet that escaped another solar system? We may never know. These rocks are old. But not as old as the hydrogen in the water that you drank today. That stuff was among the first matter formed after the big bang and

has likely been through the south end of a dinosaur or two, not to mention a few long dead aliens. Some stuff is very old and has come a long way. Old stamps? Old coins? Not even close.

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## **Dr. Steve Evans to Speak at U. Waterloo Gem and Mineral Show**

Dr. Steve Evans, professor of earth and environmental sciences at Waterloo, will deliver a talk entitled "The January 2010 Haiti Earthquake Disaster: a Georisk Analysis", on Sunday, October 31, in the CEIT building on the University of Waterloo campus, during the Gem and Mineral Show.

Dr. Evans, a specialist in geohazards, will explore why the Haiti earthquake happened and its catastrophic effects. He will focus on the plate margin known for major earthquake events in Jamaica and Hispaniola (the island shared by Haiti and the Dominican Republic) since the mid-1500s, examine the effects of those earthquakes on Port-Au-Prince, and discuss the natural hazard challenges faced by Haiti in its recovery. Dr. Evans will illustrate his talk with dramatic before and after satellite images of Haiti's capital and share the striking results of damage mapping undertaken by his graduate students. He will also touch upon the global significance of one of the greatest natural disasters in world history.

## KW Club T-Shirt Contest

We have decided to do a club T-shirt and need your ideas!



What would you like to see on your shirt? The club logo? (see front page of RockBlast) Rocks? Gems? Minerals? Fossils? Some 'cute' expression? It is up to you and your imagination. Be creative.

The deadline for submission will be October 1st at our regular meeting. Members present will vote for the best design. The prize? Of course, a complimentary t-shirt. Orders will then be accepted until our November meeting with delivery at the December meeting. If we don't hear from you, then Gary P. and Gary W. will do the design, and you don't really want that, do you?

## Earthquake Rocks KW

An earthquake rated at 5.0 on the Richter scale, and centered near Buckingham, Quebec, rocked the Kitchener-Waterloo area on June 23, and was felt as far away as Michigan and New York State.

Readers of the *Record* reported "swaying", "shaking", and some books fell in an office at the University of Waterloo.

## Kitchener-Waterloo Gem and Mineral Club

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