



Voice of the Dinosaur

Newsletter of the Kawartha Rock and Fossil Club

April 2011 ~ Volume 23 ~ Issue 4

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**LAST MEETING March 8, 2011**

The meeting began with the regular business meeting and reports.

Show Committee: Bob Beckett, the Show Co-Ordinator gave a short preliminary report. Since the Show had been held just the weekend before this meeting, there had not been time for a full report to be prepared. The full report will be tabled at the April meeting.

It was noted that the collection of minerals constituting the majority of material for the silent auctions at the Show this year, were generously donated to the Club by one of our long-time members, Phil Jones. We all thank Phil for his wonderful generosity.

Bob thanked all members who had assisted and/or participated in the Show and emphasized that they helped to make the Show a success. He paid tribute to Mark Stanley, our President, who had been Show Co-Ordinator from the Show's humble beginnings in Norwood to its great success last year and to the assistance he had given Bob in the transition from one Co-Ordinator to another for this year's Show.

Field Trip Committee: Plans are underway to begin field trips in April, weather permitting. More definite information will be tabled at the next meeting and printed in the "Voice". Any suggestions for trips can be sent to Steve Wesley, email: swesley@i-zoom.net

Website: Bob Moore, the Webmaster, reported that he has placed pictures, events, a data logger, etc. on the Club site. The data logger recorded "hits" from as far away as Russia.

Bob needs photos from members for his Members' Page so send him your photos from field trips, the Show, etc. Crop a little and send photos of your great finds past and present, or jewellery you have made, etc. You can email them to: bobmoore11@hotmail.com

Miscellaneous: Bev Fox reported that she and Susan Kehoe are working on the Archives.

The Club Library holdings are in the process of being put into a data base that can be added to by anyone. A list will be sent to members before the next meeting.

The business meeting was followed by a discussion of the samples of calcite and trilobites brought by members.

The meeting was well attended and included six new members.

It was a great disappointment to members that George Thompson was unable to attend to present his much anticipated discussion on cleaning minerals, but we look forward to having his presentation at another time.

A silent auction was held during the coffee break.

NEXT MEETING - April 12, 2011

Place - Orientation Centre, Peterborough Zoo

Time - 7:00 pm.

Program - Copper/Copper Minerals and Fossil Cephalopod Night

Agenda - There will be a short monthly business meeting followed by a presentation given by our speaker of the evening, Dave Joyce. Following this, members will have an opportunity to discuss their copper minerals and fossil cephalopod finds.

Feature Presentation - Dave Joyce's presentation will be "Collecting Native Copper at Mamainse Point"



CONGRATULATIONS

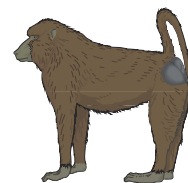
At Show, Best Collected Mineral for 2010 - John Elliott - fluorite and sphalerite on dolomite, collected at Flamborough, ON

At Show, Best Collected Fossil for 2010 - Kevin Kidd - *Sceptaspis lincolnensis*, trilobite, collected at Gamebridge, ON



IMPORTANT MESSAGE CONCERNING THE PETERBOROUGH PARK AND ZOO

From Jack Sisson
Manager & Curator of Riverview Park and Zoo



The Riverview Park and Zoo is in the running to win \$100,000 with the Pepsi Refresh Everything campaign to purchase equipment for our new Animal Healthcare Centre. It would mean a lot if you could show your support by voting every day until April 30th to help our community and the animals of the zoo win!

To help, you can:

1. Register as a voter at <http://www.refresheverything.ca/riverview>
2. VOTE EVERY DAY FROM MARCH 1 - APRIL 30
3. Follow Riverview Park & Zoo on Facebook and Twitter and Email this message to your friends and family to help spread the word.

Twitter Link <http://twitter.com/#!/RiverviewZoo>

Facebook Link <http://www.facebook.com/pages/Riverview-Park-Zoo/156583231031582>

If you're having problems finding the location to vote, here's some help once at the link: After you register, click '\$100,000' and then look down the list (at the bottom 'load more' to see more of the list - we are currently about #11 but we're shooting for #1!!! Click that one! (bottom left says 'Peterborough, ON')

Thank you,
Jack Sisson
Manager & Curator
Riverview Park and Zoo
Peterborough Utilities Services
(705)748-9301 Ext. 2303

PERSON OF NOTE

Robert Bunsen, of Bunsen burner fame, was born on March 31, 1811 in Germany. He received his doctorate at 19, travelled extensively throughout Europe for three years, then returned to Germany to teach at the university in Gottingen. His many contributions cover the fields of organic chemistry, arsenic compounds, gas measurements and analysis, the galvanic battery, elemental spectroscopy and geology.

Though his name is immortalized in the “Bunsen burner”, he did not actually invent it, but merely improved on a design developed by a lab technician, Peter Desaga. Bunsen’s concept of premixing the gas and air prior to combustion produced a high temperature, nonluminous flame that he and his co-worker, Gustav Kirchhoff, could use to study spectroscopy.

To learn more of the many achievements and contributions of this remarkable researcher visit:

<http://www.corrosion-doctors.org/Biographies/BunsenBio.htm>

MORE on MICROFOSSILS

Peter Lee has a couple of his fossil photographs in the March 2011 issue of *Micronews* as well as information for accessing the interesting blog he has going discussing simple ways to get high magnification and excellent photo results.

For the blog go to:

<http://oldasthehills.proboards.com/index.cgi?board=Info&action=display&thread=167&page=1>



The figure to the left shows one of Peter’s setups using two camera bellows. This would be useful for photographing microminerals as well as small fossils.

IN THE NEWS

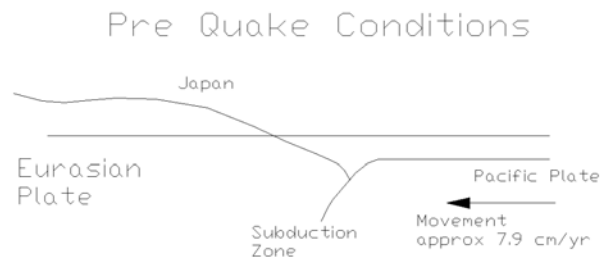
The Japanese Earthquake

by Ken Fox

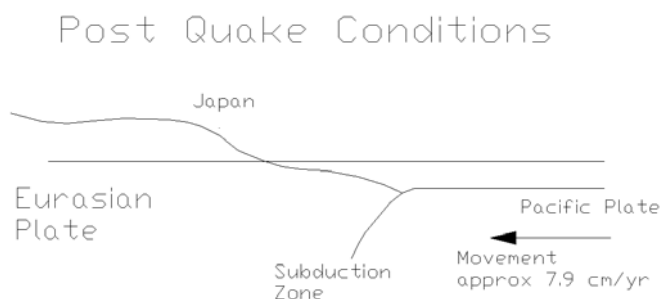
I have been contemplating an article on plate tectonics for some time but the Japanese earthquake requires some comment right away.

Japan is situated on the eastern edge of the Eurasian plate with the Pacific and Philippine plates pushing up against it from the east. The Eurasian plate is a very large one extending from the mid-Atlantic ridge at the western end to Japan and eastern Siberia at the eastern end and from the Himalaya mountains in the south to the Arctic ocean in the north. The Pacific plate is also quite large extending from the western edge of North America in the east to the Eurasian, Philippine and Australian-Indian plates in the west. The Pacific plate meets the Eurasian plate about 100-150 km east of Japan and at this point it is moving westward at about 7.9 cm/year with respect to the Eurasian plate so obviously something must happen here.

Since the Eurasian plate is made up of continental rock which is less dense than the basaltic Pacific plate, the Pacific plate sinks below the Eurasian plate where they meet and indeed it is the heating caused by the moving Pacific plate which caused the volcanoes which brought Japan into existence. The 7.9 cm/year figure is a long time average and in fact, the two plates are locked together most of the time. To accommodate the movement the toe of the Eurasian plate is dragged downward and back at the mainland the land is humped upward. Over the years the distortion and compressive force gradually build up and the situation becomes as shown below.



At some point the stress at the interface becomes so large that the friction will not support it, so it lets go, the toe snaps upward and the humping upward of the mainland is relieved resulting in a movement of the countryside eastward and downward, in this case about 2.4 metres horizontally and one metre downward at the mainland based on various television reports. The earthquake is caused by this rapid movement. The motion of this extremely large mass of land cannot be stopped instantly when the stress is relieved so it overshoots then springs back and it may repeat this cycle many times. At the same time when the toe springs upward it lifts a very large volume of water upward. This water immediately runs downhill and because of its momentum goes below sea level where the hydrostatic pressure pushes it back up. This generates a series of waves which is the tsunami. At the end of the action, when conditions stabilize the situation is as shown below.



Note that the toe of the Eurasian plate has moved upward while the area back of the toe at about sea level has lowered causing flooding. If you look over the TV views taken a few days after the earthquake, some show large areas of standing water which came in

with the tsunami but did not flow back out, indicating that the ground level had fallen below sea level. In addition to this, as more recent TV reports mention, the seawalls built to stop the tsunami would have been just adequate but the subsidence of the land under them lowered them far enough for the waves to break over them.

As for the nuclear station problems, the key cause here was the location of the backup, engine powered generators in the basement of the building where they were flooded by the tsunami. Many industries use backup generators for key parts of their processes and they are usually put in the basement because of the weight and vibration which require a heavy foundation. In this case the original designers simply followed the usual industrial practise, possibly without putting much thought into it because, “that’s the way it’s done”.

THE FOSSIL CORNER

CEPHALOPODS

by Kevin Kidd



Cephalopods are a class within the phylum Mollusca, the mollusks. Distantly related to clams, mussels, oysters, snails and slugs, the class consists of 3 main clades: the Nautiloidea (the earliest form), the Coleoidea (squids, octopus and cuttlefish) and the extinct Ammonoidea (Ammonites – a future article). They all have bilateral symmetry, are strictly marine, carnivorous and have at least eight arms all modified from the primitive molluscan “foot”. Cephalopod, from the Greek, means “head foot”, and they are regarded as the most intelligent invertebrate, with the most complex nervous system.

There are over 800 living species of cephalopod and over 17,000 extinct. Cephalopods evolved from a snail-like ancestor in the Cambrian, beginning with straight shelled Nautiloids. By the Ordovician, they were among the dominant marine animals, at or near the top of the food chain. Originally, they were shallow water dwellers, but they evolved stronger septa (walls between internal chambers), and shell shapes (Fig. 1, next page) allowing them to move into deeper water.



Polished "*Orthoceras*" from Morocco showing internal structures: the septa dividing the chambers and the siphuncle running the length of the animal.

Figure 1

During the early Ordovician, Coleoids and Nautiloids started to diverge. The Nautiloids, and later the Ammonites, started to evolve into a planispiral (coiled in 1 plane) shape. The main difference between Nautiloids and Ammonites is the location of the siphuncle and the suture shapes. The siphuncle is a tube running the length of the animal and its function is to remove water from the new chambers as the animal grows, thereby reducing density.

One branch of straight shelled Nautiloid evolved into the Belemnites (Fig. 2). The Belemnites, with their straight, internal shell, are believed to have evolved into the Coleoidea.



Figure 2

The Coleoids are still going strong to this day, the Nautiloids are down to six species in two genera, and the Ammonoids went extinct with the dinosaurs at the end of the Cretaceous.

While there are dozens of species of straight shelled cephalopod fossils to be found in Ontario, some up to several meters long, there are no Nautiloids (to my knowledge) and only a few species of Ammonoids, the Devonian Goniatites from the Arkona area in the southwest is an example (Fig. 3, next page).



Figure 3

Figure 3 Devonian Goniatites from Arkona, ON



Figure 4

**Figure 4 while not rare, it is tough to find these pyritized *Bactrites arkonense* with any considerable length.
From the Devonian Arkona formation, Arkona, ON.**



Figure 5

**Figure 5 Lower Jurassic *Cenoceras* sp. Nautiloids from Lyme Regis, Dorset, UK.
Measure 11" and 12" wide**



Figure 6

Figure 6 Lower Jurassic *Cenoceras* sp. Nautiloid with a 2" *Arietites ammonite* at the aperture, measures 9" across and comes from the North Somerset coast, UK.

Photo credits:

Orthoceras: www.Flickr.com

UK Nautiloids courtesy of S. Livesley

All others: Personal collection

THE EDITOR'S CORNER

Many thanks to Show Co-Ordinator Bob Beckett, President Mark Stanley, and one of our members, Peter Lee for their contributions to this issue. Thanks, also, to Kevin Kidd and Ken Fox for their fine articles.

I had hoped that someone would write on some aspect of copper mining in North America, past and/or present, copper minerals and their uses, etc. No such luck. However, all you mineral people out there, here is a chance to be in print.

The mineral for the May meeting will be fluorite, the fossil, crinoids. For the June meeting the mineral will be barite and the fossils, bivalves.

All articles on topics relating to minerals, mining, fossils, the earth, rock hounding, etc. are welcome. Since we have new members, general articles on items necessary for rock hounding, safety issues, what to look for and where are all pertinent. If you see books or articles in journals, etc. that might be of interest to members, bring them to my attention so they can be mentioned in the newsletter. This is your newsletter, folks.

Any submitted articles should be as unformatted as possible. Articles always have to be reformatted to suit the type and space in the newsletters. Any pictures, drawings, etc. should be added at the end of the article and clearly labelled. In the newsletter, these are placed within the article where a specific figure is referred to in the article, for example "(Figure 1)".

Bev Fox

COMING EVENTS

- Apr 7 K-W Gem & Mineral Club Show
Saturday 10-4.
Waterloo Community Arts Centre, 25 Regina Street South in Uptown Waterloo
Admission: Free
Rocks, minerals, fossils, meteorites, gem dig. Uncover a fossilized fish..
Hands on activities and free samples for children.
Local Dealers. Displays.
- Apr 14-17 38th Rochester, NY Mineralogical Symposium
Website: <http://www.rasny.org/MinSymposium/MineralSymp.htm>
- May 6-8 Canadian Micro Mineral Association 48th Annual Symposium
Brock University, St. Catharines, Ontario
Speakers: Scott Ercit and Lance Kearns
Contact: Bill Lechner at 416-438-8908 or bill.lechner@rogers.com
* Registration form available by request to the above. *
Website: <http://www.canadianmicrominerals.ca>
- Jul 15-17 29th Annual Sudbury Gem and Mineral Show
"Northern Ontario's Largest Gem, Mineral, Fossil, Bead and Rock Craft Show and Sale"
Fri. 5 pm-9pm, Sat. 10 am-6pm, Sun. 10 am-5pm.
Location: Carmichael Arena, 1298 Bancroft Drive across from Minnow Lake; 1 km. south
of the Kingsway (Hwy. 17 East)
Admission: Adults \$4, Seniors \$2, Kids 6-12 \$1, Kids under 5 free with adult
Features: Dealers; displays; demonstrations; door prizes (including an amethyst geode
as grand door prize); silent auctions; kid's activities, mineral identification, video
theatre, BBQ, free handouts and literature, etc.
Outside dealers/swap area Sat. 11 am-4 pm; field trip Sun. at noon
Contact: Ed Debicki (705) 522-5140, E-mail: ed.debicki@sympatico.ca
Website: <http://www.ccfms.ca/clubs/Sudbury/show.htm>
- Jul 28-31 48th annual Bancroft Rockhound Gemboree
Bancroft, Ont
Info E-mail: joanne@commerce.bancroft.on.ca