



# The Rock Record - May, 2015

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*Please contribute to the SGS Newsletter*

The SGS Newsletter is produced by the SGS executive. Letters, announcements, notices, comments, photos, news and information about SGS members, etc. are always welcome. Call an executive member or write to us at:

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## Saskatchewan Geological Society Luncheon Talk

**Wednesday May 6<sup>th</sup>**

**Amber research within Saskatchewan and western Canada**

Dr. Ryan McKellar, Royal Saskatchewan Museum

### VENUE BACK TO:

Ramada Hotel, 1818 Victoria Avenue, Regina  
Pine Room, 3rd Floor

**Lunch: 11:45 a.m.**

**Meeting talk: 12:15-1:00 p.m.**

For lunch the cost is:

Members: \$15.00

Student Members: \$5.00

Non-Members: \$20.00

For those not having lunch the talk is free

RSVP to Dr. Jason Cosford at [cosford@jdmollard.com](mailto:cosford@jdmollard.com)

or 306-352-8811 before 5:00 pm, Friday, May 1st  
if you are going to have lunch.

**For those not having lunch the talk is free**

## DETAILS OF NEXT LUNCHEON TALK

### Ryan McKellar - Biography

Ryan McKellar was recently hired as an Invertebrate Palaeontologist for the Royal Saskatchewan Museum in Regina. He trained at the University of Alberta, with degrees spanning a range of palaeontological topics including: vertebrate palaeontology, particularly theropod dinosaurs (B.Sc.); invertebrate palaeontology, specifically the Devonian phacopid trilobites of Morocco (M.Sc.); and palaeoentomology (Ph.D.). His doctoral dissertation dealt with inclusions in Canadian amber. The main focus of this work was parasitic Hymenoptera (microscopic wasps) in amber, but work on the deposit permitted the study of a number of other insect groups, along with unique inclusions, such as feather fragments. In addition to studying amber inclusions, Ryan has been involved in the use of Fourier-transform infrared spectroscopy, and stable isotope analyses of amber, in an effort to characterize various amber deposits. Combined with amber inclusions, this line of research has provided a more comprehensive picture of source trees in amber-producing forests, as well as some of the ecological conditions present at the time of amber production.

Ryan's current research builds upon his postdoctoral studies (University of Kansas), and largely consists of an effort to expand the number of inclusion-bearing amber deposits being studied within western Canada. The goal of this research is to provide a more comprehensive record of insect evolution, palaeo-forests, and terrestrial conditions throughout the Late Cretaceous and into the Paleocene. Saskatchewan and Alberta offer one of the most complete records throughout this time interval, as well as the opportunity to study amber in direct association with dinosaur remains.

## ABSTRACT

### Amber research within Saskatchewan and western Canada

Western Canadian amber provides glimpses of Late Cretaceous and Paleocene ecosystems preserved in exquisite detail. The largest known deposit (at Grassy Lake, Alberta) contains one of the best-preserved insect assemblages in the Mesozoic, and as the last diverse assemblage in the Cretaceous, it occupies a special place in discussions of past diversity and the fate of terrestrial arthropods approaching the Cretaceous-Paleogene extinction event. Over the last twenty years, study of Mesozoic ambers has expanded significantly, improving our understanding of how insects diversified alongside the rise of flowering plants. Unfortunately, there has been a persistent 'Paleocene Gap' in the fossil record of insects. The absence of diverse amber assemblages in the Maastrichtian and throughout the Paleocene has made it difficult to observe changes in insect communities as a result of the extinction event. This gap of more than twenty million years has also impacted our understanding of modern insect relationships and diversification times, because we lack well-preserved fossils that can serve as calibration points for phylogenetic studies.

In this talk, we will explore how amber studies in Saskatchewan and western Canada are filling the Paleocene Gap, and contributing to our understanding of terrestrial ecosystems. Recent fieldwork in the area has yielded a series of friable ambers that extend the regional record from the Santonian through the Paleocene. In addition to their faunal contents, the chemical and stable isotopic composition of these new amber deposits provide valuable clues about the palaeoforests and ecological conditions that surround many of Canada's most famous bonebeds and the K-Pg boundary.

As a secondary topic, we will explore how analytical resources, such as the Canadian Light Source synchrotron, have provided new directions for amber research within the province. Combining x-ray micro-CT data with elemental mapping (using soft x-rays) has permitted the observation of amber inclusions from a new perspective. Ultimately, this line of research promises to improve our understanding of preservation within amber deposits, and shed new light on the palaeobiology of many of the insects trapped within amber.



## NEWS AND EVENTS

### President's Blog - Engagement

This will be the last newsletter before the summer. The main message this time around is that I would like to thank everyone for being engaged! We had a great turn-out of volunteers for the school lectures (see separate write-up by Michelle Hanson in the new *Geoscientists in the Community* section), the Core Workshop at the Williston Basin Petroleum Conference was successful thanks to the work of our great organizing committee, and last but not least the APEGS annual meeting has come and gone and Dave MacDougall was happy that Geoscientists were well represented at the event. That translates into Dave being happy, me being happy, happiness all around I guess. Speaking of which, I recently learnt, and am now eager to share this new-found wisdom, that happiness comes from being a positive person in general and from doing three things every day, specifically. The 'three steps to happiness blog' by Ralf....I have come a long way from being the miserable sod who just recently told you about non-existent roadside turn-outs in Saskatchewan. But I digress. Back to happiness - apparently it comes from doing these three things each day: 1) be grateful for three things, 2) thank someone and 3) meditate for two minutes. Overall, I think that's pretty good solid advice and I couldn't help but share it.

Our last luncheon talk (Taury Smith – Shale Gas Revolution) was held at the University and it was a great success. Not only was it a really well presented talk, it was also one of the best attended talks in a long time. I think I counted more than 60 people in the audience. Because it was so well attended, we plan to have a few more luncheon talks at the university when the opportunity presents itself.

As I mentioned, this will be the last newsletter before the summer, so I would be remiss if I did not mention two very important upcoming events. Both have been highlighted in the last two newsletters and are again repeated in this one. I encourage everyone to join fellow SGS members to go on the annual SGS fieldtrip, which this year will be visiting Montana. And PLEASE come out to the SGS annual golf tournament, which will be at Sherwood Forest this year and will be a nine-hole tournament. We have had to put in a \$500 deposit to secure the course and hope that we can attract at least 12 teams. So please fill out the attached sign-up form today!

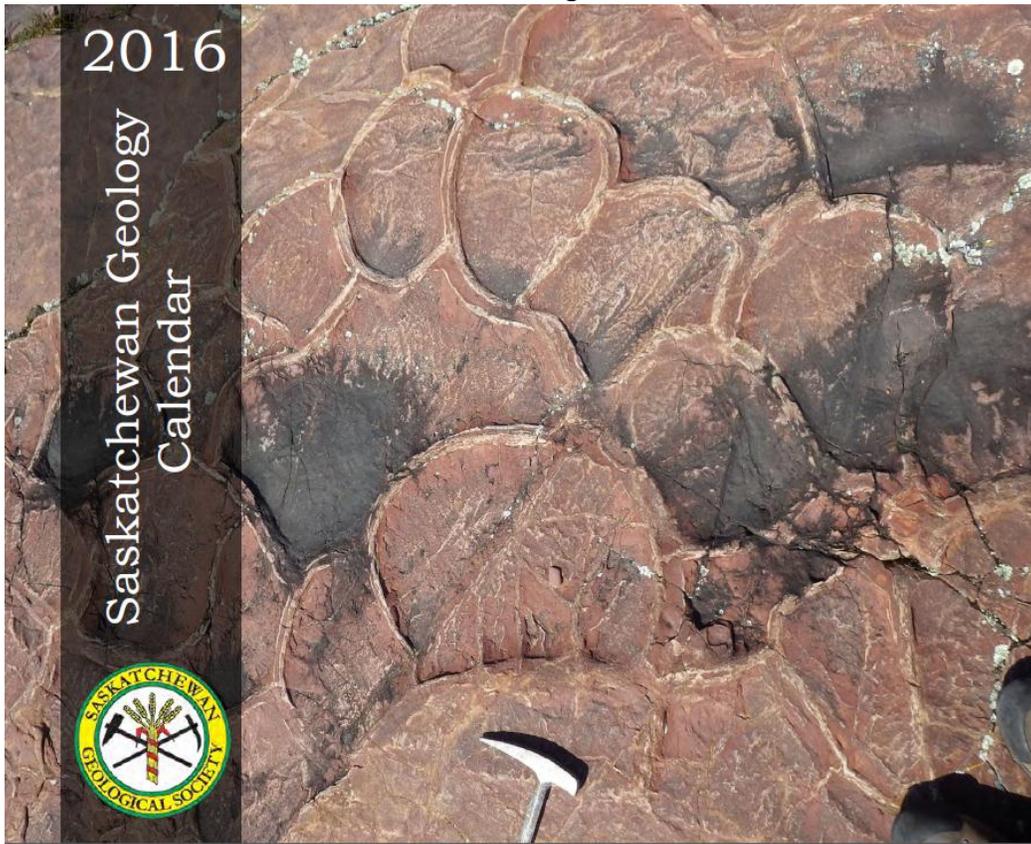
I would like to give everyone an update on our first geological calendar by giving you a sneak peek (next two pages). As I am hopeful that we will have a calendar every year, I would like to ask everyone to take geoscience photographs of our great province this summer! In general, the theme of the calendar is to feature the geology of Saskatchewan from microscopic to macroscopic scale, from the Archean to the Quaternary and from north to south. Landscapes are ok, provided something geologically meaningful is featured, but we are not trying to do another landscape calendar, nor is it a calendar of sunsets or spiderwebs. But if there is a really cool outcrop with a spiderweb or the sun is setting behind a drumlin...go for it. Pictures need to be of sufficient enough quality.

And finally if you have not already done so, PLEASE RENEW YOUR MEMBERSHIP! There are quite a few active members who have not renewed yet and you will get separate reminders, but please do not delay. SGS membership is on a calendar year basis. The most convenient way to renew your membership is to do it online and pay by PayPal; you do not need a PayPal account to do this: <http://sgshome.ca/membership>.

Thanks, and have a great summer everyone.  
Ralf Maxeiner



Cover Page



Back Page





Just arrived. Photographer: Eric Ashton

Uranium staining along a fault. Photographer: Eric Ashton

# March

## Uranium Mineralization

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	29	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17 <i>Uranium City</i>	18	19
20	21	22	23	24	25 <i>Good Friday</i>	26
27 <i>Easter Sunday</i>	28	29	30	31	1	2

Garnite, the bright yellow mineral, is a mixture of uraninite and secondary uranium minerals formed by near-surface oxidation. It has developed along a fault marking the northern extent of an open pit (the Intermediate Zone) located about 5 km east of Uranium City. Movement along the fault has broken up the original granite to produce a breccia, the clasts of which were subsequently coated by uranium minerals precipitated from fluid percolating through the permeable fault zone.

Your Logo Here!!

February 2015							April 2015						
S	M	T	W	T	F	S	S	M	T	W	T	F	S
1	2	3	4	5	6	7	1	2	3	4	5	6	7
8	9	10	11	12	13	14	8	9	10	11	12	13	14
15	16	17	18	19	20	21	15	16	17	18	19	20	21
22	23	24	25	26	27	28	22	23	24	25	26	27	28
29	30						29	30	31				

**FunFact:**  
Saskatchewan has the highest grade uranium deposits in the world and is second in global uranium production.



www.sgsociety.ca

## Geoscientists in the Community

*By Michelle Hanson and Ralf Maxeiner*

On April 21st and 22nd, the Saskatchewan Geological Society's Education and Outreach Committee held its annual Elementary School Geoscience Talk at Miller High School in Regina. Grades 3-8 classrooms from Arcola, Davin, Douglas Park, Holy Rosary, North Valley High, Sedley, St. Andrew, St. Dominic, St. Francis, St. Mary, St. Matthew, St. Michael, and St. Pius attended one of four sessions. A lot of Society members came out to help organize and run this event: our guest speakers, Colin Card and Ryan Morelli, gave excellent and engaging talks on "Gold and Base Metals in Saskatchewan;" Michelle Hanson and Kate MacLachlan were part of the organizing committee; Monica Cliveti and Maria Velez ran some of the hands-on geoscience tables, and; some incredible University of Regina geology students (Michael Cloutier, Jordan Deane, Juan Diaz, Abdullah Dini, Taylor Forsyth, John Kelley, Adam Lebioda, Isabel Plata, Carissa Sideroff, Matthew Thompson, and Jacob van Niekerk) took time out from final exams to help run the hands-on tables. This event was a huge success; the elementary students learned a lot and clearly had a lot of fun doing it. Hopefully, a few of these students will be future Society members!

The Core Workshop at the Williston Basin Petroleum Conference (April 28-30) is a hugely important deal for our Society, as it is a large revenue generator, which helps fund our regular luncheon speaker program, as well as some of our social events. With the conference in Regina this year (it alternates between North Dakota and Saskatchewan on a yearly basis), it was a committee of local volunteers that made the core workshop possible. The executive of the Society would like to extend a huge thank you to all the committee members for donating their time and making this event a success: Dan Kohlruss (Chair); Mick Frank (audio-visual); Kim Kreis (food & refreshments); Kate MacLachlan (lunch & refreshments); Murray Rogers (volume production editor); as well as the following technical editor of the core workshop volume: Mick Frank, Kim Kreis, Don Kent, Ralf Maxeiner, Mike Thomas, Dave van Zeyl.

There would be no core workshop without someone to present the core. A huge thank-you to this year's workshop presenters: Luc Chabanole and Luis Buatois (University of Saskatchewan); Dan Kohlruss (Saskatchewan Geological Survey); John Lake (Lake Geological Services Inc.); Don Kent (D.M. Kent Consulting Geologist Ltd.); Scott MacKnight and Stephen Bend (University of Regina); Mike Blair (Crescent Point Energy Corporation).

And finally, a few comments about the APEGS annual meeting, which took place last week and was made possible by an amazing organizing committee that included David MacDougall and Gavin Jensen. Quite a few geoscientists were actively involved in the meeting helping out with moderating the talks and attending many of the events. Charlie Harper received the outstanding achievement award at the Saturday awards banquet and many of his friends and colleagues were on hand, when he received his award.



## 2015 Field Trip Update

### *Mike Thomas, Co-convenor of SGS Field Trip*

Here is an updated of the August field trip. Get you registration in today (separate page in newsletter)

Tentative Itinerary:

Day 1, travel Regina to Livingston, Montana (between Billings and Bozeman, proximal to Stillwater Complex)

Day 2, Stillwater. stay in Livingston that night or re-locate to Bozeman.

Day 3, Sappington Formation (Bakken Equivalent, Devonian-Mississippian).

Day 4, Tertiary igneous rocks, laccoliths in Great Falls area (Adel Mountains / Highwood Mountains?), Shonkin Sag abandoned glacial meltwater channel; overnight in Great Falls.

Day 5, Great Falls to Regina.

The trip will likely be limited to 25 participants in two 15 passenger vans. Cost will be in the neighbourhood of \$500, which will cover your transportation, lunches and accommodation.





## SGS Montana Field Trip



This year the Saskatchewan Geological Society is going to Montana for the Annual Field Trip. Montana offers excellent exposures of Igneous and Sedimentary rocks as well as excellent Structural Geology. We are in the planning stage for the Field Trip but tentatively expect to visit the Stillwater Igneous Complex, Shonkin Laccolith, Sappington (Devonian Bakken Equivalent), Madison (Mississippian) etc. Book early to avoid disappointment.

Dates: August 21-25

Price: to be determined later

Please pre-register now by emailing

John Lake at [lakegeol@sasktel.net](mailto:lakegeol@sasktel.net)

Please attach the following information to your email:

Name: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_



## Annual Golf Tournament Update

Please register for this year's golf tournament. The sign-up sheet is attached below. We would appreciate early registration as we had to make a deposit to hold our spot. We have room for 48 golfers. As promised in the last newsletter we will be playing at Sherwood Forest this year and it will be a nine-hole Texas Scramble.

**SASKATCHEWAN GEOLOGICAL SOCIETY**

**29TH ANNUAL GOLF TOURNAMENT AND BARBEQUE**

**FRIDAY, SEPTEMBER 11th, 2015**

Tee-off times for the Texas Scramble begin somewhere between 12 and 1pm, depending on the number of teams at the Sherwood Forest Golf Course.

The BBQ will commence around 6:00 pm at the MacDougall residence at 3730 McTavish Street. Food will be served around 6:30.

As usual, there will be refreshments and socializing throughout the evening. Any awards and prizes for your efforts on the links will be presented at the BBQ. (If you would like to donate prizes for the BBQ, please contact Monica Cliveti with the contact information below. Thank you!)

We have tee-off bookings for 60 participants; non-members are welcome but priority will be given to SGS members.

Costs are as follows:	9 hole Golf & BBQ (Members/Non-Members):	\$35.00/\$45.00
	BBQ only (Members/Non-Members):	\$10.00/\$15.00
	BBQ only: (Kids under 6 are free)	\$25.00
	Kids 6-12	\$ 5.00

Payment will be required no later than AUGUST 15th, 2015.

Participants can mail in the attached registration form with a cheque made **payable to the Saskatchewan Geological Society**.

Please send golf tournament funds to:

**Monica Cliveti**  
3737 Wascana Parkway, Geology Department  
University of Regina, Regina, SK  
S4S 0A2  
Monica.cliveti@uregina.ca  
306-585-4049

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See attached Booking Form for the golf tournament. Please fill in your name and vitals, as well as the rest of your team (if applicable).

Please also fill out and sign the attached **Event Waiver**; **must be signed by each** player/attendee in order for you to participate in the tournament.

Thank you!



## 2015 GOLF TOURNAMENT \ BBQ REGISTRATION FORM

**GOLFER 1:** \_\_\_\_\_

PLEASE CHECK ONE:    GOLF \_\_\_\_\_    GOLF & BBQ \_\_\_\_\_    BBQ ONLY \_\_\_\_\_

GUEST(S) FOR BBQ: \_\_\_\_\_

**GOLFER 2:** \_\_\_\_\_

PLEASE CHECK ONE:    GOLF \_\_\_\_\_    GOLF & BBQ \_\_\_\_\_    BBQ ONLY \_\_\_\_\_

GUEST(S) FOR BBQ: \_\_\_\_\_

**GOLFER 3:** \_\_\_\_\_

PLEASE CHECK ONE:    GOLF \_\_\_\_\_    GOLF & BBQ \_\_\_\_\_    BBQ ONLY \_\_\_\_\_

GUEST(S) FOR BBQ: \_\_\_\_\_

**GOLFER 4:** \_\_\_\_\_

PLEASE CHECK ONE:    GOLF \_\_\_\_\_    GOLF & BBQ \_\_\_\_\_    BBQ ONLY \_\_\_\_\_

GUEST(S) FOR BBQ: \_\_\_\_\_

**\*\* REGISTRATION & PAYMENT MUST BE RECEIVED BY AUGUST 15<sup>th</sup>, 2015 \*\***



**SASKATCHEWAN GEOLOGICAL SOCIETY**  
**WAIVER OF LIABILITY AND AGREEMENT**

As a willing participant in this Saskatchewan Geological Society event I, the undersigned, hereby agree as follows:

**DISCLAIMER**

I agree that none of the Saskatchewan Geological Society (SGS) or any of its executive members, event organizers, volunteers, sponsors, service providers, or any other associated individual or organization for this SGS Event (collectively, the “**Releasees**”) is responsible for any personal injury, death, property damage or any other type of loss or damage suffered or incurred by me while participating in the SGS’s Annual Golf Tournament & Barbecue (the “**Event**”) and caused in any manner whatsoever, including without limitation the negligence of any of the Releasees.

**ASSUMPTION OF RISK**

I AM FULLY AWARE OF THE RISKS ASSOCIATED WITH PARTICIPATING IN THE EVENT AND I FREELY ACCEPT AND FULLY ASSUME AND SHALL BE SOLELY RESPONSIBLE FOR ALL RISKS OF PERSONAL INJURY, DEATH, PROPERTY DAMAGE OR ANY OTHER TYPE OF LOSS OR DAMAGE even though such injury, death, damage or loss may have been caused by one or more of the Releasees.

I acknowledge that there are risks associated with the Event which include physical activities where injuries or even death may occur. This includes transportation to, from and during the Event.

I acknowledge that I am solely responsible for ensuring that I am physically capable of participating in the Event.

**RELEASE OF LIABILITY**

I agree to waive all claims that I have or may in the future have against the Releasees relating to, and to release the Releasees from all liability for, any personal injury, death, property damage or any other type of loss or damage that I may suffer or incur as a result of my participation in the Event, due to any cause whatsoever, including without limitation the negligence of any of the Releasees.

**I ACKNOWLEDGE THAT I HAVE READ THIS WAIVER AND AGREEMENT AND FULLY UNDERSTAND ITS TERMS. I ACKNOWLEDGE THAT I AM ENTERING INTO THIS WAIVER AND AGREEMENT VOLUNTARILY, AND I INTEND FOR IT TO BE BINDING ON MYSELF, MY HEIRS, EXECUTORS, ADMINISTRATORS, AND REPRESENTATIVES.**

\_\_\_\_\_  
**Printed Name of Participant**

\_\_\_\_\_  
**Signature of Participant**

**Date** \_\_\_\_\_

\_\_\_\_\_  
**Signature of Witness**

**Date** \_\_\_\_\_



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