



The Rock Record – September, 2019

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Saskatchewan Geological Society
P.O. Box 234
Regina, SK S4P 2Z6

SGS e-mail address:

Sask.Geol.Soc@hotmail.com

SGS Website: www.sgshome.ca

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Summer News

Dr. Ken Ashton, 1st Saskatchewan Recipient of the “Provincial / Territorial Geologist’s Medal”

The Provincial/Territorial Geologist’s Medal is awarded yearly by the National Geological Surveys Committee to recognize major contributions in the area of geoscientific research and related developments, or applications that serve to meet the mandate of Canada’s provincial and territorial geological surveys. Each Survey may nominate a candidate each year, and an external national selection committee representing industry, academia and the GSC chooses the recipient from the pool of nominees. **This year’s winner is Dr. Ken Ashton, an officer of the Saskatchewan Geological Survey since 1990.** In 2014, our Society recognized Ken as a member of its Geoscience Honour Roll for his numerous contributions to the understanding of the province’s PreCambrian rocks. And now this. Pretty cool I’d say. Congratulations Ken.

Field Trips, spring-summer 2019

“Unofficial” Cypress Hills Camping field trip, May 31-June 2, 2019

Twelve campers and 3 dogs made their way to the remote Cypress Hills West Block Campground next to Battle Creek, with the Maxeiners and Slimmons being the first to arrive. Alec Pollard and I arrived with just enough remaining daylight in which to set up camp. Later in the evening Kim Kreis and his family arrived, followed by Maria Velez and her husband.

Fireside chats went well into the night around the Maxeiner’s campfire.

The next morning, a short drive took us to the Cypress Hills Conglomerate Cliffs, Upper Miocene to Eocene, braided stream deposits. The orange moss covered cliffs provide stunning views overlooking Adam’s Lake and made for some Sask Geological Calendar worthy photographs. In the afternoon, we drove west of our campsite to the Hidden Conglomerate Cliffs trailhead. This trail was quite lengthy and steep; however, the climb was well worth it!

From the top we found ourselves above the cypress tree canopy, and were rewarded with stunning views of the forested hills to the west. From here on we all started exploring the area – we managed to come across a few patches of snow in the trees.

On the last day of camping, we drove to the “Mystery Rocks”, located on private property. The friendly landowner granted us permission to hike on his land. These isolated rocks have been weathered and fractured over the years forming huge interlocking slabs with large pot holes within them. It’s easy to see why numerous website bloggers and avid hikers mistake these rocks for being part of an ancient foundation/structure. Almost every inch of rock was covered with engraved names, some going way back to the late 1800’s. I stumbled upon one engraving with the name, ‘Arie Morley 1973’, which piqued my interest (no relation to me that I know of). After exploring the rocks, we hiked back to our vehicles, said our goodbyes and parted ways. It was another successful Spring Camping trip in the making.

– Andrew Morley



Cypress Hills Camping Trip, spring, 2019

“Official” Manitoba field trip, August 22 to 26, 2019

Nineteen intrepid Society members descended upon our neighboring province to the east to transect their surprisingly well exposed bedrock geology, from the Archean Rice Lake greenstone belt in the east, to the Paleozoic carbonates in the centre, to the Upper Cretaceous clastics of the Manitoba Escarpment to the west. The group included perennial attendees Dr. Ben Rostron & Dongqing Chen from Edmonton (yes, Dong joined us again, allaying our fears that she’d retired and moved east), new member Mandy Williams from Calgary (thanks for coming Mandy), Winnipeg-based Dan Barchyn and Jason Howden, familiar to many here from their numerous visits over many years to our Regina Subsurface Lab, Dave Thomas, long time member / supporter of our Society & geological heavyweight from Saskatoon, two colleagues from the North Dakota Geological Survey, Jeff Bader and Tim Nesheim, andummmmm.....a bunch of other people from Regina. Our guides.....**Mr. Scott Anderson of Havilah Mining**, showing us the recently burnt & beautifully exposed greenstones at Rice Lake, and **Michelle Nicolas and Kathryn Lapenskie of the Manitoba Geological Survey**, guiding us up and down Manitoba’s Phanerozoic exposures..... were as awesome as the outcrops they showed us. Thanks so much for that you guys, for giving your time so freely.

And thanks, as usual, to the amazing people who quietly organize the trips, drive the vans, keep the coolers full of food and drink, prepare the lunch stops, etc., etc.,etc., keeping this show running like a well oiled machine year after year.....John Lake, Kim Kreis, Brian Brunskill, Colin Card, Murray Rogers, and many unnamed others, whenever needed.

Just look how much fun we’re having! You can almost feel the fun, can’t you? Next year’s trip is coming fast. Think about joining us why don’t you? Does it really matter where we go? And who’s the goofball with the colour coordinated socks and shirt. Wow! How weird is that?



Fall Golf Tournament / barbecue, Friday, September 6, 2019

OK, I've been waiting for an update on this event for over a week, have not received anything, so we'll get it in next month's Rock Record. I sadly could not make it but by all accounts, it was a very good day. Thanks to our colleagues who organized this (Monica Cliveti and Sam Van De Kerckhove), to the hosts of the evening barbecue, Deb and Kim Kreis, and of course to our hardy golfers.

Fall Speaker Schedule (courtesy of Mssrs. Alec Pollard & Kim Kreis)

September 25, Mr. Dan Kohlruss, "Spelunking in the Madison Group & Success Formation of West-Central Saskatchewan."
.....just over, awesome talk, thanks Dan.

October 23, Dr. Brad Hayes (AAPG Distinguished Lecturer), "Geology of Unconventional Oil Fields"

November 6, Dr. JoAnne Nelson (GAC visiting lecturer), "Canadian Cu-Mo-Au Porphyry Deposits"

November 7, Dr. Jurgen Kraus, "The Geology of Beer", with tasting opportunities for the curious.

November 20, Mr. Dave Thomas, "Sandstone-hosted Uranium in the Permian Karoo Basin, South Africa" (including a brief digression into reptilian trace fossils).

2020 Saskatchewan Geoscience Calendar: Soon to be available!

This will be the fifth calendar that the SGS's geological calendar committee has put together. As in previous editions the committee strives for balance, showing the geoscientific diversity our province has to offer. Although the committee has the general public in mind when creating it, the general sentiment is that it should equally appeal to the professional geoscientists. And it is with that idea in mind that I ask each of our members to buy at least two copies, one for your own workspace or home and a second to give to a friend!

The people who have made this fifth edition a reality are in alphabetical order: Kevin Ansdell, Ken Ashton, Karen Bawden, Monica Cliveti, Jason Cosford, Meagan Gilbert, Michelle Hanson, Svieda Ma, Ralf Maxeiner and Ryan Morelli. The production editor for the calendar is Heather Brown. The committee would like to thank all the corporate sponsors, all the photo contributors, as well as all the organization for whom the committee members work (Saskatchewan Energy and Resources, University of Regina, University of Saskatchewan, JD Mollard.

The calendar should be available for purchase by about mid-October at select stores in Regina and Saskatoon, as well as from committee members. Please check the Society's website for further details. As in previous years, the calendar retails for \$10 a copy, but when you buy multiples you can purchase them for a discounted rate (1-4 calendars for \$10 each; 5-9 calendars for \$8 each; more than 10 for \$6 each). Proceeds from calendar sales, although modest, help the Society do future outreach projects, provide an incentive for a 6th edition and/or possibly might facilitate an additional luncheon talk!

-- courtesy of Mr. Ralf Maxeiner.



EI



Presidente's blurb, September 30, 2019

I had a very good summer. Too short, yes, but aren't they all? Of course they are.

Interesting times these days. Lots of stuff happening, some of it reflecting directly upon things geological, others on more broadly significant issues. Rather than lapse into the usual rambling, I am going to insert a few thought-provoking items that may provoke some thought. At heart, geologists live for having their thoughts provoked. Comments are welcome. Interesting times these days indeed.

Considering the "ANTHROPOCENE"the following letter is from Glasgow climate scientist, David Barr who recently contributed these comments to the G.S.A's online OPEN FORUM. The discussions involved how the so-called "Anthropocene Epoch" might be recognized in the rock record by geologists of the future / whether plastics would define it / if not, then what might? Barr's first sentence refers to this "plastics" idea, and then carries on from there.....

(And as students of 'deep time', I don't think we're done with this Anthropocene business just yet.)

".....from what I can google, the biodegradation of plastics appears to be generally less than 1000 years. So it won't serve (as a stratigraphic marker) long-term.

I would expect future geologists to key in first on the extinctions. Then ask why they were so much more widespread than in previous interglacials. Then ask why was this interglacial so long and wonder if that has something to do with it (the extinctions). For example, there must be some risk of a random event killing off a refugium, and that's more likely in a 100,000 year interglacial than in a 10,000 year interglacial. Then they would start looking at stable isotopes, leaf stomata, and other proxies, and conclude that it wasn't just a long interglacial but a really, really hot one. They might know about the end – Ordovician "double whammy" of aerosol-induced cooling followed by CO₂-induced warming, and suspect, like me, that closely spaced stressors in opposite directions were particularly difficult for life to cope with. They'd note that this one only had ocean euxinia in the warming phase, not in both, but agree with current thinking that the Ordovician was a special case where the exposed continental shelves were barren because land plants hadn't evolved yet. In more recent glacial events, the shelves would quickly become heavily vegetated, altering nutrient supply and CO₂ balance. Their first thought would be a Large Igneous Province. They wouldn't find one, but might wonder if the missing LIP was an oceanic plateau which has since been subducted. They'd look at carbon isotopes and find a whopping great anomaly, but one indicating a fossil organic source and not volcanoes. They'd probably find a charcoal-rich layer and wonder about a meteorite impact and wildfires, perhaps with underground burning of coal, peat, or methane hydrates. They'd look at trace-element chemistry in deep ocean sediments, thinking perhaps that they'd find an iridium anomaly. They wouldn't, but they might find stable or long-lived isotopes that can only be produced by nuclear fission. Then they'd say "Aha! An advanced civilization which tested nuclear weapons, even if they didn't deploy them in anger, and cooked the planet with their emissions". They might wonder if that civilization had gone extinct, or if, as in Isaac Azimov's Foundation series, they'd achieved interstellar travel and left their home planet behind as an uninhabitable wasteland.

Of course, in the optimistic version, they wouldn't do any of this. They'd just read their history books."

A.I., MACHINE LEARNING, AND CHESS.....along with numerous other rather alarming 'factoids', this short excerpt can be found in Yuval Noah Harari's latest contribution, "21 lessons for the 21st century".

A closer look at the world of chess might indicate where things are heading in the long run. It is true that for several years after Deep Blue defeated Kasparov, human/computer cooperation flourished in chess. Yet in recent years, computers have become so good at playing chess that their human collaborators have lost their value and might soon become utterly irrelevant.

On December 7, 2017, a critical milestone was reached, not when a computer defeated a human at chess – that's old news – but when Google's AlphaZero program defeated the Stockfish 8 program. Stockfish 8 was the world's computer champion for 2016. It had access to centuries of human experience in chess, as well as decades of computer experience. It was able to calculate seventy million chess positions per second. In contrast, AlphaZero performed only eighty thousand such calculations per second, and its human creators had not taught it any chess strategies – not even standard openings. Rather, AlphaZero used the latest in machine-learning principles to self-learn chess by playing against itself. Nevertheless, out of the 100 games that the novice AlphaZero played against Stockfish 8, AlphaZero won twenty-eight and tied seventy-two. It didn't lose even once. Since AlphaZero had learned nothing from any human, many of its winning moves and strategies seemed unconventional to the human eye. They may well be considered creative, if not downright genius.



Can you guess how long it took AlphaZero to learn chess from scratch, prepare for the match against Stockfish 8, and develop its genius instincts? Four hours. That is not a typo. For centuries, chess has been considered one of the crowning glories of human intelligence. AlphaZero went from utter ignorance to creative mastery in four hours, without the help of any human guide."

PEAT-CUTTING.....now this is more my speed. And BTW, it is well known that the Society's own resident Irishman, David Macdougall, is a seasoned peat-cutter. In fact, that could very well be him in the picture..... really leaning into it..... jacket still gentlemanly buttoned, pant-legs cleverly tucked into his "wellies". I'd like to see AphaZero do this! More on peat-cutting in future, I hope.....perhaps a Short Course. David?



Peat cutting in County Mayo

Since time immemorial the blanket bogs of Western Ireland have been an invaluable source of peat, providing convenient and welcome heating for so many houses and farms. The peat can also be regarded as a green resource, in that most of the great bogs are largely a feature of man's own activities. After the Pleistocene ice sheets finally withdrew, around 15 000 years ago, most of Ireland was soon covered by thick forests of deciduous and pine species. It was Neolithic farmers who cleared much of that early forest, and once devoid of trees the soils were leached by rainfall that washed away nutrients. Leached minerals were also re-deposited as a hard pan lower in the soil profile, thereby hindering drainage. Heathers and rushes grew on the poor, leached, acidic and saturated soils, and then rotted down into an ever-deepening layer of peat. Trees were choked, and Neolithic walls were buried in the encroaching peat: the remains of both are occasionally exposed in the modern peat diggings. Much of Ireland's peat dates only from around a thousand years ago, and about a third of it has since been lost to more than 300 years of extraction for fuel. When peat is cut it is known as turf, and by Irish tradition it is only cut after St Patrick's Day, when spring winds have started to dry the boglands. The turf cutter works with a specially designed 'slane', throwing cut blocks of turf up onto the bog's surface, where they are then stacked in order to drain naturally and lose some of their huge initial water content. Partially dried, the turf blocks are then gathered from the bogs and restacked against the farms and houses; there they dry completely, to be ready for the fires through the next winter. (Photo and text: Tony Waltham)

Cheers all. Hope to see you at the upcoming talks, or elsewhere.
El Presidente, September 30, 2019



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