



GAC-CS NEWS

Geological Association of Canada—Cordilleran Section Newsletter

April 2014

Searching for a Definite History of the GAC-CS By Carl Verley and Jim Ryan

In our last newsletter (September 2013), the new GAC-CS president Thomas Bissig introduced himself to the Section, and gave a short synopsis of GAC-CS's historical role in the Cordilleran geoscience community. He made a statement in error that the Cordilleran Roundup had started as a GAC-CS initiative in the 1960's. That misstatement was founded on information provided by some of his councillors, who themselves don't know the real history of the GAC-CS from its inception in the late 1960's. The misstatement was rightfully challenged by several of the geoscience community elders. Bob Cathro and Nick Carter, in particular, have provided us with a history of Roundup and some useful insight into the development of the local geoscience community through symposia, conferences and other events. Some of this is elaborated upon below. Before our next newsletter, we endeavour to seek out a more complete account of GAC-CS's beginnings and history by consulting with some of the old guard, and digging through some of our own long-stored paper records. If you have an interest in contributing some content to that history, please respond to Carl Verley at: cverley@telus.net

The History of Roundup

Bob Cathro recounts: "The first annual Cordilleran Exploration Roundup took place in January 1984 in connection with the [then] BC & Yukon Chamber of Mines Annual General Meeting. I was the President of the Chamber in 1982 and 1983 and this meeting marked the end of my term. Nick Carter was the Chairman of the meeting. I can assure you that there was no involvement by the GAC, the Cordilleran Section, the Mineral Deposits Division, the CIM, or UBC in this project. The

Chamber organized it as a joint meeting of the BC, Canadian and Yukon Geological Surveys, which all suffered from poor attendance at their separate open house [events] held in Victoria, Ottawa and Whitehorse. It proved to be a WIN-WIN idea with all the surveys and industry benefitting by everything being held in Vancouver at the same time. It has steadily grown over time."



W.W. Hutchinson

Roundup vs. The Cordilleran Symposium

In the late 1960's, William (Bill) Hutchinson, a geologist with the GSC in Vancouver, was the driving force behind the transformation of the Vancouver Geological Discussion Group into the Cordilleran Section of the GAC. Nick Carter comments: "What guaranteed the initial success of the Cordilleran Section of GAC was its sponsorship of annual two day geological conferences [Cordilleran Section Symposia] held in early February at the Bayshore. These began in the early 1970s [under the leadership of Hutchinson] and continued into the early 1980s before running out of gas prior to the first Cordilleran Roundup in 1984."

Continued on page 3

In This Issue

- A look back at the early beginnings and history of the GAC-CS and Roundup (p. 1 & 3)
- Summary and upcoming Exploration Breakfast Series talks (p. 2)
- Geoscience BC 2013 recap and 2014 activities (p. 4-5)
- Brown bag lunches are back! (p.5)
- SEG UBC chapter update (p.6)
- Review of the Howard Street Robinson Lecture (p.7)
- Upcoming meetings (p.6, 7 & 8)

2013-14 Exploration Breakfast Talk Series

By Chris Leslie

The 2013/2014 installment of the Cordilleran Section Breakfast Series was once again a great success. We heard stimulating talks from a wide range of companies covering projects focused on various commodities in multiple jurisdictions in Canada. The concept for the breakfast series was initially designed to stimulate discussion and promote early exploration ideas and highlight new discoveries and technical successes. In that regard, we started the season in October with David Blann of Happy Creek Minerals, who presented exploration results and concepts from the Fox tungsten project in central BC. Tempelman-Kluit followed in November and presented highlights from Prosper Gold's first exploration program on the Sheslay copper and gold project in northwest BC. The December slot was filled by Rob Mackie of CSA Global Canada who presented on behalf of Prosperity Goldfield who are working on the Kiyuk Lake gold project in Nunavut. The New Year opened strong and shifted to the Yukon where Jared Tarswell presented an update on work completed by Rockhaven Resources on the Klaza gold project. Following a short break in February due to the GAC Howard Street Robinson Lecturer tour presentation by Jacob Hanley, a presentation by Erin Workman of NovaCopper took place in March. Ms. Workman presented exploration highlights from a multi-phase exploration program on the Bornite Ridge copper project in northwest Alaska.

This season, the committee decided to change the start time of the presentations in order to attract a larger audience. The presentations now take place at 8:30 AM with registration at 8:00AM on the first Tuesday of each month. The venue is still the Discovery Center in the Geological Survey of Canada offices in downtown Vancouver.

The GAC Cordilleran section Breakfast Series has proven to be a good platform for junior mining companies to discuss early-stage exploration highlights and new concepts. The organizing committee is therefore constantly on the look-out for new companies to take advantage of this opportunity. Please feel free to contact the Cordilleran Section with ideas or suggestions you may have. We look forward to finishing the season off strong with a presentation on May 6th by Robert Carne of ATAC Resources. Mr. Carne will present an update on gold exploration the company is doing in the Yukon Territory.

Upcoming Exploration Breakfast Series

Rackla Gold Project Update

By Robert Carne

Date: Tues May 6th, 2014 Time: 8:30 am; Registration starts at 8 am.

Place: Discovery Center,

GSC

1500 - 605 Robson Street, Vancouver, BC

Space is limited! RSVP:

morning talks@gaccs.ca



Rob Carne, President and Director of ATAC Resources

If you wish to contribute something to the newsletter, please send it to the editor:

news@gac-cs.ca

The GAC-CS

The Cordilleran Section of the Geological Association of Canada consists of a diverse group of people who have an interest in and professional affiliation with the earth sciences as they apply to the mountainous terrain of Western Canada, known as the Cordillera.

Our mandate is to provide a common meeting ground for our membership, which includes representatives from industry, the provincial and federal governments, educational institutions and the general public. As one of the more active sections of the Geological Association of Canada (another local section, in Victoria, is the Pacific Section), we publish books and field guides. organize a semi-regular brown bag lecture series, as well as sponsor high quality lectures, short courses, and conferences. In addition, our newsletters, current event list, and local geoscience links keep our community informed of events and organizations in our area.

History Continued from page 1

Bob adds: "Both the Roundups and the GAC Cordilleran Symposia have enriched the cordilleran geoscience and exploration scene in major ways. There was also one other, the CIM [Canadian Institute of Mining, Metallurgy and Petroleum] District 6 [BC & Yukon] meeting held in autumn in the late 60s and early 70s, every second year if my memory is correct. They were held in cities such as Kamloops, Smithers, Cranbrook and Prince George and were a combination of geology and mining, plus mine tours. I recall a trip underground at Sullivan and pit tours at Endako and Highland Valley. Like the GAC Cordilleran Section series, the CIM meetings just faded away when the energy of the organizers and new ideas dissipated."

Bob reveals that the principal difference between the Cordilleran Symposia and the Cordilleran Roundup is that the Symposia was organized by government and academic geoscientists and focussed on the fundamental bedrock features that were just beginning to be studied in detail. "Those were important new tools for exploration geologists." The CIM meetings and Roundup are organized for the most part by industry geoscientists and the focus is on exploration. "It is a happy symbiosis" between government and academic geoscientists.

"There is no question that all these initiatives have significantly contributed to the growth of Vancouver as a world-class geoscience and mineral exploration centre. The AMEBC [formerly the BC & Yukon Chamber of Mines] Roundups have certainly lifted this activity to a new level, both in terms of content and attendance. As a charter member of the team that worked on both Rocks to Riches and its successor, Geoscience BC, I would argue that they were both ideas that grew out of the groundswell generated by Roundup."

Bob recounts that Roundup was initially conceived as a way to stem the losses of the Chamber's AGM event during a very serious downturn in the mining industry, and to also turn the open houses of the three geological surveys into productive events. "Nobody who participated in the early Roundups had any idea that it would attract so many dedicated supporters and become so successful."

Some unanticipated benefits from Roundup emerged: Roundup became the financial salvation of the Chamber at a time when all the petroleum majors began to divest their mineral assets, and allowed the creation of the new platform that is now AMEBC; Survey geologists, plus those in academia who derived their funding in whole or in part through industry support, learned how to summarize the highlights of their field work by the end of the year and present it to the clients in January, in time for it to be used to plan and finance the next season of field work; Most survey geoscientists adapted well to a new world of targeted field work in order to obtain financial support, and geological tourists, who mainly collected field data and rarely published anything, faded away.



Exploration in BC (photo: Chris Weldon)

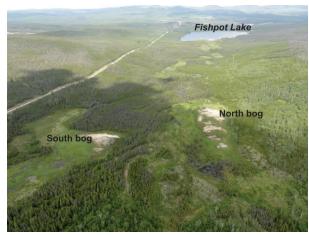
"The Vancouver/BC geoscience community has evolved in a unique way, based on strong sharing of results and ideas. This was well illustrated during the period between the mid 60s to the late 80s, roughly equivalent to the main porphyry exploration phase, when foreign petroleum companies arrived. They tended to bring with them their genetic attitude that secrecy was vital because they knew more than anyone else. They quickly learned that they didn't and that competitors wouldn't share with them unless there was reciprocation. Most geologists who have been here a long time be-

lieve that the local philosophy of sharing and cooperation on all but the most confidential matters started with the Minister of Mines Reports, the mandatory filing of assessment reports, open access to the government data base, and the rugged terrain that encouraged common sense."

Geoscience BC Update By Andrea Clifford

Geoscience BC is a non-profit organization that receives funding from the Provincial Government. Our mandate is to attract mineral and oil & gas investment to British Columbia by generating, interpreting and publicly distributing geoscience data in partnership with First Nations, communities, governments and industry. Below is an update of Geoscience BC's minerals projects.

In 2013, Geoscience BC launched its newest major minerals initiative, TREK. Short for Targeting Resources through Exploration and Knowledge, TREK included a 104,000 line kilometre airborne magnetic survey, a geochemical program that included the collection of 964 till and lake sediment samples, and a geothermal sampling program that concentrated on the Nazko bogs and included mapping, ground and surface water samples from 31 sites plus soil, stream and travertine samples collected from 44 sites. Talks about the TREK project were given at Minerals South in November 2013, at AME BC's Roundup Conference at the end of January 2014, and will be delivered at the KEG and Minerals North conferences this spring.



Nazko bogs (photo: R. Lett/W. Jackaman)

The greater TREK survey was flown by Aeroquest Airborne Ltd. and was merged with airborne magnetic data purchased from Amarc Resources Ltd. A smaller airborne magnetic survey block comprising higher resolution helicopter-borne data was purchased from RJK Explorations Inc. and Deveron (Greencastle) Resources Ltd. within the Blackwater Gold District and released separately to add to this area of high interest. After the release of the airborne magnetic survey during the first Monday of Roundup, 1,350 hectares within the TREK survey

Burns
Flake
Endako
Vanderhoof

Ootsa
Lake

Anahim
Lake

Amarc geophysical survey outline

TREK geophysical survey outline

Outline of the TREK project site (Geoscience BC)

area were staked by the following Friday afternoon.

During the KEG conference, 10 Basal Till Potential Maps (BTPMs), developed in partnership with the British Columbia Geological Survey, will be released for 1:50,000 scale NTS map sheets 093B/12 & 13, 093C/09 & 16, 093F/01 & 08, 093G/04, 05, 12 & 13. A second year of geochemical sampling will be undertaken in 2014, from which additional BTPMs for the TREK project area will also be produced.

Geoscience BC Update continued

In addition to the new TREK sampling and in partnership with the BC Geological Survey and the Geological Survey of Canada, approximately 1800 till samples were retrieved from archive storage for reanalysis to the same standards as the new surveys. In 2014, the Geology and Integration component of TREK will begin, and will be conducted by the Mineral Deposit Research Unit (MDRU) at the University of British Columbia.

A final pdf geology map and accompanying data for the Mount Polley porphyry copper-gold deposit in central BC will also be released during the KEG conference. This map is based on several years of work by Imperial Metals Corporation geologists and includes lithology and structural layers, as well as mineralization and alteration maps that draw on surface observations and the detailed drill hole database in the mine area. It was produced in partnership with Imperial Metals Corporation through Geoscience BC's Porphyry Integration Project. A draft version of this map was released during the SEG conference in September 2013, as well as a draft version of an atlas compiling layers of information for the Endako mine. Five to six atlases of porphyries in BC will be the final products of the Porphyry Integration Project and release of these atlases is anticipated later this year.

At the end of 2013, a number of reports were released, including a proof-of-concept geochemical study conducted by Dave Heberlein, Colin Dunn and Bill MacFarlane called "Use of Organic Media in the Geochemical Detection of Blind Porphyry Copper-Gold Mineralization in the Woodjam Property Area, South-Central British Columbia (NTS 093A/03, 06)." Another report, called "Linking Porphyry Deposit Geology to Geophysics via Physical Properties: Adding Value to Geoscience BC Geophysical Data" was produced by Dianne Mitchinson, Randy Enkin and Craig Hart. The latter report defines relationships between geophysical datasets collected as part of Geoscience BC's QUEST surveys and porphyry deposit geology at six porphyry deposits: Mount Milligan, Endako, Huckleberry, Bell, Granisle and Morrison. Physical rock property data from these six deposits are presented and observed trends within the detailed QUEST and QUEST-West geophysical datasets and mapped geology are discussed. The resulting physical rock property data compilation has implications for improving interpretations of geophysical data from porphyry deposits. A synopsis of physical property criteria defining hydrothermally altered or mineralized rocks in BC porphyry settings is provided, which can ultimately be used for ranking similar mineral exploration targets throughout BC, thereby minimizing exploration risk.

The Brown Bag Lunch Series is Back! By Carl Verley

During the latter part of 2013 the Section brought back its "Brown Bag" discussion groups with two presentations at the GSC's Discovery Centre. These noon hour presentations, given by local professionals in the geoscience community, had a technical emphasis with a focus on geochemistry and its application to exploration.

The first, on Oct 22, 2013, was presented by Dr. Colin Godwin, PhD, PGeo, PEng, and focussed on getting the most out of multi-element geochemical data using relative value and discrimination factor systematics. Colin's presentation can be found in the Talks Archive on the Section's website.

On November 26, 2013, Dr. Dennis Arne, PhD, PGeo (BC), RPGeo (Aus) of CSI Global presented "Catchment Basin Analysis – Add Value to Regional Geochemistry". An abstract of Dennis's talk can also be found in the Talks Archive on the Section's website.

Noon hour presentations at the Discovery centre venue provide a great opportunity to bring updates and information on advances in exploration technologies to the local community. If you have any thoughts or suggestions on topics that may be of interest, please let us know (talks@gac-cs.ca).





UBC SEG-GAC Student Chapter Update

By Irene del Real and Matt Manor

The University of British Columbia's SEG-GAC Student Chapter has organized a variety of speakers, short courses, and field trips during the 2013-2014 academic year. Speakers for our traditional Friday evening talks have included Dr. John-Mark Staude, Dr. Maurice Colpron, Dr. Jim Mortensen, and Dr. Patrick McAndless, among others, offering a wide range of knowledge and expertise in ore deposit processes, mineral economics and career building. The student chapter also co-organized a 2-day lecture series by the GAC Howard Street Robinson lecturer, Dr. Jacob Hanley of Saint Mary's University, who gave talks at the UBC-Point Grey and UBC Robson Square locations in Vancouver.



In February and March, two Leapfrog short courses and a gun safety course were offered to both graduate and undergraduate student members. Most recently, students toured the Britannia Mine Museum, a historic Cu-Zn-Au VMS deposit in southwestern British Columbia, and the Howe Sound Brewery in Squamish, B.C. On April 28th, 23 students and industry members depart for our annual international field trip, this year to Namibia, Africa. Mineral exploration projects, mines, and geologic sites will be visited on a two week trip, including visits to Etosha and Fish Canyon national parks to experience authentic African safaris.

Thanks go to GAC, SEG, Teck Resources Ltd, Anglo American, Barrick Gold, Agnico Eagle Mines Ltd., EB Holdings, AME BC, and BJ Price for sponsorship that made this year's activities and trips possible.

Upcoming Meeting:

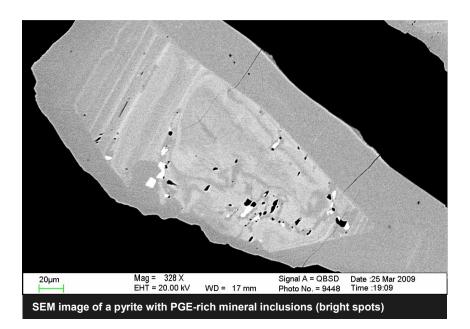
Canadian Institute of Mining, Metallurgy and Petroleum





For more information visit

http://vancouver2014.cim.org/



2014 Howard Street Robinson Lecture - Jacob Hanley

By Thomas Bissig

Platinum group elements (PGE's) in alkali porphyry Cu-Au deposits of the Canadian Cordillera were the theme of this year's GAC - Howard Street Robinson lecture given by Jacob Hanley of St Mary's University in Halifax, Nova Scotia. The topic is highly relevant to many explorers in British Columbia and elsewhere. Jacob provided some new insight into the origin of PGE mineralization in alkalic porphyry deposits, based on his current and past work on Mt. Milligan, Mount Polley and the Iron Mask batholith. The PGE's, while spatially overlapping with Cu-Au ore, were introduced at separate hydrothermal stages and are mostly located in early stage Ni-Co-rich pyrite and later overprinting epithermal veins. Highly oxidized ankaramitic magmas are believed to have contributed the bulk of PGE's to the magmatic system.



Dr. Jacob Hanley

The talk, held at UBC's Robson Square, was co-hosted by the GAC-CS, MDRU and the UBC-SEG-GAC student chapter. It was attended by approximately 50 people and those who didn't show up missed "the best talk in a while" as judged by an anonymous attendee. Prior to the presentation at Robson Square, Jacob also gave additional talks at Simon Fraser University and UBC on the role of volatiles in the formation of magmatic Ni-Cu PGE deposits.



Upcoming Meeting

The 10th BC Paleontological Symposium will be held May 9-12, 2014, at the University of Victoria. The symposium is hosted by the Victoria Palaeontology Society and the School of Earth and Ocean Sciences, University of Victoria. Sponsors are the British Columbia Paleontological Alliance and the Royal British Columbia Museum.

The Registration form, Call for Abstracts and General Information form are on the VicPS website vicpalaeo.org and on the BCPA website bcfossils.ca. Please note that the late registration fee has been waived and the regular registration fee of \$65 and the student fee of \$55 will continue to apply. The deadline for abstract submission is extended to April 18. Abstracts received later will be considered, but we can not promise they will be included in the Abstracts booklet.

The keynote speaker at the symposium will be Dr. Robert Gaines, Pomona College, California, who will be speaking on the recently announced Burgess Shale-like fossil site discovered in Kootenay National Park. Dr. Gaines is a key member of the team making the discovery and lead co-author on the paper published Feb. 11, 2014, in Nature Communications. The scientifically important discovery was widely reported in the media.

Upcoming Meetings

GSA Annual Meeting

Each year the Geological Society of America's Annual Meeting & Exposition is defined by its broad range of scientific content and the



profound professional connections that participants find there. GSA is delighted to share this experience in beautiful Vancouver, British Columbia at the Vancouver Convention Centre for the very first time!

Our technical program is built from the ground up, and momentum is building toward another extraordinary meeting with 246 topical sessions proposed across the wide spectrum of geoscience disciplines. You can submit your abstract online beginning 1 April 2014. The deadline for submission is 29 July 2014, 11:59 p.m. Pacific Daylight Time.

Field trips are another unique feature of the GSA Annual Meeting, and an integral part of our connection to the Earth. This year more than 30 have been submitted, along with an even greater number of short courses. Register for these events and more beginning in June. Register by 15 September for the best pricing.

You can view all topical session, short course and field trip information online, but here are a few field trip offerings that are of interest to the Cordilleran community:

- Canadian Cascade Volcanism: Subglacial to explosive eruptions along the Sea to Sky Corridor, British Columbia
- Tertiary stratigraphy and structure of the eastern flank of the Cascade Range, Washington
- Mount Baker lahars and debris flows, ancient, modern and future
- Volcanism and interglacial interaction in the Wells Gray Clearwater volcanic field, east central British Columbia
- Southern British Columbia porphyry Cu (-Au, Mo) deposits and their host rocks
- The Cretaceous-Cenozoic Coast-Cascade orogen Chilliwack Valley-Harrison Lake Connection
- The life and times of the Cordilleran Ice Sheet around the southern Fraser Plateau. BC

www.geosociety.org/meetings/2014/

The GAC-CS wishes you a great field season and we'll be back in September with our next issue!

Council

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Erica Williams (Riverside Secondary School)

Contact Us

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