

Elements

FALL 2013



Edward Jack Savannah
by, Patience Birley

Edward Jack Savannah

Those in the Chemistry Department with a sufficiently good memory may recall an analytical laboratory on the third floor of Elliott, roughly where room 338 is today, designated the Ed Savannah Memorial Laboratory. While lab renovations were being carried out some years ago the pastel portrait of Dr. Savannah, which had hung in the

laboratory was removed, presumably for safe-keeping, and its location subsequently forgotten.

Some sleuthing has revealed that the portrait has not been lost but had found its way into the University Archives, specifically the Art Collection of the Legacy Gallery. It is hoped that a color photograph of

the original by Patience Birley can be made, framed and returned to a place of distinction within the department's teaching space.

Dr. Savannah was born in Victoria in 1898 and went on to teach chemistry for thirty years from 1929 at the forerunners of UVic. His sudden death in October 1960, at the commencement of the fall teaching term, created an emergency situation. Fortunately, a recent chemistry graduate from the University of Edinburgh had recently arrived at UBC to take up post-doctoral studies and he was persuaded to come to Victoria College post haste to assume teaching duties. His name? - Alexander (Sandy) D. Kirk.

That a young Victoria lad, in the early years of the 20th century, should have become a chemistry scholar must have been unusual. Peter Smith in his 1993

book "A Multitude of the Wise" tells that Savannah took degrees in both arts and science at the University of California, with additional graduate work at Washington. Fortunately we also know something of his personality from a reminiscence printed in the Victoria Times of 01 November 1960. "He was quiet in company, but gifted with the ability to encourage young people to better effort and to a fuller understanding of themselves. He built confidence in his students by a simple appreciation of their abilities." Fine qualities indeed in a teacher.

By, Walter J. Balfour.

Walter contributed this article in January of this year and has since provided the framed colour photograph. It now hangs in the corridor outside of Elliott 328, our current undergraduate analytical chemistry laboratory.

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UVic ends it's 50th year with flair and fun...

From the Anniversary Festival (including Chemistry's Reunion and Open House) in September 2012, to Congress 2013 in June 2013, UVic's 50th year has been an exciting one! This important milestone was well observed throughout the year, and wrapped up in style during June...

June 3 – 8 2013. Congress 2013 of the Humanities and Social Sciences. UVic was the place to be during Congress! "Between June 1 and 8, 2013, Victoria pulsed with new ideas, energy and scholastic rigour as approximately 70 associations representing over 7,000 academics, international recognized researchers, policy

makers, and practitioners shared findings, refined ideas and built partnerships to help shape the Canada of tomorrow. Congress represented a unique showcase of scholarly excellence, creativity and leadership." <http://www.uvic.ca/anniversary/events/highlights/congress2013/index.php>

Many activities, including public lectures, displays, food, and music were open to everyone, making it a wonderful week to be working on campus.

Celebrating shared achievements, 2000 – 2013. "On Thursday, June 27th the entire university community (was invited to a celebration of all that

we've been able to accomplish together during David Turpin's 13 years as president. The event (was) also an ice cream social, to mark the end of UVic's 50th anniversary" celebrations. (The Ring, June 10, 2013) Dr. Turpin was honoured by the naming of the "David Turpin Building", formerly the Social Sciences and Math Building, and by the presentation of a portrait painted by David Goatley.

For more information see: <https://www.uvic.ca/anniversary/events/highlights/achievements/index.php>

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University
of Victoria

50
YEARS

Research News

Fraser's "lack of imagination" leads to innovative research...



My high school chemistry teacher while growing up in Medicine Hat doubled as a part-time farmer... we didn't do very many experiments in class. It was my older sister, Suzanne,

who really ignited my interest in organic chemistry. When I started at the University of Alberta, all that I knew was that I liked science and math. My sister was just starting a Ph.D. in carbohydrate chemistry. Partially out of a lack of imagination, I signed up for a Major in Chemistry to see what it was all about. I was instantly grabbed by the puzzle-like aspect of planning an organic synthesis. During my first summer lab job in David Bundle's carbohydrate research lab, I started two fires, heated a pyridine still for hours without turning on the cooling water, ended up extracting an entire rotovap bath in a 5L separatory funnel, and broke so much glassware that it cost Dr. Bundle almost as much as my salary did for the summer. I was hooked on organic chemistry.

The following summer (in a different lab...),

I moved to natural product synthesis (three more fires, but not so much breakage). Then I spent a year doing a co-op term in a pharmaceutical scale-up lab (where they ended up asking me to write their official Standard Operating Procedure for putting out small fires). When I finally did an Honour's thesis in supramolecular chemistry without setting any fires at all I figured I was ready for graduate school.

At the Scripps Research Institute in San Diego, I worked for Julius Rebek, Jr. — a visionary and a fantastic mentor. I made and studied molecules that self-assembled into really neat and very complex structures in organic solvents. They were meant to be model systems for the fascinating and complex assembly processes that underlie all of life, but I was always kind of bothered by their inability to work in water. The more I read, and the more I tried, the more I realized that many of the simplest rules of molecular recognition don't operate when water is involved.

It struck me that the best way to figure out that problem was to work on medicinal chemistry, so I moved to a post-doc in the lab of François Diederich at the ETH-Zurich, Switzerland where I created inhibitors for a novel malarial drug target. He was also a terrific mentor—he knew every reaction that was being done by every one of his 40

group members, and worked hard to support us in our career pursuits.

François' philosophy, which I've adopted, is that you can learn the most about molecular recognition in water by targeting the 'real' biomolecules that inhabit it. The role of desolvation in processes like protein folding and protein-ligand binding is way less predictable than the separation of oil and water, no matter what your Biochemistry textbook tells you. Much of our current work is focused on unraveling these relationships by applying physical organic tools to the study of synthetic binders of biomolecules. Our favourites are those that involve methylation. It is the simplest and most subtle of all biochemical modifications, and is critical in such different things as protein interactions, stem cell programming, and aggressive forms of cancer. This allows us to work on applied problems like cancer therapeutics, cancer diagnostics, and inventing new kinds of biochemical reagents, while always keeping an eye open for basic discoveries in molecular recognition, solvation, and the chemical biology of these pathways.

In my spare time, my ideal day would involve my family, coffee, cycling, coffee, soccer, coffee, and wine. And probably Scrabble.

Contributed by Fraser Hof, September 2013.

Recent ENGAGEMENTS, and other grants!

Five NSERC ENGAGE grants, each in the amount of \$25,000 have been awarded for the following projects:

Dave Berg is collaborating with SLI Beauty on the project "Point of Use Catalytic Generation of VOCs from Nonvolatile Precursors for Hair Care Applications".

Alex Brolo is working with Photon Control Inc. to develop a miniaturized Raman Spectrometer.

Fraser Hof is collaborating with Stressmarq Biosciences on chemical immunogens that will help them make better research-grade antibodies.

Dennis Hore is working with MAPEI Inc. on a project to characterize the surface of pressure-sensitive adhesive films.

Lisa Rosenberg is collaborating with Seastar Chemicals Inc. on a project entitled "Polysilane sol-gel precursors for inorganic thin films."

Grand Challenges Canada awarded \$100,000 to Alex Brolo and his group for the development of a "low-cost plastic strip containing gold nanoparticles that, in combination with a hand-held device, will allow for instant, bedside detection of" dengue fever. This product will be tested in Brazil, Dr. Brolo's home country. Dengue fever is transmitted by mosquitos and affects 50 – 100 million people every year.

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Awards

During the first week of Fall and Spring term our Chair, Neil Burford, presents awards to the top students in the previous term's first and second year courses. On January 4, 2013 the Fall award winners were announced at a pizza party in the third floor lobby of Elliott, as follows:

Chemistry 101: Best overall – **Michelle Kim**; Best final exam – **Jake Zimmermann Simmons**; Best lab performance – **Luuk Veenis**.

Chemistry 212: Best overall – **Karlee Bamford**; Best final exam – **Olivia Abbott**; Best lab performance – **Amelia Hesketh**.

Chemistry 213: Best overall – **Amarjot Dev**; Best final exam – **Scott Bell** and **Nathalie Kupfer**; Best lab performance – **Nicole Poy**.

Chemistry 231: Best overall – **Jordan Friedmann** and **Janessa Li**; Best final exam – **Connor Bohlken**.

Chemistry 232: Best overall – **Steven Noble**; Best final exam – **Kate Dixon** and **Samantha Partridge**; Best lab performance – **Misha Warbanski**.

Chemistry 245: Best overall – **Tasha Jarisz**; Best final exam – **Olivia Abbott**; Best lab performance – **Sean Workman**.

March 2013 – Frank van Veggel received the 2013 Craigdarroch Award for Excellence in Innovation and Entrepreneurship. "Frank van Veggel is a true pioneer in the world of prostate cancer research, creating very

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Special Events

The second annual Faculty of Science Honours Fest was held in the Bob Wright lobby, March 1, 2013.

Several Chemistry students in our honours program presented recently completed or on-going research projects in a conference-style poster session – a great experience for all who took part. Well done everyone!



Jessamyn Logan

IdeaFest 2013, March 4 – 15, was a two week event put on by UVic's Research Services to showcase amazing research being done at UVic.

Fraser Hof and Jeremy Wulff represented Chemistry by presenting public lectures covering current hot topics in health. Fraser's lecture was "The mighty methyl: how one carbon atom controls your DNA (and might lead to a cure for your cancers)" and Jeremy presented "The Microbial Arms Race: How Drug Resistance Happens in Influenza and What to Do About It". Both talks were very well attended and received excellent feedback. Thank you Fraser and Jeremy!

Chemistry's Periodic Pacers participated in the Times-Colonist 10K on April 28, 2013, placing first among 18 teams in the University/ Post-Secondary category. Congratulations go to team members: Kevin Allen, Michael Brant, Saurabh Chitnis, Jordan Cramen, Sarah Douglas, Brian Kirk, Deborah Michaels, Emma Nicholls-Allison, Lisa Rosenberg, Corey Sanz, Benny Sio, and Jeremy Wulff on this outstanding achievement!

Chemistry's new Nuclear Magnetic Resonance Facility opened on May 3rd, 2013.



Chris and Chris cutting the ribbon

ful new facility, located in Petch 092, is roomy and bright, and provides space for future expansion. At this time it houses three Bruker instruments: an AVANCE3 300, an AVANCE2 360, and an AVANCE1 500. The Department celebrated the opening with a ceremonial ribbon-cutting by Christine Greenwood and Christopher Barr, tours of the facility, and delicious refreshments for all.

Sarah Tabet presented a talk on chemical tools for epigenetics for the Biomedical Research Lunch Seminar series on May 15, 2013.

On May 17th 2013, The Department of Chemistry provided a unique Professional Development opportunity for High School Science Teachers.



Alumni teachers at Pro-D Day

Over 20 local teachers joined us for a day which included a first year lab experience, a mini lecture, numerous chemistry demonstrations suitable for high school, and several short presentations from researchers describing what's new and exciting in their areas. These activities, together with lunch and a tour, made for a fun and inspiring day for everyone involved. Thank you to all contributors and participants!

Fraser Hof talks Prostate Cancer on CFAx radio, July 19, 2013.

Fraser was interviewed by Terry More regarding cancer in general and about his projects working on treatments for the most aggressive forms of prostate cancer. The interview is available here: <http://web.uvic.ca/~fhof/downloads/>

The 7th annual VIVA NMR symposium was held June 21st 2013 in the Bob Wright Centre at UVic.

This one day symposium brought together NMR users, researchers, and facility managers from Western Canada and the US Pacific Northwest to share information on topics of general NMR interest and to foster the development of a regional NMR community. Over 30 attendees enjoyed excellent seminar and poster presentations as well as a facility tour and barbecue. Thank you to Chris Barr for organizing this very successful event.

Chemistry welcomed a large group of new graduate students this September:

Stephanie Bonvicini, Fraser Burns, Jun Chen, Armita Dash, William FitzGerald, Ronan Hanley, Dillon Hofsommer, Wei Li, Natasha Milosevich, Vahid Moradi, Alok Shaurya, Robin Theron, and Karolina Papera Valente. Also, Muyang Zong is officially a new Physics graduate student however he will be studying in Chemistry with Alex Brolo. Welcome to UVic Chemistry everyone, and best wishes for a successful and enlightening time as a graduate student!

The annual CIC barbecue was held on September 8th 2013.

It was a lovely afternoon for the approximately 30 attendees who gathered at Beckwith Park for good food, games, and relaxing in the sun. Thank you to Dennis Hore and

Daniel Donnecke for organizing this very enjoyable get-together.

On September 16 and 17, 2013, Dr. Richard Zare visited the University as the 2013 Vifor Pharma Distinguished Speaker.

Dr. Zare, Professor of Chemistry at Stanford University, presented a scientific lecture, "Desorption Electrospray Mass Spectrometry" on September 16th and a public lecture, "Shaken, not Stirred: Chemical "Fizzics" and the Chemistry of Drink" on the 17th. The public lecture was held in the University Centre Farquhar Auditorium and was enjoyed by an enthusiastic audience of over 800 people. Thank you to Dr. Zare for the outstanding presentations, and to Vifor Pharma for their sponsorship.



Dr. Richard Zare

Chemistry's Periodic Pacers enter the largest UVic team in the 2013 CIBC Run for the Cure!

Emma Nicholls-Allison – for the fourth year in a row - recruited a large and enthusiastic team to represent Chemistry in the Run for the Cure, held at UVic on Sunday, October 6, 2013. Congratulations to: Karlee Bamford, Bree Bamford, Genevieve Boice, Michael Brant, Neil Burford, **Brian Coleman (fastest graduate student on the team)**, Blake Danis, Jason Davy, Krystyn Dubicki, Jordan Friedmann, Paul Gray, Ronan Hanley, Brooke Hayashida, Brian Hendry, **Samuel Hogan (fastest undergraduate on team)**, Stewart Lucas, Deborah Michaels, Matt Moffitt, Isabelle Moffitt, Emma Nicholls-Allison, Natasha O'Rourke, Rosemary Pulez, Lisa Rosenberg, Corey Sanz, Sarah Tabet, Kailey Wright, and **Jeremy Wulff (fastest faculty or staff on the team)**. Great job everyone!



Periodic Pacers Oct. 2013

Fraser Hof was the guest speaker for Café Scientifique on October 8, 2013. Fraser presented "Cancer Research in History and Modern Times: One Cure at a Time" to a large group at Hermann's Jazz Club. Café Scientifique is a monthly public discussion series sponsored by the University of Victoria Faculty of Science. For more, see: <http://www.uvic.ca/cafesci>

Golden Year!



Retired Professor, Dr. Gerald Poulton, is certainly not spending his “golden years” taking it easy. This year he won gold medals at three major squash competitions: **GOLD** in the 70+ division of the Canadian Open; **GOLD** in the 70+ U.S. Open; and **GOLD** in the 70+ division at the World Masters Games. En route to winning the world championship Gerry defeated the best players from Australia, South Africa, England and the U.S. **Congratulations on being the best in the world, Gerry!**

Grants, continued...

Tom Fyles and Robin Hicks received an NSERC RTI grant in the amount of \$66,000 to purchase a steady-state fluorimeter for Departmental use. It replaces an aging instrument and extends the detection range to the near-infrared.

Fraser Hof has recently received three major grants: a Genome BC grant in the amount of \$40,000 to work on Raman quantification of cancer biomarkers for early lung cancer detection; **a Prostate Cancer Canada grant of \$100,000** to work on the development of small molecule antagonists of CBX27 as epigenetic therapies for aggressive prostate cancer; and **\$149,600 from the Centre for Drug Research and Development** to develop a high throughput screen for CBX7 antagonists.

Matt Moffitt, and collaborator David Sinton, have been awarded an NSERC Strategic Grant of \$450,000 over three years to work with industrial supporters on a project entitled “Manufacturing Block Copolymer-Based Drug Delivery Vehicles in Microfluidics.”

Frank van Veggel, and collaborators, received a CIHR grant of \$100,000 for the project entitled “Development of an MR visible Biomarker for Tau following Mild Traumatic Brain Injury”; and **a Collaborative Research and Innovation Opportunities grant of \$750,000** for 3 years for the “Development of Highly Efficient and Specific Multi-modal Contrast Agents for Breast Cancer Diagnosis.”

News from Alumni

Joseph Gilroy (PhD 2008) After graduating from UVic, Joe spent nearly 4 years in the UK as a postdoc. In July 2012 he moved back to Canada and started as an Assistant Professor with the Department of Chemistry at Western University (was U of Western Ontario). Joe is loving his new job but admits to missing Victoria and the West coast “a lot”. So hopefully we’ll see you out here for a visit in the near future, Joe. 😊

Horace Luong (PhD 2008) Horace is currently residing in Winnipeg, MN and is a faculty member with the University of Manitoba’s Department of Chemistry. He was awarded their Faculty Association’s 2012 Merit Award for Teaching. **Congratulations Horace!**

Awards, continued...

small things – light emitting nanoparticles, to be precise – that can locate and attach to tumors in the human body, transforming into an effective visual marker for diagnosis and treatment plans. This ground-breaking research (in partnership with cancer research agencies and numerous industry partners) has resulted in 11 patents and disclosures to date and has the potential to be leveraged as a diagnostic tool in a number of other cancers – building on van Veggel’s reputation as an entrepreneur bent on making the world a better place one nanoparticle at a time.” (from the Ring, March 5, 2013)

March 27, 2013 - Scott McIndoe was announced the winner of the 2013 Faculty of Science Teaching Award. This very prestigious award acknowledges not only Scott’s talent for teaching but also his leadership and innovation in developing new approaches for student engagement. Scott will receive his award at the Faculty of Science Awards reception on November 26th. Congratulations Scott!

The list of NSERC graduate scholarship winners was posted late March. Marie Malone and Paul Gray received CGS-M scholarships and Genevieve Boice was awarded a CGS-D scholarship. These national awards are very difficult to win - congratulations Marie, Paul and Genevieve on this outstanding achievement!

May 2013 – Winners at the Alberta/ BC Inorganic Discussion Weekend: Emma Nicholls-Allison and Jessamyn Logan win graduate student poster prizes at the Alberta/ BC Inorganic Discussion Weekend, May 10 – 12, 2013 at UBC Okanagan in Kelowna, BC.

Peter Lee won a graduate presentation award at the 45th Silicon Symposium in Lubbock, Texas, May 21 – 23, 2013.

June 2013 - CSC award winners: Emma Nicholls-Allison and Sara Tabet received top oral presentation prizes and Paul Gray received an inorganic poster prize at the 2013 CSC conference in Quebec City.

June 2013 – Regivaldo Gomes won a BC Jobs Plan Scholarship in the technology category.

June 21, 2013 - VIVA 7 winners: Natasha O’Rourke won the best seminar presentation by a student and Peter Lee tied for the best poster presentation by a student.

The pizza party for Spring and Summer 2013 top students in first and second year courses took place on September 6, 2013. The winners were:

Chemistry 102: Best overall – **Michelle Kim**; Best final exam – **Brianne Henderson**; Best lab performance – **Michelle Dyrholm**.

Chemistry 222 Spring: Best overall – **Armon Molavi**; Best final exam – **Amelia Hesketh**; Best lab performance – **Jordan Friedmann**.

Chemistry 231 Spring: Best overall – **Tong Wu**; Best final exam – **Samantha Kennedy**.

Chemistry 232 Spring: Best overall – **Amelia Hesketh**; Best final exam – **Jordan Friedmann**; Best lab performance – **Michael Sullivan**.

Chemistry 101 Summer: Best overall – **Alexandra Vindisch**; Best final exam – **Suyang Hu** and **Anique Le Roux**; Best lab performance – **Henry Baxter**.

Chemistry 222 Summer: Best overall – **Helene Bibby**; Best final exam – **Stacey Le Doux**; Best lab performance – **Emma Abrioux**.

Chemistry 232 Summer: Best overall – **Samantha Kennedy**; Best final exam – **Gabriel David**; Best lab performance – **Christie Lombardi**.

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