

Welcome to our weekly SPCS newsletter for 2020.  
Please send me your news articles, photos, travel diaries, conference reports or funnys by 9am each Friday.  
Email [sharlene.wilson@canterbury.ac.nz](mailto:sharlene.wilson@canterbury.ac.nz)

 Facebook(@PhysandChematUC)

 Twitter (@UCNZ\_PhysChem)

 WeChat(Physical&ChemicalSciences)

## Jon's Weekly Report.

Kia ora koutou

You may/or may not have noticed that Rudi has abandoned us for both Thursday and Friday of this week, leaving me in charge. This makes it a great time to get orders signed off and deal with anything else involving school monies :).

Jokes aside, we have made it to the approximate mid-point of term one already (it is a seven week term of course).

In the last week we have had oral presentations from summer students in Astronomy/Biochemistry/Chemistry and Physics. The few that I saw were very professional.

Congratulations to Jodie Johnston for being awarded a College of Science New Ideas Seeding Grant for her project on 'Regulating Vitamin K Biosynthesis in Human Pathogens.' For the record, there are three of these awards plus a Research Linkages Seeding Grant made annually, each of which are worth 20K. The grant period can exceed one year, from memory a maximum of 18 months. They are largely targeted at early career academics so if that's you – go for it.

Congratulations also to Dylan Patterson for successfully defending his PhD thesis (entitled 'Astrophysical Contributions to the Fermi Galactic

Centre Excess') on Wednesday, as well as Jonty Scott who successfully defended this thesis (entitled 'Mist Chemical Vapour Deposition of Tin Oxide Thin Films and Nanostructures') on Friday last week.



Nga mihi nui  
Jon-Paul Well's (acting HOS)

## SPCS Te Kura Matū Seminar Series

Time/Date	Speaker	Talk Title	Location
Wed, 11 Mar 2020 12:00:00 NZDT	Eden E. L. Tanner	<a href="#">Where Physical Chemistry Meets Bioengineering: Elucidating Design Principles of Ionic Liquids for Transdermal Drug Delivery</a>	Beatrice Tinsley Room 112
Fri, 13 Mar 2020 11:00:42 NZDT	Professor Ben Gripaio	<a href="#">Particle Physics - Present and Future</a>	Beatrice Tinsley Room 112

21cm probe  $\lambda=21$  m  
100 x CMB resolution ( $\sim 10''$  at  $z=100$ )  
Optimal array  $\ell \sim 2\lambda$  or  $0-100$  km  
Sensitivity: millions of dipoles:  $\frac{B^2}{4\pi} > 10^6$   
 $\sim 10$  mK signal in bright sky foreground  $T_b \sim 1000$  K



### Health and Safety: Look how nasty dichloromethane can be! [American Chemical Society](#)

Safety is of paramount importance in chemistry laboratories. Chemists deal with a wide range of potentially dangerous substances, equipment, and processes including flammable solvents, toxic chemicals/waste, glassware, heating conditions, gas cylinders, and syringes. Although it is perhaps not one of the safety issues that receives much attention or makes headlines, needles are common in chemistry laboratories, and they have the potential to be incredibly dangerous. They are typically used to transfer solvents and/or reagents from one container to another but when not used correctly they are also very effective at delivering the same substances into the human body! Whereas gloves and lab coats can

protect against casual spills, there is little protection against a syringe needle. So, what would happen if you accidentally stabbed yourself with a syringe containing a residual amount of a common laboratory solvent after transferring the bulk of it to your reaction flask? What kind of damage would you expect, particularly if the solvent was highly toxic? Unfortunately, a real case occurred in my research group in June 2018 when a student injected himself with just a few drops of dichloromethane. The consequences were serious.

To raise awareness of the consequences of what may seem like an innocuous accident, my student and I have decided to share this story more widely. Some of the pictures shown below are graphic and may be disturbing. We show these

wounds, to fully inform the reader about the consequences of a misstep in performing a routine lab procedure. Additional images at different stages in the healing process are in Supporting Information.

Few would believe the consequences without seeing the pictures, and we felt that a description would not suffice.

The full article can be found on the [HS&W Learn site](#)

Richard Hartshorn has small bags of baby chocolate fish available to those who come to him with ideas and initiatives, near misses, or other useful H&S related things. Congrats to Owen for being the first recipient of the above mentioned chocolate fish for this article about the dangers of dichloromethane.



### Congratulations to Dylan Patterson (4/03/2020)

Join me in congratulating Dylan Patterson, who successfully defended his PhD thesis this afternoon.

The examiner was very impressed by his thesis and oral presentation.



### Congratulations to Shota Shirai (21/02/2020)

Congratulations to Shota Shirai, who did a very good job of defending his PhD Thesis Neuromorphic Behaviour in Nanoparticle Films, today.

Shota was supervised by Simon Brown and Saurabh Bose. Natalie Plank, from VUW, was the examiner.



### Congratulations to Jonty Scott (28/02/2020)

Congratulations to Jonty Scott who gave a well-attended presentation on his PhD work this morning, and answered questions from the examiners this afternoon.

Jonty's thesis title was: Mist Chemical Vapour Deposition of Tin Oxide Thin Films and Nanostructures, with Senior Supervisor Roger Reeves

Well Done Jonty.



### Publications

Phenotyping reveals the targets of a pseudo-natural product autophagy inhibitor.

**Foley, D. J.**; Zinken, S.; Corkery, D.; Laraia, L.; Pahl, A.; Wu, Y.; Waldmann, H. *Angew. Chem. Int. Ed.* **2020**, accepted. DOI: 10.1002/anie.202000364

Principle and design of pseudo-natural products.

Karageorgis, G.; **Foley, D. J.**; Laraia, L.; Waldmann, H. *Nat. Chem.* **2020**, 12, 227. DOI: 10.1038/s41557-019-0411-x

Image-based morphological profiling identifies a lysosomotropic, iron-sequestering autophagy inhibitor.

Laraia, L.; Garivet, G.; **Foley, D. J.**; Kaiser, N.; Müller, S.; Pinkert, T.; Wilke, J.; Corkery, D.; Pahl, A.; Sievers, S.; Janning, P.; Arenz, C.; Wu, Y.; Rodriguez, R.; Waldmann, H. *Angew. Chem. Int. Ed.* **2020**, 59, 2. DOI: 10.1002/anie.201913712

## The History of Bickerton's Clock. John Campbell, Physics Department 1961-64 (student), 1968-2004 (staff), 2004 – ?(Retired)

Canterbury College was incorporated in June of 1873 and started formal lessons in May 1874 with the arrival of the first Professor.

Professor Bickerton, the chemistry professor, was the first professor appointed (31st December 1873) by Canterbury College because it wanted someone who would “be expected to have a complete knowledge of Chemistry and to be able to teach it as applied to agriculture, arts and manufacture and also to teach pure mineralogy and electricity and its applications.” He accepted women into his first class so Canterbury College became co-educational without thinking. (A later professor arrived, horrified he hadn't been told women were admitted to classes.)

Bickerton had been asked to purchase, before he left England and to bring with him, apparatus necessary for a chemistry department. This clock could have been brought out by Professor Bickerton., otherwise was probably purchased by Professor Bickerton in the 1870s as the Chemistry department clock for the entrance foyer (Check the early Canterbury College

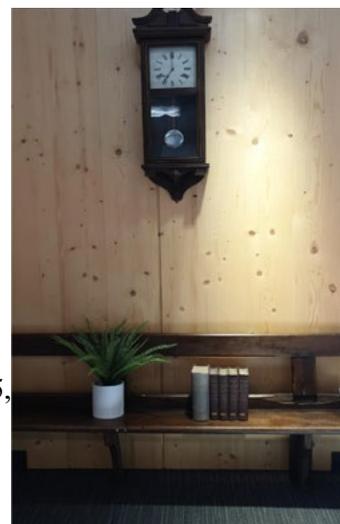
finance books.) The architect Mountford designed the stone lecture and registry building of Canterbury College, and they were built during 1876-7. For the laboratory building required at the same time by chemistry, Prof Bickerton didn't believe in permanent buildings as they would need adapting over time. So he insisted that the chemistry department building be of corrugated iron construction. The "Tin Shed", stood as a separate building in what is now the Arts Centre quadrangle. It was demolished in 1917.

In 1910 the "Tin Shed" had been replaced by a free standing stone building of the original Mountford exterior design on the south (Hereford St) side of the expanded Canterbury College site. This is now the Chemistry Building of the Arts Centre. The clock was mounted on the foyer wall. When the Chemistry department shifted to the Ilam site in 1967, the clock was given to the long-serving chemistry glass blower, Fred Downing, for safe keeping. It was mounted in his workshop. On Fred's retirement in 19xx, he gave the clock to me as someone who would treasure old items. I had it refurbished and mounted outside my room (720) on the 7th Floor of the Physics Building. I wound it each day.

When I finally retired in 2005 I gave the clock to Bryce Williamson,

then HOD of Chemistry, for safe keeping. It was refurbished by Ilam Watchmakers in May of 2005, paid for by the Chemistry department, and mounted on the wall of the Ruth-erford building 6th floor Chemistry side, outside the HOD's rooms. Chemistry never wound it up each day.

When Chemistry offices shifted to the new Tinsley Building in December 2019, the clock was protected by the physics and chemistry secretary Sharlene Wilson. On seeing it on a table there in January 2020, John Campbell mentioned the history and was asked to write it up. This he did starting 27/1/2020.



The Bickerton clock displayed in the School of Physical and Chemical Sciences level 4 Beatrice Tinsley building.

## Professor A. W. Bickerton, 1842 – 1929

<https://my.christchurchcitylibraries.com/professor-a-w-bickerton/>

Alexander William Bickerton was Canterbury College's (the forerunner of the University of Canterbury) first professor of chemistry, and a figure of some notoriety in early Christchurch. He was acknowledged as a brilliant teacher and Ernest Rutherford was his most famous pupil.

### Life in Wainoni

He built a large house (long since demolished) called “Wainoni” on 20 to 30 acres of land in what is now the suburb of Wainoni.

Initially he tried to establish a new form of society in a “federative home” at Wainoni, but this was not a success. He then turned the gardens of Wainoni into a pleasure garden where thousands came to watch the spectacles he created including naval battles with real explosives, shipwrecks and rescues, which were staged on an artificial lake. In 1904 the Avon Pine Sanatorium for fee-paying tuberculosis patients was opened on the grounds.

### Career and later life

Bickerton's controversial views on



Alexander William Bickerton, photographed on 15 June 1910

many topics including university reform and the institution of marriage finally led to him being sacked from the University. He returned to England in 1910 and died in 1929. The year before his death he was made Professor Emeritus of Canterbury College. His ashes are lodged in the wall of the Great Hall of the Arts Centre behind a bronze plaque.

## Gala Day at Wainoni Park – 1909

<https://lostchristchurch.wordpress.com/2012/05/26/>

There is great excitement in the households around Christchurch today. It's the Labour Day holiday and many families are going to Wainoni Park for the opening of the season. Everyone has been looking forward to the visit ever since the advertisement for the Gala Day first appeared in the Star. At just one shilling for adults, including tram fare and admission, and half price for children, it's one of the few affordable entertainments for working class families in Christchurch.

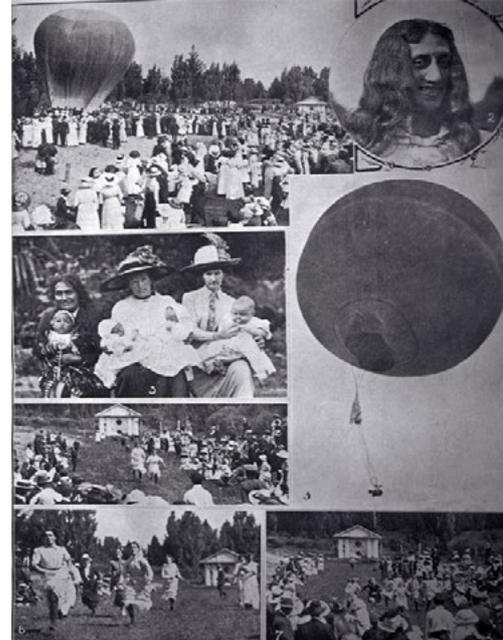
Boat Landing at Wainoni Park  
Boat, loaded with passengers arrives at Wainoni after leaving Barbadoes Street at 2pm. [1]  
As an extra treat, there will be the opportunity to take the afternoon motor boat, instead of the tram, leaving from the Barbadoes Street Bridge at 2pm for Wainoni. If that connection is missed, there'll always be the tram the whole way, with the prospect of being greeted by the Rouse brothers – Fred,



Boat, loaded with passengers arrives at Wainoni after leaving Barbadoes Street at 2pm.

Eddie and Dolf, dressed in their dashing uniforms – at the Wainoni tram stop entrance.

The park is owned by Professor Bickerton and his family, and covers 82 acres, with picnic grounds and space for 20,000 visitors, and a bicycle stand accommodating 1000 machines. There'll be plenty of entertainment, with rifle shooting, quoit-throwing, sports competitions, a Pierrot concert, clowns, Punch and Judy and a volcano scene called the "Last Days of Pompeii".



Annual gala at Wainoni Park on January 24, 1914. (1) The balloon ascent by Captain Jonassen. (2) A charming poi dancer; (3) Prize-winners at the baby show. (4) The young women's race; (5) The balloon ascent soon after the start, with Captain Jonassen on the trapeze; (6) The married women's race; (7) The children's race. [2]

Most importantly for the crowds, the Bickerton's are well-known for their chemical novelties, electrical displays, mock sea-fights, Heliostat lantern and hot air balloon ascents.

Read more about the wainoni pleasure gardens <https://lostchristchurch.wordpress.com/2012/05/26/wainoni-pleasure-gardens-and-tahuna-park-1909/>

## Library News-John Arnold

### New books and ebooks:

- \* Astronomy <http://bit.ly/xntPcH>
- \* Chemistry <http://bit.ly/2GYps4U>
- \* Physics <http://bit.ly/wafgjA>
- \* Adaptable new-titles-list generator <http://bit.ly/1brTI3E>

Obit. Katherine Johnson  
(NY Times)  
<https://nyti.ms/38YXnqx>

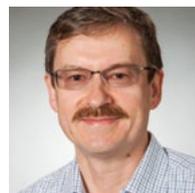
Grammar for Scientists  
(Sciblogs)  
<http://bit.ly/2v5Ap29>

Powerful Antibiotic Discovered Using  
Machine Learning for First Time  
(The Guardian)  
<http://bit.ly/2PsD7G2>

Library Liaison Officer for  
Chemistry  
Assoc. Prof. Greg Russell  
<http://bit.ly/2SvmjJd>



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