

NEWS

Diana Gordon has been co-opted onto the Council. Her enthusiastic help is most appreciated.

14th September!

We have scheduled the **2022 Hudson Lecture for September 2022** and the **2022 AGM will be held in October** with short presentations from the recipients of the 3 student grants.

You can read up on the discovery of the Baghdad battery (~220BC) an essential item for those writing with tablets?

Bet you never thought smoking was a way of avoiding Covid? Read the science.

Worried about eCar battery fade? Lust after the sound of a well-tuned V8? All is not lost.

WELLINGTON SCIENCE FAIR PRIZE

Brian Jones (Treasurer)

You can always email me at:

treasurer.RSNZ.wellington@outlook.com

Royal Society of New Zealand Wellington Branch Public Lecture

The 2022 Hudson Lecture

14 September 6.00 - 7.00 pm at the Royal Society of New Zealand premises, 11 Turnbull St Thorndon, Wellington

Missing pieces: Epistemic and argumentative

perspectives in science education

Dr Michael Johnston, Senior Fellow, New Zealand Initiative

On Wednesday 14 September at 6.00 pm the Royal Society of New Zealand Wellington Branch will host its 2022 Hudson Lecture. This is a free public lecture on science education in New Zealand. We hope that you will attend and contribute to the discussion afterward. Please come along. Full details of the lecture are given below.

In this lecture, Dr Johnston will consider science education from theoretical, epistemic and argumentative perspectives. The theoretical perspective focusses on teaching specific contributions of science to human knowledge; for example, genetics, atomic structure and Newtonian mechanics. The epistemic perspective is concerned with developing students' understanding of the processes by which scientific theories are tested. The argumentative perspective involves learning to argue in a reasoned fashion, guided by evidence and to contest ideas in good faith.

Historically, science education in New Zealand has focused most strongly on the theoretical perspective – on what teachers might refer to as 'content' knowledge. There has also been some attention to epistemic aspects of science, usually in the context of 'practical' investigations. The extent to which these activities convey understanding of science epistemology is, however, questionable. Scientific argumentation, in particular its dispositional aspect, is not usually addressed directly in science education at all.

Dr Johnston will argue for a greater focus on both epistemology and argumentation in science education. A more explicit focus on epistemology would provide a powerful set of cognitive tools to enable young people to steer a path between positivist objectivism and radical relativism. It would also help to clarify what science is and how it is different than other ways of understanding natural phenomena. Scientific argumentation, especially the disposition to argue in good faith, is best learned through modelling by teachers and practice by students.

We look forward to seeing you there.

David Lillis
Royal Society of New Zealand Wellington Branch

2022 AGM

October 2022

PLEASE CONSIDER SERVING ON COUNCIL IN
2022-23. WE NEED YOUR HELP AND SUPPORT

Also note that under the constitution any matters of general business
must be notified to the Secretary at least 2 weeks before the meeting,
Since we don't have a secretary (volunteer?) please send them to the
treasurer

treasurer.RSNZ.wellington@outlook.com

Details and venue to follow.

200BC PARTHIAN BATTERY **Better known as the Baghdad Battery**



Fig. 1—Drawing of vessel found by König.

In 1936 at a site near Baghdad, construction of a rail line unearthed ancient remains in a gravesite. Items included a set of four unglazed ceramic vessels found in a grave that was dated in the time of the Parthians occupation of the area (248 BC–226 AD). Three vessels had copper cylinders made of copper sheet with a copper end that was lead-soldered to the bottom of the cylinders.

One of these vessels had an iron spike inside the copper cylinder, with the remains of an asphalt-like plug, as shown in Fig. 1. The other two vessels did not have the iron spike inside, but there were other iron spikes in the grave. The

fourth ceramic vessel did not have the copper cylinder. Inside the copper cylinders were flaky remains of a papyrus like material. In 1938, W. Konig, director of antiquities at the Iraq Museum, decided that the vessels looked like galvanic cells. Thus began the story of the Baghdad Battery, and the controversy that surrounds that description. The batteries were looted during the Iraqi war and have not been recovered.

Von Handorf, D. R., and D. E. Crotty. "The Baghdad Battery: Myth or reality?." *Plating and surface finishing* 89.5 (2002): 84-87

Mills, Allan A. "The "Baghdad Battery"." *Bull Sci Instrum Soc* 68 (2001): 35-37.

Corder, G.W., 2006. Using an unconventional history of the battery to engage students and explore the importance of evidence. *JOURNAL OF VIRGINIA SCIENCE EDUCATION*, 1(1), p.33.

A recent Covid-19 publication that the Heath Department will certainly not share with you! Be wary of false correlations, too.

Why share? Because putting aside the issue of smoking and its proven health impacts, there is something going on which is affecting the probability of initial infection by SARS-CoV2, and that is worthy of further study - rather than shutting it down .

Vallarta-Robledo JR, Sandoval JL, Baggio S, Salamun J, Jacquérior F, Spechbach H, Guessous I. Negative Association Between Smoking and Positive SARS-CoV-2 Testing: Results From a Swiss Outpatient Sample Population. *Front Public Health*. 2021 Nov 5;9:731981. doi: 10.3389/fpubh.2021.731981. PMID: 34805064; PMCID: PMC8602063.

And in the other corner:

Usman, M.S., Siddiqi, T.J., Khan, M.S., Patel, U.K., Shahid, I., Ahmed, J., Kalra, A. and Michos, E.D., 2021. Is there a smoker's paradox in COVID-19?. *BMJ evidence-based medicine*, 26(6), pp.279-284.

While on the issue of smoking, "Medicinal Pot" is good for you - Right?" After all its "Medicinal" and Government approved?

Trouble is the stuff being spruiked overseas is not the 2%THC that you smoked behind the bike shed at school. Its likely over 20% in the plant products, or 80% pure THC in "Medicinal cannabis products". Its been called in the USA the next "OxyContin" disaster with effects worse than crystal meth and, surprise surprise, the same companies that sold your parents Tobacco, are now selling "medicinal pot" to the current generation.

Read:

How Weed Became the New OxyContin

Big Pharma and Big Tobacco are helping market high-potency, psychosis-inducing THC products as your mother's 'medical marijuana'

By Leighton Woodhouse

<https://www.tabletmag.com/sections/news/articles/how-weed-became-new-oxycontin-marijuana-psychosis-addiction>

If you want the science, Google Scholar has about 90 hits using keywords from the first of the two studies cited in the above article.

Arendt M, Rosenberg R, Foldager L, Perto G, Munk-Jørgensen P. Cannabis-induced psychosis and subsequent schizophrenia-spectrum disorders: follow-up study of 535 incident cases. Br J Psychiatry. 2005 Dec;187:510-5. doi: 10.1192/bjp.187.6.510. PMID: 16319402.

SOLAR FUEL

We all know the future is batteries - right? Well maybe not. You might well be able to keep that noisy V16!



All-in-one solar tower produces jet fuel from CO₂, water

and sunlight

https://newatlas.com/energy/solar-jet-fuel-tower/?utm_source=substack&utm_medium=email

or

SUN-to-LIQUID project publishes successful thermochemical kerosene production using solar energy, water and CO₂ in an integrated solar experimental facility in the scientific journal Joule.

<https://www.energy.imdea.org/events/2022/sun-liquid-project-publishes-successful-thermochemical-kerosene-production-using-solar>

Or forget batteries - there is the nuclear option.



The US Nuclear Regulatory Commission (NRC) has issued certification to a new nuclear reactor design, making it just the seventh that has been approved for use in the US. The design, from a company called NuScale, is a small modular reactor that can be constructed at a central facility and then moved to the site where it will be operated.

Small modular reactors have been promoted as avoiding many of the problems that have made large nuclear plants exceedingly expensive to build. They're small enough that they can be assembled on a factory floor and then shipped to the site where they will operate, eliminating many of the challenges of custom on-site construction. In addition, they're structured in a way to allow passive safety, where no operator actions are necessary to shut the reactor down if problems occur.

Wellington Regional Science Fair 2022

This year the Branch awarded a prize of \$750 for overall runners-up. Our winners were Kaita Hummel-Jibiki and Simon Langham from Tawa College. David Lillis presented the prize at the award ceremony, held on Saturday 27 August at Victoria University of Wellington, Old Government Building.



Kaita Hummel-Jibiki and Simon Langham are year twelve students at Tawa College. Their project used microbes as bio-indicators of water quality. They say that they are looking forward to studying science in the future. Here is their summary:

Their project, called *Resilient Rotifers*, focused on constructing a rudimentary way of analyzing water samples via rotifers found in the water. Rotifers are microscopic aquatic invertebrates that are found worldwide. Their physical appearance and characteristics, along with their quantity in certain samples, are so great that they are perfect for use as bio-indicators of water quality. By searching over 12,900mm² for samples from various populations, they formulated a comprehensive data report which allowed them to identify specific patterns. These patterns were so prominent that a simple flowchart could be constructed. A user would be informed of the approximate pH-level, salinity-level, oxygen-level, nutrient-level, and many more key characteristics of their sample, all on the basis of the quantity and quality of rotifers found in their samples.

