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MEETING PLACE

Royal Oak Bowls, 146 Selwyn St, Onehunga

10am on the 2ND Thursday of most months

NEWSLETTER

May 2024

Next meeting
10-12noon
Thursday 9TH May 2024

Celebrations in our lives

Last month I began my newsletter asking if you are in good health, enjoying U3A activities, speakers and socialization. I also pointed out how important these things are for our wellbeing.

I want to reiterate these themes further as a result of speaking to members of U3A who are themselves or their partners or spouses are coping with illness. On these kinds of journeys let us individually do everything we can to help all who need a sense of community as they journey with illness, loss and grief. It is not difficult to care for others and we can always be there if we so desire. We can offer a sense of care. Our actions always surpass our words if we want them to.

This was brought home to me today when members of our walking group were sharing about families and their experiences that our country has reflected upon with the recent Anzac commemorations. In our group we shared what our families had experienced going through times of war. Later in life most found it difficult to share their experiences. Most often it was family who sustained them as they experienced a sense of living hell. For many family was all important when they returned and were different as a result of their experiences. However for most who returned, the absolute tragedy was that very few were able to share with their families both the good and the bad.

It seemed they were only able to share with their wartime mates that they met at reunions and this sharing was very difficult because of their experiences.

So what do we learn from this? Well there is a real need for all of us to reach out to others, family, friends and neighbours. Maybe the greatest thing we can do is to be there for others so they can share if they want to. This means sharing, talking, being with people especially family as needed. This means being committed and involves action. Perhaps the greatest learning as we grow older is to be available as needed for other people.

On reflection our Anzac discussion was important as we shared amongst ourselves how wartime experiences made things so difficult for family members to share.

As we reflect on our country, community, family regardless of politics and what needs to be done in every area of our country the most significant thing we can do in our lives is to be there for others to reach out however you can as a learning and caring process.

Maybe this is what life long learning is all about?

Duncan Macdonald

EPSOM U3A EXECUTIVE

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Guest Speaker Organiser:

Laraine Holdom – 624 4454

Legal Advisor

Mike Matson - 022-630 7968

Newsletter

Jeanette Grant – 638 8566

Greeters:

Don Buchanan - 620 7572

Ngaire Mune – 624 0226

INTEREST GROUP CONVENERS

Appreciating Performing Arts

Shirin Caldwell – 630 1662

Architecture

Brian Murray – 021 026 68396

Art Appreciation

Kaye Buchanan – 620 7572

Big History

Emily Flynn – 021 0902 5094
Christine Keller-Smith – 021 140 9021

Book Chat

Helen Holdem - 021 260 3510

Current Affairs

Shirley McConville – 622 3542

Fabric & Fibre Crafts

Charmaine Strang – 027-4177 556

Famous & Infamous Group

Gary Preston – 021 297 3087

Foodies

Graham Gunn – 027 445 0929.

Garden Appreciation

Betty Townley - 626 6673

Introduction to Family History

Bryn Smith – 027 280 5235

Latin

Phyllis Downes - 630 5867

Lunch Club

Shirley McConville – 622 3542.

Medical Matters

Diana Hart – 021 284 4402

Music Appreciation

Carleen Edwards – 624 6298

19th Century History

Helen Holdem – 021 260 3510

NZ History

Kaye Buchanan - 620 7572

Philosophy

Jocelyn Hewin - 634-1552

Recreational Drawing

Grant Coupland – 638 7496

Scrabble

Joslyn Squire – 021 168 0680

Te Reo Maori

Jenny Whatman – 027 353 2487

Travel

Diana Hart- 021 284 4402

Walkers & Talkers Group

Don Buchanan ph:620 7572.

<p>APRIL SPEAKER REPORT</p> <p>"DUNG BEETLES"</p>	<p>Our speaker was Dr Shaun Forgie, co-founder and Director of Dung Beetle Innovations, whose enthusiasm for his topic "Why Dung Beetles Are a Good Idea" introduced us to and extended our knowledge of the place of this particular genus in the natural world and the benefits it can bring to NZ pastures. It was mentioned that our previous awareness of the dung beetle may have been limited to remembering the sight of a ball of dung being rolled across a sandy African landscape during a wildlife documentary. But answers as to the reason for this behavior were not always obvious, or remembered as our attention moved on to other parts of the programme. He told us that there were 7000 species of ball-rolling beetle identified around the world and that they had had an important role in ancient Egypt where it was considered one of the forms taken by the Sun god, Ra, who "pushed the sun across the sky each day". Mummified dung beetles have been found in recently-opened Egyptian tombs.</p> <p>Dr Forgie is one of a group of researchers around the world who believe that dung beetles are an efficient and cost-effective way to improve pasture health. The beetles burrow through the dung left by grazing animals, taking the nutrients deeper into the subsoil to provide a shelter (the ball) in which to lay their eggs and start a new life cycle. This action introduces the nutrients to a deeper level of the soil and provides pathways that absorb rainfall, resulting in better soil health by reducing the need for fertilizer and removing the medium at ground level in which the parasites that infect animals can grow. Special planting, needed to filter run-off going into nearby waterways, can be reduced because more rainfall has been absorbed and new grass grows where once there were dung piles resulting in fields being available again for grazing sooner than under previous management routines.</p> <p>There are both native and introduced species in NZ and "on farm" studies are taking place at present from Northland and as far south as parts of Canterbury.</p> <p>Dr Forgie reported there has been some resistance his research efforts in NZ from some scientific and pharmaceutical-aligned interests, despite the evidence of successful introductions of beetles in other counties e.g. Australia where they had successfully reduced the presence of flies attracted by piles of dung and there was evidence of improved pasture health.</p> <p>He is working towards a wider acceptance of the use of dung beetles, together with riparian planting and fencing, to promote better soils, healthier animals and cleaner waterways.</p> <p>A vigorous Q&A session completed a very well-attended meeting.</p> <p><i>Kaye Buchanan</i></p> <p>NB Members might wish to gain a more detailed understanding of Dr Forgie's work by following up with an internet search on the Dung Beetle (or "The Ball-rolling Ancient Egyptian Scarab" as it was once known)!</p>
<p>SUBSCRIPTIONS INFORMATION</p>	<p>The 2024 Epsom U3A subscription is \$50 per person.</p> <p>The \$50 should be paid into our ASB bank account – 12 – 3067 – 0204618 – 00</p> <p>Please enter subs in the "code" section and your name in the "reference" section in order for us to have a record of your payment.</p>
<p>CONTACT DETAILS</p>	<p>DO WE HAVE YOUR LATEST CONTACT INFORMATION? Some new members have not provided any contact information, and some old members have not updated their old information. Check in with Emily or Jessie the next time you come to a Main Meeting – there will be forms at their desk</p>

<p>MAIN SPEAKER For MAY Joanne Hand</p>	<p>“Modern Slavery: How it Impacts NZ and the work of Hagar NZ”</p> <p>The presentation will cover:</p> <ul style="list-style-type: none">- what Modern Slavery is and how it happens- how it impacts NZ- the work of Hagar to prevent these human rights abuses <p>Joanne works for Hagar New Zealand, a global Christian charity engaged in intensive trauma recovery and empowerment services for women and children survivors of slavery, trafficking and abuse. Hagar also engages in prevention activities and builds the capacity of governments, social service structures and local duty bearers in the nations they work in.</p> <p>Their vision is to end Modern Slavery.</p>								
<p>INTEREST GROUPS</p>	<p>Please remember that visitors may attend an Interest Group once without paying their subs. If they intend to continue their participation, they must pay their membership to U3A Epsom.</p> <p>A beginners’ course for the Te Reo Maori group is being planned. The sign in form will be at the next meeting.</p> <p>It has been suggested that groups of a short duration looking at specific topics might be a possibility. The idea would be topics that would take 4 – 6 meetings to cover. If these were to commence, the Interest Group co-ordinator would need to be informed, they would need a convenor (i.e. the member who has suggested the topic) and they would have to be conducted under the auspices of U3A Epsom – meaning non-members would not be able to participate</p>								
<p>2024 MEETING DATES Thursdays, 10am</p>	<table><tr><td>9 May</td><td>13 June</td><td>11 July</td><td></td></tr><tr><td>8 August</td><td>12 September</td><td>10 October</td><td>14 November AGM</td></tr></table> <p>NB Always wear your name badge and be seated ready at 10am</p>	9 May	13 June	11 July		8 August	12 September	10 October	14 November AGM
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JEANETTE'S JOTTINGS

CO2 CARRIES COVID

With the rise of COVID-19, the world learnt how being in close quarters with another person or people can increase the risk of infection with the virus. Carbon dioxide is key to how long airborne viruses hang around in the air and, therefore, their likelihood of spreading. Opening a window may be a more scientific way to avoid the spread of respiratory viruses than first anticipated as it both physically removes the virus from the room, but also makes the aerosol droplets themselves more toxic to the virus.

Carbon dioxide (CO₂) is a good indicator of ventilation in an indoor space, with the number of people in a room affecting CO₂ concentration. As both CO₂ and respiratory viruses are present in exhaled air, it makes sense that CO₂ concentration is used as a proxy indicator of viral transmission risk.

Data from the study suggests that rising levels of CO₂ in the atmosphere may coincide with an increase in the transmissibility of other respiratory viruses by extending how long they remain infectious in the air... A moderate increase in CO₂ from 400 ppm to 800 ppm – still within range for a well-ventilated room – resulted in a significant increase in viral aerostability for all SARS-CoV-2 variants (Delta, Beta, Omicron) after two minutes.

An elevated CO₂ concentration profoundly affected the infectivity of SARS-CoV-2 over time. Compared to normal air, when CO₂ concentrations were 3,000 ppm, similar to that of a crowded room, around 10 times as much virus remained infectious after 40 minutes.

"This relationship shed important light on why super spreader events may occur under certain conditions," Haddrell said. "The high pH of exhaled droplets containing the SARS-CoV-2 virus is likely a major driver of the loss of infectiousness. CO₂ behaves as an acid when it interacts with droplets. This causes the pH of the droplets to become less alkaline, resulting in the virus within them being inactivated at a slower rate."

The study was published in the journal Nature Communications

ATMOSPHERIC WATER GENERATORS

Some experts speculate that water will be one of the most sought-after resources in the upcoming decades. According to UNICEF, more than two billion people lack adequate access to water. A number that will probably go up in the following decades due to climate change. However, scientists and entrepreneurs have been using an ancient technique to deal with a new problem.

Fog nets could be the solution. These are panels that absorb moisture from the environment that is then condensed into drinkable water... a technique that has been used before by the Incas in Peru, among other places in Africa and South Asia.

"There are already several commercially available systems. In mountainous, foggy regions, it is possible to literally cast a net to collect water from ever-shifting cloud masses," writes Eisenstein for Nature. However, the current use of this technology is not limited to the mountains of Peru. German news agency DW reports that coffee machines and water coolers that self-replenish from the humidity in the air are a reality in places like India. These machines, called atmospheric water generators, have become a booming venture in South Asia, with the demand ranging from communities with water shortages or large companies seeking green alternatives to get their supply...these machines not only help to alleviate places where water can be scarce, it also reduces the need of using plastic bottles, reducing plastic waste.

According to the BBC, business is booming as the thirst for water out of thin air grows. Source Global, one of the companies focusing on making hydropanels, has a presence in over 50 countries and a worth of over one billion US dollars. Based in Arizona, panels made by Source Global cost about 2,000 US dollars and allegedly can last 15 years, producing about five liters (one gallon) of water per day...these panels are being used by native communities in the US Southwest to tackle the lack of plumbing and water sources in the area. Over 500 Navajo homes in Arizona and New Mexico already possess hydropanels with more expected to come.

Sources: (The Guardian)

NEW GOLD HYDROGEN RUSH?

There's enough natural hydrogen trapped underground to meet all projected demands for hundreds of years. An unpublished report by the US Geological Survey identifies it as a new primary resource, and fires the starter pistol on a new gold rush.

The "black gold" oil rush in the US started in 1859, when one Edwin Drake drove a stake into the Pennsylvania soil and oil started flowing out. The gold hydrogen rush may have a similar moment to point back to.

In 1987, as one Mamadou Ngulo Konaré tells the story, well diggers gave up on a 108-m (354-ft) deep dry borehole, but he and other villagers in Bourakébougou, Mali, noticed that wind was blowing out of it. When one of the drillers looked in, smoking a cigarette, it blew up in his face, causing severe burns as well as a huge fire.

That fire, as Science quoted Konaré, burned "like blue sparking water, and did not have black smoke pollution. The colour of the fire at night was like shining gold." It took weeks to put the fire out and plug the hole, but subsequent analysis showed the gas coming out was 98% pure hydrogen. Celebratory mangos were served. Some years later, a little 30 kW Ford generator was hooked up, and Bourakébougou became the first village in the world to enjoy the benefits of clean, naturally occurring hydrogen as a green energy source...

Hydrogen is such a pain to store at atmospheric pressures that perhaps the idea of geologic hydrogen, trapped in the rocks under our feet like natural gas, hasn't crossed people's minds; perhaps it was assumed that naturally occurring hydrogen molecules would wriggle their way through solid rock to escape into the atmosphere, as they sometimes do in storage containers, or that they'd been consumed by microbes. Perhaps it was simply never seen as that valuable a resource until the relatively recent pivot toward clean transport, clean energy and zero carbon emissions by 2050.

Research has found there are as many as 5.5 trillion tons of hydrogen in underground reservoirs worldwide. It may have been generated by the interaction of certain iron-rich minerals with subterranean water. In some cases, it may be mixed in with other gases such as methane, from which it would need to be separated. But it's there, in such extraordinary quantities that analysts are expecting a gold hydrogen rush at a global scale.

Source: Financial Times

WORLD WAR III SAFETY?

[3] Iceland, the only nation in the Northern Hemisphere in this study, is also one of the safest nuclear war zones. This is largely due its remoteness, but with a small economy, Iceland would likely suffer from a lack of imported commodities and infrastructure degradation. However, Iceland may have access to North America and Europe, if some of the countries in these continents aren't completely devastated by war, famine, and/or social collapse.

[2] New Zealand comes in second place thanks to its distance from nuclear targets and its longstanding nuclear-free status. the nation's resilience in the event of an abrupt drop in global temperature prompted by a period of darkness would also help. Everywhere in New Zealand is relatively close to the ocean, cushioning it from extreme temperatures. Also, New Zealand has an efficient food export economy that could feed their population multiple times over just from exports. According to the study, even in the event of a 61% reduction in crops during a prolonged nuclear winter, New Zealanders would still have enough to eat.

[1] Australia's good infrastructure, vast energy surplus, high health security, and defence budget all helped in placing it at the top of the list. But according to the study, Australia has one major factor working against it. Its relatively close military ties with the UK and US make it more likely to become a target in a nuclear war against Russia.

MICROBIAL FUEL CELLS

A Northwestern University team has demonstrated a remarkable new way to generate electricity, with a paperback-sized device that nestles in soil and harvests power created as microbes break down dirt – for as long as there's carbon in the soil.

Microbial fuel cells, as they're called, have been around for more than 100 years. They work a little like a battery, with an anode, cathode and electrolyte – but rather than drawing electricity from chemical sources, they work with bacteria that naturally donate electrons to nearby conductors as they chow down on soil. The issue thus far has been keeping them supplied with water and oxygen, while being buried in the dirt. "Although MFCs have existed as a concept for more than a century, their unreliable performance and low output power have stymied efforts to make practical use of them, especially in low-moisture conditions," said UNW alumnus and project lead Bill Yen.

So, the team set about creating several new designs targeted at giving the cells continual access to oxygen and water – and found success with a design shaped like a cartridge sitting vertically on a horizontal disc. The disc-shaped carbon felt anode lies horizontally at the bottom of the device, buried deep in the soil where it can capture electrons as microbes digest dirt. The conductive metal cathode, meanwhile, sits vertically on top of the anode. The bottom part thus sits deep enough to have access to moisture from the deep soil, while the top sits flush with the surface. A fresh air gap runs down the whole length of the electrode, and a protective cap on top stops dirt and debris from falling in and cutting off the cathode's access to oxygen. Part of the cathode is also coated with a waterproofing material, so that when it floods, there's still a hydrophobic section of the cathode in touch with oxygen to keep the fuel cell running.

In testing, this design performed consistently across different soil moisture levels, from completely underwater to "somewhat dry," with just 41% water by volume in the soil. On average, it generated some 68 times more power than was required to operate its onboard moisture and touch detection systems, and transmit data via a tiny antenna to a nearby base station. As with other super-long term power generation sources, like betavoltaic diamond batteries made using nuclear waste, the amount of power generated here isn't large enough to go and run a dirt-powered car or smartphone. It's more about powering small sensors that can run over the long term without needing regular battery changes.

"If we imagine a future with trillions of these devices, we cannot build every one of them out of lithium, heavy metals and toxins that are dangerous to the environment," said Yen. "We need to find alternatives that can provide low amounts of energy to power a decentralized network of devices. In a search for solutions, we looked to soil microbial fuel cells, which use special microbes to break down soil and use that low amount of energy to power sensors. As long as there is organic carbon in the soil for the microbes to break down, the fuel cell can potentially last forever."

Thus, sensors like these could be very handy to farmers looking to monitor various soil elements – moisture, nutrients, contaminants, etc – and apply a tech-driven precision agriculture approach. Pop a few dozen of these things around your property, and they should be good to generate data for years, possibly even decades to come. Perhaps the neatest part here is that all components of this design, according to the research team, can be bought off the shelf at a hardware store. So there's no supply chain or materials issues standing between this research and widespread commercialization.

Source: Northwestern University