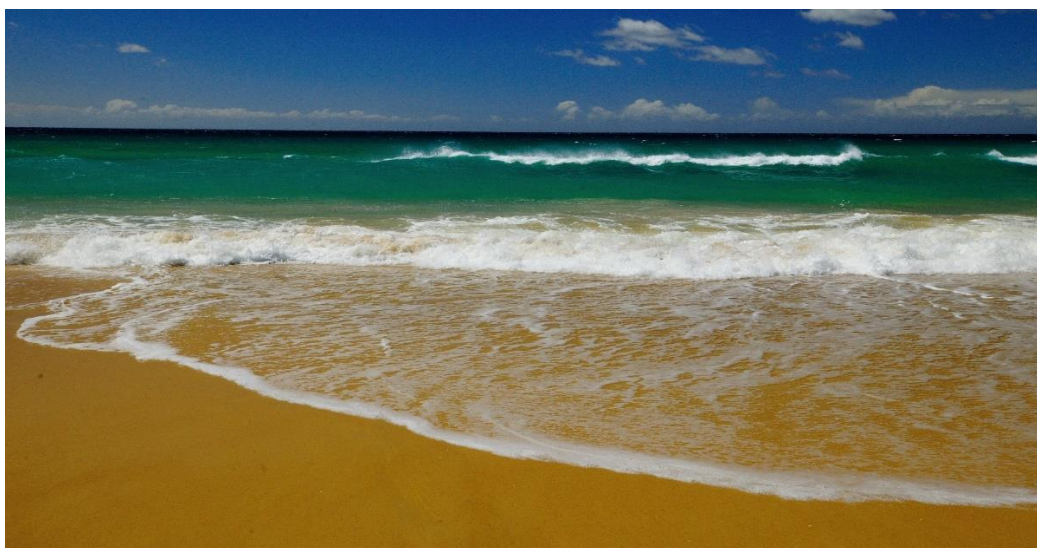


STATIC

The Newsletter of the Science Teachers Association of Tasmania.



The Deep Blue: The Theme for TSTS 2020

April 2020, Volume 1



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STAT on social media.

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From the Editor...

Challenges and Opportunities...



Last December, to a chorus of international self-reflection and analysis, the OECD results for PISA (Programme for International Student Assessment) results were published. Pisa results receive a great deal of media attention, being an important measurement of the state of education systems across the globe, where they rank and how they perform. Pisa testing was a two-hour exam for a sample of 14,000 Australian 15-year-olds, including 773 Tasmanian students from 56 schools.

Scientific literacy was measured by a series of questions designed to test the reproduction of knowledge and application of reasoning skills. In Australia, this is integral to the National Assessment Program, but unlike NAPLAN, which is also seen as a measuring stick for the state of our education system, PISA is interpreted at an international level, comparing results from 79 countries. According to the OECD, high performers on PISA tests are seen as being able to solve complex and challenging problems, whilst low performers may not have the knowledge and skills required to participate fully in society. It would appear then, there is quite a lot at stake.

For the purposes of PISA, scientific literacy is defined as,

The ability to engage with scientific related issues and with the ideas of science, as a reflective citizen. A scientifically reflective person is willing to engage in reasoned discourse about science and technology, which requires the competencies to explain phenomena scientifically, evaluate and design scientific enquiry and interpret data and evidence scientifically.

This certainly sounds like something we would like our students to be able to do and summarises the direction our teaching would be heading.

Australia's average score in scientific literacy was 503. Twelve countries performed significantly higher than this, including China, Singapore, Japan, Estonia, Canada, Finland and New Zealand. Australia is on a par with USA, UK, Germany and Slovenia amongst others. Fifty-nine countries performed significantly lower than Australia, including Mexico, who propped up the bottom of the pile. Australia is therefore ranked well above the global average, although our students are still three years-worth of education behind parts of China and almost two years behind Singapore. This score also marks a steady decline over the years PISA has taken place.

Tasmania's score was 481, being more equitable with the global average. Government school participants had 23% of students in the lower categories, whereas independent schools had 14% of their students in the high category. There was no significant difference in male and female performance, although the boys did score slightly higher. It is clear however, that results indicate poorer results in remote areas and those with socioeconomic disadvantages.

If you are reading this and beginning to get a little concerned about these figures, then you are not alone. There is a phenomenon known as PISA-shock that has tended to work at national levels, is media driven and puts teaching at the very centre of an uncomfortable spotlight. It usually begins with results that fail to match a nation's expectations and self-perception of the quality of their school system. Germany were the first to experience this in 2001 (How dare Finland be better than us!). Australia joined in in 2009 when they were outstripped by East Asia, with whom the nation has been diplomatically aligning with as the greatest centre of economic growth. This can precipitate education reforms in the way we teach science, so it is to be taken seriously.

The media find this easy to report. A nation's scientific literacy delivered in two numbers: a mean average score and an international ranking. We now have a position in a league table, and we are just in the top half of Division Two. Our geographic rivals are in the premier league. Tasmania's Mercury newspaper journalist Charles Wooley wrote 'Australia is failing, you can count on it'. Not only that, Tasmania is, as the Mercury reported, at the bottom of the home rankings, with the headlines 'Education Legacy: Tasmania Now Worse than Northern Territory'. PISA shock indeed. Across the nation, the media look to see why the average looks this bad and they see the Northern Territory and Tasmania dragging the average down and the ACT lifting it up. Questions must be answered, and education reformed.

The Julia Gillard government introduced policy amendments after past PISA results, aiming to get Australia into the top five nations by 2025. It is difficult to see this being a fair goal given the growth in the nations taking part. Looking at figures from 2009 to 2012, Australia would jump from 16th to 10th by simply not counting the new countries who joined in 2012. That is with absolutely no change in performance or pedagogy. To give a classroom analogy, Gina would have got a B grade, until Alison and Tania came along. Now she gets a C.

There is cause for concern in the inequity in educational outcomes across socioeconomic and regional areas. Australia is careful to sample across all groups when gathering its 14,000 PISA test samples, choosing from students across education sectors, regions and cultural backgrounds. This has identified differences in scientific literacy we should be taking seriously. The USA does not have such a broad sampling policy and Finland tries to stamp out the inequities in the first place through teacher training and uniform funding policies.

In 'Creative Schools', Sir Ken Robinson points out that in Shanghai, they are not all that impressed with their own high PISA ranking. What they have recognised is that it needs schools that respect students' physical and psychological development and lay foundations for lifelong learning. Tellingly, there is an inverse relationship between standardised testing and entrepreneurship, so in preparing students for this kind of assessment, places like Shanghai are sensing the expense of long-term creative higher-order thinking. This is why Finland has only one standardised test. But, in order to try and catch up, countries like the USA have introduced more and more standardised testing.

We can learn a lot from PISA and it is widely recognised that this type of testing has its place. The interpretation of results must be carefully analysed for trends that can inform education policy, but this is far more subtle than averages and rankings. Although part of the definition of scientific literacy included the ability to design scientific enquiry, this cannot be easily tested in two hours.

Andreas Schleicher from OECD states 'The world economy no longer pays you for what you know; Google knows everything. The world economy pays you for what you can do with what you know.'

In other words, there is a lot to value in science education that must surface in other ways than standardised testing. We can learn from PISA, but they must be the right lessons.

So, is Tasmania really on a slippery slide to scientific illiteracy? There is cause for concern with these results, with indicators that the inequity of access to crucial resources like lab technicians, fully trained science teachers and money for equipment is compromising student outcomes. However, we do punch above our weight when it comes to performance in science inquiry competitions, the Science and Engineering Challenge and participation in State events such as National Science Week. Broaden this to the people moving on to science careers and we find Australia has over nine people per 1000 working in R & D. Tasmania, with its links to Antarctic and marine studies, CSIRO facilities, UTAS, agriculture and wildlife studies plays host to many. China has significantly less, with 2.4 per 1000. Mexico has just one. We are still a long way short of Denmark with over 15.

With the challenges 2020 has forced us to face so far, community scientific literacy has become increasingly important. There is a need to address bushfire hazards and management through a combination of scientific and indigenous knowledge. There is widespread uncertainty regarding climate change. Now we have been faced with a pandemic that has required a public understanding of community transmission to contain a major health event. If people had a better general understanding of the scientific principles involved, would people have partaken in the panic-buying of toilet rolls?

As science teachers we have a crucial role to play in increasing the scientific literacy of our students. As education merges with the home, perhaps our role has broadened to involve families in science and immerse them in this world of curiosity. We are indeed facing a unique set of challenges and opportunities.

Bob Fletcher STATIC Editor

A Message to STAT Members, from STAT President Jenny Dudgeon

During the COVID-19 crisis, the physical, mental, and emotional well-being of all learners, teachers, families, and communities in Tasmania needs to be everyone's top priority. STAT hopes that this message finds all our members and their families well and receiving the support that you all need during this challenging period.

I recognise that many STAT members, including specialist science teachers, classroom teachers, laboratory technicians and managers, education lecturers and parents are being asked to support safe and equitable home-based science learning. In this and future communications, I would like to share a few resources and opportunities that might support home based and online learning.

There are numerous online resources available to support science teaching and learning, but it can be very time consuming to go through them. Remember that in supporting your students to learn Science at home, you do not necessarily have to aim for a 'science classes as usual' type situation but can make use of opportunities available in students' immediate surroundings, including their homes, backyards and decks. There are many opportunities that could provide a stimulus for student entries in the Tasmanian Science Talent Search (TSTS), which STAT runs every year.

If you have an online resource that you find particularly useful, I invite you to send it to me, with a few sentences describing it and the year groups it is good for. I will aim to share these with the wider STAT membership.

I will get the ball rolling by suggesting the Tasmanian Science Talent Search (TSTS) as a learning opportunity suited to all year levels. Please note that TSTS entry is now free to students whose school is a STAT member.

From ASTA President, Nathan Curnow

The year 2020 is like no other.

When I said this with respect to the bushfires and the air quality issues that impacted the STEM X Academy, I did not predict that it would be followed by a global pandemic that challenges us in ways we have not been challenged before.

Times like these call us to our highest values; it is so encouraging to see the way we have rallied around each other to support those who are not in the same position we are. Teachers of science are sharing their challenges and solutions, suggesting activities and resources and offering to support those who have children learning from home. They are finding their ways in difficult circumstances as best they can, and our students and communities are grateful for it. And this is at a time when we are worried about not just ourselves but those who are vulnerable; the elderly, the immunocompromised, those with disabilities and the people unexpectedly unemployed. We and our loved ones are managing heavy loads, not all visible or readily apparent, but we are stronger for the ways we support each other individually and collaboratively.

At this time, your self-care is important; practise good sleep, hygiene, try to eat well and look after yourself by engaging in activities that support your physical and mental health as it is safe to do so. Try not to put yourself or those around you at risk.

I also ask you all to forgive yourself when you need to; it is okay if it is too much or if you feel overwhelmed at this time. Things will not always be like this; we will get through this and come out of it stronger. And right now, we need to get through it, so we can be there for our teachers who look to us for leadership and support. Our associations are already giving what they can to help teachers and it is inspiring to see.

The thing about being a leader during times like these is that you never know who is watching and who draws their inspiration from you.

"I wish it need not have happened in my time", said Frodo.

"So do I" said Gandalf, "and so do all who live to see such times. But this is not for them to decide, all we have to decide is what to do with the time that is given to us"

J.R.R. Tolkien, The Fellowship of the Ring

Thank you,
Nathan

Moving Forward in a Pandemic

Due to the present pandemic with the coronavirus Covid-19, events such as Conasta 69, the Festival of Bright Ideas, STAT's CONNECT 4 STEM Conference have been cancelled. National Science Week is being reconfigured. The health and safety of delegates, staff and the general public is clearly a priority for both ASTA and STAT. The various organising bodies have been acutely aware of the increasing health concerns and escalating developments that have occurred over the last few challenging months. But on the bright side, STAT's Tasmanian Science Talent Search with its Deep Blue theme is continuing as entries can be registered and uploaded online. All the categories can be undertaken as learning from home or supported by class teachers – with a blended learning model. <http://stat.org.au/tsts/>

Due to the World Health Organisation declaration of pandemic status for COVID-19 and advice received from the Australian Government at Federal and State level, the school year for 2020 has taken an unprecedented turn. This has placed teachers and Governing bodies under increased pressure to deliver educational programs online and work from home, with reduced opportunities for both professional development and enriched curriculum activities. However, through stoic resilience and a certain pride in teachers' professionalism, avenues are being explored to provide an educational experience for students as a priority, as well as opportunities for teachers. For instance, The Australian Science Teachers Association Board of Directors voted unanimously that CONASTA 69 in Canberra (July 5 – 8, 2020) will no longer go ahead, although ASTA staff and the conference organising committee are exploring all options for a possible virtual event and will provide an update once a final decision has been made.

This is a time to work with continued patience and understanding, to uphold professional commitments and responsibilities with the best needs of our students in mind. It is a time to solve logistical issues associated with running a full curriculum of learning, assessment and support.

Crucially, STAT's Tasmanian Science Talent Search has not been cancelled. Based on the National Science Week theme of 'Deep Blue', Doug Grubert, the former director of TSTS has set up a booklet outlining the details and opportunities available for entries in a variety of categories. Dr Deborah Beswick has now taken over the role of director and has plans to steer through this present climate and make this year's competition a success. Further details are outlined in a feature in this issue.

BHP Foundation Science and Engineering Teacher Awards 2020.



Madiyantika (Tika) Varma, from Launceston College, was the Tasmanian finalist for the BHP Foundation Science and Engineering Teacher Awards 2020. Teacher finalists are selected from around Australia, chosen for their excellence in teaching, their support of open-ended student investigations and their suitability to represent their state or territory. Teacher finalists are invited to attend a Teacher Best Practice Seminar and the prestigious Awards ceremony event in Melbourne in February. BHP Foundation Science and Engineering Teacher Awards recognise outstanding contributions made by classroom teachers to science education.

According to Tika, it is a great thing when a career and passion come together. It creates lifelong learning and inspiration. The experience of meeting amazing Australian Science educators as a finalist at the BHP awards will be a highlight and an inspiration in her teaching career. Attending the BHP Foundation Science and Engineering Teacher Awards in Melbourne was a rewarding experience as it offered the opportunity to liaise and network with dedicated and outstanding Science educators from across the country. It was fantastic to listen to the great group of teacher finalists at the Teacher Best Practice Seminar as part of the BHP Foundation CSIRO Science and Engineering Awards. The teacher presentations encouraged the development of new ways of thinking about content and new approaches to teaching. Tika will share her experience with staff at College and work with Science staff across the state through STAT to further improve student outcomes and achievement through STEM engagement.

Tika Varma is the Head of Science at Launceston College in Tasmania and the Marking Coordinator for Biology Tasmania.

Tika is dedicated to improving student outcomes and inspiring students to pursue study in STEM fields. Her teaching career spans 27 years, underpinned by a Bachelor of Science in

Life Science and Chemistry, Master of Science in Cytogenetics and Bachelor of Education. She has taught in India and Australia, and in large multicultural cities and rural settings. Challenges faced by a rural high school community inspired her to explore innovative science teaching strategies. Tika says that every student and co-worker inspires her to grow professionally.

In 2012, she received the Australian Academy of Science Teacher Award and in 2019 she received the Tasmanian STEM Secondary Teacher of the Year award for inspiring her students through STEM inquiry.

STEM X Master Class – Canberra 5th – 10th Jan, 2020.



In January 2020, ASTA, in collaboration with ANU, piloted a new STEM X program, the **STEM X Master Class**. The program, targeting alumni of the now well-established STEM X Academy, was developed in partnership with the *Australian Research Council Centre of Excellence for Engineered Quantum Systems (EQUS)*, and was scheduled to take the form of a five-day residential teacher professional-learning program for secondary science teachers, facilitating direct access to EQUS researchers in quantum science.

NW Tasmania was represented by **Sue Saunders from Hellyer College** and **Ann Burke of Marist Regional College**. Here, Ann and Sue provide accounts of their experiences.



Ann writes: January 2020 saw some of the worst bush fires in recent times across Australia, and those in Victoria and New South Wales, states with close proximity to the ACT, had a big impact on Canberra's air quality being labelled among the most hazardous in the world. Initially delegates to the STEM X Master Class thought it would be cancelled, however hopeful organisers advised that we venture forth in the first week of January, albeit armed with a plentiful supply of P2 dust masks, as these had sold out in Canberra. On Sat 4th January, after two flights and a taxi from the airport, I arrived at ANU into thick smoke, at 42°C. I was greeted at Bruce Hall by ASTA president, Nathan Curnow, and immediate past president, Geoff Quinton and I 'checked in' to my room at the student residence. Saturday afternoon brought the arrival of many weary delegates from across the land, but the closure of Canberra airport on Sunday threw the travel plans of many more into disarray. Despite the difficulties, every effort was made to get the show on the road with a 'meet and greet' pizza session on Sunday evening, where delegates engaged in *Protostorming* and 5 minute swaps of their 'creations', a process that lead to hilarious interactions and to

one's original efforts being unrecognisable by the end. We retired to our quarters exhausted but hopeful for the days to come.

On Monday morning delegates were addressed by Nathan Curnow and advised of a change in venue for the morning's proceedings, to CSIRO Discovery Centre on Black Mountain.

Our introduction to Quantum Science, got underway but by 11am the event was cancelled, and the race was on for delegates to find flights back home.

It was hoped that an online version of STEM X Master Class might be offered later in the year, but, as we now know, 2020 had more challenges in store!



Sue's Reflections

I set out on Sunday 5th January for STEM X Master Class and, while in the air, Canberra airport closed down, and my flight was redirected to Sydney. This disrupted the plans of several attendees of STEM X and STEM X Masterclass. We made contact with Nathan Curnow, who assured us we should make our way to Canberra as the scheduled program was proceeding. QANTAS organised accommodation close to Sydney Airport and I had a lovely dinner with Heather Russell from Wynyard High School who was to attend STEM X and Amanda Kilgour from Queensland who was also planning to attend the Masterclass. We booked tickets on a Coach that would leave Sydney very early and take us to Canberra the following day. At around midnight we each received phone calls telling us that we should organise travel home and not come to Canberra. I spent the rest of the night trying to sort out how to get home! After many hours on my laptop and phone for calls and text messages my travel plans were organised. I still needed to Coach to Canberra so I could fly home from Canberra Airport. The Coach arrived in Canberra at 11.30 am and I made my way to the CSIRO Discovery Centre just in time to share the news that ANU was closing down and that we should depart Canberra before the airport, which was now open, shut down again. This initiated a crazy race on the mobile phones to access flight changes and new bookings, with many delegates getting clogged up in an access queue of 2 hours or more

on the Qantas site. Eventually Ann was successful in gaining flights and we departed Canberra on Monday evening. I was totally exhausted but greatly relieved to arrive back home, albeit less than 36 hours after my departure!

In my brief travels I saw very little besides the insides of airports, but I did gain an appreciation of the difficulties that the smoke haze over Canberra (and much of the Australian SE) this year posed for those who facilitate our travel. In these photos below we can see baggage handlers struggle with the conditions. Despite the disruption to my plans, I could see that closures were vital.



Like many others I was saddened that circumstances determined that teachers like myself could not experience STEM X Master Class this year. As a teacher of senior sciences, namely Chemistry 4 and Physical Sciences 3, I recognise that the focus of this program, *to develop a stronger understanding of quantum science and how it relates to the physical and chemical sciences curriculum*, was ideal professional learning for my practice. Further to this, as the recipient of the 2020 STAT Bursary to attend STEM X Master Class, I was very disappointed that STAT's interest in and generosity toward furthering my professional learning did not come to fruition, on this occasion. I would like to thank STAT for offering me this opportunity, and to let the association know that despite the circumstances, I had some engaging collegial conversations, made contacts that I will maintain and nurture, and I remain committed to further learning to underpin my teaching of physics and chemistry.

Tasmanian Science Talent Search (TSTS)

Many Tasmanian teachers use the annual TSTS to support their students' learning. The most common scenario has been for relevant activities to occur at school, but many of the sections could equally be carried out by students at home.

TSTS has sections for all learners from Kindergarten to Year 12. I invite you to promote the TSTS sections as opportunities for learners at home and their families to participate in science learning. More information about the 2020 TSTS sections can be found on the STAT website at <http://stat.org.au/tsts/tsts-2020-deep-blue/>. For your convenience, the tables below summarise the TSTS sections and closing dates. Please download the booklet for further details.

TSTS themed sections – Entries must relate to the 2020 theme, *Deep Blue*

Themed Sections	Eligible Divisions	Entry Types	Submission Type	Submissions Due
Picture Story Books (PSB)	ECE - UP	Individual or small group* (ECE - UP), ECE & LP may submit whole class entries	PDF	Wed 10 June: 5pm
Creative Writing (CW)	All Divisions	Individual entries only	PDF	Wed 10 June: 5pm
Posters (P)	ECE - IS	Individual entries only	Hardcopy	Wed 10 June: 5pm
Photographic Essays (PE)	LP - SS	Individual entries only	PDF	Wed 10 June: 5pm
Videos	All Divisions	Individual or small group* (All Divisions), ECE & LP may submit whole class entries	Weblink	Wed 10 June: 5pm
Scientific Essays (SE)	JS - SS	Individual entries only	PDF	Wed 10 June: 5pm
STEM Challenge		<i>Details of the STEM Challenge will be released on the website</i>		

TSTS open sections – topics are not specified

Open Sections	Eligible Divisions	Entry Types	Submission Type	Submissions Due
Research Investigations (RI)	All Divisions	Individual or small group* (All Divisions), ECE & LP may submit whole class entries	PDF	Thurs 17 Sep: 5pm
Natural Sciences Project (NSP)	JS - SS	Individual or small group* entries	PDF	Thurs 17 Sep: 5pm
Invention/Engineering (E)	UP - SS	Individual or small group* entries	PDF (with Weblink for video)	Thurs 17 Sep: 5pm

On behalf of STAT, in this new era of learning, I thank you all for your energy, innovation and professionalism supporting Tasmanian learners to engage with science and its multi - disciplinary contexts and invite you to promote the Tasmanian Science Talent Search (TSTS) as providing opportunities for learners at home and their families to engage in science learning. Remember that TSTS has sections for all learners from Kindergarten to Year 12.

Jenny Dudgeon, STAT President

STAQ Request

Queensland is in the second year of transition to the ATAR system for our senior students. This is the first time our students will sit a public exam since 1972. Although the science suite external exam accounts for 50% there is still immense pressure on Teachers to prepare students for the high stakes testing environment. STAQ is seeking an expert to provide support for our teachers. If you are interested please contact STAQ with a short resume of experience in this field. Please contact Gaynor Johnson, STAQ Executive Officer for further details or to send in a resume on: staq@staq.qld.edu.au | 0490 950 249”

Meet the New Committee Members!

The Science Teachers Association of Tasmania has welcomed new members to the board following the recent AGM. This has continued to ensure the association is led professionally and represented by a diverse cross-section of teachers from across the State.

Kylie Waters

Kylie is a science teacher and coordinator at Ulverstone Secondary College



Rowan Richardson

Rowan is an online delivery teacher for Virtual Learning Tasmania based in Tasmanian eSchool Hobart Campus. Rowan is currently teaching Life Sciences 2, Grade 9 maths and science and concurrently designing and teaching the Environmental Science level 3 course.



Marjorie Morgan

Marjorie teaches science and maths at Hobart College and is the Science Learning Area Leader.



Dr Deborah Beswick

Deborah comes to us with vast experience of science teaching in the state, as well as an organiser for National Science Week events. She is the new coordinator for the TSTS competition.



Teaching Science Moves Online

In an effort to address the growing number of requests from readers of the ASTA Teaching Science journal, as well as our focus on sustainability, ASTA has commenced a project to publish the journal online. Our decision was further supported by feedback we received as part of a survey we undertook last year, with 96% of respondents stating they wanted to receive the journal online.

The project has commenced, and we are currently exploring options to ensure that we are able to provide you with a high-quality online publication. We are also looking at incorporating a print-on-demand service to enable printing of the journal, should that still be your choice. We hope to have the journal online in the second half of 2020 and look forward to providing you with greater options to access the journal as you desire. Putting the journal online will also help us increase the readership and expand the content, as well as support our aspirations to be a more environmentally sustainable organisation. We thank you for your ongoing support and look forward to bringing you Teaching Science online.

ABC Education and ASTA Collaboration

ASTA and the ABC have been working in collaboration to bring you the following article about the challenges faced by science teachers and some of the resources and support available.

<https://education.abc.net.au/newsandarticles/blog/-/b/3524506/the-challenges-of-taking-science-from-lab-benches-to-kitchen-benches>

ABC Education is offering a daily programming schedule, including STEM related shows, which can be used as teaching resources. In addition, the website offers a great variety of curriculum-linked resources including games, short films and activities.

It is hoped this collaboration continues into the future to allow high-quality entertainment media to be available for science teachers.

Valé Lance Strickland 1916 - 2020

Teacher, STAT member, ASTA life member (1984), TTF Executive member, chemist, gemmologist and gem jeweller, horologist, philatelist, gardener

On 1 July 2015, when he was 99 years old, Lance Strickland was awarded a certificate, by the Royal Australian Chemical Institute, for having been a member for 73 years.

The Tasmanian RACI Branch was formed in 1941 and Lance became a member in 1942, when he was 26 years old. He was instrumental in forming a RACI group in Devonport in 1942 and later one in Launceston, when he moved to work in Scottsdale.

Therein lies the story of a unique career that started with home education, formal schooling from age 10, a primary school junior teacher, at Kingston, in 1934 and ended as an inspiring chemistry teacher, at Elizabeth College in 1976, having spent several stints in industrial chemistry in the years between.

It is not a regular practice for teachers to have an in-depth involvement in their applied field but for Lance, working outside teaching was taken as a norm and an integral part of being a better teacher.

Lance took up a teaching studentship in the depression years as a way of continuing education. His memoir said, "I was afraid that might be taken from school at the end of the years, so I applied for a Probationary Studentship."

He entered the Phillip Smith Teachers College (on the Domain) in 1934 for the one-year course and also enrolled in Pure Mathematics, Physics, Chemistry and Education One at the University. This was, of course, the original University of Tasmania, but Lance referred to it, in his memoir, as Teachers College. One suspects that this was because teaching was the prime objective for those holding a studentship, as Lance was to find out later, when he was sent to a school when only part-way through his degree.

Lance was launched into teaching by being appointed to the Hobart Welfare School instead of a hoped-for appointment in Queenstown or Burnie, places he had never been. He surmised that this appointment was because he had topped his College year in the Psychology of Exceptional Children course.

In his second year of teaching, 1936, he was appointed to Hobart High School and still studied at the university. In 1937, he gained a second studentship, at the Teachers College (University), for a year's full-time study, later extended for two years. Before studies started in 1938, he was given one day's notice to take up an appointment at Burnie High School - two days travel away by train. He returned to the Teachers College (University) in 1939 and it was during this time that he decided to major in Chemistry rather than in Mathematics.

On graduating, Lance was again appointed to Burnie High School but after a few weeks, a letter from his Chemistry professor sent him for an interview at the Paper Mill, where he was appointed as an industrial chemist on a year's leave from the Education Department. The job was short-lived, but serendipity saw him take up a position with Clements and Marshall, in Devonport, where he devised a method of recovering potato starch rather than allowing it to go to waste.

It was during this time, when Lance had his watch in pieces for cleaning, that his hobby was discovered and watch repairs became another part-time career, which lasted until electronic watches took over from the mechanicals.

At the close of the war, the Clements and Marshall factory was no longer required and Lance, now out of an industry job, negotiated a new career move to Scottsdale as general manager of the Dewcrisp vegetable processing factory exploring dehydration processes. In the fourth year of the job, he resigned and became a science teacher again, this time at Scottsdale High School, but industry was also calling ... again.

A short time after starting at the high school, hush-hush plans for a food research laboratory at Scottsdale were brought into being and three years later, on 1 January 1954, with the Commonwealth Government having secured a secondment from the Education Department for as long as was needed, Lance started as Officer-in Charge of the food research centre which eventually became part of the Defence Department.

The Education Department withdrew from the agreement after five years and Lance resumed his teaching career, at a much-reduced salary, at the Hobart Technical Boys High School and joined STAT and started a long association with ASTA through attendances at CONASTA.

When 100 years old, Lance was given a citation at the 2016 CONASTA, in Brisbane, by his long-time friend, Lance Taylor. The two Lances, young and old, became great friends, rooming together and enjoying the camaraderie of many CONASTAs.

From 1959, as a member of STAT, Lance Strickland's career included a role as senior master of science at the one-year-old Rose Bay High School, from 1961 and, several years later he joined the staff at the newly established Elizabeth Matriculation College as supervisor of chemistry and physics, but the latter part was only temporary.

It was here that he developed the scheme of an accelerated course in chemistry. This achieved outstanding results but fell foul of Department regulations requiring students to complete five subjects a year, not four with an acceleration in one of them.

What Lance had brought to his teaching career was a different outlook on chemistry teaching. It was an outlook honed by the experience of bench chemistry and the demands of research in industrial and organic chemistry. It was an approach to teaching that students seemed to enjoy but which didn't always equate with Education Department norms.

By late 1975, Lance had had enough and retired in 1976 to delve deeper into his gemmology hobby and, quite quickly, a peppercorn payment position as executive officer of the Institution of Surveyors, Tasmania. The anticipated "couple of years" appointment lasted 17 years.

His was a long, science-based career.

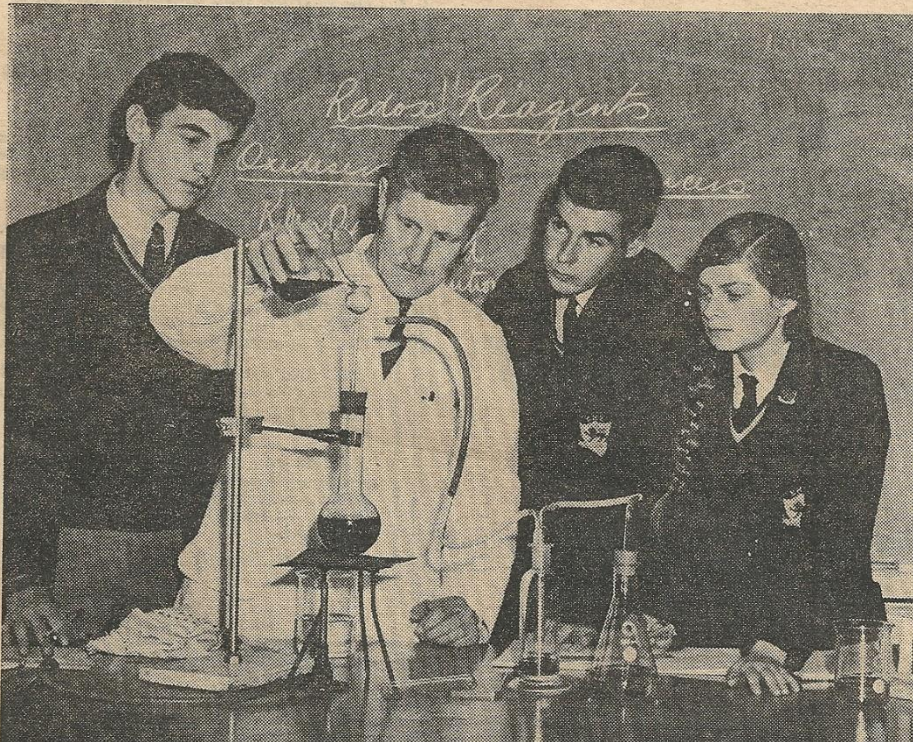
Ian Pattie

STAT Life Member



TASMANIAN CHILDREN NEED HIGHLY QUALIFIED SCIENCE TEACHERS...

THE EXAMINER
18.8.69



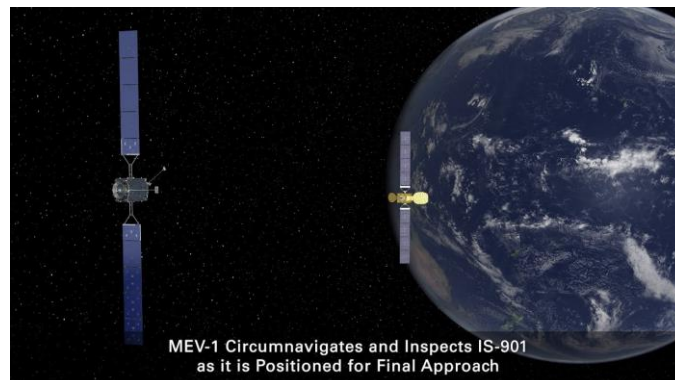
Scientific Snippets and Discoveries

Recent advances in knowledge worth sharing...

Satellite Rescue

On February 25th, 36,000km above the surface of the Earth, an ageing and expensive geostationary communications satellite lay in silent orbit. The Intelsat 901 could no longer function in its present position. Along came Northrop Grumman's Mission Extension Vehicle 1 (MEV-1) to conduct the first ever docking of two commercial spacecraft. The MEV-1 then manoeuvred the satellite into a new position from which it could effectively resume operations. The two will remain in piggyback over the next five years, after which the MEV-1 will become available for other rescue missions. Meanwhile other similar operations are planned. This has potential for the management of ageing space vehicles and for clearing orbits to allow the safe functioning of future satellites.

https://arstechnica.com/science/2020/04/mission-extension-vehicle-succeeds-returns-aging-satellite-into-service/?utm_source=Nature+Briefing&utm_campaign=2ed1c0614b-briefing-dy-20200420&utm_medium=email&utm_term=0_c9dfd39373-2ed1c0614b-42715383



Likely Link Between Loss of Biodiversity and Viral Pandemic

It has long been suspected that a loss in habitat and biodiversity can have detrimental health effects. Habitat loss brings wildlife into closer contact with domestic animals, livestock and people. This increases the possibility that proteins on a virus's surface can change, allowing them to infiltrate human cells. This happened to the Hendra virus, when flying foxes moved into areas with grazing horses, when AIDS made the jump through the hunting of bush meat in Africa and lately when a virus identified in bats in 2013 made the transition via Wuhan meat markets, possibly through fruit bats or pangolins in 2019 (research is still pending on this claim). The article here outlines concerns indigenous people have regarding the link between forest habitat loss, climate change and disease.

<https://www.coveringclimatenow.org/climate-beat/the-corona-connectionnbspforest-loss-drives-viruses-as-well-as-climate-change>

The link between biodiversity and health is further explored in this article from the Royal Society in an area of active research with many unanswered questions regarding disease biogeography.

<https://royalsocietypublishing.org/doi/full/10.1098/rsif.2014.0950>

If There was no Lockdown...

At the time of writing, Covid-19 has made a deep impact on lives globally, affected our economies, travel, social interactions and work practices, including the way we teach science. But what if none of that happened? What if mitigation measures were not put in place? Modelling researchers at Imperial College London have estimated a global infection rate of 90% and the deaths of over 40 million people. Introducing social distancing, testing and isolation when the death rate hits 1 per 500,000 people would keep worldwide deaths to below 2 million. Introducing measures when the death toll hits 8 people per 500,000 would reduce deaths to 10.5 million. Italy, the UK and the USA all reached the first threshold in the first three weeks of March.

<https://www.imperial.ac.uk/media/imperial-college/medicine/sph/ide/gida-fellowships/Imperial-College-COVID19-Global-Impact-26-03-2020v2.pdf>

The Hunt for the Vaccine

There are currently around 78 efforts around the globe searching for a vaccine for Covid-19. Five of those have gone into clinical trials. Here is a resource from CSIRO highlighting the process, including links to gene sequences, electron microscope images and a summary of the development process. Whilst there is still a long way to go, part of the journey was paved by our prior knowledge of viruses such as SARS. What we learn from COVID-19 will in turn help us understand how to respond to future coronavirus outbreaks.

<https://blog.doublehelix.csiro.au/creating-a-vaccine-for-coronavirus/>

STATIC QUIZ

Easier:

- 1 What sort of animal can be a stag, jewel or dung?
- 2 Is a gibbon a monkey?
- 3 Which element is used to regulate the quality of swimming pool water?
- 4 Which gas in the air causes things to combust?
- 5 What colour is found on the outside edge of a rainbow?
- 6 How many forward pointing toes does an owl have?
- 7 How many AFL teams are named after native Australian animals?
- 8 Which planet in the solar system has the largest number of moons?
- 9 What does a resistor resist?
- 10 What colour is pure sulphur?

Harder:

- 1 Bananas, sweet potato and avocados are all rich in which earth metal?
- 2 How many people are currently onboard the International Space Station?
- 3 What is the name of the comet discovered earlier this year and heading towards the inner solar system?
- 4 Crux is better known as what?
- 5 What sort of animal is a Ptunarra Xenica?
- 6 Which country has the fastest internet speed?
- 7 When kneading bread, which two proteins come together to make gluten?
- 8 If a viral swab test is 80% accurate and 5 people out of 100 carry a virus, how many positive tests will there be?
- 9 What is dendrochronology?
- 10 How many species of Eucalyptus are found in Tasmania?

Answers:

Easier:

- 1 Beetles
- 2 No, it is an ape
- 3 Chlorine
- 4 Oxygen
- 5 Red
- 6 2 forward (and 2 back)
- 7 6 (magpies, swans, hawks, eagles, kangaroos and crows)
- 8 Saturn (with 82)
- 9 Electrical current
- 10 Yellow

Harder:

- 1 Potassium
- 2 3
- 3 Atlas
- 4 The Southern Cross
- 5 Butterfly found only in central Tasmania
- 6 South Korea
- 7 Gliadin and Glutenin
- 8 23 (4 true positives and 19 false positives)
- 9 Counting tree rings
- 10 29