

3 June 2021



Video credit: Peter Curtis/ABC

The Tasmanian Geologist

October 2022



AUSTRALIAN
GEOMECHANICS
SOCIETY

NEXT MEETING:

**Thursday 27th
October
6:00 PM
GSA-AGS**

**Paradise Gorge - Rock
Removal in Columnar
Dolerite**

Geology Lecture Theatre
University of Tasmania

Join us for drinks and nibbles
before the screening from 5:30 PM

Still a few meetings to see out 2022:

put them in your diary

November 10th Martin Jutzeler Investigator

Voyage to the Kermadec Arc

November 15-16th Virtual GESSS 12-2PM

*We are planning to stream this in the Geology
Lecture theatre so come along!*

*November 22-24th STGSG King Island Field
Conference*

*December 1st Tasmanian Geoscience Forum,
Lakeside Lodge, Tullah*

NEXT MEETING:

Joint meeting with Australian Geomechanics Society presented by Clint Scott and Andrew Tyson 'Paradise Gorge - Rock Removal in Columnar Dolerite'

In 2021 traffic could no longer flow between Hobart and Orford on the east coast along the Tasman Highway. Vehicles were diverted and all transport was rerouted. So what was all the fuss about?

Rock columns in the dolerite bounding Paradise Gorge section of the Tasman Highway west of Orford showed signs of becoming rock falls closing the road anyhow and endangering road users. The hazards were identified and were followed with remediation. This talk will outline the problem and solutions undertaken to mitigate the rock fall hazards on this important link between Hobart and the east coast.

During the inspection of previous stability issues along the Paradise Gorge section of the Tasman Highway near Orford, high concern boulders were observed situated above the roadway. A rapid response closure of the road and remedial works were undertaken. Detailed risk assessments of individual boulders and overall slope stability were performed and mitigation measures employed to reduce risk to an acceptable level. Mitigation measures included removal of boulders, hydraulic removal of scree, removal of trees, re-vegetation, full-time monitoring of slope movement and catch fence installation.



Rocks stacks designated for removal from above the Tasman Highway in Paradise Gorge (image from <https://www.youtube.com/watch?v=sITxcv7Ruas>)

Andrew Tyson



Andrew is a geologist with over 15 years' experience in geotechnical consulting in the mining and civil sectors. His involvement in a wide range of projects within these sectors has given him a broad

cross-discipline skill base.

He has planned and carried out a large number of civil investigations; specialising in slope stability, along with site classifications and foundations across a wide range of sites. His mining experience includes both underground and open-pit work, ranging from geotechnical coverage to drilling supervision to offsite data analysis.

Andrew is currently working at Pitt And Sherry and a Tasmania finalist in the 2022 young professional engineers of the year award.

Clint Scott



Clint has over 20 years' experience in the planning and supervision of geotechnical investigations, development of geotechnical models and design of

various underground and surface excavations and works. His experience extends to both mining and civil applications and has worked on projects in Africa, SE Asia, Middle East, Europe, South America and Australia.

His expertise includes geotechnical assessment of surface earth works and stability issues including earth dams, landslides, foundation

investigations, rock and soil slope stability and blasting issues. He has also undertaken assessments of various underground mining methods ranging from small cut-and-fill to sub-level and block caving operations. His geotechnical assessment of shaft excavations includes surface collar works, stability assessment, support requirements and pre-grouting for various excavation methods. Clint is currently working with Pitt and Sherry.

If you cannot make it in-person you can zoom in on the evening using the link below:

Join meeting

PREVIOUS MEETINGS

Wednesday 21st September Earth Futures Film Festival Night

The lights went down and the audience, laden with cups filled with popcorn, 'gravel lollies' as well as other Earth Science-themed food enjoyed a selection of Earth-Science themed videos.



If you missed the fun here the list of what we watched on the night.

The 1979 La Soufriere Eruption (5 min; cartoon recollection of eruption, consequences and preparation for hazards)

A.B.O.V.E (16 min; video following a team of researchers studying a volcano in remote PNG with drone technology. Interesting challenges!)

Peace Pipeline (25 min; video ironic, comic and thought-provoking video on the planned construction of an oil pipeline through suburban Duluth in the USA)

Mary (5 min; cartoon rendition on the life of Mary Anning and her contribution to paleontology)

Rola (Stone) (30 min; film on the connection between Earth Sciences and Indigenous Culture in the North Tablelands of NSW).

These were all we had time for but there are many others well worth watching when you have some down time.

Explore on the Earth Futures website

<https://www.earthfuturesfestival.com/>

SUNDAY 14th of August Launceston QMAG Inveresk in a joint meeting with the Royal Society of Tasmania Northern Branch

Peter McGoldrick presented a talk titled ‘Tasmania’s oldest fossil’

Tasmania's oldest fossils



This lecture is now available online if you want to catch up.

<https://rst.org.au/view-recording-of-dr-peter-mcgoldrick-august2022/>

Here is a good way to get geomechanics and Peter McGoldrick on the same page! Peter has recently watched the reconstruction of his end of Liverpool Street after storm induced landslide damage.

The Great Wall of West Hobart



(Photo Hobart City Council)

If you were stuck in Macquarie Street traffic last year you might have glanced toward West Hobart and spotted a flurry of activity on the slopes above the Hobart Rivulet. Over a four month period an imposing wall of concrete appeared just below the Liverpool Street roadway. The new wall is about a hundred meters long and more than three meters high!

The explanation for what was going on is firmly rooted in a couple of fundamental geological principles - ‘gravity sucks’ and ‘water makes things slippery’. On the night of May 10th 2018 a line of thunderstorms caused exceptional

rainfall over the Wellington Range and Hobart. In a period of about six hours more than 230 mm fell on kunanyi/Mt Wellington and Hobart recorded a daily total of 128 mm. The storm events resulted in extensive flooding, power outages and landslips.

Among the landslips were two on the lower side of the narrow part of Liverpool Street, West Hobart. Both landslips display ‘classic’ concave-convex failure planes (photos). Rear fences and gardens of two properties in McKellar Street were destroyed and one of the houses had a small debris flow terminate at the back door!



Destruction from landslides downslope from Liverpool Street after rainfall event in 2018 (Photo P. McGoldrick)

After an initial clean-up of the damage, the Hobart City Council (HCC) affected stabilisation using geotextile blankets and boulder fill over the two land slip sites. However, this was always going to be a temporary solution, as several areas nearby showed signs of potential failure. The HCC subsequently obtained Federal and State Government emergency disaster relief funding to affect a more permanent engineered solution. This involved excavating a shallow cut at the base of the steep slope over a distance of about 90 meters below the road so a concrete base could be laid. Around three hundred pre-casted blocks of ‘no-fines’ (i.e., porous and permeable) concrete were stacked three high to form the ‘Great Wall’.

At intervals, the linked blocks were pinned back into the substrate with giant steel rods, and additional ‘no-fines’ concrete was poured in behind to lock everything in place. The previous steep slope is gone, replaced by what is

essentially a very large mass of porous concrete and a flatter area adjacent to the road re-vegetated with native plants and fruit trees!



Large concrete blocks forming the wall with concrete poured in between to stabilise the slope beneath Liverpool Street (Photo HCC).

The geological substrate to this part of West Hobart comprises dolerite regolith deposits of boulder dispersed in clay. This leads to instability in steeper areas, and this part of Liverpool St is a recognised land-slip risk. However, the ‘Great Wall’ excavation reveals there may have been some more recent human contribution to the March 2018 failure. The cut for the wall foundations revealed a layer of charcoal, animal bones and pottery a few decimetres below the current ground surface.



Cutting in the area of the wall reveals pottery, brick and charcoal bearing layer (arrowed) (Photo P. McGoldrick).

and, if you look closely at the old TMAG photo (below), three figures stand near smoke rising from a fire on a cold Hobart winter’s day.



1890s image of West Hobart. Fire source arrowed (Photo TMAG)

Peter McGoldrick

For more information about the May 2018 storm event :

<https://knowledge.aidr.org.au/resources/2018-flood-tas-hobart-flash-flooding/>

For more information about the Liverpool Street project:

<https://www.hobartcity.com.au/Projects/Recently-completed-projects/Liverpool-Street-embankment-improvements>

FREE Training in communications

Take advantage of the offer to GSA members-only to Geologize's critically acclaimed course Practical Geocommunication for 2022 for free!

Geologize is a global leader in providing training to geoscientists who wish to communicate more effectively with their audience.

Geologize teaches geoscientists to bring the public to a greater understanding and appreciation of our planet through effective and powerful communication.

When you complete *Practical Geocommunication*, you will receive an accredited CPD-valid certificate.

"Passion. Education. Sustainability. We believe that if people understand how the planet works, they will appreciate and care about it more. Geologize seeks to create and facilitate the creation of tangible and emotional connections between the general public and the world in which they live." Haydon Mort, Geologize.

Contact the GSA: info@gsa.org.au to get your code to this GSA-funded initiative (see flyer at the end of the Newsletter)

STUDENTS

Hello students. Undergraduates will be working towards exams in the final part of the semester for 2022. We wish you well in your studies and success in the final exams for the year.

If you feel like an outing after your studies or a break if you are a PhD student please consider the Geoscience Forum on the west coast of Tasmania on December the 1st. AIG are organizing a workshop on the preceding day and there are field trips being organized for the day after. It is a great opportunity to get out and see some of the geology on the west coast of Tasmania and importantly to network and meet people from all facets of geosciences (GSA, AIG and AusIMM) in Tasmania in one place! Hurry as places are filling fast. There may be funding available to help students get to Tullah. Please send your enquiries to Sheree.Armistead@utas.edu.au

Endowment Fund

THE GEOLOGICAL SOCIETY OF AUSTRALIA

Congratulations ACACIA CLARK who has been awarded the one Endowment Fund prize for a PhD student from across Australia worth \$5000.

'I am very honoured and pleased to receive the GSA Endowment Fund for 2022. This fund has helped me get to New Zealand to conduct fieldwork and enabled me to bring UTAS researcher Dr Michael Roach along to take high resolution drone imagery of inaccessible locations. This data will allow me to better understand the drivers and influences behind the complex, explosive Kaharoa eruption. I would encourage every postgrad to apply for the Endowment Fund as some extra funding can make a big difference and give your research a great boost!'



Acacia Clark undertaking field work on Tarawera NZ
(Photo provided by A. Clark)

The 2023 round for the endowment fund grants will be announced early next year. Note there is also honours funding available and each state is allocated \$1000. Don't miss out!

Earth Science students Honoured in University of Tasmania at the School of Natural Sciences Student Recognition Evening Friday the 23rd of September.

The evening was led by Head of School Professor Simon Ellingson and hosted by Professor Barbara Holland.



Hannah Moore was recognised for her outstanding performance during postgraduate studies in Earth Sciences (She was unable to attend because she was doing her field work in NZ).



Congratulations to Gabrielle O'Toole (left) a first year student awarded the Larry Knight Scholarship (Photo O. Wilson)



Well done Eva Beukes who was awarded the Ramsay J Ford Memorial prize for greatest proficiency in first year geology (Photo O. Wilson).

One of the 5 keynote speakers on the evening was Victor Torres, PhD candidate researching Cu-Au-Ag mineralised tourmaline breccias.



Victor Torres presents his keynote speech with two of our own GSA members on the banner behind (Photo O. Wilson)

Congratulations go to these and the other awardees who were not present for their high achievement in Earth Sciences at the University of Tasmania.

Look out for a swag of new prizes initiated by the GSA to be awarded in 2023!

GESSS the student-run conference for students (and everyone else) is on November 15-16th Virtual GESSS 12-2PM

The local division are planning to stream the conference in the geology lecture theatre so drop in for some lollies and company.

Student Membership Benefits

Olivia Wilson won the Honours Endowment Scholarship for Tasmania in her honours year in 2020. Despite the lockdowns of that year, she eventually managed to get into the field to spend her money. Olivia is now employed by Entura in Hobart. She was an undergraduate member of the GSA and here is her testament to how it can be helpful for your future.

‘Being a student member of the Geological Society of Australia enriched my experience of studying geology. Especially important to me were the opportunities to make connections and learn about the research of other society members. As a student, it is also invaluable to have an environment in which you can interact with geoscientists from all career stages – hearing their experiences allows you to develop your own career

aspirations. GSA membership also demonstrates that you have a level of passion and commitment to your field beyond the compulsory courses in your degree, helping your resume stand out as you transition to professional life.'



Olivia Wilson (supplied by O. Wilson)

You can become a member here <https://www.gsa.org.au/>

Any queries about your membership contact our membership officer Rebecca Carey (Rebecca.Carey@utas.edu.au).

Undergraduate Student Members
Special price on the
Geological Evolution of Tasmania!

Become a GSA Member and you can
obtain 'The Geological Evolution of
Tasmania' for \$75 including GST.

[Students Join Here](#)

Once you are complete your membership please contact Caroline Mordant for your special price book. See details below



The flagship publication of the Tasmanian Division of the GSA, 'The Geological Evolution of Tasmania' (Special Publication 24 of the GSA) is available for ordering. All details are available on a specific part of the Utas CODES web site: http://www.utas.edu.au/data/assets/pdf_file/0003/55313/Flyer_Order.pdf

Copies of the book can be obtained personally from Caroline Mordant (publications@CODES.utas.edu.au or phone on +61 3 6226 7537).

Members Price is A\$90 + GST + postage where appropriate. Undergraduate student price is \$75. Postage can be avoided by buying in person from Caroline Mordant in Earth Sciences (University of Tasmania). The book is also available at Fullers Bookshop and at TMAG in Hobart, and in the Devonport Bookshop, Devonport. Prices at these sites may vary from GSA prices, and the member price is not available at these sites either.

Other Meetings

Next CODES shortcourse is Brownfields
Other CODES Shortcourse dates available at <https://www.utas.edu.au/codes>

22-24 November 2022 SGTSG Field meeting

King Island Postponed from February 2022.
Biennial meeting at King Island to discuss the latest research and developments in tectonics and structural geology with 3 half day field trips. Limited to 60 people. For more details:

<http://www.sgtsg.org>

November 30th

One day online AIG Workshop ‘The Project Geologists Toolkit’ For more information check out this website

<https://www.aig.org.au/events/project-geologists-toolkit-30-november-2022/>

Final Words

From Noel Kemp

Maybe this is the answer to ‘Could this be the oldest fossil?’



GSA Tasmania Division Committee 2022-2023

Chair: Karin Orth

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Sebastien.Meffre@utas.edu.au

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Peter McGoldrick

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Phil Sansom (Education)

Olivia Wilson

Geological Society of Australia website:

The Tasmanian Geologist, 20th October 2022

www.gsa.org

and our own website

<http://www.gsatasmania.org>

Any news, announcements or interesting photographs of Tasmanian Geology you would like to include in the next Newsletter, please send it through via email to karin.orth@utas.edu.au prior to the 3rd of November 2022

GEOLOGIZE

NOW FREE FOR GSA MEMBERS

Do you want to strengthen your geoscience communication skills? Maybe you want to educate a non-specialist audience about why geoscience is important.

*If you do, take advantage of the GSA members-only license to Geologize's critically acclaimed course **Practical Geocommunication** for 2022 for **FREE!***

Geologize is a global leader in providing training to geoscientists who wish to communicate more effectively with their audience.

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What do you need to do next?

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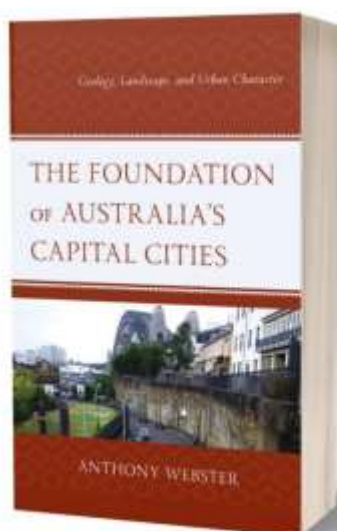
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THE FOUNDATION OF AUSTRALIA'S CAPITAL CITIES: GEOLOGY, LANDSCAPE, AND URBAN CHARACTER

By **Anthony Webster**



“Webster has adopted a novel and extremely interesting approach in this book, which discusses the siting of the major cities of Australia. Tony has blended a plethora of rich historical accounts with a detailed discussion of the controlling local features of water supply, physiography, landscape and geology to provide a comprehensive and thought provoking account of the establishment and growth of our capital cities. I can highly recommend this book to all who are interested in Australian settlement history and the factors that affected the establishment of our major urban centres.”

— Ross Large, University of Tasmania

ABOUT THIS BOOK

The Foundation of Australia's Capital Cities is the story of how the places chosen for Australia's seven colonial capitals came to shape their unique urban character and built environments. Tony Webster traces the effects of each city's geologically diverse coastal or riverine landform and the local natural materials that were available for construction, highlighting how the geology and original landforms resulted in development patterns that have persisted today.

ABOUT THE AUTHOR

Anthony (Tony) Webster is adjunct senior lecturer of geology at the Centre for Ore Deposits and Earth Sciences (CODES), University of Tasmania and honorary senior research fellow at the Sustainable Minerals Institute (SMI), University of Queensland.

TABLE OF CONTENTS

- Chapter 1. Sandstone Harbor: Sydney, New South Wales, 1788
- Chapter 2. On the Edge of the Graben: Hobart, Van Diemen's Land 1803-04
- Chapter 3. Ridgelines and Waterways: Brisbane, Queensland, 1825
- Chapter 4. Limestone and Lakes: Perth, Western Australia, 1829
- Chapter 5. On the Edge of the Delta: Melbourne, Victoria, 1835
- Chapter 6. The Woodland Plain: Adelaide, South Australia, 1836
- Chapter 7. The Northern Outpost: Darwin, Northern Territory, 1869
- Chapter 8. Geology, Landscape and Australian Cities

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Tasmanian Geoscience Forum 2022



GSA Tasmania Division, AusIMM and AIG are proud to bring you the

12th Tasmanian Geoscience Forum

WHEN

**Thursday 1st of December 2022
9AM – 5 PM**

VENUE

**Tullah Lakeside Lodge
Cnr Meredith Street &, Farrell Street Tullah TAS 7321**

Field Trip options on the Friday 2nd Dec TBA

Registrations are open

Please visit the website below for more information

<https://www.ausimm.com/conferences-and-events/community-events-details/12th-annual-tasmanian-geoscience-forum-geobash/>

Hurry Filling Fast