



# The ACKMA Journal

Official Publication of the Australasian Cave and Karst Management Association Incorporated.

Published quarterly in March, June, September and December.

The opinions expressed in the ACKMA Journal are those of the individual authors and not necessarily those of ACKMA Inc or its officers.

Photos taken by the authors or editor unless otherwise acknowledged.

EDITOR: Kirsty Dixon

# ACKMA Inc is cross-affiliated or otherwise associated with:

American Cave Conservation Association, Australasian Bat Society, Australian Speleological Federation, Bat Conservation International, Cave Diving Association of Australia, Guiding Organisations Australia, International Show Caves Association, Jenolan Caves Historical & Preservation Society, Korean Cave Research Institute Malaysian Karst Society, New Zealand Speleological Society, Savannah Guides Ltd, USA National Caves Association, USA National Speleological Society Cave Conservation and Management Section,

WCPA Working Group on Cave and Karst Protection

#### LIFE MEMBERS of ACKMA Inc

Steve Bourne\*, John Brush\*, Michael Chalker\*, Peter Chandler\*, Brian Clark\*, Grant Gartrell\*, Kent Henderson\*, Greg Martin\*, Tim Moore\*, Dave Smith\*, Andy Spate\*, Dianne Vavryn\*, Rauleigh Webb\*, Kevan Wilde\*, David Williams\*.

(\*Previously elected as Fellows)

*Deceased:* Alan Costigan\*, Elery Hamilton-Smith\*, Ernst Holland\*, Chester Shaw\*, Roy Skinner\*, Clyde Stiff\*,

#### FELLOWS of ACKMA Inc

John Ash, Peter Bell, John Brush, Dale Calnin, Deborah Carden, Arthur Clarke, Ian Houshold, Julia James, Neil Kell, Kevin Kiernan, Lana Little, Robyn McBeath, Cathie Plowman, Dennis Rebbechi, Barry Richard, John Watson, Nicholas White, Anne Wood, David Gillieson, Andy Baker.

#### ACKMA PRESIDENTS

Ernst Holland 1987-91, Andy Spate 1991-95, Michael Chalker 1995-97, Greg Martin 1997-99, Brian Clark 1999-2001, Peter Dimond 2001-02, Peter Chandler 2002 -03, Robyn McBeath 2003-05, Steve Bourne 2005-11, Peter Chandler 2011-13, Dan Cove 2013-16, Dale Calnin 2016-2018, Andy Spate 2018-2020, Ian Eddison 2020-

FRONT COVER: Unidentified speleothem from book "New Zealand Karst" page 179 (see book review), photo by Max Wisshak

BACK COVER: 'Abercrombie, view across the first bridge', from book "Abercrombie Caves" (see book review), photo by Alan Pryke

#### ACKMA Inc OFFICE BEARERS 2022-2023

President – Ian Eddison Email: president@ackma.org

Australian Vice President – Scott Melton Email: <u>aus.vice.president@ackma.org</u>

**New Zealand Vice President – Neil Collinson** Email: <u>nz.vice.president@ackma.org</u>

Executive Officer – Cathie Plowman Email: <u>executive.officer@ackma.org</u>

**Treasurer - Regina Roach** Email: <u>treasurer@ackma.org</u>

Membership Officer – Rauleigh Webb Email: <u>membership.officer@ackma.org</u>

Secretary – Steve Bourne Email: <u>secretary@ackma.org</u>

Publications Officer – Kirsty Dixon Email: publications@ackma.org

International Relations Officer – Andy Spate Email: <u>international.relations@ackma.org</u>

Webmaster – Rauleigh Webb Email: <u>webmaster@ackma.org</u>

Committee Member 1 - Shannon Corkill Email: <u>CommitteeMember1@ackma.org</u>

Committee Member 2 - Dave Gillieson Email: <u>CommitteeMember2@ackma.org</u>

Committee Member 3 – Liz Reed Email: <u>CommitteeMember3@ackma.org</u>

To send an email to all committee members: Email: <u>committee@ackma.org</u>

Conference Convenor Email: <u>conferenceconvenor@ackma.org</u>

Ann Augusteyn Award Email: <u>AnnAugusteynAward@ackma.org</u>

#### IN THIS ISSUE

Editorial	Page 3
President's report	Page 4
ACKMA 2023 Conference Logo	Page 4
ACKMA Conference & AGM, NZ 2023	Page 5
Tōtara Caue Exploration	Page 8
Review of NZ Tourist Cave Experiences	Page 18
Did you know?	Page 19
In 1863 they took a little trip	Page 20
20th Int Symposium on Vulcanospeleogy	Page 23
Glorious Kangaroo Island	Page 27
Upcoming Conference	Page31
Resources – Book Reviews	Page 33
Links to the Wider World	Page 37
2023 Tākaka Conference Booking Form	Page 39
Committee Nomination Form	Page 41

We recognise the traditional people of the lands of all our members and editorial contributors.

ACKMA acknowledges the Traditional Owners of the land on which we meet and work, and all Traditional Owners of country throughout Australia. We recognise Aboriginal and Torres Strait Islander peoples' continuing connection to land, place, waters, and community. We pay our respects to their cultures, country, and elders past present and emerging.

ACKMA recognises the unique role of Mãori as Tangata Whenua and embraces Te Tiriti o Waitangi recognising Mãori as tino rangatiratanga of Aotearoa/New Zealand while embracing the three guiding principles of the Treaty – Partnership, Participation, and Protection. We will endeavour to implement bicultural policies and practices that incorporate and value Mãori cultural concepts, values, and practices.

# Editorial

Kirsty Dixon

Welcome fellow ACKMAites,

As we pass the March equinox and slip into autumn, the time has come to finalise plans for attending the 2023 ACKMA Conference and AGM in Takaka, NZ. There is information available on the ACKMA website, including accommodation suggestions and the conference booking form. The booking form is also included at the end of this journal for your convenience.

More detailed information on the conference program and issues for consideration have also been included in this edition by the Conference Convenors. If you have any questions, please feel free to email <u>conferenceconvenor@ackma.org</u>

I have attempted to ensure that correct language forms for Mãori words and place names have been included throughout the journal, but if I have missed any please accept my profound apologies!

It is also time to elect a new ACKMA Committee at the upcoming AGM. On behalf of the outgoing Committee, we would like to thank members for the support they have given to Committee events and online activities over the last year. We would encourage members to think about nominating for a position on the Committee if you think you would like a broader role in developing the roles and functions of the ACKMA organisation going forward. It is not an onerous responsibility and we need broader representation to accommodate our role in a changing world. The nomination form is at the end of the journal should you require it. If you would like to speak with any of the Committee Members about questions or responsibilities, please use the email addresses at the beginning of the journal for contacting us. In addition, there will be a formal call for nominations for Committee positions circulated by the Executive Officer to the ACKMA mailing list closer to the date.

Nominations for Fellow of ACKMA and Life Member of ACKMA will also be considered. If there is anyone you feel should be nominated for these honours, please email the President <u>president@ackma.org</u> with suggestions and details for consideration.

It is perhaps timely to send a reminder to consider what you want from ACKMA as an organisation. We are in the process of developing some strategic plans to make sure that ACKMA is relevant and useful to the whole of the karstic community, and would highly value input from members to assist this process. There will be more on this coming in an email to the members list, so watch that space!

As Editor, I would also value insights into what people would like to see in the journal – bearing in mind that I can only publish what I receive. Journal submission deadlines have been standardised so they are easy to remember – the deadline will the first of the month that the journal is published, i.e.:

- 1<sup>st</sup> March
- 1<sup>st</sup> June
- 1<sup>st</sup> September
- 1<sup>st</sup> December

The comment was made recently that from a guide's perspective... "the journal is very academic/scientific/proper which I understand makes it deemed more attractive in the management space but guides probably want a bit more fun". I am happy to consider any submissions – so if you have something you think would be beneficial or interesting – please put something together and submit it for publication!!!

I especially challenge any guides to come up with something they think would be relevant and interesting to their colleagues. This is on open request, so please pass this on to any cave guides you know, even if they are not presently an ACKMA member – I am happy to look at suggestions with a view to publication in the journal.

Stay safe and I look forward to the journal being inundated with submissions!

Kind regards,

Kirstu

# ACKMA Presidents Report

Ian Eddison

Normal business seems to be occurring following the previous years of closures due to the pandemic. There are however new COVID variants evolving in our societies. We all still need to be careful and minimise risk. I personally began the year with another dose after a cluster in a workplace made the new year look bleak. Please continue to be careful of yourself, your loved ones and colleagues.

Our cave tourism sites have been busy with the training of staff for general business operation and in the lead up to the Easter holiday period. It seems the schools are planning and booking excursions. The scientific world is getting back into research projects in the field as well.

The engineering projects of cave tourist sites continue as a response to previous bushfires, floods and landslips continue across Australia and New Zealand. In New Zealand and Waitomo Caves in particular recently copped a cyclonic weather event. Wombeyan Caves planned projects are underway. Abercrombie Caves access repairs are being worked through after a landslip on their entrance road and damage to the causeway. Jenolan Caves are struggling with road access but have limited tours. Jenolan Caves has a huge list of projects to work through. Buchan Caves continue with their redevelopment projects. Kelly Hill Cave in Kangaroo Island also is under redevelopment.

ACKMA has continued liaison with ASF on a number of issues. The damage to significant indigenous art in Koonalda Cave was one and media by ASF certainly raised the lack of security at the site. Another was the continuation of proposed wind, solar and hydrogen on the WA side of the Nullarbor. Another was a Jenolan Caves 'Grand Arch Precinct Plan' which required a lot of time to digest, discuss and formulate constructive response. A Flood Management Survey for Jenolan Caves occurred and both ACKMA and ASF were invited after making contact on the issue and a brief extension was enabled for us to be involved.

The Hills of Gold Wind Farm has had some modification in plans following the submissions such as ACKMA had lodged. Our concern was the amount of vegetation to be cleared and the proximity to Timor Caves NSW and other rocky outcrops being habitat for microbats.

ACKMA has formally commented (neither supported nor rejected) on the Regis Gold Mine proposal at Kings Plains near Blayney NSW. We made the point that the risk to Cliefden Caues is real if poor judgement in management of tailings dams and major rain event occurs. The fact that other gold mines (Cadia) are being managed closer to Cliefden Caues was a part of the advice to us.

LED lighting is an important part of show caves these days, but we are now aware of the problems with certain spectra of light and the depletion of cave fauna. You would note the talks online and articles within our journals. Please make contact if you are considering any new lighting in show caves so you are pointed in the right direction before you make your commitments to infrastructure.

The ACKMA conference in May 2023 at Nelson and Tākaka is now looming, and I trust you are planning how you can make the most of travel to the region. The last two journals have included important details and so will this latest journal so please now plan your trip, register for the conference, and plan how you can make the most of this wonderful part of the world.

I seek cave managers to consider their opportunity to host an ACKMA conference in the coming years. Your site does not have to be completely up to date to showcase it to our members. We do need accommodation for attendees and places to present and discuss current issues. We are working toward a conference venue each year so please contact me to discuss your cave site and which year you would like us to plan toward a conference.

Ian Eddison President

I pay my respects to the traditional custodians of the land where I live, work and engage in.



# ACKMA 2023 Conference Logo

The ACKMA Conference logo was designed by Aynsley, a student at Tākaka High School. She wrote the following explanation of her design:

"My logo was inspired by the maori kowhaiwhai, the green represents the bush/nature the koru represents the mountains, the black line running through the middle represents a cave with little people crawling through it. The white down the bottom represents the taniwha of waikoropupu springs. And the blue is the beautiful clear water."

Photo taken by Art Teacher Jason and used with Aynsley's permission.



# ACKMA Conference and AGM, New Zealand 2023

At last - the moment we have all been waiting for over the past several years - an in-person ACKMA conference!!!!!

#### Tākaka, New Zealand, May 21 to 26, 2023

The Next ACKMA conference is to be held at Tākaka, in Golden Bay, Mohua. Golden Bay is known as the "heart of the parks" as it is nestled between the Kahurangi and Abel Tasman National Parks. This area is one of New Zealand's most geologically and ecologically diverse places. The little town of Tākaka is off the beaten track and located beneath stunning marble mountains, pockets of limestone and beside beautiful golden beaches.

For an overview of the geology of this region, the last chapter of NZ Geology is recommended, <u>https://www.geotrips.org.nz/downloads/Ballance\_NZ\_Geology-V2.pdf</u>

#### Transport:

For those interested in taking the bus to and from the conference (this needs to be specified on your registration form), the departure times are as follows:

Friday 19<sup>th</sup> – 9.00am departure from Nelson city for the pre-conference field trip Sunday 21<sup>st</sup> – 2.00pm departure from Nelson airport for Tākaka

Saturday 27<sup>th</sup> - 8.00am departure from Tākaka for Nelson airport (arrive ~10.00am)

Monday 29<sup>th</sup> – 9.00am departure from Collingwood for Nelson airport (arrive ~ 12.00pm)

#### **Caving and Tramping equipment:**

Please bring all your own caving and tramping (bushwalking) equipment. NZ Caves can be cold and wet. Outside temperatures may also be cold. A good raincoat is required to be carried on all excursions. If you have a helmet please bring it with you. At a bare minimum please ensure you have a headlamp and torch as NZ caves are naturally dark inside!

Didymo cleaning stations will also be provided between locations, www.biosecurity.govt.nz/didymo

First Aid and Communication equipment will be carried on all trips. While all endeavours will be made to cave safely participants undertake all activities at their own risk.

Trip leaders reserve the right to modify routes and/or select participants after accessing suitability, please be realistic with your selections.

#### COVID:

In NZ if you test positive to COVID then you are required to isolate for 7 days. While we will operate a high trust model with delegates, we communicate the following expectations to help us run a safe conference.

**Please bring your own face masks.** It is not mandated to wear facemasks in NZ other than hospitals and medical centres, however we encourage you to use face masks in all group travel (airlines, mass transit points, and public transport). As we will be together for the best part of a week there is a chance COVID may affect delegates.

- The evening prior to joining the conference group travel we encourage you to complete a RAT and only join the conference if you test negative.
- We strongly recommend you wear a face mask during any group shared travel prior to joining the conference itinerary in Nelson. During the conference, when sharing transport, the use of face masks is an individual choice, and we ask everyone respect delegates decision on mask wearing or not.
- We will provide a personal hand sanitiser and ask you commit to maintaining hand hygiene at all times.
- During the conference if you have any COVID symptoms or just feel fluey please complete a RAT (we will have a supply of these free to delegates) We ask you disclose/communicate a positive RAT test as soon as possible to conference convenor.
- In the event of a positive test, we will discuss the best isolation location for you, and if your Takaka
  accommodation isn't suitable then we will arrange transport back to Nelson where there are better options
  including health facilities. Onwards travel from Nelson and isolation arrangements are at delegates own
  expense.

#### Provisional Program:

Additional times will be posted as soon as verified on the website.

Papers and speakers that have been confirmed are listed, but this listing is far from complete – there is still room for some papers and plenty of room for posters, so if you are now inspired to contribute, please let the Conference Organisers know ASAP!

#### Sunday 21st May

From 5pm - Registration and Welcome Meal supplied at Tākaka Recreation and Sports Clubrooms

#### Monday 22<sup>nd</sup> May

8.30am pickup from Accommodation

9.00am Welcome from Ngati Tama Tangata Whenua (location to be confirmed)

Morning	Tea
1/ auto at a	Charles

Keynote Speakers:	Ngati Tama
3	Paul Williams
	Andrew Yuille

Packed lunch to be eaten enroute to Waikorupupu Springs **1.00pm** Visit to Te Waikorupupu springs hosted by Ngati Tama

Return to accommodation

4.00pm Optional Karst Walk

6.00pm Dinner at Tākaka eat spots of your choice - self-organised

**8.30pm** After Dinner Talks – Note **Alcohol free venue** 

#### Tuesday 23<sup>rd</sup>

**7.30am** pickup from Accommodation

8.00am Full day trip to Tākaka Hill - Groups will swap locations morning and afternoon

A. Travel along Caanan Road to visit Harwoods Hole Lookout, Homestead Creek Submergence and passing the 21 Ha Greenlink Cave entrance property (presently being 'crowd funded' to be purchased by the NZSS Cave Conservation and access trust) and travel along East Tākaka Road, to see the interface between the Tākaka Hill and the Tākaka valley

Lunch Supplied at the Woolshed Café by Jessica and Tony Salmond

- B. Visit to Ngarua Show Cave, hosted by David Hobson and Janet Morga Optional Caving trips to Hawkes and Kairuru Cave part of this ancient (for NZ) system Possibly visit to closed Marble Quarry, used for Nelson Cathedral
- 7.00pm Dinner at Tākaka eat spots of your choice- self-organised After Dinner Talk: Van Watson - The Nelson deep caving scene prior to Oz and all arriving

#### Wednesday 24th

#### Thursday 25th

8.30am pickup from Accommodation
 9.00am Papers
 Morning tea

 Papers
 Packed lunch
 East Tākaka Excursion, visit environment of the mornings talks and entrances of Tōtara Cave
 Optional walk to Elliot's Cave, a long-closed tourist cave To be confirmed...

 7.00pm Dinner at Tākaka eat spots of your choice- self-organised

 After Dinner Talk: Kieran McKay

#### Friday 26th

book. Will fit this in somewhere!

6.00pm Final Dinner and Entertainment at Tākaka Recreation Hall

#### Post Conference Tours:

#### Saturday 27th

Re located to Collingwood, Historic town 30km north of Tākaka (no farewell spit tour available this day due to early low tide)

Westhaven Inlet Geology, Wharariki Beach Walk, Puponga Coalmine ruins walk

#### Sunday 28th

**Either** Farewell spit Safari Ecotour, start at 6.30 am Finish at 1pm 40 km each way along the beach at low tide etc \$175 pp, see <u>https://www.farewellspit.com/our-tours/farewell-spit-tour/</u> **OR** Excursion to Mt Burnett, a 641 Metre dolomite mountain near Collingwood with unique flora and fauna- led by

**OR** Excursion to Mt Burnett, a 641 Metre dolomite mountain near Collingwood with unique flora and fauna-led by Greg Knapp, local DOC Botanist, and long-time local resident

Mt Burnett has endemic shrubs and sedges and the endangered carnivorous land snail *Powelliphanta gilliesi*. Access is only available on a Sunday as there is a Quarry operating the other 6 days. Good fitness is required as there is a 90-minute uphill walk to start.....Bring water and lunch

The conference booking form is at the end of this journal, as is the Committee Nomination form for the ACKMA AGM. They are also available on the ACKMA website as fillable pdfs – the nomination form is in the members only area under ACKMA Committee Nomination Form Current!

Topics for papers confirmed so far include:

- The latest exploration news from the Greenlink Middle Earth System
- A decade of exploration in Golden Bay marble: Many modest caves or tiny fragments of a vast network?
- Diverse Karst landforms revealed by digital topography: examples from the Nullarbor and Golden Bay.
- The Grecian Stream and the back of the Pupu: How the most remote input to the aquifer was overlooked.
- Speleothems from Concrete
- The difficult problem of weighing a cave from the surface and what it tells us about the Nullarbor Karst.
- Jillabenan Caue
- ACKMA strategic plan- where to from here?

### For those unable to attend in person:

While it will be sad not to see everyone in person at the upcoming ACKMA Conference and AGM in Takaka, NZ, we acknowledge that the world has changed and not everyone feels comfortable or is able to travel.

The Conference Organisers are therefore looking at ways that the paper sessions may be recorded and uploaded to the ACKMA website at a later date for access by members. Once logistics have been sorted, details of access will be forwarded to all members.

The AGM will still be a live on-line event and access details will be forwarded to all members closer to the date.



# **Totara Caue Exploration**

The following is a good story on one of the caves that we will view from the outside during the conference.

It is reproduced with permission of the New Zealand Speleological Society Bulletin.

Since this was published exploration has been limited but it is around 10km at this stage. We will also have the opportunity to see a recently located stream sink into this system on the field trip to Tākaka Hill.

# Tōtara Cave Update 2020

The 2019/2020 summer was a busy year with significant progress made on the exploration of the Totara system.

The season got off to a good start with NZ's first-ever cave-diving SAR exercise being held in November. 30 people from the diving and caving communities came from around NZ and were joined by cave diving legend Richard "Harry" Harris from Australia. The practical component of the weekend focused on the scenario of a caver trapped past Tōtara's main downstream sump.

Following the SAR exercise, several cavers worked on diving Tōtara's upstream passage with the aim of connecting to the nearby Cottage Cave. This was a connection which Martyn Farr hadn't quite made, though we knew must exist. Richard Harris and Bruce Clulow extended the upstream passage 130 metres. A few days later Bruce returned with Tom Crisp and pushed the passage a further 75m to connect with Cottage Cave. They returned proudly brandishing the marker and dive reel which Martyn had left at his far point in his exploration of Cottage.

Tom Crisp and Bruce Clulow with Martyn Farr's dive reel and marker. Photo: Rob Davies.



myself, with a variety of other cavers.

There were three main focuses to the exploration:

- Hydrology. Tōtara Cave is close to the Tākaka River and is full of water for much of the year. We were keen to gain an understanding of the relationship between the cave and both the Tākaka River and the Arthur Marble Aquifer. Amongst other things, this will help us know when it is safe to enter the cave, and when it is not.
- Where does all the water go? While we enter the system when it is dry, the early explorers (Martyn Farr and Kieran McKay) reported considerable quantities of water pouring down towards the southern end of the cave. Where does this go? Clearly, there is a very effective drainage in that area. Could this feed into the Arthur Marble Aquifer which underlies the Tākaka Valley? If so, this would be of considerable interest.
- Towards Canaan. In several areas, upstream passages head east into the Tākaka Hill. Large amounts of granite sand in these passages indicate that they originate in Canaan. How far can we follow the cave inland and uphill in that direction?

This was a significant achievement and puts the combined Tōtara / Cottage system in the top 10 longest caves in NZ at just under 10km.

Bruce and Tom were most impressed with the quality of the diving and looked forward to doing the first Cottage / Tōtara through trip, which will be the longest diving through-trip in the country. At the time of writing, this has not yet been done.

#### Water Levels Drop

It was another exceptionally dry summer, and by late January we were able to enter the cave via the Far Spring entrance discovered / dug the previous summer. Over the next couple of months there were 20 trips into the cave, primarily by Rob Davies, Michelle Allison, Mark McKenzie and Rob, Michelle and I make a good team. Rob, a highly motivated cave explorer with a huge knowledge of geology, is the brains behind the operation. And, let's face it, also the brawn. Michelle is a very strong caver and can laugh no matter how miserable it gets. She brings a real mood of levity to the day's caving. Together they make a very strong unit. What I bring to the team is that I have a watch. This helps us keep track of time and enables the team to be back at the Roots Bar before the kitchen closes. This is deemed to be one of the most important parts of the day's caving. Prior to this Rob sometimes didn't exit a cave until 2am, under the impression that it was "probably around 5pm".

#### Hydrology

Once we entered the cave in March 2019 our first priority was a detailed survey. This showed that Tōtara was mainly at the same level as the Tākaka River, with some parts lower and some parts higher.

#### The Low Point

One of the many intriguing parts of the cave is a low point in the passage we dubbed The Low Point. At low flows the stream running through the cave goes underground at this point via number of sinks. Beyond this, the (downstream) passage climbs 4 metres.



All the sinks drop down to water, and our survey showed that the water was at the same level in all the sinks, including sinks some distance inland. This led us to believe there is a large body of water underlying the cave. Could this be the Arthur Marble Aquifer? The survey showed that it was not – the water was sitting at a higher level. This was confirmed when Kieran abseiled down to check the temperature – it was "warm". This pointed to the origin of this water being the Tākaka River, rather than the colder water of the aquifer or cave stream.



Just off the side of The Low Point is a pit, which we called The Pit. We really need to come up with more imaginative names for cave features! I found this a fascinating feature, as it bells out enticingly into a larger chamber. We often heard water running into the pool at the base of this, even at times when there was no water in the cave and the Tākaka River was dry.

An abseil inspection revealed a beautiful sump pool (Pit Pond), plus a passage heading SE (before becoming too tight). My reports of the sump pool were sufficiently enticing for Jonathan Davies and Dee Nagle to abseil in and dive it. Unfortunately, while being 5 metres deep, it didn't connect to anything more substantial.

Looking down to Pit Pond. Jonathan and Dee preparing to dive this.

The other interesting spot in this area is a rift on the west side of the passage which we called the West Side Rift. The moment we first saw this, Rob was really excited – "I reckon this goes through to the Tākaka River Main Sink!". When we later surveyed it, we found that he was completely right.

The Tākaka River Main Sink is a feature well known to locals living in the area. In this stretch of the river there are many places where water goes underground, presumably into the Arthur Marble Aquifer. Many of the sinks are in the riverbed and come and go as river gravels get moved around during floods. By contrast, the Main Sink is in a slot/rift in an outcrop at the side of the river and is always present. It can take a considerable amount of water

More interestingly ... while water generally goes down the sink, there are times when the water comes out. And times when the water goes through a cycle of going down the sink, stopping then coming out. What is going on here? It was a mystery, but one which we have now solved.

The connection between the Main Sink and Westside Rift was further confirmed during a later trip into the cave. 2 cumecs of very warm water were seen pouring into the cave through the rift – very clearly Tākaka River water.

It's worth pointing out, however, that we have never seen any river material in the cave – no river gravels, not so much as a single beech leaf. This points to the river water being driven under a sump, or some other feature, which traps all the debris.

#### Tōtara Level of the Aquifer

We believe that the body of water underlying Tōtara Cave is a higher level of the aquifer, probably resulting from upward movement of the Pikikuruna Fault. We have called this the Tōtara Level of the Aquifer (TLA). This is fed by sinks in the Tākaka River plus, to a lesser extent, the stream running through Tōtara Cave.



TLA is connected to the Arthur Marble Aquifer (AMA) by small connections. At low flows the level of the TLA is low as all the water can drain down into the AMA. This explains why, at low flows, the Tākaka River doesn't flood into Tōtara Cave even though it is at roughly the same level.

It is a different story at high flows of either the Tākaka River or the stream running through the cave. In these cases, there is more water entering the TLA than can drain into the AMA. The level of the TLA will rise to the point where it either inundates Tōtara Cave or comes out the Main Sink. It will be a battle between the Tākaka River and the cave stream – a lot of water in the Tākaka River and water will flow into the cave. A lot of water in the cave stream and water will flow out the Main Sink. It's not hard to imagine a scenario where the two forces are battling each other and go through a cycle of one or the other winning out.



Based on our observations, we have developed the following guidelines for when it is safe to enter Tōtara. All three of these must be the case:

- Arthur Marble Aquifer (measured at Sowman's borehole) at 30m or less
- Tākaka River flow (measured at Harwoods) at 5 cumecs or less
- No recent rain at Canaan

Of these, the most important is the level of the Arthur Marble Aquifer. When this is high, water no longer drains from the TLA to the AMA, and the TLA soon becomes full. All sinks in the passage as far as The Low Point stop working. Water starts building up in the cave. We have been into the cave a number of times when it is in this state so are familiar with this situation!

Once in the cave we generally peer down our depth gauge, The Pit. This shows us the level of the TLA. If this is a long way down, we know the cave will not flood during our visit even in the advent of a release of the Cobb dam or a cloudburst at Canaan.

#### Origin of Tōtara Caue

The movement of the Pikikuruna Fault also explains the origin of the cave. Totara, plus the other caves on the east side of the Tākaka Valley (Green Bower and Little Harwoods), are old phreatic caves all sitting at roughly the same level. It is almost certain that these were previously under the valley floor as part of the Arthur Marble Aquifer system. Uplift has raised them to their current positions.

How long ago did this happen? Probably quite a long time ago. The higher, dry levels in Tōtara are heavily calcited, indicating that it has been in its current position for quite some time.

Tōtara shows signs of a long and varied history. The scalloping on the walls is ambiguous about the direction of the current that formed the passage. The passage heading south from The Low Point is the downstream passage, despite being slightly uphill. Rob has speculated that in the past the passage may have hosted the Tākaka River, flowing south to north; not an unreasonable suggestion. Certainly, there are many other clues that suggest the passage was formed by a south to north current.

#### South As

We were keen to understand the main drainage system of the cave. The sinks in the vicinity of The Low Point operate only when water levels are low. When water levels get higher the TLA becomes full and can't take more water. The water will then top the 4m rise south of The Low Point then head down the passage to the area we call South As. During Kieran's first visit in 2014 the water was swimming-depth down this passage, and he reported a strong current. So, what was down South As for it to be able to take such a volume of water? Clearly it must drain into a different system than the TLA level which underlies much of the cave.

We still don't have a full understanding of this. It is a complex area with numerous large drainages. Some more work still needed!

The first significant drainage in South As is the Long Drop. This is a large slope off the side of the passage, and it goes down a long way. At the bottom, a slimy crawl leads horizontally to a beautiful sump pool – a great discovery by Rob and Jonathan Davies. We named it Spyglass Sump after the beautiful arc of marble above the pool.

Could we have finally made it down to the Arthur Marble Aquifer? A body of water celebrated as being one of the purest on the planet.





If so, then why was there such a bad smell? A really bad smell. We speculated that maybe a septic tank overflow led down into here, despite the nearest house being some distance away. On a later trip, Michelle found the cause of the smell – a dead eel in a nearby passage. Nice to have a simple explanation!

*Spyglass Sump (left). The pool is about 6m across and 6.5m deep at the near edge.* 

The survey showed that the pool was at 26m, so we were 20m below the level of the Tākaka Valley, just east of East Tākaka Road. Were we down at the Arthur Marble Aquifer? We still aren't sure. On the day of the survey, the level of the aquifer was 21m. Could this 5m difference be explained by inaccuracies in either the surveyed levels or in the TDC measurement of the aquifer?

Rob measured the depth of the pool at 6.5 metres. Its temperature was 12.1 degrees, which is close to the temperature of the aquifer. It was looking plausible.

Continuing along then main passage south of the Long Drop area, the travel gets low and awkward. The passage climbs a couple of metres, so water will only go into this section once Long Drop is full and levels in the passage have risen higher. The passage ends in a steep slope down to another sump – the Deep As sump.

I abseiled the 20m down to this – another beautiful deep pool, discoloured from rocks I had cleared from the slope. It was a deep pool – measured at 9m deep before the plumbline got stuck (it is still there). The surveyed level of the water was 27.7m. This is a couple of metres higher than Spyglass Sump. Were these pools connected? It seems fairly likely. The surveys were done 10 days apart, during which time the aquifer had risen 2 metres.

Kieran plus Bruce Clulow heard of our discoveries and were all set to come and dive them. That would have answered some of the questions this area posed. However, the Covid-19 lockdown intervened before they had a chance.



Deep As sump, at the bottom of a 20m pitch and at least 9m deep.

#### Smaug 5 Crawl

There are several passages which head eastwards into the hill. How far can these be taken in the direction of Canaan?

One such passage is a prominent side-passage not far downstream from Far Spring passage (our entrance passage). The first section of this is a pleasant sandy crawl for 15 minutes and gave the passage its name: Smaug's Crawl. Not far along this passage is a dissolving shawl, The Dissolution of Smaug.

In 2019, Kieran was the first person to go up this passage – he made it as far as a large chamber. We returned to survey it in late March 2019. Rob, Mark and I surveyed from the start of the passage to the chamber, while Kieran and Chris Whitehouse surveyed forward from the chamber.

Kieran and Chris returned with reports of an exciting passage that continued on. The passage got large and started climbing steeply. They only turned back because the disto storage was full.

In 2019 we didn't have a chance to return to this passage, so it was high on the agenda for 2020. A foray in early Feb 2020 showed that it was sumped past the large chamber, something we had not expected.

A few weeks later, Michael Brewer, Bruce Mutton and Mark headed in to continue the exploration. They discovered that, past the large chamber, the passage was dry but now completely filled with sand. This was very annoying, given that the previous year the passage was completely clear.

It turned out to be a big dig. Michael, Bruce and Mark started on the job, but without any digging tools they were only able to make a small amount of progress.

We returned a few weeks later. Rob, Michelle and Nicole Millar were joined later by Mark and me. Armed with tools and our digging machine, Rob, we were able to make good progress. It was our longest dig, and by the end of the day it was so long that it needed 4 of us positioned at various points down the passage to haul out the tray.

We finished at about 5pm. Rob, Michelle and Nicole had been working almost non-stop for 4 hours. Although late, we decided to do a quick trip along the passage. We squirmed along the long, steeply downhill sand dig. The first mystery of the passage immediately presented itself. Where had all the sand come from? There was no sand further upstream, as one would have expected if it had been washed downstream. Had it come out of small side passage just past the dig, or maybe it had risen up from below?

After a low muddy section, the passage opened up till we came to an obvious intersection. Kieran and Chris had gone right (true left) – Rob quickly checked out the left branch. He managed to get 80m before getting to a drop to an echoey space that would have needed a hand-line.

We followed Kieran and Chris's route. It opened up to a large heavily-calcited passage heading up steeply. I can certainly understand why they found this such an exciting prospect – it really felt like it was going somewhere. A short climb at the start of this needed a handline, which was left in place for future visits. At the top of the passage, we found Kieran and Chris's final survey point. It was in a beautiful chamber, however the passage stopped at this point. Another passage further to the right also stopped. We felt quite cheated as Kieran and Chris had indicated that the passage continued.

It was getting late, so we headed out, intending to return and fully explore the passage which Rob had gone up, plus check out a few other leads. However, the summer ended before we had a chance to do this. Will the sand return before our next visit? It seems very likely, and will it be worth the effort of excavating again?



The southern limit of Tōtara Cave showing key features. About 3km of passages shown.

### Sand Mine

The main prospects for heading towards Canaan lie in the passages in the south-east part of the system. This area was first visited by Kieran in February 2015, both solo and with Josh Bratchley. We also visited this on our first trip into the system in March 2019.

Once past a prominent intersection (with Magnetite Passage) the passage drops 4 or 5 metres to a level only slightly higher than The Low Point. This area often sumps, and also fills with sand – the Sand Mine. While it is generally an easy dig, this marks the start of a long section of crawling through a low sandy passage. The quantity of sand through this section is truly astonishing. This coarse dark granite sand would have originated from Canaan, telling us that this was the best prospect for a route further inland. A strong breeze, which is sometimes present, gives further evidence of this.

Michelle on the long sand crawl through the Sand Mine area.

Past the Sand Mine crawl, one comes to the Slippery Saddle - a 4m climb up and over a very smooth piece of marble. I often struggle to get over this, even with a handline in place. One of the enduring mysteries of Tōtara is how we all managed to get back over this on our first visit without the use of a rope



#### **Quirky Characters**

By going over Slippery Saddle we initially failed to see a major side-passage which heads off in the middle of the low sandy crawl underneath the saddle. On a survey trip in 2019, Rob, Michelle and Kieran found this passage. Kieran did the initial foray up the passage while Rob and Michelle were working on the survey. He reported a strong passage continuing.

A period of wet weather frustratingly shut down access through the Sand Mine, preventing further exploration in that area. It wasn't until February 2020 that the way was open again. Rob, Michelle and Jonathan Davies returned to the area and explored 170m of new passage until they were stopped by a 12m drop.

A few days later, Rob and Michelle returned with Tony Salmon. Armed with a drill and rope, they descended the pitch to enter a complex area with many prospects. Rob managed to find an onward route via a marginal climb. With their only rope in use, it was unclear how to protect the climb – until Tony went back and managed to hack off 4m from their rope using a sharp piece of marble. The group carried on to a large chamber – with ex-cyclone Uesi bearing down on the country, this was named Cyclone Shelter. Arguably there may be better places to wait out a big storm, given that a flooded Sand Mines could trap a party there for many months. While Rob and Michelle surveyed the

Shelter, Tony carried on and found a passage filled with impressive helictites. They called it the Passage of the Quirky Characters, as much as a reference to the three visitors as to these truly remarkable formations.

Rob returned a few days later with Mark, Bruce Mutton and Jonathan Davies. The rigging was improved, and a number of unexplored leads checked out.

We intended to return to get a good photographic record of the helictites. However, diverted with numerous other projects, we never returned to this area.

#### Snail Beach Sump

Past Slippery Saddle, it is a short distance to another sand dig. On our first visit to the cave in March 2019 we stopped at this point.

In late February 2020, Rob, Mark, Jonathan and Bruce took on the job of continuing along the passage. It was many hours of digging to get past a series of low points in the passage.

Once through this, they reached an interesting spot – a T intersection with several options. Straight ahead was a steep slope leading up to a small hanging sump. This was only 2cm high and 10cm wide so wasn't a good prospect for an onward route. The small air gap above the watersometimes had a breeze blowing through it making a regular pulsing noise. I was fascinated by it. I called it Steamboat Sump, after stories I had heard of Steamboat Springs in Colourado. This was similar to other areas we had come across in the cave – when the wind and water levels are just right it can sound like African drumming. This is an unnerving sound to hear when exploring a new passage in an otherwise silent cave. We speculated that hippies from the Tākaka Village Green had somehow beaten us into the cave and set up a drumming session ahead of us.

Not far from Steamboat Sump was a slot which had a low droning noise coming out of it. While the sound was quite distinct, we were baffled as to what might be causing it. We weren't even sure whether it was caused by water or wind. To me it sounded like a thin stream of water pouring into a deep pool, but who knows. It felt that the cave was taunting us with tantalizing but cryptic clues about what lies ahead.

Left from the T intersection was a short but tall passage leading to another dig. The sand here was fine-grained and soft, so we called it the Silky Sand dig. But, not being granite sand, it was unlikely to have originated from Canaan, so this was unlikely to be the onward route in the cave.

Right from the T intersection was the most likely onward route. A couple of small sumps soon dried, taking us to another more persistent sump. Over the next few weeks, we were to visit the sump over half a dozen times. While it wasn't a big sump, the water only very gradually lost height.

The small beach beside it was covered in hundreds of microscopic snails, almost invisible to the untrained eye. Rob gathered a lot of these for a snail expert he had been dealing with. Amongst other things, identification of these might provide a clue on the origin of the sand in the passage.

#### Silky Sand Dig

Early March – yet another trip through to check Snail Beach Sump. It had dropped 30cm, but still had some way to go before it would be passable. This was very frustrating. The sump was not much more than a puddle, but it refused to go away.





To fill in the rest of the day we decided to continue our Silky Sand dig at the end of the left passage. This would be our third session working on this dig. While it was unlikely to be an onward route, on one of our visits Rob thought he heard the sound of a distant stream, so there was some hope that it might go somewhere interesting.

Rob adopted his traditional position at the sand-face, while Michelle hauled back our tray, then I pulled it out to the entrance and disposed of the sand.

The small tube continued downwards and, as we progressed, we moved our operation further into the tube. Sand was dumped in a hole we had earlier excavated in the passage. It was very small and awkward at the bottom and Rob resorted to lying feet-first and pulling sand out with his feet, a very slow process.

After a couple of hours of this, the tube started to get quite foggy and I noticed that Michelle was panting heavily as she worked, unusual for such a fit person. When I went further down the tube, I noticed that I was panting also, even when I wasn't moving. I knew that getting old was tough, but this was something else. I had a seedy feeling, reminiscent of being at 2000m or 3000m.

"Hey Michelle - I think we are getting short of air!".

After a while I managed to convince her (she must have been hypoxic). But then we had the difficult job of trying to get Rob to stop working. He was on the brink of success, having gotten through the end of the dig into a small room and was now working on another small dig.

Rob: "There's only a small amount left to dig. Just need to catch my breath".

Time past. No sign of anything happening up front.

"Rob, how's it going?".

"Still trying to catch my breath".

"There isn't much air! We need to get out right now!".

#### Starting on Silky Sand Dig.

Surprisingly, he didn't need convincing as he had been coming to the same conclusion. Michelle and I quickly got out and Rob followed slowly not long after. He had quite a headache and didn't feel so good but didn't take long to come right.

A lesson for us, and we felt lucky to have had gotten out when we did. If Rob had fainted, it would have been very, very difficult for us to have pulled him out.

#### Breakthrough at Snail Beach Sump

Unfortunately, our exploration of Tōtara was brought to an early end by the Covid-19 pandemic, which resulted in a lockdown throughout the country.



The day before lockdown, and with caving about to go on hold for some time, Rob and Michelle popped in to pull out some camera gear which Rob had left a short distant into the cave. At the entrance they noticed a strong breeze – could Snail Beach Sump have broken? After a quick call to their callout person (me) they changed their plan and headed through to Snail Beach. They found that the sump had indeed broken, and a gale was blowing through the gap, reminiscent of Ironstone or Nettlebed. The remaining puddle of water was being whipped into a froth. If there had been any doubt that this was the way on in the cave, this was now dispelled.

After clearing some sand away, they squeezed through the puddle to peer up into a large echoey space. What to do? With lockdown about to happen, and with only two in the party, they decided it would be unwise to proceed further. What a difficult decision this must have been!

It felt like a very long time until lockdown eased. While the weather had been mainly fine, a few short rain events had us wondering whether the sump was still open. As soon as lockdown level 3 was over, the three of us headed back in. The entrance seemed particularly windless, which was a bad sign. Sure enough, the sump was sumped again. The frothy water showed us that, until very recently, it had been whipped by a strong breeze blowing over it.



Rob inspecting the re-sumped Snail Beach Sump. Foam hints at wind blowing through a narrow air-gap recently.

This was definitely the low point of the summer's caving. We were a couple of meters away from getting through into the next part of the system, but we couldn't get through. Were we wasting our time even trying? If this sump was only ever passable for a couple of weeks every few years then was it even worth spending more effort on this cave? Morale was at rock bottom.

Before heading out we decided to have a look at the nearby Steamboat Sump. While this was a tiny passage, we had noticed that that floor was mud, rather than marble. How far could we dig down before we came to solid rock? Only one way to find out.....

What gave us pause, however, was that we could see very little of this sump. Maybe there was a large body of water behind the small bit we could see. In which case, as soon as we breached it, a torrent of water would be released and would flood our only exit from the cave. This would be rather embarrassing. We would be trapped in the cave for 10 months or, worse still, risk being nominated for the Arch Nana award.

Rob built a sand bund at the bottom of the slope to divert the flood and we got ourselves ready for a quick getaway. I carefully picked at the mud and slowly released the sump. It was nothing – maybe a litre. Phew.

The dig went well. As we enlarged the passage a breeze started up. We needed to take turns digging to keep warm. It was looking promising.

Once through the initial constriction, we could see an opening on the right. We broke through into a slope leading up into a small chamber. Rob wriggled into this and called back: "The breeze is coming out of a vertical tube which is too small to get through!" Damn! Rob decided to give it a shot and managed to squeeze through into another small chamber. Even I, the largest person in the group, managed to get through.



Rob digging the passage at the former Steamboat Sump.

It was looking hopeful again. The way on was through another dig which looked relatively straightforward. Past this dig we could see it opening into a big space.

Two days later we were back to work on the second dig. There wasn't much space to deposit the soil, so we hauled out the dirt in a caving pack, lowered it down through the tube and dragged it out of the first dig. Actually, this worked surprisingly well, and 13 loads later we were through the dig. In our excitement at getting through the dig we forgot to empty the last partial load – this explained why Michelle found her pack unexpectedly heavy on the trip out. The last load was dumped on the lawn back at their house!

We had thought that this dig would take us into the passage inland of Snail Beach Sump, however we found ourselves in yet another chamber. The breeze was coming out of a small hole in the opposite wall. It wasn't looking good – the hole was about the size of a football, hard to imagine it could be a viable way on. Rob started picking away at it with a trowel. It started to look a bit bigger. A fin of rock blocked the tube – Rob called for a rock to whack this with. However, we were in the Cave Without Any Rocks. We had a think – the last loose rock we saw was probably about 20 minutes caving back. Luckily Rob found a small rock in the mud. This was a key find – he used this to bash off a larger piece of rock, which he then used to bash off an even larger one, which he then used to bash off the fin. Finally, the tube was looking like it might be big enough to get through. Michelle squeezed through with difficulty and around a 90-degree bend to stand up. Despite being in a very confined spot, she had just enough space to be able to scrape the mud off the walls. Finally, she was able to climb up a couple of moves to see where we were. Wow. We never imagined that the tube might take us to a place like this. Michelle was peering out of a hole in the side of an aven, like looking out of a small window in the side of a building. Rob and I took turns following, about as tight and awkward a squeeze as I am prepared to do (it will be easier once we remove another large fin). But what a place it took us to. I was peering down into a large chamber. I could see the very large sand bank leading down to Snail Beach Sump. The chamber felt spacious and airy, it really did feel like we had broken though to a completely different part of the cave.

We were rapt. Celebration all around. We had cracked the secret to gaining the passage past the sump, and the strong breeze told us that the route was clear to somewhere distant. What's more this route will be possible most years, not just in a once-in-a-decade drought.





Well, that's the end of the story. We were burstlingly keen to get back in, rig the pitch, then jog up the passage. However, we were running out of time – water levels were gradually rising in the cave and a big rain event was due in a couple of days' time. Any injury in the cave would give no time for a rescue. We reluctantly called an end to caving for the summer. Can't wait for the next.



# Review of NZ Tourist Caving Experiences

#### By Anonymous Contributors

In 2018, I wrote a "mystery shopper" article about caving activities my family and I undertook in Waitomo (see ACKMA Journal 111, page 18). At that time, because of my children's ages, they were limited in the range of caving activities that they were permitted to undertake. I promised that we would go back to Waitomo when they were old enough to undertake some of the more advanced activities. We returned to Waitomo in early January this year.

My children undertook two different activities during our visit. I had told them, in advance, that the price of me paying for those activities was that each of them would write a "mystery shopper" review of the activities they undertook – my son being no stranger to this, having done so for an earlier trip to caves in Tasmania (see ACKMA Journal 113, page 23). Their 2023 Waitomo reviews follow:

#### Haggas Honking Holes

Haggas Honking Holes is an adventure cave in Waitomo in New Zealand and takes around four hours to complete. The cave is for beginners as it is not difficult and is completely fitted out with infrastructure to allow caving for beginners easily. The cave does not have a height limit but may be difficult for some larger individuals as it has some tight spaces and some climbing locations that may be difficult to do if large or inflexible. Despite the apparent ease of the cave, it is a very fun cave to participate in as it involves plenty of abseiling and is a wet cave that even has sections that involve abseiling through a waterfall and climbing up wet rocks faces.

The company that sets up the Haggas Honking Holes has good equipment as they have all appropriate gear in order to keep an individual who is going in and out of water from getting too cold in an underground and consistent temperature environment (such as a wet suit and gumboots). Appropriate and current safety gear is also used in order to keep the individual as safe as possible within the cave (such as helmets, a light in order to see, harness, carabiners and modern abseiling equipment). The safety equipment also comes with an appropriate safety briefing that teaches the individual how to use carabiners and the abseiling equipment in the safest way possible. However, once in the cave (except on the largest abseils) the individual was allowed to use the equipment without always having it be checked by the guides.

The guides in Haggas Honking Holes were very friendly and informative on glow worms and formations when asked about. However, when they were not asked, they did not always provide information on the formations within the cave and were more focused on moving the people through the cave and allowing the people to enjoy their time within the cave without providing extensive information. The guides split the work effectively and interacted with the individuals within the cave, making for a fun experience but not for an entirely informative one. If the reason that you are participating in adventure caving is just in order to have fun and not to learn more about formations within caves then this is an amazing cave tour to participate in, with guides that are very friendly and helpful.

The formations within Haggas Honking Holes are, unfortunately, mostly dead and as a result, are not incredibly spectacular. There are many formations within the cave ranging from stalactites to stalagmites and even having some of the less frequent formations such as shawls, columns and straws. Despite all the formations within the cave, the large majority of the formations are dead and coloured in a brown or black hue. Out of the few living formations, they were all off the trodden path or on the roof and were mostly smaller formations such as straws. There were no particular stand out formations and this would not be a caving experience that will be worthwhile if the largest reason that you are caving is for the natural beauty of a "living" and evolving cave.

Haggas Honking Holes is incredibly enjoyable as it is a wet cave that involves frequent abseiling and some climbing up natural walls. It begins with an abseil into the start of the cave and then has many abseils, a large number of them including abseiling down waterfalls which was an incredibly fun experience. There are also some instances that involve crawling through small spaces in wet areas that were also fun to experience. There were a few times that involved climbing up rock faces that were also wet therefore adding another level of difficulty to the caving experience.

#### **Black Abyss**

To a tenured caver, the 'Black Abyss' cave tour might be described as 'catering to the inexperienced adventurer.' Inexperienced as I was and adventurous as I hoped to be going into the Ruakuri cave system, the tour delivered beyond my every expectation, so much so that I have no doubt even the most veteran cavers would appreciate the experience.

After suiting up and listening to our first round of cautionary talks, the group filed one by one into the faintly wet-suit-scented van that would drive us out to our point of descent into the Ruakuri cave. After double and triple checking our gear, the guides first explained and then demonstrated how to abseil safely, before guiding each member of the tour through their own practice runs on the outdoor training course.



The cave experience itself began with a 35 m abseil into the mouth of the system. This included a very short freefall abseil before a tight squeeze that opened into the start of our cave route. While the outdoor abseil training was instructive in a practical sense, it did very little to prepare us for the real-world experience of a 35 m abseil and had I not completed the Haggas Honking Holes adventure caving tour only the day before I am sure my abseiling ability would have been compromised when put to the test.



With feet on solid ground again, we moved to the next part of the cave while our guides talked about the history of the area, including the cave's discovery, exploration and its significance to the Maori people. For the next leg of our journey I volunteered to go first (following the guide), and was clipped onto a zipline, as the guides instructed all of us to turn off our head torches. Next minute, I was hurtling under a sea of glow worms in the complete darkness with no idea how far away the end of the line was. To describe those few seconds as surreal would be a criminal understatement.

The experience took a brisk turn and we were encouraged by our guides to jump into the river which hovers between 14–16 degrees Celsius year-round. Donuts in arm, we waded against the current for about an hour using ropes installed on the wall for support when necessary.

The reason for our upstream journey

became clear when we were able to float back along the cave towards our starting point. In the near silence, with millions of tiny lights floating above, were it not for the bite of the water and occasional bump of a neighbour's foot or donut, you could be forgiven for thinking you were floating through space.

Nearing our return to the world above, we abandoned our donuts and began the outward climb. The two short free climbs on exit were unrivalled as the most adventure quenching and thrilling part of the journey, something everyone was eager for after our serene float back.

With no use of safety gear (but thorough instruction), this ascent up the face of an eight-metre waterfall was terrifying to the inexperienced adventurer. It was also, however, what I now reflect on as the highlight of the trip.

Though this part of the Ruakuri cave offers less than others in terms of spectacular cave formations, it satisfied everything I hoped to gain from the experience, offering a well-rounded cave journey interspersed with adventure, wonder and information.



### Did you know?...

The wonderful Rauleigh Webb, who maintains our website and does so much else for ACKMA introduced a search tool which allows you to use a keyword to search all the ACKMA Conference proceedings and ANDYSEZs. It is wonderful!

Go to our website and explore - or use <u>https://ackma.org/Proceedings/ProceedingsSearch/search.asp</u>

Type in your search topic – for example 'lampenflora' gives you 64 entries! Some are duplicates but it works! There is also a similar search engine for all of the ACKMA Journals.

ONYA Rauleigh yet again!!

### Search ACKMA Proceedings & Andy-sez for Keywords

Enter one or more keywords to search for using the Zoom Search Engine. Note that '\*' and '?' wildcards are supported.

Search for: Submit Results per page: 10 v

Match: () any search words () all search words

Search powered by Zoom Search Engine

### In 1863 they took a little trip .....

by Mary Trayes

#### PRELUDE

In the heady days of the very first gold rushes on the West Coast of the South Island of New Zealand, what we today call the Tai Poutini coast, a party of Australian gold miners led by a young man named William Walsh headed out from the port of Nelson for a place called Lyell. The date was late May 1863.

Good gold had been reported at Lyell late the previous year but when the party set off there was just a canvas-town with a few diggers on the side of Lyell Creek in the Upper Buller Gorge. In fact they had already been there once, presumably by taking the difficult route up the Buller River which was a large, deep and swiftly flowing body of water. It was difficult because the only way to get stores and mining gear upriver was to use canoes, poling and pulling them turn. There were no tracks through the Lower Buller Gorge, where the explorer Brunner and his Māori guides had almost come unstuck in 1848 – the beech forests containing very little food and the riverbanks being difficult to traverse along. Crossing the river was taking your life into your hands.

Presumably, like so many other miners, Walsh and party had soon run out of stores on their first trip up to Lyell so they headed back downriver – it took only hours to go down against days or weeks coming up – then took the next boat back to Nelson, from whence they set off once again, this time overland, some of the way being by then well known, with some tracks.

Five weeks later they were back in Nelson again, still not having got to Lyell but instead having some different adventures along the way (as you will soon read). Their find of a substantial cave and how they surveyed it is a gem, but would you believe to this day, the cave as described has not been found, partly because of a few subterfuges used to cover their exact tracks, and partly because it was another 100 years before some New Zealand cavers found a copy of the newspaper article.



Unfortunately the second reason only gave bits of the article specifically about the cave, so that when he and his mates were exploring the Inangahua Junction area (on the way to Lyell between the Lower and Upper Buller Gorges), he thought the cave was somewhere in that vicinity, 'lost' maybe due to earthquake activity.

However, twenty-first century internet tools tell a different story – 'Papers Past online', MapsPast, geology papers etc – and having conferred with fellow ACKMA member, Ian Millar, we think the cave is probably somewhere south of Murchison.

#### And this being a BIG area to go looking, the Aussie contingent coming to the May 2023 ACKMA Conference are dutifully asked to put some time into helping re-find the cave, because after all it was a bunch of Australians who so carefully lost it.

As per some news items found on 'Papers Past', William Walsh stayed on in New Zealand and rounded out his day's goldmining up and down the Buller River.

Some of the limestone bluffs between the Matakitaki and Maruia River valleys south of Murchison where the 'Lost Cave' is thought to be.

Unfortunately in 1909, at about 70 years old he met his demise in a tributary of that river, the Maruia, by trying to cross it on horseback when it was in flood.

Obituaries for him like the one shown are short, and say nothing about caves, but it just has to be the same man because strangely in the mid-Maruia area there is a stream called Caves Stream and a road named Caves Road.

SETTLER	WASHED HORSE.	FROM	HIS	-

#### (By Telegraph.)

(From Our Own Correspondents.) Murchison, January 20.

A yery old and highly-respected resident of Maruia named William Walsh was drowned at what is known as Caslam's Ford, at Mid-Maruia, yesterday afternoon. Deceased, who was returning from Murchison, was washed from his horse while attempt-The body has ing to cross the ford. The late Mr not been recovered. Walsh was closely identified with the early mining days of the Buller and was a partner in the First Spoon Dredge at Fern Flat. He was about 70 years of age.

The Colonist, Nelson, 21st January, 1909.

NOTE: the Lake Howick referred to in the article is now known by its' Māori name, Lake 'Rotoroa.' MT

#### The Colonist, Volume VI, Issue 589, 16 June 1863, Page 3

#### "JOURNAL OF A PARTY OF EXPLORERS TOWARDS THE LYELL."

#### "INTERESTING DISCOVERIES"

"Sir –Having just returned after an unsuccessful attempt to reach the Lyell, the following particulars may not be uninteresting to your readers.

I, in company with my mates, three in number, started from Nelson for the Lyell diggings, about five weeks ago. bu the overland route. The country between here and Lake Howick, is too well known to the public to require any representation.

We reached the lake on the sixth day after starting from Nelson, and up to this point I must, say the roads are tolerably good. After travelling a distance of three or four miles, on the following morning, we met a party of diggers returning from the Lyell, who, by their representation of the diggings, stayed the further progress of our journey in that direction. Besides, as the party were without provisions, and very much fatigued, we supplied them from our stores, an act which of itself would compel us to return for a fresh supply. However, after making many inquiries of our "weary friends " about the district in which we were then located, we resolved upon supplying ourselves with as much provisions as we could bring from the nearest store, which was many miles off, and pass the winter, if possible, in prospecting that portion of the district southward of the lake.

Accordingly we started for the store, which we reached the third day, and after supplying ourselves with what we thought necessary, we again started for the lake, which place we reached without much difficulty. Here we arrived only to make a fresh start, for on the following morning we set out on our prospecting expedition; overcoming every difficulty in hopes of finding a new Eldorado. The first three days of our journey were passed without any memorandum or note, of events or objects, but as we were penetrating into a country which we believed to be totally unknown, on the fourth day, we commenced a diary, of which the following is a copy.

Camp No. 1. – Travelled about six miles to-day, through high, thickly timbered ranges, in a south-easterly direction; weather wet; prospected -found the colour several times.

Camp No. 2.-Travelled four miles, southerly direction; hills thickly timbered and difficult to travel; obtained a colour of gold, very fine, and many indications; woodhens very plentiful.

Camp No. 3.-Travelled five miles, easterly direction; country same as yesterday; no gold, but many indications; nights frosty and very cold.

Camp No. 4.–Travelled five miles; country much the same, but thick scrub and supplejack. No gold. Wild pigs in abundance.

Camp No 5.–Travelled four miles ; same direction as yesterday, southerly direction; obtained the colour of gold. Weather cold and frosty.

Camp No. 6. – Four miles, westerly direction; an entire change of weather; change in formation of country; gully or creek regularly rock-bound; great indications of gold--obtained a colour only.

Camp No. 7.–We remained three days here, owing to one of our party being unable to proceed, through a hurt received by falling over some brushwood immediately previous to camping. However, we were not less eager in our search for gold than on previous occasions, as we spent three days in penetrating into the bush in different directions, through some places indeed almost impassable from rocks of an unusual size, and most remarkable in formation. This portion of the locality indicated no signs of gold, being stratified in its formation, and composed of tertiary deposits. On the following day we followed up an almost impassable rivulet for a distance of about four miles, where we found some indications of gold, the bed of the stream consisting of crystalline mica schist, whilst the upper part was strewn with large quartz stones. Here we made a most diligent search, but only succeeded in obtaining a "colour." Here, too, our attention was drawn to a large opening or entrance into the face of - as it did appear – a solid rock some three or four hundred feet high, and almost perpendicular.

Upon examination it proved to be a regular "cave" and so mysterious in formation as to excite our curiosity about the nature of its contents. Accordingly two of us entered with the utmost caution, the others remaining outside, and we had not proceeded far when it became so very regular in its formation as to compel us to think we were entering the abode of some eminent Maori chief, carefully excavated. Having proceeded in all to a distance of about fifty feet in the living rock, the light began to grow dim and the objects imperceptible. Under these circumstances we considered it unsafe to proceed any further inwards, and after a consultation, determined upon abandoning the attempt for the present. We returned to our companions, whom we found closely examining some indistinct marks immediately outside the cave, and after further deliberation resolved upon making this our course on the morrow, when we would provide ourselves with the necessary requisites to explore the interior. We returned home, and next morning, finding that our disabled companion was able to proceed with us, we started in the intended direction, and reached there in good camping time.

We again entered the cave this time with lighted candles and revolvers loaded. We found the cave to be about fifteen feet high, eleven feet in width, and pretty evenly arched, with a partially level bottom. Here and there might be seen open joints in the rock but taking it on the whole it might be considered solid.

Nine or ten yards further than we penetrated the previous day we found a complete change. Here the cave is irregular, confused, and disorderly in formation. Water was pouring from the crevices with considerable force and disappearing through the joints beneath us. A little farther on it appeared to come to a close but proved after examination to be sufficiently large to admit of passing through. We went on and found the opening expand into another cave, higher, wider, and evidently longer than the first, though very irregular. About sixty feet further in, the Issue 130 - March 2023

cave becomes still wider and higher, being here about forty feet in height, of a cylindrical formation, and having on its floor, and abutting from its sides, huge masses of rock with very open joints, and disproportionately connected. At length we reached the extreme end and proceeded to collect a large assortment of stone's of different kinds, with which the place abounded. We also found a number of bones of various kinds, and with these we filled a large handkerchief. They appeared to be chiefly the bones of small birds. The bones, as we believe, of a dog we found a little apart, and some of them we also preserved.

At one place we estimated the height and width of the cave to be respectively 180 and 80 feet.

We then procured a supplejack, six yards long, measured the entire distance, from the opening to the extreme end of the cave, and found it to be exactly twenty-five lengths, or 450 feet.

On examining the stones we found some of them to be crystalline rock; others, palaeozoic;-these two we found almost together, as also some quartz stones. Some also proved to be of the alluvial and diluvial formation; variegated sandstone, and red conglomerate zechstein formation; but the greater part appeared to be of the oolitic formation. Our selection also contained one very curious piece, about a foot long, three inches in thickness, and about five inches in width, but irregularly shaped on the edges.

The outward appearance partially indicated bones of ichthyosaurus; and on slicing the stone this appearance was confirmed. We preserved a sample of each from the different specimens, and the choicest of the bones, and deposited them near our camping ground until our return. I may add, that close to the entrance of the cave, we found a Maori battle-axe the morning following, which article we placed with the others.

We started again on our gold-explorations, following up the little stream for a distance of about five miles through an extremely rough and rocky passage, prospecting all the time, but without any success, and continued our journey on the following day for a distance of about four or five miles. Here the country was so thickly timbered as almost to baffle all hopes of continuing our journey, scrub and supplejack abounding everywhere; the little creek regularly rockbound, compelling us to walk during the greater part of our time in the bed of it, and in the water, which was in some places four feet in depth. However, we made another attempt on the following morning, and succeeded in making about five miles, travelling from early morning until late at night. The country looked still worse, and although we obtained the colour, there was not that indication of gold to induce us to proceed further through a country which seemed to defy our combined exertions. Besides, as our provisions were beginning to grow short, owing in a great measure to the ravages of the rats, we thought the best course to adopt would be to go back to Camp No. 6, where we should have the opportunity of shooting wild pigs.

Numerous birds, of different varieties, were to be seen everywhere through this locality, especially at a little lake of about five acres, which lay enclosed between huge masses of granite at our last camping place. In journeying round this lake, and while endeavouring to scramble through a most difficult pass, consisting of large blocks of granite thickly covered with brushwood, we were rather surprised by coming upon a beaten track, though evidently long since abandoned, which intercepted our course. This we followed up for a considerable distance, until it became almost indistinct by branching off in several directions.

Returning again, we chose the opposite course which led to the summit of a precipice overlooking the Lake and elevated to a height of upwards of 300 feet. At the extreme end we were astonished by finding some broken shells, the fragments of which induced us to make an investigation as to their primitive formation. From this we found the shell to be upwards of one fourth of an inch in thickness, although much decayed. After comparing the relation these fragments bore to each other, more especially from the appearance of the end pieces, we believed them to be parts of two eggs, which they most undoubtedly were. They were placed in what we supposed to be a bed or nest of rough material, but great size, and resembling to our eye the habitation of some ferocious beast, notwithstanding the presence of some leaves, moss, and other things. The eggs must have been of an enormous size from the appearance of the fragments, a portion of which we preserved but ultimately it shared the fate of the other articles.



of South Island. State Highway 6 goes up the Buller River to Lyell and beyond. State Highway 65 follows the Maruia River south to Springs Junction '?' denotes the wider area where the Australian miners are thought to have gone.

### 20<sup>th</sup> International Symposium on Vulcanospeleology Dak Nong Province, Vietnam, November 2022

John Brush

#### President, UIS Commission on Volcanic Caues

Many conferences start with an Icebreaker. Some that I have experienced included fancy drinks and canapes served on a terrace bathed in the warm glow of early evening light. More commonly, it has been a sizzling BBQ washed down with a couple of beers and a glass of wine in a draughty shed at the local sportsground. But the Icebreaker function at the recent 20<sup>th</sup> International Symposium on Vulcanospeleology (20<sup>th</sup> ISV) in Vietnam was a whole new experience. Never before had I been invited to sit on a low plastic stool on the steps of a provincial cultural centre and be the first to sip rice wine through a long bamboo straw from a 20 litre ceramic pot.



Dirk and several other participants toasting the success of the ISV with a healthy dash of Rượu cần, or jar wine (above).

Over the next few days participants, including six ACKMA members, came to realise that every evening was a ceremonial occasion. All elements of the Icebreaker, including the sipping of *Ruou cần*, were repeated at the Welcome Party, the Gala Dinner and the Gala Banquet, each at a different location in and around Gia Nghia. The Farewell Party, on the other hand, was appropriately more restrained as it was held at lunchtime and was tightly scheduled between the formal closing ceremony and the start of the field excursions. Nevertheless, the range, quality and number of dishes served was outstanding.

Rice wine (*Ruou can*), commonly called jar wine or tube wine is flavoured with a secret mix of herbs and spices from local forests and is a speciality of local ethnic minority communities in Vietnam's central highlands. The wine is only consumed at celebratory functions or on ceremonial occasions, such as the 20<sup>th</sup> ISV Icebreaker. During that first evening all participants and guests were invited to celebrate the event by sipping the wine through the bamboo straws, which were carefully sanitised for every new sipper.

This was but one element of the function, which commenced with singing, dancing and musical performances by one of the local ethnic minority communities, before moving on to a fabulous banquet served to each table set up on the forecourt of the provincial cultural centre in Gia Nghia City, the capital of Dak Nong Province.

Performance during icebreaker function (below).



Of course, the social functions were only a small part of the ISV program. There were excursions to museums, cultural institutions and an afternoon visit to an ethnic minority community, complete with more *Ruqu can and hot food*.

There were also presentations - the serious and arguably most important element of an ISV. The theme for the 20<sup>th</sup> ISV was conservation and sustainable use of volcanoes and volcanic caves.

The opening ceremony was held in the main theatre of the Provincial Conference Centre. Photo: ISV20 Organising Committee.



The opening ceremony was very formal compared to what usually happens at an ISV, or at a typical ACKMA or ASF Conference for that matter. It was held in the very impressive main hall of the provincial conference centre and commenced with spectacular musical and dance performances by ethnic minority people. Afterwards, there were speeches by important dignitaries, including Mr Nguyen Hong Ha, the Vietnam Minister for Natural Resources and the Environment; Ms Ton Thi Ngoc Hahn, the Vice Chairwoman of Dak Nong Province and also Director of the Dak Nong UNESCO Global Geopark; Mr Christian Manfort, UNESCO Representative to Vietnam; Mr Guy Martini, Chair of the UNESCO Global Geoparks Council and also General Secretary of the Global Geoparks Network, and also by Mr John Brush, President of the Commission on Volcanic Caves of the International Union of Speleology. The presentations were spread over three days and were arranged under four broad themes: Cave management and protection; Biology and human use of caves; Geology and volcanic processes; and Cave exploration and documentation.

For all participants, the field trips were the real highlight. Most chose the longer 2-day (actually 2½ day) option. On the first day, everyone was transported by minibus to the volcanic area in the new Dak Nong UNESCO Global Geopark, about 120 km (a 2-hour drive) from Gia Nghia City. Two different routes were offered: a faster trip on a national highway with stops at Bang Mo volcano and at a cocoa farm to sample the products. However, most speleos chose the second option on slower roads. This route also included a volcano stop – a walk to the top of Nam Kar volcano.



As we drove out of Gia Nghia, our police escort was obvious, but it was not until stopping at Nar Kar that we noticed an ambulance at the rear of our convoy. Just in case.

After the volcano walk, stops at a couple of geological viewing points were scheduled, but we spent so long at the volcano, partly because some people did a lap of the crater rim, that it was dark before we got to the viewing points and, as we were running late for that evening's Gala Banquet, our mini-buses pushed on, even whizzing past our hotel so there was no chance to freshen up after the walk.

Heading towards NamB'lang volcano, the principal source of the lava flows in which the Dak Nong caves formed.

The Gala Banquet that evening was held at Dray Sap on the lush lawns of an eco-resort. The dining tables were setup under a large blue and white striped awning shaped like a parachute. The organisers must have known it was going to rain. And when it did, the huge 'parachute' shelter did its job, and it was only the musicians and light show operators on the open-air stage who appeared to be worried. Fortunately, the rain shower passed quickly. At about that time I noticed several very well-dressed people in immaculate white uniforms with red trimmings, epaulettes and military-style peaked caps. It looked like formal naval attire, but we were nowhere near an ocean. Intrigued, I asked one of the organisers who these people were and was told they were food safety inspectors. Five of them! I was informed there were also health inspectors, first aid attendants, security people and police and, if the organisers and translators were included, there was a total of about 70 locals looking after the relatively small number of participants. More than two for each of us!



Left: Teachers from local schools played an essential role in translating between Vietnamese and English (and vice versa) Right: ACKMA members enjoying lunch with a local schoolteacher. Photo: Noy (Phaithoun Somepilavong).

The translators, in particular, worked very hard. They were all English teachers from local schools (where learning English is compulsory) and spoke better English than many of us. The teachers did simultaneous translations during the opening ceremony; presented in both Vietnamese and English at the evening functions each night; and were on hand to explain the museum displays and the special exhibitions by local school children and agricultural producers put on especially for the ISV. The teachers were very interesting to talk to about Vietnamese life, customs and traditions during the lunchtime meals and evening functions.

Next morning we all split into three groups for caving trips, based on the degree of difficulty we had opted for on the registration form. There was a horizontal cave option, an option that included a cave with an 11 m entrance pitch and another that included a cave with a 26 m entrance pitch. All three groups ended up being of much the same size. Greg Middleton and I chose the second option, which included the cave with the 11 m entrance pitch. This was rigged for both SRT and laddering.

It was necessary to walk to all of the caves, and for the most distant, it was a two-hour walk each way. Consequently, many participants were able to see only a couple of caves each day. However, the organisers had carefully selected caves so that each group had an opportunity to see good examples of entrances with luxuriant vegetation, interesting passage morphologies and lava features, cave fauna and secondary calcite growths.



All three groups visited a cave (Cave C6.1) that has become a very important archaeological site where, among other things, seven human skeletons have been excavated. The section of cave with the excavation sites has highly restricted access and is gated off and we were not able to inspect the site except at a distance through the bars of the entrance gate. Dating work indicates they range in age from around 5230 to 6680 years BP. It is most unusual for old bone material to be preserved in volcanic caves because they generally have an acidic environment. A paper presented at the ISV suggests the reason bone preservation in this cave was so good is because of a high level of calcium carbonate in the cave fill. It is postulated that this results from a huge number of mollusc shells discovered in the dig horizons, suggesting that terrestrial molluscs were a major dietary component of the cave's inhabitants over a period of 2,500 years.

In cave C6.1, one section of which is an important archaeological site. Almost everywhere we went in the caves, we were followed by a large media contingent.

Several of the caves also contained quite a bit of mud that either partly or totally obscured the original lava floor of the cave. Most of the mud appears to have been washed in from the surface during the wet season, and for some caves, farming activity on the surface above was probably a contributing factor.



#### Passage view in cave C9.

Typical passage in cave C.8. Photo: Dave Bunnell.

Everywhere we went in the caves, we were followed by a large media contingent from national and local TV and print media. This came close to being a little irritating at times, but they were very obliging and not too intrusive – perhaps because we had already become accustomed to their presence during the presentation sessions.

As the 4760 km<sup>2</sup> Dak Nong UNESCO Global Geopark was established only a short time ago and is the first volcanic area in Vietnam to be included in a geopark, the Management Board is still feeling its way on managing the caves and surface areas above them. The Geopark people sought our comments on the caves and also advice on how we though they should be managed. This resulted in an informal group of field trip participants providing comments which were consolidated by the Commission on Volcanic Caves and submitted to the Geopark in mid-January 2023. Among the key concerns raised were:

- apparent absence of an on-site management presence
- illegal farming activities and land clearing
- poor signage with inconsistent or conflicting access advice
- lighting of fires in caves (for partying?) and in the entrance areas (for meal cooking and to make smoke so that sunbeams stand out more prominently)
- lack of any constraints on where in a cave visitors can walk, resulting in:
   damage to vegetation in entrance areas
- mud tracking
- floor compaction (possibility of damage to cave invertebrates and their habitats) and
- possible damage to floor features, including to calcite speleothems.

All in all, the ISV was very interesting from both the vulcanospeleological and management perspectives. It was also culturally enriching and provided an opportunity to learn more about a part of Vietnam that is not widely known about outside Vietnam and is not (yet) on the radar for many foreign visitors. It is hoped that adequate management arrangements are in place for the caves before the onslaught happens.



Left: Franz having a rest near the entrance of cave C.7, which has an 11 m pitch. Right: Even media photographers enjoy taking selfies.

Below: John Brush, President of the UIS Commission on Volcanic Caves, being presented with a framed image of the Dak Nong Geopark by Ms Ton Thi Ngoc Hahn, Vice Chair of the Province. Photo: ISV20 Organising Committee.





### Glorious Kangaroo Island

#### Kevin Mott

In the 1930s a publication titled *Glorious Kangaroo Island* `was produced to promote the values of Kangaroo Island and to encourage visitors. Locals felt they were being ignored and felt the best way to promote the Island was to do it themselves. The publication contains numerous photos and the text describes local industries and tourist spots.

Of the 80 pages, 59 are devoted to the caves of Kelly Hill. This indicates the caves were highly valued by the locals. Harold Bell tells the story of the discovery and exploration of the caves, particularly Midnight Cave, at Kelly's Hill [*sic*] by himself, Miss Olive Burgess, Misses Edith and Ida May as well as Mr and Mrs Burgess. These names are commemorated in the names of walking tracks at Kelly Hill.

There are many interesting tales of exploration, people being lost and 'olde' world descriptions of decoration. A particularly interesting story relates to a major bushfire not to dissimilar to the 2020 bushfire which devastated the area.

Harold Bell certainly expresses his passion for the caves and their value as a tourism drawcard - a passion that seems to be missing from modern management.

Within the section on the caves is a series of 12 photos depicting various chambers within the caves. These mysterious chambers always intrigued me as no one seemed to know where they actually were. During the 1980s, CEGSA ran a series of trips to Kangaroo Island to document and locate the caves around Kelly Hill. It was difficult work due to the density and nature of the scrub. As a break from this work time was spent in Kelly Hill Cave relocating old survey marks and determining where these photos and mysterious chambers were.

The chambers named by those early explorers are tabled in the following list. Only seven of the chambers appear in the photographs in the book. Those included in the photographs are identified.

- 1. The Hanging Lamps
- 2. The Flying Foxes (photographed)
- 3. The Dentist's room (photographed)
- 4. Nature's Masterpiece
- 5. The Salt Lake City (photographed)
- 6. The Waxworks Chamber (photographed)
- 7. The Washbowl Chamber (may be the Christening Font)
- 8. The Frozen mountains (photographed)
- 9. The Cascades
- 10. The Egyptian Mummies
- 11. Shower of Rain on the Sea
- 12. Noah's Ark (photographed)
- 13. The Tombstone Chamber (photographed)

As not all were photographed in the early publication, we can only work out the locations for those we have identified. Elery Hamilton Smith identified K3 as the entrance used by the early explorers with K1 (Animal Cave) being found later. A 1949 map by Elery indicated "Salt Lake City" being just beyond the window at the east end of the tourist route in "Midnight Cave". It is reasonable to assume that all the chambers, photographed or not, were located in Midnight Cave, now known as Kelly Hill Cave.

Initially we were able to locate eight of the 12 photos. Coloured photos were taken for comparison. The photos could not be replicated exactly due to differences in lenses. It is assumed the original photography equipment was a large format camera using magnesium flash. It was also found that different chambers were either the result of looking at decoration from a different perspective or simply rotating the camera at a point and photographing a different portion of the same chamber. Often it was found that there was a convenient place to sit comfortably at the camera points!

A follow up visit tried to emulate the original photos more closely and used black and white film. Digital cameras now make the composing and lighting much easier and you don't have to wait for the film to be developed to check the quality. A ninth photo site (page 43) was located on the second visit. Only three more sites need to be located. One wag on the second trip was heard to say "we should come back here in the daytime, we will be able to see more"!

A pleasant surprise when comparing old and new photographs is that there appears to be minimal damage at each site in the intervening years, despite development of the tourist facilities in the cave. The later photos did not include the obligatory youth for scale.

There are still three sites to be confirmed and photographed and with the renewed interest in Kangaroo Island and Kelly Hill it is a worthy project for a photographer to follow up. These early names for locations are worth preserving as they capture the excitement and wonderment of the original explorers.

A summary of the photographs is contained in Table 1. The title for each photo is that used in the original publication. All the photos are in Kelly Hill Cave. The original explorers called it Midnight Cave.

Page	Title	Retake
39	Hanging wonders in the Midnight Cave, Kelly's Hill	3
41	Magnificent Curtains of Fibrous Roots and Stalactites in Midnight Cave, Kelly's Hill	
43	A Maze of Statuary and Countless Stalactites in the Dentist's Hall, Midnight Cave, Kelly's Hill	9
47	A View of Flying Fox Chamber, Cave at Kelly's Hill	7
49	Another View in flying Fox Chamber, Kelly's Hill	8
51	Marble Forest, in Mystery Chamber, Midnight Cave, Kelly's Hill	6
53	Fantastic Hanging Curtains and Glacier in Freezing Chamber, Kelly's Hill	1
55	Looking into Recesses of Salt Lake City, Cave at Kelly's Hill	
59	Looking into the Recesses of the Dentist's Hall, Midnight Cave. (note the magnificent dome)	
61	Weird Ghostlike Shapes in the Tombstone Chamber, Kelly's Hill	4
63	Honeycomb Pillars, at Entrance to Noah's Ark, Cave at Kelly's Hill	5
65	Waxworks Chamber, with Sloping Waxlike Floor, in Midnight Cave	2

Table 1: Summary of photographs

Glorious Kangaroo Island photo comparison

The photos on the following pages are arranged as follows:

- Column 1 is the original photo from *Glorious Kangaroo Island*.
- Column 2 is a colour photo taken in 1989.
- Column 3 is a black and white photo from 1990 attempting to better recreate the composition.







Page 39



Page 41



Page 43



Page 47









Page 49



Page51



Page 53





Page 59



Page 61



Page 63



Page 65























The location of the photos taken during the re-examination are shown plotted on a portion of CEGSA map 1029 with the camera location indicated by the yellow square. The orange line indicates the direction of the photo. The current tourist path is shown in purple.



# Upcoming Conference

#### 21<sup>st</sup> International Symposium on Vulcanospeleology Galapagos Islands, 2024 Preliminary Announcement

The next ISV will be held at Puerto Ayora, the largest town in the Galapagos Islands. Firm dates will be announced in April.

Start to plan for your attendance now. The ISV will include some spectacular (and easy) cave visits on at least two islands as well as presenting a fantastic opportunity to make your own arrangements to spend some extra time there. Why not arrange a boat trip (from 1 to 7 days or more) so that you can explore the geology and biology made famous by Charles Darwin.

2024 marks ten years since the last ISV event held in Galapagos. The archipelago made famous by Darwin continues to reveal its subterranean secrets as dedicated survey and science expeditions systematically explore the islands. In 2020 teams announced that the longest known lava tube in South America had been discovered and continues to be pushed by exploration teams. We propose visits to this cave system and other new discoveries as the backdrop for the UIS Commission on Volcanic Caves to meet, share presentations on local and global vulcanospeleological topics and explore the UNESCO World Heritage Centre and Biosphere Reserve for the 21st ISV in early 2024.

Organizers: Aaron Addison, Theo Toulkeridis PhD.

When: March - May 2024 (exact dates to be confirmed with UIS Commission on Volcanic Caues)

Location: Puerto Ayora, Santa Cruz Island Galapagos, Ecuador Proposed venue: Auditorium located less than 200 meters from main hotel area in town with capacity for ~100 comfortable seating.



#### Pre-conference trips:

During the week prior to the main ISV event there will be opportunities for trips in original exploration and survey, geologic inventory, biology, and photography. Visits to the islands of Isabela, Floreana, and San Cristobal for visiting caves may be possible depending on sea conditions.

Expenses for pre-conference participation will be on your own (hotels at negotiated rates).

Recent volcanic landscapes on Bartolomé Island (foreground) and Santiago Island (rear), photo John Brush.

#### Notes:

- All arrivals to Galapagos must transit through Ecuador mainland unless arriving by boat.
- Hotel rates will be on your own at an ISV negotiated rate. Though room rates are unknown at this earliest stage, proposed dates have been chosen to be in off peak tourist season to minimize costs for lodging.
- Though meals will be provided for several ISV activities, other meals will be on your own. Costs for meals can be reasonable for less than \$20/meal.
- All COVID regulations for island visitation must be respected and followed. Currently there are no known restrictions, organizers will monitor regulation changes and communicate any updates to ISV community.



Lava Straws, photo John Brush.



Freeloaders at the fish markets, photo John Brush.

Day	Activities	Location
Saturday	Early Arrivals\ Registration\ Pre-conference photo survey - exploration trips ending	Airport (Baltra), field
Sunday	Local field trips \ main Arrivals Day \ registration open	Around Puerto Ayora, airport (Baltra)
Monday	Symposium opening and keynote presentation \ Afternoon presentations \ evening welcome reception	Puerto Ayora
Tuesday	Symposium presentations \ closing of presentations and	Puerto Ayora
Wednesday	Wild caving field trips (options for all skill levels)	In the field
Thursday	Depart for Isabela	Early departure to Isabela, evening dinner on Isabela
Friday	Visit sulfur fumaroles in caldera of Sierra Negra and caving opportunities, evening closing reception	In the field, Puerto Villamil
Saturday	Additional caving field trips and early departures	In the field, airport
Sunday	Field trips on your own\departures	Field \ airport



Descending the Triple Volcan volcanic shaft, photo John Brush.

Galapagos caving, photo Aaron Addison.



### Resources

#### BOOK REVIEWS Andy Spate

In the last edition of the Journal, I reviewed the wonderful *Lechuguilla* book. I now have to-hand two very similar looking books to review – Max and Stefanie Wisshak's *New Zealand Karst* and the Metropolitan Speleological Society's *Abercrombie Caves*.

Before turning to the reviews. I would like to indulge in a little elderly gent's whimsy especially relevant to *Abercrombie Caves*. I have watched the evolution of caving club publications over a period of about 60 years. I consulted some of my colleagues about what they had seen. Their comments included:

- Grant: If you do not wish to regress quite as far back as William Caxton, or even Monks scribing on to vellum, then how about Gestetner machines mimeographing Roneos? The smell of methylated spirits. Ahhh! While they were undoubtedly the good old days, forgive me please for thinking that things today may be even better? I might even still have some blank stencils in a draw somewhere, although the rats have probably long ago chewed them, and I couldn't find a typewriter to cut them, although I am not so sure about that.
- Dave: I have fond memories of UQSS newsletter parties, well lubricated with cheap cask wine, where we all took turns at the Roneo machine (purple ink that went everywhere), later on the more sophisticated rotary Gestetner machine with stencils that were corrected with pink fluid.
- John: A lot of it was proprietary technologies. I remember Gestetner duplicators, Roneo machines, offset printers (if you had access to the printing room in your workplace) and later, Xerox photocopy machines. Not to mention home-office inkjet and laser printers in more recent times.

And now we have evolved to beautiful, wonderfully illustrated hardback books via such fine books on Wombeyan and Yarrangobilly published by the Sydney Speleological Society and the textbooks produced by Jennings, Gillieson, Hamilton-Smith and Finlayson, and the forthcoming book on Australian caves and karst produced by John Webb and colleagues.

Enough trivia and onto the books.

Again, like *Lechuguilla*, at first glance they are 'coffee table' books. They are so, so much more than that! Both are landscape format, hardback and profusely illustrated with wonderful photography and in the case of Abercrombie, contemporary artworks by such people as Charles Condor. *New Zealand* features images of Māori cave art.

All images reproduced here are published with the permission of the respective photographers.

Let's take each book in turn:

# New Zealand Karst: a voyage across limestone landscapes into the subterranean realm of caves

Max and Stefanie Wisshak

The first is *New Zealand Karst: A voyage across limestone landscapes into the subterranean realm of caves.* Max Wisshak and Stefanie Wisshak. 2020. Publisher: speleo-photo editions. 256 pp, 232 colour images, three diagrams.

Stunning photography and 13 descriptive chapters as detailed below. Plus, forewords and afterwords and further discussion. The forward is by the internationally recognised Professor Paul Williams – the true 'father' of New Zealand's karst studies.

The book is a truly fine exploration of New Zealand's karst and its connections with its long Māori involvement. The chapters texts are only two pages in length – followed by an array of Max's wonderful images. The book includes by far the best map of the distribution on New Zealand's limestone distribution that I have seen. The book does not include reference to the country's lava tubes – but it is about karst after all!



Contents



The chapters are followed by short pieces on conservation; an epilogue which provides a short historical discussion (which includes the first colour image of a New Zealand cave published by Arthur Thomson in 1854); a page on the photography, and acknowledgements. This is followed by several pages on sources, further reading and web resources. The chapter enigmatically titled 'Ruins' is a nice discussion of the cycles ages of landscape evolution.



Page 11 - Occurrences of limestone (shown in red) and marble (in blue) across the New Zealand archipelago, together with the suite of karst areas portrayed in this book.

To my shame I had no knowledge of Māori rock art and thus found that section of considerable interest. To quote from the book (page 235):

The rock art is either composed of petroglyphs (carved or chipped into the stone) or pictographs (drawn of pained onto the rock). To produce the latter, animal fat was mixed with vegetable gum and red ochre or charcoal pigments to make red or black paint; blue, yellow or white components are rare. Most commonly charcoal was used dry rather than as paint. Subjects of drawings are people, always without facial features, and animals, such as birds, dogs, lizards, seals, or fish. Other forms are abstract symbols, difficult to interpret or they are merely doodles. The most captivating designs portray enigmatic spiritual entities.

There are both similarities and differences with the styles of Australian rock art.

Right: Ōpihi Taniwha (mythical water monsters believed by the Māori to dwell in riverside caves).





Page 247: Māori rock art (left).

Page 217: Fossil whale spinal column bridging walls (below).



All-in-all it is a comprehensive and spectacular visual overview on New Zealand's karst resources.

The book can be obtained direct from Max website <u>www.speleo-photo.de</u> at a cost of 49.90 EUR (ca. 78 AUD) for the standard edition and 69.90 EUR (ca. 110 AUD) for a slip-cased special edition and 21 EUR (ca. 33 AUD) shipping.

It is also available in New Zealand, for example from Nationwide Book Distributors at <u>www.nationwidebooks.co.nz/product/new-zealand-karst-9783982171401</u>.

I hope to have a copy of the book at the upcoming conference at Takaka for the perusal of attendees. *Page 18 - 19 karst platform.* 



### Abercrombie Caues

Metropolitan Speleological Society (NSW)



*Cover photo: Abercrombie Arch Cave, photo Alan Pryke.* The chapters and authors are as follows:

- Introduction Stuart Bremner
- Wiraduri Connection to Abercrombie Marilyn Scott and Aunty Gloria Rogers
- Early European Exploration Barry Cubitt and Marilyn Scott
- Bushrangers at Abercrombie Caves Barry Cubitt
   and Marilyn Scott
- Development of Abercrombie Caves Barry Cubitt
   and Marilyn Scott
- Karst Management at Abercrombie Karst Conservation Reserve - Andrew C Baker
- Flora and Fauna at Abercrombie Caves Beth Little
- How Caves are Formed Garry K Smith
- A Geological History of the Abercrombie Caves Area – Cathi Humphrey-Hood and Peter M Downes
- Introducing Speleothems, Speleogens and Mineralogy of Abercrombie Caves – Jill Rowling
- Caves and Karst Features David Stuckey, Beth Little and Roderick Smith
- Glossary of Cave Terms Garry K Smith

Each of the chapters is followed by a bibliography – I am gratified to see my name appearing in a few chapters!



The two appendices are:

- Historical Inscriptions found in Abercrombie Caves
   A map and a very comprehensive tabular database -
- Barry Cubitt, Alan Pryke (and others?)

• Staff at Abercrombie Caves – Barry Cubitt and Stuart Bremner

All-in-all it is a wonderfully presented, thoroughly professional publication. Even if you are not interested in Abercrombie there is much of interest to cave people such as ACKMA members. The maps are very well done and the use of reproductions of historical artworks by painters such as Conrad Martens adds to the value of the book. A similar comment applies to reproductions of newspaper articles and extensive quotations to be found in the text. The photographs are excellent and display many of the wonders to be seen at Abercrombie. I found the historical inscriptions appendix a wonderful example of dedication to protecting the European heritage of the site – even if we don't inscribe our names in caves today!

Above: David Stuckey and Marcia Kaye at the Pulpit in Bushranger Cave, photo Gary Smith.

I do have a few quibbles – but they are not strong enough to enumerate. The book costs \$AUD45 plus shipping costs and can be ordered from <u>https://www.mssadventure.org.au/Home/AbercrombieBook</u>

Below: Wombat skeleton in Hill Cave, photo Gary Smith.

# Links to the Wider World

This section aims to provide links to articles and items related to caves and karst that may lie outside the normal ACKMA sphere of influence but may still be of interest. All links are functional at the time of publishing but may not open if viewing at a later date.

As this journal is already getting quite long, I have restricted these links to those subjects relating to New Zealand.

# How Nature Creates Uncannily Spherical Boulders

#### https://www.atlasobscura.com/articles/concretion-spherical-rocks

#### Meg Neal, October 2017



"Large boulders shaped like nearly perfect spheres can be found in a handful of places around the world. Perched amid craggy, sandy landscapes, these curious orbs have been confounding onlookers for centuries.

Some are so superbly round they appear to defy nature, which has led to wild speculation as to their origins: ancient gods? alien eggs? evidence of giants?

In fact, spherical boulders are molded over millions or even billions of years by a natural but long-misunderstood geological phenomenon called concretion."

An exceptionally round concretion in the Moeraki Boulders cluster in New Zealand - photo by Tom Hall/cc by 2.0.



### The Quest to Rediscover New Zealand's Lost Pink and White Terraces

#### https://www.atlasobscura.com/articles/pink-white-terraces-new-zealand-hochstetter-lost

#### Kelsey Kennedy, September 2017

A German diary from 1859 might point the way to a geothermal wonder buried by a volcanic eruption.

Roughly the size of a city block and up to eight stories high, the Pink and White Terraces of New Zealand were one of the top tourist attractions in the British colony during the 19th century. Visitors came from around the world to admire the dramatic, colorful, cascading formations—formed by the mineral-rich waters of a geothermal spring—on the shores of Lake Rotomahana, at the foot of Mount Tarawera on the country's North Island.

"Pink and White Terraces" by Charles Blomfield 1886 (public domain).

The Tarawera eruption (June 1886) lasted about five hours, buried the region in ash, and dramatically reshaped the landscape.

The fate of the terraces—blown to bits or buried or something else—is a mystery, well and truly lost. The only survey of the terraces before the eruption, completed in 1859, wasn't rediscovered until 2010, when a research librarian found it in a diary in a family archive in Switzerland.



Even with that, the precise locations of the terraces is unknown, which has meant that no one could determine whether they survived the eruption. Finally, 131 years after the Tarawera eruption, there's new hope the terraces can be rediscovered, and perhaps even resurrected, thanks to that 1859 diary.

### How One Man and His Dog Rowed More Than 700 Kākāpōs to Safety

#### https://www.atlasobscura.com/articles/richard-henry-kakapo-conservation

#### Sabrina Imbler, February 2020

"In 1893, in Auckland, New Zealand, 48-year-old Richard Henry was going through a peculiar midlife crisis. It wasn't for any of the usual reasons, such as a failed marriage (though he had one) or a failed career (though he had been chasing a dream job for several years), but rather it was over his obsession with flightless, moss-colored parrots called kākāpōs."

"Several months later, Henry got that dream job: caretaker of Resolution Island, an 80-square-mile, uninhabited hunk of rock off southern New Zealand that he hoped to turn into a predatorfree sanctuary for kākāpōs and other native birds. For the next 14 years, he toiled away alone on the island in pursuit of this revolutionary conservation idea. He rowed hundreds native birds from the mainland, across choppy waters, to keep them safe from the snapping jaws of furry little predators."

Right: The chubby, moss-coloured, papayascented kākāpō. Photo by Andrew Digby/New Zealand Department of Conservation





### Caver 'rescue' deep under Mt Owen puts skills to test

https://www.stuff.co.nz/nelson-mail/news/300828669/caver-rescue-deep-under-mt-owen-putsskills-to-test

Nelson Mail, 13 March 2023



"A caver injured after a fall deep in the Kahurangi National Park was the scenario that tested the skills of an international group of cavers and emergency services.

Sixty Kiwi and six Australian cavers worked together over the weekend for the triennial New Zealand Deep Cave Search and Rescue (SAR) training exercise, co-ordinated by police and other agencies.

This year's exercise was held at the Bulmer Cavern, which runs for 74.3km through Mount Owen – the longest in the country – and is 750 metres deep."

The triennial Deep Cave Search and Rescue exercise took place in the Bulmer Cavern through Mt Owen in the Kahurangi National Park at the weekend. Photo by Jessie Nash.



Tākaka 2023

21-26 May 2023

Theme: Water Underground

Conference booking form

Who are you?

Name	
Affiliation / background Published in conference handbook	
Postal Address	
Email	Pref. phone no.

What will you do?			
Paper() Poster() Tick one. Refer to paper guide	Title:		
Where will you sleep? Refer to accommodation guide			
Arrival date	# nights ( )	# extra adults ( )	# extra children ( )
Accomm. Name:	<u>.</u>	Room Type:	
lf shared, who are you sharing	g with?		

How will you get here??			Tick your preferred Option/s
I will have my own transport			
9.00am Friday 19 <sup>th</sup> - Minibus Nelson city to field trip	# seats (	)	
2.00pm Sunday 21 <sup>st</sup> – Nelson airport to Tākaka (included in Registration), arrive ~4.00pm	# seats (	)	
8.00am Saturday 27 <sup>th</sup> - Tākaka to Nelson airport (included in Registration), arrive ~10.00am	# seats (	)	
9.00am Monday 29 <sup>th</sup> – Collingwood to Nelson airport, arrive ~12.00pm	# seats (	)	

Pre and Post conference options		
Please bring your own Helmet, Light SRT gear, and cold cave personal clothing		
Pre-conference wild caving (own meals and accommodation) Limit 20	# places (	)
27 28 May Post-conference Pakawau (pay as you go) Limit 20	# places (	)

Pete Chandler and Neil Collinson Libby Chandler, Chris Stevenson, Kieran Chandler <u>conferenceconvenor@ackma.org</u> +64 7 8787621

Conference fees		Your cost
Registration ACKMA Members	NZ\$600. Includes lunch and dinner, in-conference transport, venues and many little extras. Includes Sunday pre-conference dinner, Wednesday and final Friday dinner.	
Registration Non-ACKMA Member	NZ\$650. Inclusions as above	
Day fee	Please advise which days as costs vary (you will need to add this after consulting with the Conference Convenors)	
	Please advise if you have accompanying family/friends: # people ( )	
	Not provided, there are a range of cafes in the Main Street, many accommodations have kitchen facilities	
Breakfast		
Total	NZ\$	
After 1 April 2023	Add 10% late fee (multiply total x 0.01)	
Credit Card	Add 3% surcharge (multiply total x 0.03)	
Total	NZ\$	

How to pay – 3 options		
A	Australian dollars into an NZ account. 1. Deposit to WPAC NZ2W 03 - 0449 - 0118375 - 000 Please use your surname in the reference codes and also email details to the Conference Convenor	Exchange rate used ()
В	New Zealand dollars into a New Zealand account 2. Deposit to 03 - 0449 - 0118375 - 000 Please use your surname in the reference codes and also email details to the Conference Convenor	
С	Credit cards. Add 3%. Advise, securely, the Conference Convenor of your: card type, account name, expiry date and card number.	

Other details

Please advise the Conference Convenor here if you have any special requirements e.g., dietary, disabilities, invoice required

For presentations, the Tākaka High School Assembly Hall has a large screen and IT facilities. The floor is carpeted, so acoustics are very good

Please also indicate if you have family or others who might like to participate in meals, cave trips or alternatives. We will contact you by email.





# COMMITTEE NOMINATION FORM

ACKMA Committee Positions available for nomination are as follows:

President Australian Vice President NZ Vice President Treasurer Publications Officer Executive Officer Committee Member 1 Committee Member 2 Committee Member 3

 $Nominations\,must\,be\,signed\,by\,the\,Proposer, Seconder and Nominee, all\,three\,being\,financial\,members\,of\,ACKMA.$ 

Nominee:		
Position:		
Signed (Nominee	2):	Date:
Proposed by:		
Signed:		Date:
Seconded by:		
Signed:		Date:

Nominations for committee positions are now open and are preferably received by 1 May.

Nominations close on 7 May 2023.

Please send completed nomination forms to the executive officer.

Cathie Plowman ACKMA, Executive Officer 637 Deviot Road Deviot TAS 7275 <u>lueena@bigpond.com</u> <u>executive.officer@ackma.org</u>

