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FRONT COVER: Arrakis Cave, Tasmanian Wilderness World Heritage Area. Photo: Grant Dixon.

BACK COVER: Mayberry Basin, Mole Creek Tasmania. Photo: Rolan Eberhard

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IN THIS ISSUE

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FROM THE EDITOR

The December journal contained a glaring error; I wonder how many readers picked it up. I was contacted by John Brush soon after the printed copy had reached everyone, and he pointed out the caving trips he described in his paper were in Slovakia, not Slovenia. Embarrassing error given I had visited the caves and several of us proof read it. Apologies John and the corrected version has been placed on the website by webmaster Rauleigh Webb.

Trevor Worthy is known to many ACKMA members, especially the New Zealand members, as a palaeontologist and keen caver. Trevor attended the 2005 Westport ACKMA conference and show cased some of his research sites at Honeycomb Hill Cave. Trevor recently published some of his research suggested that Australia's and New Zealand's iconic birds; the emu and kiwi, descended from a common ancestor. The ABC website reported his findings;

> *New Zealand's iconic kiwi bird may have an Australian ancestor, according to new research that suggests it evolved from a bird that flew to the island nation from Australia. Palaeontologist Trevor Worthy of Adelaide's Flinders University said fossilised remains suggested the flightless bird did not evolve from the extinct giant moa, as has long been assumed. Instead, he said an ancestor of the kiwi dating back 20 million years discovered in the South Island was more closely related to another giant flightless bird, the emu. Dr Worthy, himself an expatriate New Zealander, says it appears the fossilised South Island bird and the emu evolved from a common ancestor, which originated in Australia but also spread to New Zealand. "If, as the DNA suggests, the kiwi is related to the emu, then both shared a common ancestor that could fly," he said. "It means they were little and volant (able to fly) and that they flew to New Zealand." Dr Worthy said it was not uncommon for birds to "jump" from Australia to New Zealand, citing the Mallard duck, the little banded dotterel and the cattle egret as three species which regularly fly back and forth. But he said the research, published by the Society of Avian Paleontology and Evolution, was not conclusive. "We need to find wing bones to put the theory beyond all doubt," he said.*
>
> *If proved true, the finding might be a bitter blow for many New Zealanders. New Zealanders have long complained about their trans-Tasman neighbours appropriating everything from champion race horse Phar Lap to actor Russell Crowe. Any Australian claim to the kiwi is likely to intensify the rivalry.*

Mary Trayes drew our attention to some previous research that had come to the same conclusion. New Zealand vice president Dave Smith refuted any notion of rivalry over the findings, stating; *"No rivalry at all, always thought kiwis had primitive relations over the ditch."*

Trevor Worthy with moa fossils in Honeycomb Hill Cave, 2005
Photo: Steve Bourne

ACKMA was invited to comment on the Ngootyoong Gunditj Ngootyoong Mara, South West Draft Management Plan, a management plan for Southwest Victoria. Southwest Victoria is one of the 2 major areas of volcanic caves in Australia and fortunately many of the caves are in the reserve system. There are also extensive limestone caves and karst features; Glenelg River National Park, Bats Ridge, Discovery Bay (Cape Bridgewater), Cobboboonee National Park, and areas around Tyrendarra. Although I have some knowledge of the area, its nowhere near as extensive as Dr Susan White's, who kindly prepared some comments on behalf of ACKMA. The plan is worth looking at as it takes a landscape approach to management rather than park by park and only covering protected areas. As with many of these plans, geological values are not covered as extensively as biological, something that Susan sought to rectify with her comments. Although ACKMA was invited to comment, our association was not mentioned as one with an interest in cave management. This was also noted in our feedback. Thank you to Susan for making the time to evaluate and comment on this plan.

ACKMA member Brett Farquharson was recognised in the Australia Day honours list for 2014. From the *Yass Tribune;*

Bowning's Brett Farquharson has been honoured with an Order of Australia and will attend a ceremony in Canberra later in the year where the Governor-General will present him with the medallion. Mr Farquharson said he was surprised when he heard news of the OAM and that he did not anticipate recognition or awards for the work he's done over the years.

"I started scouting at the age of eight and now I'm 65," he revealed. I always enjoyed scouting and never saw it as a service or anything like that. And the 40 years in the RFS was something that I saw as simply a job that needed to be done, nothing else."

Mr Farquharson has also volunteered with the Bowning Public School P&C, was involved with the Binalong Rescue Squad for around 15 years and is a founding member of Yass Cave Rescue. He said his daughter, Tina Cassidy, was the one behind his nomination.

"Yeah, I had a bit of a go at her but definitely thanked her for it as well. I know nominations like this aren't easy to put together and I'm definitely going to give her a big hug when I see her next."

Mr Farquharson said the process has given him a good chance to take a step back and reflect on what he has done over the course of his life.

"When you think about it, it's probably a lot of work, but I've never seen it as something to do because I might get an award for it. I've always seen it all as just what needs to be done."

However, this hasn't stopped him from looking forward to the awards ceremony.

"I've started to get fairly excited about it all. It's something I'm proud of and it's always good to be recognised, even if that is not the reason you volunteer."

Congratulations Brett from everyone at ACKMA.

In this edition, Ann Augusteyn reflects on 25 years at Capricorn Caves, an outstanding achievement. We also have updates from Naracoorte and the South Island of New Zealand. Sasa Kennedy enlightens us with her paper on technology and its use in interpretation. John Brush takes us on a caving trip in the USA with another insightful trip report. Nicholas White recounts some memories of Lloyd Robinson; many members will have met Lloyd at the Western Australian conference. Sadly Lloyd passed away recently; I have enjoyed reading about his caving exploits which have been recounted in several caving newsletters. Dan Catchpoole continues his story of James McKeown, a notable character in Jenolan Caves' history. Scott Melton reviews two new books on Jenolan Caves, which both look like great additions to a caver's library. Most importantly, the journal has information regarding the AGM and Caves Guides' Workshop at Yarrangobilly in May - see you there!

Coming Events	
2014: 4-7 May	**Cave Guides Workshop Yarrangobilly, New South Wales**
2014: 9-11 May	**ACKMA Annual General Meeting Yarrangobilly, New South Wales**
2014: 17-22 August	International Workshop on Ice Caves, Idaho, USA
2014: 2-8 November	International Show Caves Association, Jenolan Caves, Australia
2015: 8-15 May	**ACKMA Conference, Naracoorte Caves, South Australia**
2016: May	**ACKMA Annual General Meeting and Cave Guides Workshop, Rockhampton, Queensland**
2017	International Union of Speleology Congress, Penrith, NSW, Australia
	Do you know of an event that may interest ACKMA members? Please send to publications@ackma.org

PRESIDENT'S REPORT

Dan Cove

And so we begin 2014. I extend best wishes to all ACKMA members for the New Year which I hope shall be happy and healthy for all. I know that it shall certainly be busy!

I have begun receiving increasing numbers of requests for information concerning the rapidly approaching ISCA Congress to be held at Jenolan in November this year and thought that I should cover some key points concerning times, the program and attendance by ACKMA members.

For a start, I should make clear that this Congress is the most important event of the International Show Cave Association, being held only once every 4 years. Attendance is generally strong, and the level of initial interest and expressions of interest from International visitors suggests that Jenolan will be at or very near to capacity for accommodation over the week of the Congress itself. Although I am naturally keen to see as great a participation rate and attendance from ACKMA members as possible, I must also state that preference in booking accommodation and registration will have to be given to ISCA members. There may well be the possibility of interested ACKMA members being billeted with Jenolan staff, or accommodated off site also in Oberon (1/2 hour travel), and we are currently investigating the option of shuttle services. We will have much greater clarity on availability of on-site accommodation after opening of initial registration to ISCA members in early March.

The Congress itself will run from 2 to 8 November and will feature a program that will be familiar to attendees of the 2013 Waitomo Conference, with paper session in the morning and activities most afternoons. There will also be meetings of the various commissions of ISCA, and sessions devoted to the General Assembly of the Association and election of Directors. A call for abstracts has already been circulated (a process driven by the tireless Andy Spate who has also made the rash promise to coordinate the post Congress field trip as well as offering invaluable assistance in overall planning). In thanking Andy, I must also express gratitude for the assistance and advice of Julia James, who has offered useful guidance on the structure of the draft program as well as generously offered to lead special activities at Jenolan during the Congress itself. At Jenolan, I am being ably supported in the increasing blur of organisation by Scott Melton, Sasa Kennedy and Domino Houlbrook-Cove who are all taking on additional workloads without protest.

I gratefully acknowledge that we have also received financial support early in the organisation process, with two major sponsors. Acoustiguide of Australia are our major Diamond Sponsor, with Weidmuller – well known to ACKMA members of course – generously committing as our Silver Sponsor. I am very grateful to the support of both these leading companies who have already brought so much to cave management in the areas of interpretation and cave lighting.

There is no doubt that the Congress would provide enormously beneficial to ACKMA members, particularly of course those directly involved in show cave management. An anticipated 140 international delegates will represent all continents with the exception of Antarctica, and gather with the intent of furthering collective understanding of the best approaches to management of show caves. My own experience has been that ISCA dramatically broadens your approach to cave management, and offers the freshness of a truly international perspective. I will hope to send out soon, via journal and ACKMA mailing list, additional information that will be of interest to ACKMA members and that will assist members in planning and booking.

Very briefly, in non-ISCA news, I am also proud to be able to provide news of another win for Jenolan Caves. At the 2013 Qantas Australian Tourism Awards held in Sydney 7 February, Jenolan won the category of "Heritage/Cultural Tourism" against competition that included Port Arthur Historic Site and Venture NT. This was a great achievement and recognition for the hard work and commitment of the whole Jenolan team. It is also always great to get some cave-focused publicity attendant to the Awards win, and raise the public profile of cave management in Australia.

Dan Cove accepting the National Tourism Award for Jenolan Caves

ENHANCING the INTERPRETATION of SHOW CAVES THROUGH EFFECTIVE UTILISATION of TECHNOLOGY: A FILMIC APPROACH

Sasa Kennedy

Since the beginning of the 20th century, film, including television, has grown to become the storytelling medium of choice for many in the developed world. This is hardly surprising, as humans are extremely visual animals. Studies have shown that about 60% of the information we absorb comes through our eyes – quite a lot, considering we have five senses. It stands to reason, then, that a storytelling medium which utilizes both image and sound and which has become so highly developed and popular, may have some lessons to share with cave interpretation, another storytelling medium which combines elements of vision and sound.

Film-makers use light not just to illuminate a subject, but to tell a story and create an emotional response in audiences; likewise a film soundscape is carefully constructed to give specific narrative and emotional meaning. In many ways a cave tour resembles a visit to the cinema. Visitors come to be entertained, learn something new, take a break from their everyday existence and enter a different world.

This article will examine aspects of new (and current) technology which can impact on visitors' emotional connection to a cave and also their understanding of it. It will take a filmic approach to ensuring these technologies are used to the greatest effect. By understanding and using the principles utilized by film-makers and adapting them to a cave environment we can advance cave interpretation, while enhancing the authentic experience which attracts visitors to a natural environment.

CHANGING WITH THE TIMES

The first films were made using huge, cumbersome cameras and which resulted in few changes of shot within a scene. To watch one of these early films now requires quite an effort. They seem slow and stilted. Film has had to change with technology and with the times to remain relevant. Even in the last thirty years there has been a substantial increase in the number of different camera shots in a scene and the amount of movement within a shot. Along with more action there has been a decrease in the amount of exposition required – we have learnt the language of film and no longer need to have things spelt out for us. For example, no longer do we need a shot of turning calendar pages to indicate a length of time has passed.

Cave interpretation also needs to move with the times. Exposure to ever developing information technology has ensured that people are able to absorb a vast amount of complex information about the world, from a range of sources, but at the same time attention spans are getting shorter. So we can probably expect many visitors to understand and be interested in quite complex scientific concepts and other aspects of caves, but at the same time we must keep the information succinct, up to date and in easily digested chunks.

It is crucial we remember that, like going to a movie, our visitors may be at our site to escape from their everyday existence into a different world. They may be in need of a break from information overload!

VISUAL TECHNOLOGIES

Early visitors to caves had a very different lighting experience from today's visitors; flickering candlelight added to the sense of mystery and effectively built suspense, just as it would in a film. Yet it also limited what could be seen, and the range of ways in which a cave could be presented. Electric lighting gives much greater flexibility, but can also detract from the excitement derived from the sense of the unknown – a major part of the attraction of being in a cave. It is important we strive to maintain this authentic emotional response. There are many factors to consider when lighting a cave which will affect it.

LIGHT PLACEMENT

When making a film a major consideration is what to light and how to light it, depending on the emotional effect that is intended. There needs to be enough light that viewers can follow the action; other factors taken into consideration include location, time of day, what is the narrative focus of the scene and what mood is intended. For cave interpreters the only one of these which is not likely to be relevant is the time of day.

Obviously, for safety reasons there should be enough light for safe passage through the cave and the lights should be placed so they do not, at any time, shine into visitors' eyes. These basic considerations will also affect the ability of visitors to take in the interpretive message – if visitors do not feel safe in their surroundings they cannot concentrate on other things. In addition the prettiest and most spectacular formations should be given due consideration, as they are what most visitors come hoping to experience. Just like bad word-of-mouth for a movie, if the experience falls below expectations visitors will not return, so our interpretative message will not be heard.

From here the lighting should be dependent on the meaning you wish to convey at different points of the tour. Having a clear idea what your interpretative

Demonstration of early cave lighting -
Fox Whistle Cave tour, Waitomo, New Zealand 2013
Photo: Sasa Kennedy

message is will help avoid over-lighting the cave, and assist the guide to maintain group focus on the intended narrative. Ideally there should be room for individual guides to develop their own narratives, so having lighting options, rather than a master switch for each section of cave, is ideal.

Emotional impact should be considered carefully. Do you want your visitors to experience the mystery and awe of the cave's initial discovery, or do you want this section of cave to have the wow factor of a veritable Aladdin's Cave? The lighting in either case will be quite different. The strength of the lights, when they come on, and whether they fade in or switch on are all dependent on the effect you wish to create.

In a film cutting, from shot to shot is generally most effective for moving the story on and does not distract from the narrative. This is because it replicates the way our eyes take in a scene, flitting from area to area, item to item, person to person. Dissolving from shot to shot in a film moves the viewer on slowly and builds a response; overdone it becomes tedious and slows down the pace of the film. The way lights are used in a cave mimics this cutting/dissolving from shot-to-shot or scene-to-scene in a film. Therefore lighting dissolves/ fades should only be used where there is a specific desired result; where a gradual build-up of images will tell the story best. To fade in every light slowly will not increase the impact, merely interfere with the pace of the tour.

The angle of light is also used creatively in films. Generally the light comes from above, as in real life, but this can also be manipulated for effect. Uplighting a feature can give it a threatening aspect. Areas of darkness and interesting shadows can actually enhance the scene; if used effectively they can create drama, if unintentional or overworked they may distract attention or interfere with a desired effect. Of course, just as in a film, you do not want the actual lights to be directly in the line of vision; it ruins the illusion.

COLOUR

The colour palette of a film is carefully selected. On a big production the director, set designers, costume designers and director of lighting are all involved with decisions about it. Thankfully in a cave it is not such a big deal. Highlighting natural colour variations will add interest and create more interpretative opportunities. The colour temperature of the lights used is also important; warm light and cool light will not only affect the way the cave looks but also visitors' emotional response to it.

Another way to add visual interest and different interpretative options to a cave is by the use of coloured lights. Many of you will, no doubt, be wincing (or worse) at the very concept. Fair enough! But this response, while justifiable on many levels, does not take into account the differing cultures from which our clientele is drawn. There are many cultures where colour is a major part of celebrations and festivals – everything from fireworks to costumes, Christmas baubles to body ochre. Bollywood films and ever-popular musicals are bursting with colour. And fantasy is a major part of the culture of childhood. Colour and fantasy have the power to delight. However, in a cave, just as in everyday life, this is a case where less is more. If coloured lights are appropriate for your cave, use in moderation. Like all other lights they should be used to serve the interpretation of the cave, not to create a diversion. Personally, I'd love to see a coloured light option in the Lucas Cave's Cathedral Windows!

TORCHES, LIGHTERS AND LASERS

Methods of highlighting objects or information in a film have changed over time from a simple arrow to more dynamic imagery, such as pulsing light. In a cave the humble torch has long served the same purpose, being a standard and reliable tool for highlighting features of interest, while providing a useful back-up light source. Likewise, lighters continue to do good service as candle doubles, minus the dripping wax.

The advantage of new lighting technology; Egyptian Chamber, Orient Cave, Jenolan Caves
Photo: Sasa Kennedy

The drawback with torches is that sometimes batteries get low and the beam dims; at other times the beam given out is not so useful once the lights are on, or the beam may just be too broad to pick out a precise object.

Lasers, which can overcome these problems, are becoming increasingly popular as interpretative tools. The beam can be seen in all lighting conditions and is vastly superior at pinpointing an exact location. However, this technology also has its drawbacks. First, the light is only as precise as the hand holding it is steady. A wobbling beam (the most commonly seen variety) is just a distraction. More important is the possibility of accidentally directing one into somebody's eyes. During busy periods, when more than one group may be in a cave, the risk increases substantially. If lasers are to be used in this environment, WHS guidelines would indicate there should be some rules governing their safe use.

TABLETS

While a major tenet of interpretation is that it should be site specific, this should not be taken to mean that the site can only be interpreted using what occurs naturally at the site at the time you are there. Maps and other diagrams, for example, may help clarify information. Images of historically significant people are of great interest, given the human hierarchy of interest begins with one's self, then friends, possessions, other humans, animals, plants and way at the bottom of the list, inanimate objects such as rock and mud.

Just as film-makers are constantly improving methods of displaying information, such as 3D animated constructions of historic sites, we too need to consider new dynamic and interactive methods of displaying relevant visual information.

A tablet device loaded with well organized, themed material could be very beneficial in many instances. Just as video games respond to individual players, we must be able to respond to individual interests within our visitor groups. The idea here is not for the tablet to become the focus of the tour, but to be a useful adjunct which can be drawn on as required, for example in response to a question about prehistoric fauna found in the cave. Remember, humans are very visual animals – a picture can save a thousand words and is also more likely to remain in the memory.

In an extensive cave system, with multiple tours running at a time, the use of tablets could be prohibitively expensive at the current time. But for a smaller operator this is a very cost-effective method of updating delivery.

HOLOGRAMS

Holograms, on the other hand, are a big budget item. CGI (computer generated imagery) has enormously advanced the possibilities of the animated film industry and film special effects in general. It also has huge potential in cave interpretation. A well produced hologram could bring your favourite explorer or cave critter to your visitors in glorious 3D. As in film CGI, to allow for the suspension of disbelief it has to be accurate, realistic and convincing. To avoid becoming the star of the show, a role which properly belongs to the cave itself, the hologram should be integral to the interpretation, be selected only when it is the best interpretative tool (rather than as a gimmick) and preferably be optional (not likely at the current cost).

WALKWAYS

Just as the more portable movie camera liberated the cameraman from his (it was always a man back then) static viewpoint, so the option of raised walkways in newly developed or re-developed cave, can liberate us from our ground-level view of the cave. While there are obvious limitations on where a pathway can go in a cave, there is no reason why it should inherently hug the ground - particularly if there are other options for the occasional agoraphobic or vertigo prone visitor. Again, there should be a sound interpretative advantage to be had, rather than using this as a gimmick.

Elevated walkways in Ruakuri Cave, Waitomo Caves, New Zealand
Photo: Sasa Kennedy

SOUND

PORTABLE AMPLIFIERS

There is nothing more irritating in a film than to be unable to properly hear the dialogue. If you cannot hear the words you literally lose the plot. The same can be said of interpretative tours. In caves where visitor numbers are high and groups are loud portable amplifiers should be considered as an alternative to vocal strain. While not ideal in a natural environment, they are small, light and a better alternative to visitors losing the plot through being unable to hear the guide. With a boisterous Spanish tour group as her audience, our guide in Gruta de las Maravillas used a lapel mike and amplifier to great effect.

MUSIC

Music may be used in films as part of the plot, or as a theme for a particular character, but by far its most common use is to manipulate or accentuate the audience's emotional response. Often during a cave tour members of the group are invited to sing to demonstrate the acoustics of the cave. Sometimes this can work very well, but it does run the risk of inflicting on the group someone who is misguided as to their vocal ability. Another disadvantage is that it gives control of an important interpretive tool to someone other than the interpreter – it may result in the creation of a mood at odds with what they have been trying to create.

With sound systems readily available that are suitable for use in caves, using pre-recorded music is a more predictable and consistent alternative. The interpreter can select the option which works best with his/her presentation.

High quality sound is necessary if the music is not to detract from the presentation, but it is equally important to consider copyright of any material which may be used.

SOUNDSCAPES

A soundscape is another means of interpreting the elements of the history of the cave, or even its fauna, but needs to be thought through very carefully if it is to be effective, just as a film soundtrack does. To work well your visitors will need to suspend disbelief. This is something they automatically do when entering a cinema, but in the cave environment that is not the case – they are not prepared. If it is to work effectively the soundscape needs to be seamless.

First you need to be very clear on how you want the sound to work for you; what effect you want to deliver. Remember that humans are very visually oriented creatures, so to create a story using sound exclusively, or as the major component, it will need to be very convincing.

Accuracy is essential. For example, if your soundscape is of the bats, owls or other animals living in the cave you should use recordings of the actual species endemic to the cave (or, if this is not possible, something very similar acoustically). Sounds of fruit bats will not work if your bats are the insectivorous type.

If your soundscape is of the discovery of the cave, or some other historic event, there are some crucial considerations. The script must be utterly believable. First, the language used must be congruent with the time of your historic event. The Shorter Oxford and the Macquarie Dictionary both reference when words first came into common use.

Second, the vocal performers you use will not have the advantage of visual clues to assist them, so they must be quite clear, without sounding as if they are deliberately enunciating. Their voice must sound like the actual type of person they are representing. If it is a farmer, for example, a posh accent will not convince; nor will a mature voice work if the cave was discovered by a youth.

Sound effects should be given careful consideration. What noises would there actually have been? Was there digging; did something fall in? What aspect do you want to emphasise? Be subtle; remember there may not be any visuals, so visitors will be concentrating on just voices and sound effects. Less is more in this case. In addition, perhaps there will be no visuals to distract from inconsistencies in the sound. A continuous atmosphere track, recorded in the same place as the vocals and sound effects, will help to avoid sounds cutting in and out.

The vocals, atmosphere track and any sound effects will need to be recorded in a space with similar acoustics to the cave or they will distract listeners, interfering with the necessary suspension of disbelief. Alternately they may be manipulated by the sound engineer, but this is much harder to pull off successfully.

AUDIOGUIDES

Self-guided tours utilizing audioguides can be a relatively effective way of providing consistent interpretation in controlled situations where a guide is not required for the protection of the cave. They have the wonderful ability to present the commentary in a range of languages, or even provide different narratives for different groups, eg a fantasy story set in the caves to engage young children, alongside a more standard commentary to enlighten their carers. Audioguides value add for non-English speakers, as they can be programmed in a range of languages, meeting the needs of inbound visitors.

Recorded interpretation does, of course, have considerable communication limitations. An audioguide cannot respond to the puzzled expression of a visitor who has not understood some information; it cannot answer questions nor see what is attracting a visitor's attention; it does not have a face to provide visual clues and prompts to the listener; it cannot respond to events as they happen. All of these limitations make it less engaging that an actual guide. To make it as effective as possible requires due effort and expertise.

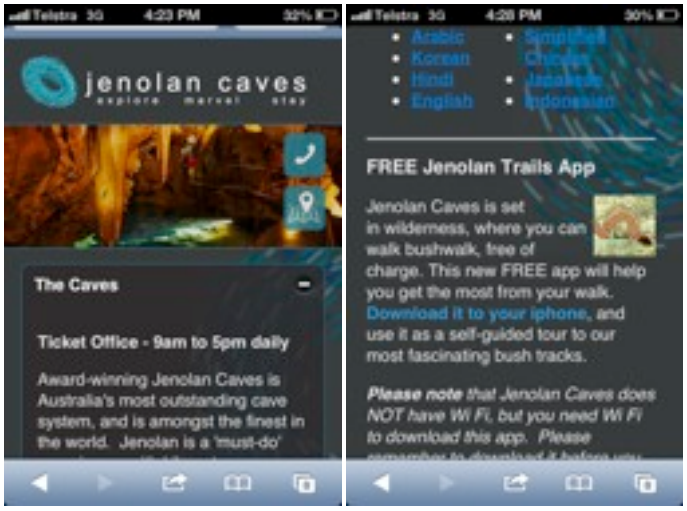
The first consideration is the script. As with any interpretation, the information should come in manageable amounts. An overly complex film plot will turn viewers off; the same is true of a recorded commentary. No more than five major areas should be covered. Attention spans are getting shorter, so make your stops succinct and not overly lengthy. You can consider giving options for listeners to select more information if desired. As there is no opportunity for clarification, it is important that any technical terms used are explained clearly.

Consider carefully the implications of your choice of performer. A well known voice might make your visitors comfortable, but will have the drawback of visitors being aware that this is not really anyone associated with the site. Prior associations may even distract from the content, much like using a typecast actor in a different type of role.

Audioguides provide a tool to present a tour in multiple languages
Photo: Courtesy of the Jenolan Caves Reserve Trust

APPS

Just as the demand for flexibility and instant access has led to downloadable movies, there is a place in karst and cave interpretation for downloadable apps. In a world where instant gratification is the norm visitors can find having to wait for a tour quite an imposition! Self-guided tours can help to ease this discomfort where a cave is already deemed protectable or robust enough for self-guided tours to be an option, or where above ground walks are available. Apps have many advantages over static signage, commentary triggered by movement controlled sensors and even standard audio-guides. First, there is relatively little ongoing cost to cave management and second, additional activities encourage longer stays. For the effective interpretation of the site there are several advantages: the introduction of visual interpretation to support the commentary; the ability to vary levels of information; the ability to engage visitors with the above ground component of the reserve; the ability to use a range of languages. For the visitor apps provide flexibility and low cost or free activities.



The Jenolan Caves app

CONCLUSION

New technology continues to open up opportunities for improved cave and karst interpretation, just as it has allowed the ongoing development and success of film as an integral part of our culture. Just as in film-making, all new technology should be carefully considered as to its relevance, on a case by case basis. The implications of each new technology should be carefully evaluated, and its possible advantages and disadvantages understood, before implementation. When a particular technology is considered advantageous its development and implementation should be carefully planned for maximum interpretative effect and emotional impact, in addition to cost-efficiency.

JAMES McKEOWN: FROM FACT to FOLKLORE and BACK AGAIN - Part 5

Dan Catchpoole

Think back 20 years! What have you achieved in that time? For many of us, a large number of experiences, travels and interactions will jump to mind. Many will bring a smile, some will be embarrassing, others will contain deep regret. Over the last 4 parts of this series I have traced the first 20 years (1824-1844) of convict James McKeown's time in Australia in the hope of unravelling the range of mixed literature which exists about him and his capture by James Whalan which lead to the 'discovery of Jenolan Caves'. For Jenolan's story tellers the links between Jenolan and McKeown are told romantically and fantastically.

> *"McKeown realized the utter hopelessness of his position, Whalan and the troopers had him covered with their guns, the game was up. Gnashing his teeth with rage, his face livid with passion, McKeown uttered an awful curse. 'I'll kill you Whalan, when I get out of this' he hissed between his teeth as troopers put on handcuffs. But although he lived to return from a long term of exile on Norfolk Island, and to revisit the scene of his former exploits he never attempted to carry out his threat. On the contrary, he called on Whalan and asked for a nights shelter." (1)*

However, it is acknowledged that these stories are based on folklore and 'word of mouth' anecdotes. If the stories are true, and McKeown returned to Jenolan to "revisit the scene of his former exploits" (5), we need to discover where he returned from. Previous reports (2-4) in this series have confirmed that following his capture in the Jenolan Valley and conviction for horse theft, James McKeown was indeed incarcerated on Norfolk Island from 1837-1844. However, McKeown did not return to Jenolan directly from Norfolk as is often assumed (6). Rather, McKeown was included in the redeployment of convicts from Norfolk Island to Van Diemen's Land as part of the new, and seemingly radical, probation system which would drive the rehabilitation of the felons. Little is known of McKeown's time on Tasmania where he spent more time than when he absconded to the Jenolan Valley, where he crossed paths with many of the noted Tasmanian gentry and where he was involved in building in many of the colonies landmarks, many are still there today.

James McKeown through Tasmania

In May 1844, McKeown boarded the *Lady Franklin* at Norfolk Island and travelled to Wedge Bay, Hobart arriving 6 June 1844 where he entered the Tasmanian probationary system. The convict assignment system, which McKeown had endured when in NSW, had been the subject of much criticism and review in Great Britain as being often too often lax in punishment and ineffective with convict reform. McKeown was an example of this ineffective penal philosophy. In 1839, a new system of probation was established with nineteen stations being established throughout the state (Figure 1)(7). In the Southern Midlands region, building was commenced in 1834 on 'Jerusalem' Probation Station, the remnants of which are still present in the village of Colebrook (Figure 2) (7). This is one remnant of 75 probation stations established within the colony. Convicts would progress through the probation system undergoing a regime of hard labour, religious instruction and education. This would take place in labour gangs through progressively less severe stages after which they would receive a probation pass, or ticket of leave, and become available for employment by settlers. Pass holders awaiting employment would remain at the probation stations undertaking public labour works, continued good behavior would earn a conditional pardon.

***Figure 1**. Tasmanian Probation Stations (7)*

Figure 2. *Jerusalem Probation Station (7) – red buildings are those still present today*

Tasmanian convict records (8) for James McKeown (Figure 3) record his passage through the probation system where he underwent placement in ten different Probation Stations from1844 to 1847. Listed below are details of his time spent at these stations, the people he may have met and the tasks he contributed to whilst there.

Wedge Bay (2/7/1844) - Appropriation records (Figure 4) identify convict #13073 arriving at this convict depot (9). James McKeown, a kitchen gardener who had committed the offence of 'stealing a horse', tried in Bathurst and prior to that, County Down, Ireland. 21 months. Noted

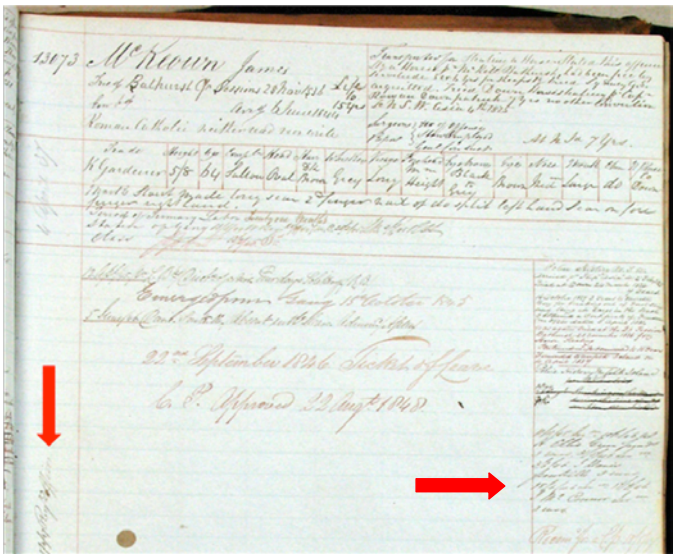


Figure 3*. The Convict Register of Male Convicts 1844, Tasmanian Archive (8). Red arrows indicate listing of assignments within the Tasmanian probation system.*

as age 64 – which would have McKeown date of birth as 1780. Previous records indicate he was born in 1793. Given the other descriptive information for this convict corresponds directly with the James McKeown of Jenolan history, it is likely that this anomaly is clerical error (10).

Seven Mile Creek (20/10/1844 – 14/11/1844) was a Hobart town out-station which functioned between 1842-44. Despite being a short lived station which was auctioned in 1847, its convicts still managed to find themselves in mischief and before the courts – although the judge found it difficult to identify which one of the 300 men present at the station was responsible for the crime (11). (Figure 5)

Lovely Banks, (1/5/1845) (station 1839-45) Tasmanian mid-lands is rich farm country (12). McKeown was present with boy convict James Harrison (who also went to Rocky Hills). The report from Harrison life indicates that getting to these stations involved walks for days at a time. Travelling magistrates would also go between stations to deal with charges of insolence and disobedience (13). (Figure 6)

Rocky Hills (3/7/1845) (station 1841-48) – McKeown was noted as spending time at Rocky Hills probation station, an isolated centre 15km south of present day Swansea. Remnants of the probation system are still present

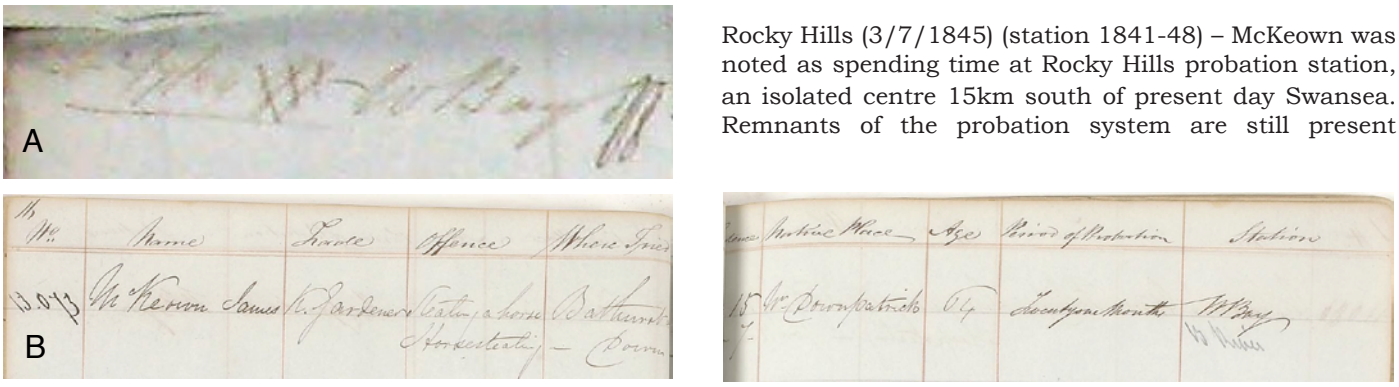


Figure 4. *(**A**) James McKeown placement at Wedge Bay ('2/7/44 xxx WBay') Probation Station (8)*
*(**B**) Listing from the Appropriation Records for Wedge Bay Probation Station Tasmania 13 June 1844 (9).*

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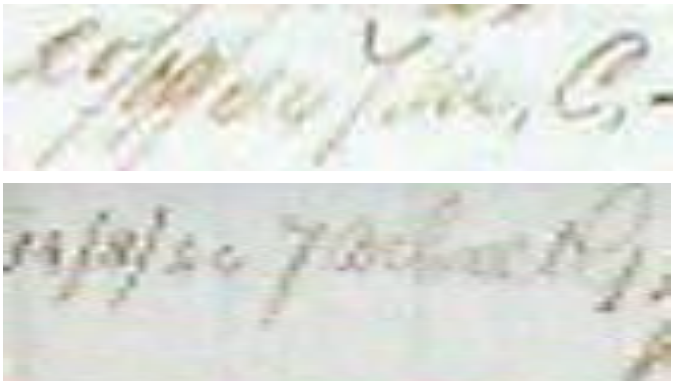


B

COMMISSARIAT.

COMMISSARIAT OFFICE.

Hobart Town, 8th May, 1847.

BUILDINGS AT SEVEN-MILE CREEK.

At 11 o'clock on Monday, the 31st instant, Mr. Stracey will sell by public auction, at his rooms, Elizabeth-street—

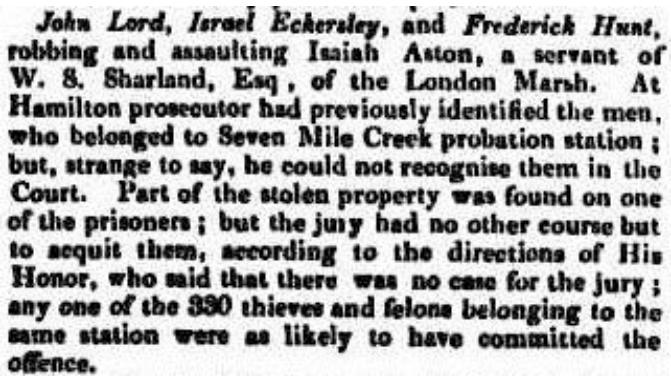
All the Buildings belonging to the late Convict Station at the Seven-mile Creek, as they may then stand.

Immediate possession will be given, and payment required in cash on the fall of the hammer.

Further particulars may be ascertained on application at the office of the Auctioneer.

GEORGE MACLEAN, *Deputy Commissary-General.*

C



John Lord, Israel Eckersley, and *Frederick Hunt*, robbing and assaulting Isaiah Aston, a servant of W. S. Sharland, Esq, of the London Marsh. At Hamilton prosecutor had previously identified the men, who belonged to Seven Mile Creek probation station; but, strange to say, he could not recognise them in the Court. Part of the stolen property was found on one of the prisoners; but the jury had no other course but to acquit them, according to the directions of His Honor, who said that there was no case for the jury; any one of the 330 thieves and felons belonging to the same station were as likely to have committed the offence.

Figure 5. *Seven Mile Creek:* ***(A)*** *"20/10/44 7MC,"; "14/11/44 7 Mile Creek" (8)*
(B) *The Courier (Hobart), Saturday 22 May 1847 (11)*
(C) *The Courier (Hobart), 8 March 1845 (11)*

including the Three Arches and Spiky dry stone bridges, the former being built in 1845 when McKeown was there. (Figure 7) (14). William de Gillern was in charge of Rocky Hills probation station until Charles La Trobe, Lieutenant Governor of VDL (1846-47) visited at the end of 1846, writing a scathing report of the 'utter abandonment of all order and decency observable at Rocky Hills' (15) La Trobe concluded that 'The necessity of making an example of all those participating in this disgraceful state of things was acknowledged, and steps

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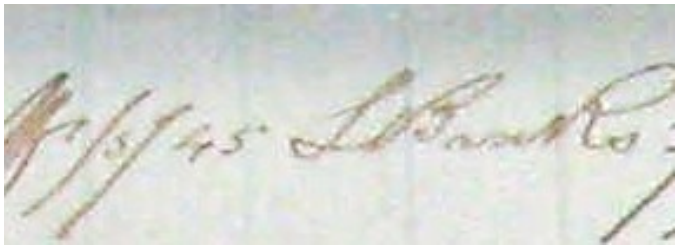

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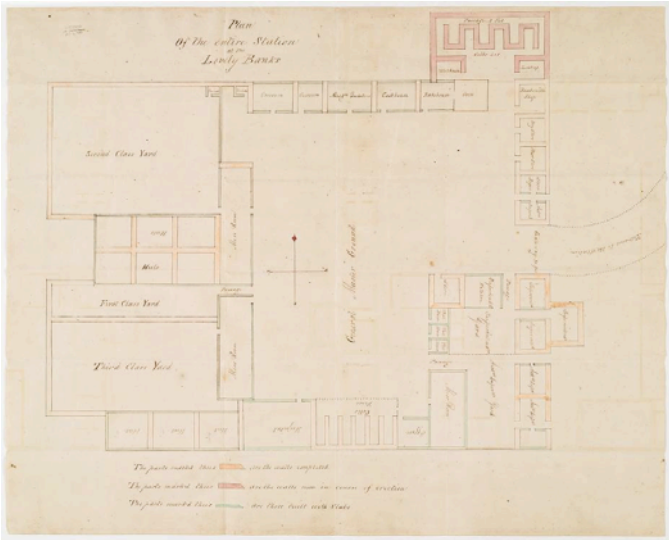

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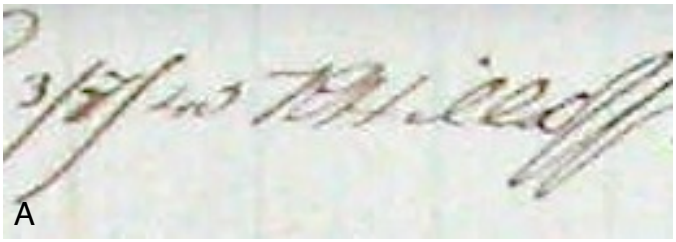
Figure 6. *Lovely Banks:* ***(A)*** *"1/5/45 LBanks" (8)*
(B) *Ground plan of prison buildings, Tasmania, 1842-1848 showing entire station at the Lovely Banks, July 4, 1848 (13)*
(C) *1946 aerial photo of archaeological remains of Lovely Banks Probation Station, Tasmanian Lands Department (13)*



taken to effect a thorough change in the superintendence and management of the station'. He summed up by saying that 'the station has little to recommend it but its inaccessibility' (15).

Green Ponds (11/11/1845 – 10/1/1846), now known as Kempton, a probation station was established between 1840-41 was once a thriving centre of industry boasting a flour mill, brewery and numerous hotels and coaching inns. Many tradesmen, along with McKeown were assigned to William Henry Ellis, an ex-convict who had made it in the colony, establishing various businesses including a commercial inn and had just completed building Dysart House designed to meet the needs of the more upper class traveler (Figure 8) (16). Dysart House

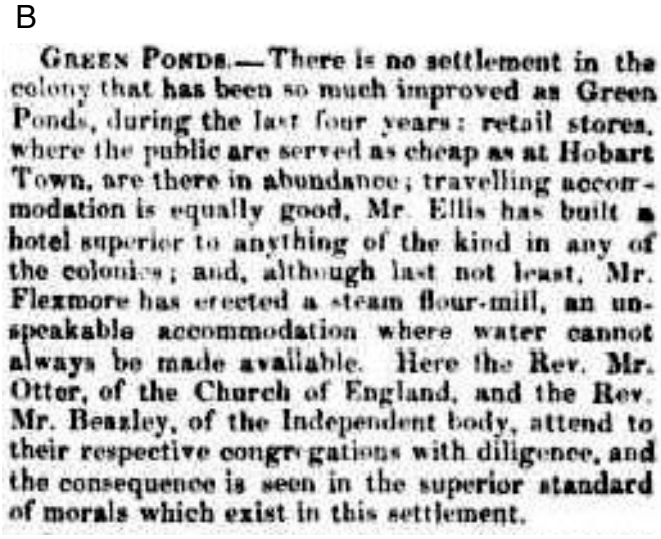


Figure 7 . *Rocky Hills: (**A**) "3/7/45 R Hills" (8)*
(B) *Rocky Hills, Swan Port, V.D.L., a deserted probation station by Fredrick Mackie. National Library Australia (16)*
*(**C**) Convict built bridge at Mayfield Bay a few hundred metres south of the convict probation station at Rocky Hills (16)*
*(**D**) William de Gillern (left) and Charles La Trobe (right)*

Figure 8. *Green Ponds: **(A)** "11/11/1845 to 10/1/1846 W.H. Ellis Green Ponds 3 weeks" (8)*
(B)*Colonial Times (Hobart, Tas 1828-1857), Tuesday 7 October 1845. (16)*
*(**C**) Dysart House today (17).*

was owned and recently sold by food critic, journalist, festival entrepreneur and bon vivant Leo Schofield (17).

Pontville 31/2/1846 – 3/6/1846 (station 1830-47) was the next probation station for James McKeown when he was assigned for three weeks to John Davis licensee (1839-1859) of The Castle Inn and Brighton Hotel, presently known as Epsom House (18) (Figure 9). Davis also ran The Regulator coach service to Hobart. Epsom House, with its ball room and 'Methodist chapel' was the social hub for Pontville, which itself was a major centre on the major transport highways through Tasmania. Davis was not removed from trouble and found himself before the courts which in 1843 William Cook was found guilty of having stolen 71 silk handkerchiefs, valued at £17 from Davis store (19). Davis was also a witness in one of Australia's first civil lawsuits for 'slander'. The case of Richardson vs Armytage in 1844-46 (20) heard how Davis, at the behest of his wife, removed his children from the school run by Mrs Eleanora Richardson, a young widow of "considerable personal attraction" leading to the school's ruin. This was on the basis of a letter circulating through the local society produced by Mr. George Armytage, a gentleman of considerable property, which was claimed to have been written by Richardson 'which the most common prostitute would not have written' (20). The letter was proven to be a forgery based on Mrs Richardson's inability to spell being the mitigating evidence.

Jerusalem 18/6/1846 – 17/7/1846 (station 1841-48) probation station was listed on Tasmanian heritage register in 2010 as much of the original station still exists, although as private residence now (Figure 2) (7). The buildings, made of fine sandstone are still mostly present today (21). In 1846 James McKeown was assigned for John McConnon, (Figure 10) where they were involved in work building a jail and courthouse. There were 800 convicts working in the area for a few years with many working in the quarries and coal mines. Jerusalem had a hospital and a chapel, along with the usual barracks and kitchen quarters. After the probation system failed and was abandoned in 1848 McConnon became the freehold owner of Jerusalem station in 1856, called it 'Jerusalem House' (22). The township was revived by the coming of the railway and was given its present name of Colebrook in 1894.

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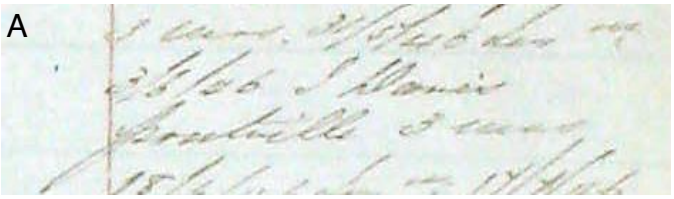

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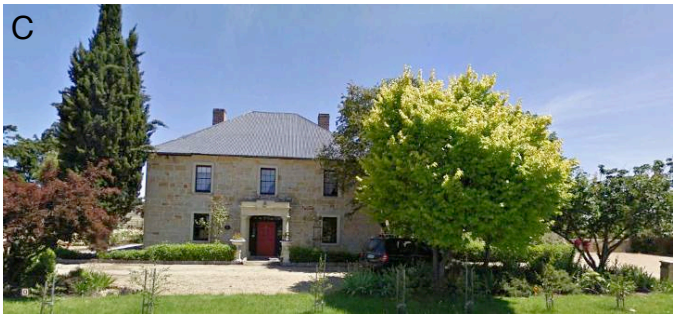

Figure 9. *Pontville: (**A**) "31/5/1846 - 3/6/1846 J Davis Pontville 3 weeks" (8)*
*(**B**) Epsom House, Pontville 1860-70 (18)*
*(**C**) Epsom House today (www.epsom.com)*

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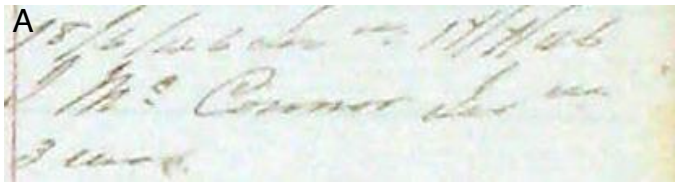

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Figure 10. *Jerusalem: (**A**) "18/6/1846 – 17/7/1846 J McConnon Jrsm 3 weeks" John McConnon, Jerusalem (8)*
*(**B**) Jerusalem today (21)*

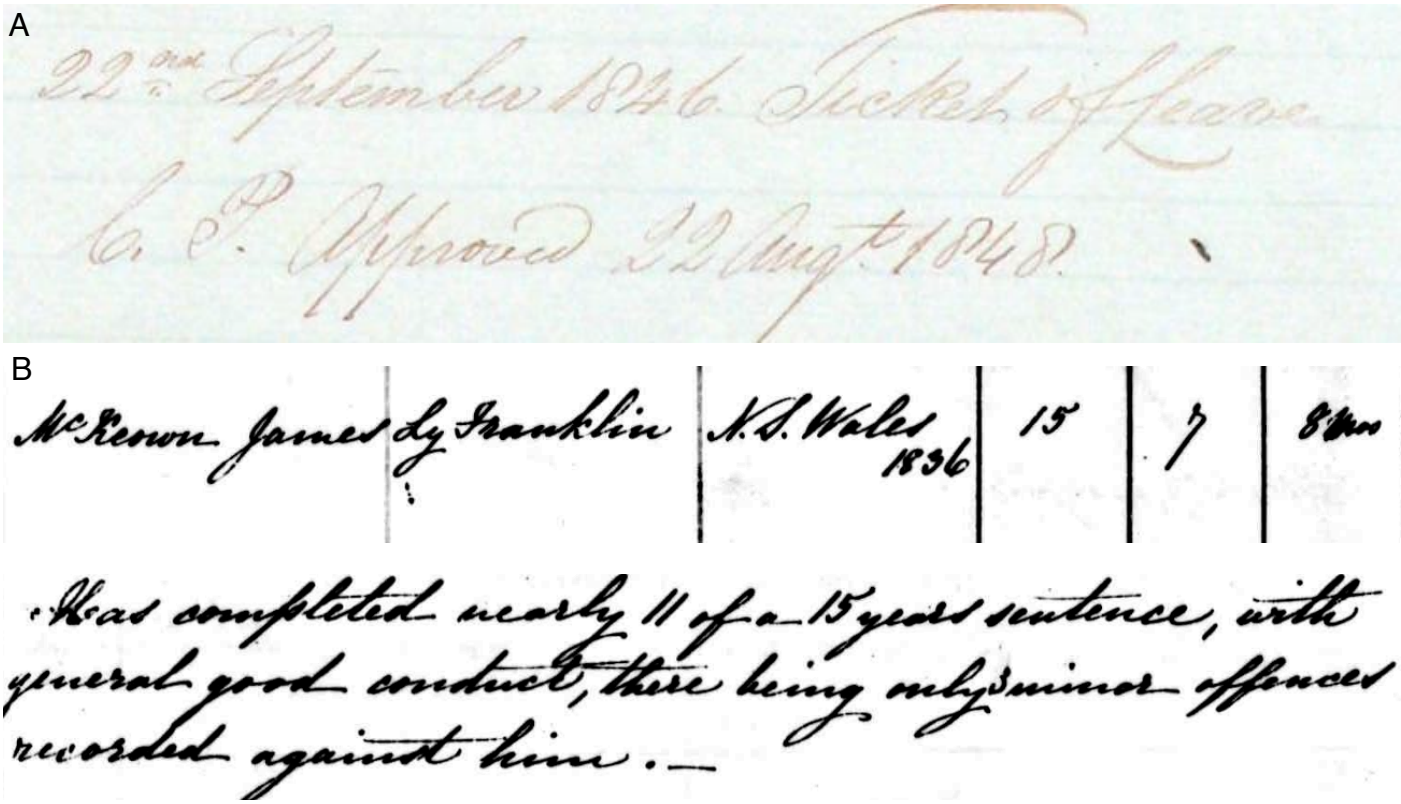


Figure 11. *Conditional Pardon for James McKeown (**A**) Note on Convict Conduct Records (8) (**B**) Convict Record, NSW, for convicts returning from Norfolk Island (23)*

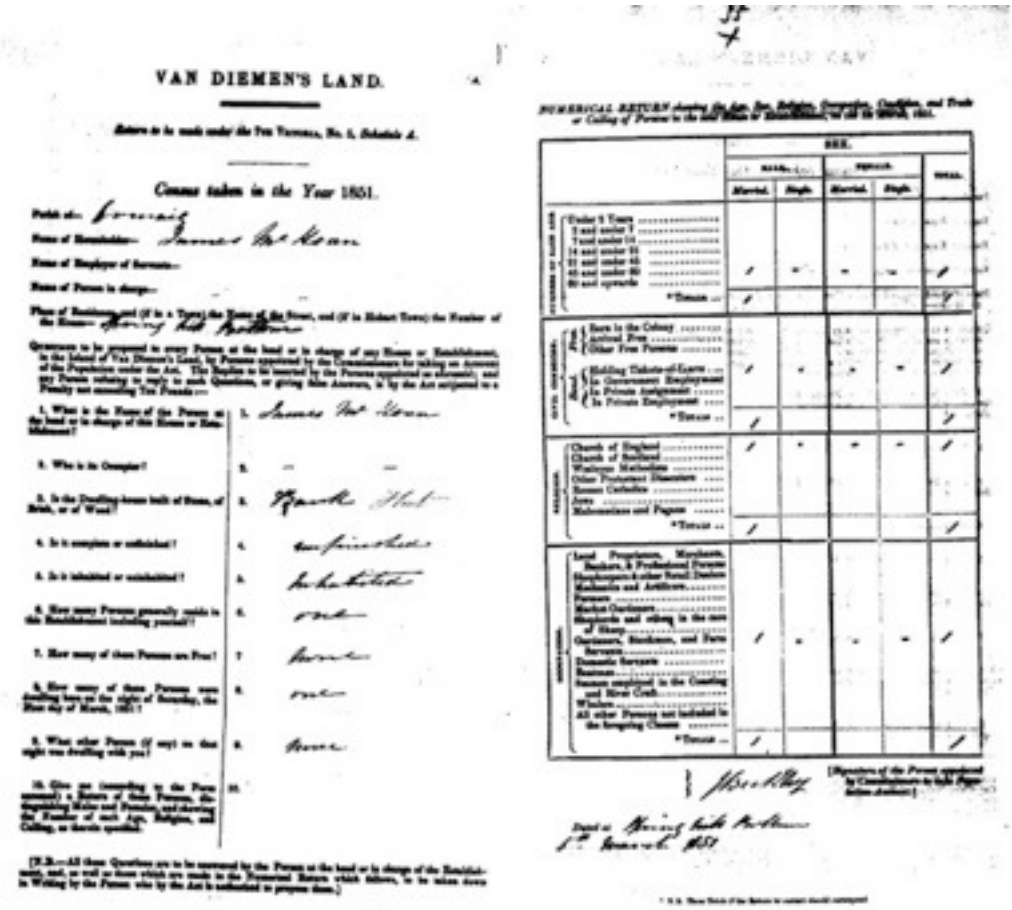
The Conclusion of James McKeown's Detention

James McKeown eventually received his next Ticket-of-Leave on the 22nd September 1846 (Figure 11) (8, 23) granting him freedom to work and live within a given district of the colony before his sentence expired. Subsequently, it is noted in McKeown's appropriation record that he spent time working in 'P.M.' 18/3/1847 (unknown location) as well as the garrison towns of Campbell Town 23/3/1847 (station 1836-49) and Ross 8/4/1847 (station 1839-51) (image not shown) (8). A Conditional Pardon was finally awarded to James McKeown on 22nd August 1848, which marked the conclusion of his criminal detention, but prevented him from returning to England or Ireland (23).

The census of 1851 (24) records a 'James McKoan' living alone in a bark hut in Spring Hill Bottom, across the main highway from Jerusalem in the middle of the Tasmanian midlands where Jenolan's James McKeown spent his time in the probation system. The spelling of the name is not untypical for McKoan and McKeown to be linked and it is interesting that his occupation is listed as 'gardener', he was a convict with a ticket-of-leave and he was between the age of 41 and 60 – which fits the situation James McKeown would have found himself at that time. However, if this census record is the James McKeown whose capture led to the discovery of Jenolan Caves we can discern a few other interesting pieces of information: (i) he lived alone, but was listed as being 'married', (ii) he now considered himself to be of the Church of England, not Catholic and (iii) he likely did not have too much capital, let alone desire, with which to travel. (Figure 12)

So, did James McKeown "revisit the scene of his former exploits" (6) as is often considered? Unlike the other convicts and freeholders James McKeown listed in his records as being his 'keepers', we see here in 1851, 27 years after his arrival in Australia, a man with little to show for himself by way of wealth nor human relationship. To meet with his captor as previously quoted, he would have had to travel soon after the 1851 census, James Whalan died in 1854. Charles Whalan was alive and well. However Jeremiah Wilson would have been a new arrival to the colony of NSW and but 12 years old in 1851. In 1866, when Jeremiah officially took up service as 'Keeper of the Caves', James McKeown would have been at least 73 years old and rather 'battle weary' one would presume.

Many a tale has been told about James McKeown and his involvement with Jenolan history. Some of the more fanciful tales will be addressed in the next installment of this series and historical context will be provided to accept, deny or clarify what truth these tales have within them.


VAN DIEMEN'S LAND.

Census taken in the Year 1851.

Figure 12. *Record for 'James McKoan' of 'Spring Hill Bottom' from the Tasmanian Census of 1851 who is listed as being in Parish 'Ormaig'. The Parish map included notes this parish with a red circle.*

References

1. Ernest Mellor, Transcript of Oral Presentation – visit in 1900 – DRC note – this is what he would have been told by the guides during his visits – 60 years old 'facts'
2. D.R. Catchpoole, 'James McKeown: From Fact, to Folklore to Legend to Fable…and back again.' Part 1, Binoomea Vol 135, 2008'
3. D.R. Catchpoole, 'James McKeown: From Fact, to Folklore to Legend to Fable…and back again.' Part 2., Binoomea Vol xxx, 2009.
4. D.R. Catchpoole, 'James McKeown: From Fact, to Folklore to Legend to Fable…and back again.' Part 3., Binoomea Vol 145, 2011.
5. The Argus. 1899
6. J.J. Foster, "The Jenolan Caves, New South Wales", 1890, Pub: Charles Potter, Government Printer, Sydney.
7. www.thousandislandslife.com/BackIssues/Archive/tabid/393/articleType/ArticleView/articleId/491/Patriot-Chronicles-Four-Who-Didnt-Come-Home.asp
8. "Conduct registers of male convicts arriving in the period of the probation system." Tasmanian Archives. http://search.archives.tas.gov.au/default.aspx?detail=1&type=I&id=CON33/1/55
9. Convict Appropriation Lists 1843-1844, Tasmanian Archives, http://search.archives.tas.gov.au/default.aspx?detail=1&type=I&id=CON27/1/10
10. D.R. Catchpoole, 'James McKeown: From Fact, to Folklore to Legend to Fable…and back again.' Part 4., Binoomea Vol xxx, 2012.
11. The Courier (Hobart), Saturday 22 May 1847; The Courier (Hobart), 8 March 1845.
12. http://www.users.on.net/~ahvem/page3/page2/page4/page69/page69.html
13. Assignment lists and building plans, Tasmania, ca. 1840-1849, State Library NSW, Call No. DLADD 564 / nos. 200-217. http://acms.sl.nsw.gov.au/item/itemdetailpaged.aspx?itemid=949839;
Convict sites of the Tasmanian Southern Midlands, http://www.southernmidlands.tas.gov.au/convict-sites/
14. http://www.paulhagon.com/playground/nla/geo/pi/nla.pic-an4765284; http://journals.worldnomads.com/bj/photo/9827/267120/Australia/Convict-built-bridge-at-Mayfield-Bay-camping-area-on-the-East-Coast-of-Tassie
15. House of Commons Parliamentary Papers, 1847–48, 'Convict discipline and transportation, correspondence on the subject of convict discipline and transportation (in continuation of the papers presented 16th February, 15th April, and 14th May, 1847)' p. 35, CJ Latrobe, Esq., Acting Governor of Van Diemen's Land, to Earl Grey, 31 May 1847.
16. Colonial Times (Hobart, Tas 1828-1857), Tuesday 7 October 1845.
17. http://smh.domain.com.au/real-estate-news/schofield-sells-22room-tassie-mansion-20121015-27n0c.html
18. http://www.epsomhouse.com/?page_id=219
19. http://www.law.mq.edu.au/research/colonial_case_law/tas/cases/case_index/1843/r_v_cook/
20. Geelong Advertiser and Squatters' Advocate (Vic. : 1845 - 1847), Wednesday 22 April 1846.
21. http://www.heritage.tas.gov.au/media/pdf/June%202010.pdf
22. List of persons listed to be on electoral role – 1856. "John McConnon….Freehold Jerusalem House.", The Courier 1856.
23. Conditional Pardon Public Record Office (NSW State Archive) HO 10/60.
24. Census Records, Tasmanian Archives.

YARRANGOBILLY CAVES
Kosciuszko National Park

CAVE GUIDES WORKSHOP
Sunday 4 – Tuesday 6 May 2014

ACKMA AGM 2014
Friday 9 – Sunday 11 May 2014

Yarrangobilly Show Caves

North and South Glory Caves. First explored by Europeans in 1834, South Glory Cave contains massive decorations and vast rock piles. Information signs and automated features lights make it possible for you to explore this cave at your leisure. The North Glory Cave has a common entrance with the South Glory through the Glory Arch, and features immense stalactites remarkable helictites, Smuggler's Passage and the Devil's Kitchen.

Jersey Cave. Noted for its rare displays of black and grey flowstones, the cave features some of the most stunning and diverse cave decorations found at Yarrangobilly.

Jillabenan Cave. Features include impressive displays of some of the most delicate cave formations to be found. Straws, shawls, cave corals and helictites can be readily seen throughout this cave.

Adventure Caving - Sunday 4-May, Thursday 8-May and Friday 9-May

Adventure caving (NPWS commercial tour development):

- Mill Creek Cave – Abseil & Cave
- River Odyssey – Diversion Tunnel & River Cave

Wild caving – Yarrangobilly Karst Area:

- Eagles Nest Cave and Natural Bridge Karst Walk;
- East Deep Creek
- Restoration Cave

YARRANGOBILLY CAVES
Kosciuszko National Park
CAVE GUIDES WORKSHOP
Sunday 4 – Tuesday 6 May 2014

Cave Guides Workshop
For two days and three nights cave guides from around Australia will gather at Yarrangobilly Caves in Kosciuszko National Park. They will network with other guides, learning more about caves and karst, cave tourism and experience development; all while sharing their experiences and skills with other cave guides.

The program includes:
- Exploring the surface karst of Yarrangobilly Caves and the development of the Natural Bridge karst walk
- Cave re-developments - Cave lighting, the old and the new–
  - North Glory Cave, redevelopment and the education market
  - South Glory Caves, creating a point of difference
- Lampenflora management and the cave guide
- ANSTO research - Reconstructing past environment change using spelothems
- The North Glory Sooty Owl and research links with Naracoorte Caves, SA – Liz Reed and Steve Bourne.
- Caves House – closed for over 40 years, now redeveloped and open, were to next? What are the opportunities and limitations for expanding visitor experiences in nature-based tourism and adventure cave tours?
- Show Cave tours – Yarrangobilly guides and Andy Spate will guide your discussions and raise the questions about 'how, what, why, and when'.
- NPWS Show Cave Management in NSW, the realignment / restructure and the HR challenges
- Participate in the new (non cave) guided tours offered at Yarrangobilly:
  - Precinct Eco Tour – go behind the scene

ACKMA AGM 2014
Friday 9 – Sunday 11 May 2014

In 1987, the Australasian Cave Management Association (ACMA) was formed at a meeting held at Yarrangobilly Caves during the 7th Conference in NSW; it's now time for another ACKMA visit. A lot has changed.

Friday 9-May-14

7:30 pm	Attendees arrive. Welcome BBQ - Caves House 1917

Saturday 10-May-14

7.00 am – 8.30 am	Breakfast - Caves House 1917
9:00 am	ACKMA Committee Meets – Caves House 1901 Conference Room Attendees 4 x group tours of Show Caves: Jillabenan Cave, Jersey Cave, North Glory and South Glory Caves.
11:00am	Morning tea
11:30 am	ACKMA Annual General Meeting – Caves House 1901 Conference Room
1:00 pm	Lunch – Caves House
2:00 pm	4 x group tours of Show Caves: Jillabenan Cave, Jersey Cave, North Glory and South Glory Caves.
3:00 pm	Afternoon tea
3:30 pm & 4:30 pm	Eco Tour - behind the scenes, power generation, con-generation plant, STP
3:30 pm & 4:30 pm	Cave House Tour – heritage building management, adaptive reuse, sustainable development.
7:00 pm	AGM Dinner – Bistro 1488, Cabramurra (Mt Selwyn on the way and Snowy Hydro)

Sunday 11-May-14

7:00 am – 8:30 am	Breakfast Caves House 1917 Attendees depart
9:00 am	Blue Waterholes – Cooleman Karst area, OR Wild Caving – Yarrangobilly Karst Area – Eagles Nest Cave, East Deep Creek Cave, Restoration Cave, Old Inn

Monday 12-May-14

7:00 am – 8:30 am	Breakfast Caves House 1917
9:00 am	Remaining attendees depart.

BOOKING FORM

CAVE GUIDES WORKSHOP (CGW)

Sunday 4 – Tuesday 6 May 2014

ACKMA AGM 2014

Friday 9 – Sunday 11 May 2014

CONTACT DETAILS

Name :

Address:

Telephone: (BH) (Mobile)

Email Address:

Which caves are you associated with?

Special dietary requirements?

LOGISTICS

Arrival date: Departure date:

Transport method:

☐ Tick if you need a lift from Canberra Airport on Friday 9th for the ACKMA AGM?

ARRIVING EARLY? Or looking for something to do on the in between days?

Please indicate your cave preference

WHEN	Early	In Between
Show Caves (also shown during CGW & ACKMA AGM):	**Sun 4- May**	**6 & 7- May**
South Glory Cave	☐	☐
Jersey Cave	☐	☐
Jillabenan Cave	☐	☐
Discovery Cave Tours:		
Castle Cave	☐	☐
North Glory Cave	☐	☐
Discover Adventure Cave Tours: (NPWS commercial tour development)		
Mill Creek Cave – Abseil & Cave	☐	☐
River Odyssey – Diversion Tunnel & River Cave	☐	☐
Adventure Caving:		
Eagles Nest Cave and Natural Bridge Karst Walk	☐	☐
East Deep Creek Cave	☐	☐
Restoration Cave	☐	☐

CAVES GUIDES WORKSHOP: Sunday 4 – Tuesday 6 May

☐ $180 for Registration including meals (Sun 4th - Wed morning 7th May) OR
☐ $45 per day for registration (includes morning and afternoon teas, lunch, and activities)

CAVES HOUSE ACCOMMODATION (including linen) – *Please tick your preference*
1901 Caves House – accommodate 14 people in 9 bedrooms with 3 bathrooms:
☐ $60 per night - Single room
☐ $40 per person per night - Double room
☐ $25 per person per night - Multi-share room (3 people)

1917 Caves House – After being closed for over 40 years, it was completely renovated and only opened to the public in 2013, it accommodates up to 24 people in 11 bedrooms:
☐ $100 per night - Single room
☐ $77 per person per night - Double room
☐ $77 per person per night - Twin Share (2 people)
☐ $47 per person per night - Multi-share room (4 people)

ACKMA AGM - Friday 9 – Sunday 11 May 2014

☐ $130 for registration, meals (Friday evening 9th May to Monday morning 12th May) OR
☐ $40 per day for registration (includes lunch, refreshments, activities)

Caves House Accommodation (including linen) – *Please tick your preference*
1901 Caves House – accommodate 14 people in 9 bedrooms with 3 bathrooms:
☐ $70 per night - Single room
☐ $50 per person per night - Double room
☐ $30 per person per night - Multi-share room (3 people)

1917 Caves House – After being closed for over 40 years, it was completely renovated and only opened to the public in 2013, it accommodates up to 24 people in 11 bedrooms:
☐ $115 per night - Single room
☐ $85 per person per night - Double room
☐ $85 per person per night - Twin Share (2 people)
☐ $60 per person per night - Multi-share room (4 people)

Yarrangobilly Caves ACKMA 2014 POLO-SHIRT ORDER - $30 each:

☐ Navy or ☐ Slate, coloured Polo Shirt with orange piping & embroidery.

Mens	XS	S	M	L	XL	2XL	3XL	5XL
Half chest (cm)	53.5	56	58.5	61	63.5	66	68.5	74

Ladies	8	10	12	14	16	18	20	22	24
Half chest (cm)	46.5	49	51.5	54	56.5	59	62	65	68

Note: The half-chest is the measure across the T-shirt when laid flat. Please measure your current clothing to compare and order your preferred size.

TOTAL COST

Cave Guide Workshop

☐ Registration: $180 or [$45/day x _____ days] = _____

☐ Accommodation: $_____/night x _____ nights = _____

Additional Accommodation pre & post Cave Guide Workshop

☐ Accommodation: $_____/night x _____ nights = _____

We'll assume you are staying in the same accommodation type you have selected above, at the same rate as for the Cave Guides Workshop.

ACKMA AGM

☐ Registration: $130 or [$40/day x _____ days] = _____

☐ Accommodation: $_____/night x _____ nights = _____

Polo-shirts

☐ Navy: $30 x _____ Size: _____ = _____

Transport - pick up & drop off Canberra**: $30 each way =**

TOTAL: _____

PAYMENT:

Please find enclosed my payment of $ . . . . . , by:

☐ Cheque – (payable to the Office of Environment and Heritage, OEH)

☐ Visa ☐ Mastercard ☐ Bankcard No ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Cardholder's name: Expiry Date:

Cardholder's signature: Date:

Notice of Annual General Meeting

Notice is given that the Annual General Meeting of the Australasian Cave and Karst Management Association Inc will be held on Saturday 10 May 2014, 11:30am at Caves House, Yarrangobilly, New South Wales (Australia).

The ordinary business of the meeting will be:

1. To confirm the minutes of the previous annual general meeting
2. To receive Committee reports on the transactions of the Association during the preceding year
3. To elect officers of the Association and the ordinary members of the committee
4. To receive and consider the financial statement submitted by the Association to members in accordance with legislation

The special business of the meeting will be:

5. To set the annual membership fee
6. To consider any nominations for Fellows and Life Members

Agenda and agenda items

An agenda will be circulated via the ACKMA email group at least two weeks prior to the AGM. Where members have an item they wish to place on the agenda, please advise the Executive Officer by 15 April 2014. If you are not on the email group, please see the details below.

Committee and officer nominations

Nominations must be received by the Executive Officer at least seven days prior to the AGM. Forms will be circulated via the ACKMA email group. The forms will include details for submitting nominations. If you are not on the email group, please see the details below.

Proxy forms

If you are unable to attend the AGM you may appoint a proxy for voting purposes. Proxies must be received by the Executive Officer at least 24 hours before the start of the Annual General Meeting. Forms will be circulated via the ACKMA email group including details for submitting proxies. If you are not on the email group, please see the details below.

Not on the email group?

Members who wish to receive agenda, nomination forms, or proxy forms in some other way than the email group, please advise executive.officer@ackma.org, or via PO Box 53, Waitomo Caves, New Zealand, fax +64 7 8781051, phone +64 21 1466828

A SHOW CAVE ROAD TRIP from OHIO to TEXAS

John Brush

A drive from Pennsylvania to Dallas in Texas by the most direct route on Interstate Highways is an easy 1400 mile (2300 kilometre), 21 hour trip. Or so says Mr Google. However, detour to visit a few show caves, look at a couple of non-karstic sights and throw in a rest break or three and it somehow became a 3500 mile (5600 kilometre), 16 day journey across 11 states.

In October last year, Marjorie and I took the opportunity of a visit to Pennsylvania to travel across a part of the United States that we had not previously seen. Rather than fly back to our departure point in Dallas, we decided to drive and take in some of the sights along the way, including obligatory stops at Marengo Caverns in Indiana (owned by ACKMA member Gordon Smith), Mammoth Cave in Kentucky (by far the longest known cave in the world) and the spectacular Caverns of Sonora in Texas. As we meandered our way south and west, we also visited a number of other show caves, including several that were recommended to us by Gordon.

In the end we squeezed in 14 tours in 11 caves operated by 10 organisations in 5 different states. Our original intentions were not so cave-focussed, but we were in the US at the time of the Government shutdown last year and so, with National Parks and other Government properties closed, we looked for alternative things to do.

Apart from Marengo Cave and Diamond Caverns, where our visits were complimentary, courtesy of Gordon Smith, all tours were paid for.

Ohio Caverns (Ohio)

The flat farming country of central Ohio does not look to be promising cave country. There is no outcrop and the landscape bears the hallmarks of glaciation. However, on approaching the cave property, a low ridge rises about 30 metres out of the corn fields and while there is still no outcrop, a signpost said there was a cave. Two tours are offered and we arranged to do both in a morning. Tim Grissom, the genial manager soon lined us up with a guide and we followed him onto a shuttle bus for the 500 metre journey to the original entrance to the cave and the one used for the Historic Tour. The cave originally had no entrance but was discovered in 1897 after a small amount of digging at the bottom of a depression. At that time, the passages were almost completely filled with sediment and so a great deal of material had to be removed before the cave could be opened to the public. In 1925, the digging broke through to open passages with spectacular decoration and after another entrance was excavated, the first section of cave was closed. It remained so until 1997 when it was redeveloped for the historic tours in celebration of the centenary of the cave's discovery. The cave is a fissure-like system developed along joints. Passage cross section is typically T-shaped. There are two levels but only glimpses of the muddy lower level are seen during the 1.2 kilometre tour.

The Crystal King, a 1.5m stalactite in Ohio Caverns
Photo: John Brush

The Natural Wonder Tour is Ohio Caverns' most popular. It enters through another excavated entrance and meanders through more fissure passages, in places modified by breakdown of roof slabs. Not as much fill is evident in this part of the cave and there are many pure white stalactites and short columns. In places there is manganese and iron mineralisation, resulting in black, orange and red staining on walls. While the calcite speleothems do not appear to have taken up these colours, some have what appear to be a manganese and iron-rich base, or on some, a crust. An iconic feature of the cave is the Crystal King, a white conical stalactite.

Iron and manganese-rich speleothem growth in Ohio Caverns
Photo: John Brush

Staff member Larry Wyman in Marengo Cave
Photo: John Brush

It does not look all that impressive in photos lacking a scale figure, but in the flesh it is an imposing 1.5 metres long. The feature is seen towards the end of the 1.5 kilometre trip which emerges through yet another artificial entrance.

With the iron and manganese colourings and contrasting pure white calcite decorations, the cave lives up to its claim of being "America's most colorful (sic) caverns". The Natural Wonderful Tour is a must-see for all, while the Historic Tour will appeal most to fissure and wall feature aficionados.

Marengo Cave (Indiana)

Marengo Cave is set in a rich agricultural area in southern Indiana and is owned by Gordon and Judy Smith. Marjorie and I first met Gordon and Judy in 1997 during an IUS field trip in Switzerland. We have caught up with them on several occasions since and each time they implored us to visit their cave. Our trip last October looked like an opportunity. However, constraints imposed by our respective schedules meant that at the time we planned to be in Indiana, Gordon and Judy would be some distance away at a meeting of the US National Caves Association (the US-equivalent of ACKMA). Not to worry, Gordon said he would arrange for his staff to dust off the red carpet. And they did. The welcome was a bit embarrassing and were later shown through the cave on our own special tour by Larry Wyman, whose family has been associated with the cave for decades.

Marengo Cave was discovered by school-age children in 1883 and opened to the public later that year. A more convenient entrance was dug in 1910. In 1979, construction of a second entrance enabled through trips and the option of second tour route. In 1985, the cave was designated as a US National Landmark.

The 1600 metres Dripstone Trail starts at the 1979 tunnel and enters a spacious meandering fossil stream passage. The cave is developed in horizontally-bedded slabby limestones and there are extensive areas of flat roof and some large breakdown slabs. Much of the floor is silt or clay fill, but in places the fill has been covered by breakdown slabs or flowstone. There are areas of attractive decoration, including extensive gour cascades, both active and dry.

One of the largest parts of the cave is known as the Penny Ceiling Room. Here, a layer of sticky clay on the roof provides a welcome alternative to the wishing pools found in many other US and European caves. Many years ago, it was discovered that if a coin was thrown at the roof, it quite often stuck there. This soon evolved into a throw-a-one-cent-coin-and-make-a-wish-if-it-sticks tradition. Every so often, tall ladders are taken into the cave and the coins are laboriously picked off the ceiling for the benefit of local charities. To help boost the value of the haul, Gordon apparently likes telling visitors they get ten wishes for a dime (10 cents).

From the Penny Ceiling area, the trail continues along the spacious fossil stream passage and eventually reaches steps leading up to the 1910 tunnel, marking the end of the tour.

Rather than exit the cave at this point, we decided to continue straight onto the Crystal Palace Tour route with Larry. This is the shorter of the two tours offered at Marengo and appeals more to those who want wall-to-wall decoration and who don't like long walks along spacious fossil stream passages. Near the entry point there is a large reflecting pond and there are plenty of opportunities for admiring the changing vista as the path skirts along one side. Beyond here there is extensive speleothem development. There are coloured flowstone cascades, massive columns large stalagmites and lines of delicate stalactites that have developed along roof joints.

The Crystal Palace, Marengo Cave
Photo: John Brush

With its spacious fossil stream passages and varied decorations, this cave is well worth a visit.

Indiana Caverns (Indiana)

This is America's newest show cave operation and had been in operation for only 4 months at the time of our visit. Even so, it had already attracted around 20,000 visitors. The tour takes place in a small section of Brinkley Cave, an active stream system with more than 50 kilometres of passage. Brinkley is currently the longest cave in Indiana and the 11th longest in the US. The show cave section is entered through a tunnel beneath the visitor centre. Beyond an air-tight door, imposing steel structures take visitors down to floor level. This upper level section has many bones of bison, bear and peccary - dating from the Pleistocene - that must have entered (fallen?) through an entrance that is now sealed. The route then descends to stream level where a series of metal catwalks and 'troughs' lead to a 2 metre high dam. The dam ensures there is sufficient water for the next part of the trip; a boat ride, and also serves as a boarding platform. The electric-powered boats hold about 20 people and take visitors along a muddy meandering streamway for a couple of hundred metres. The roof is not far above the boat and there is not a lot to see apart from some nicely-bedded limestone. After the boat turns around - quite a feat in the narrow

Imposing metal staircase in Indiana Caverns
Photo: John Brush

passage - it heads back to the landing and the party then retraces its steps back to the visitor centre. There is not much decoration to be seen on this trip but the bones are interesting and it is probably the lure of a boat trip that is the cave's main drawcard. As the same route is followed in both directions, there could be a few bottlenecks during busy periods.

Squire Boone Caverns (Indiana)

The cave was discovered in 1790 by the famous American pioneers Squire Boone and his elder and more famous brother Daniel. Squire lived in the area for many years and after he died in 1815, his remains were buried in a small vertical cave on the hillside above the show cave. Over the years his remains were subject to vandalism and 'souveniring'. So, in 1973 employees of the caverns transferred what remained of Squire to a new coffin and placed it in the show cave where it remains today as a feature of interest.

However, there are more interesting features in this active stream cave. The essentially linear cave is developed along a joint – a "good joint", our young guide told us "because it made the cave flexible, just like a human joint", as distinct from a "bad joint" (a bedding plane) which "makes the roof collapse". There you go, the cave development process explained in just a few words. There is quite a bit of active speleothem growth in the cave and much of it is quite attractive. There are also some large breakdown slabs where the roof has broken away along some of those bad joints. For most of the show cave route, the stream is at a lower level, but the last part of the tour is along a metal walkway suspended just above stream level. In this area, large gours break the stream into a series of cascading pools. For many visitors, this area is the highlight of the trip, but for others there is time to admire Squire's coffin and headstone on the return trip to the entrance.

Mammoth Cave National Park (Kentucky)

The Mammoth Cave System was firmly established as the longest in the world in 1972 when cavers found a connection with the nearby Flint Ridge Cave System. At that time 144 miles (approx. 232 kilometres) of passages had been mapped. Ongoing discoveries, including linking passages to other caves, have seen the total length of surveyed passage grow through 300 miles (483 kilometres) in 1984 to the current total of a staggering 400+ miles (640 kilometres).

Many different tours into the cave system are offered on any one day and the tours change through the year.

"I've never been in a cave like this before, there is nothing to see", apart from the loose rock above, perhaps?
Mammoth Cave, New Entrance Tour
Photo: John Brush

Cameras are permitted on all tours but flash photography is not. This restriction appears to have been introduced only recently to keep groups moving along but its effectiveness is doubtful because long holdups occur as people unsuccessfully attempt to take photos using available light and others (including me) hold back looking for handrails or rocks to steady their cameras for time exposures.

The tours are very popular and it pays to book ahead, or as in our case, to arrive on the day the US Government reopened for business and be first through the visitor centre doors when they opened. Because of the government shutdown, there were not many visitors around on that first day. Our first tour, to the River Styx area of Mammoth Cave, had only 9 visitors (out of a permissible 40) plus 2 guides. The role of the tail end guide seemed to be to stop people wandering off and getting lost in the maze of passages and to ensure there was no flash photography. Over two and a half hours, our small party covered four kilometres as we wandered along a great variety of passages, including some with the remains of nitrate mining works (basically a guano mining and leaching operation). It was a very interesting tour.

By mid-afternoon, the crowds had started to roll in and for our next tour - a 1600 metre lantern tour of Great Onyx Cave – there were about 30 people (maximum of 40 allowed). The principal guide on this trip was an endless (and I mean endless) source of information on the cave, the Mammoth system and on the history of show cave 'wars' in the wider Mammoth area. The cave is on Flint Ridge, but a connection to the Mammoth-Flint Ridge Cave System is yet to be found. It has extensive calcite decoration near the entrance, but further in, it was mainly gypsum, commonly as a frosting on walls and floor. Unfortunately, much of the original floor was obliterated in the early days when a considerable volume of material was dug out and tossed aside to create a walk-through route in the low passages. With just eight kerosene pressure lamps distributed amongst the party, light levels were a little subdued, especially as the lamp holders tended to gravitate towards each other.

The following day we returned to Mammoth Cave for a New Entrance Tour. What a mistake. We feared this as we queued to wait for the (3) buses that were to convey the tour group to the entrance and fully came to appreciate it once we were underground with the 114 other visitors in the party (plus the obligatory 2 guides). Visitor numbers to the National Park were now back to normal levels, it seemed. This 2-hour trip has 500 steps, covers 1200 metres and is regarded as being of moderate difficulty. It is a popular trip as it passes Frozen Niagara, one of the few decorated areas in the cave. As much of the pathway was only one person wide, the party soon spread out, especially because some visitors had difficulty with steps, others had problems with the distance and a few had difficulties carrying their young (and at times screaming) children.

This was the cave tour from hell. Some people complained about the steps, or the distance or the lack of decoration. Others complained they couldn't hear the guide. In a breakdown chamber, someone said "I've never been in a cave like this before, there is nothing to see". Someone even whinged about Australia: "why would anyone want to go there, it is just desert. You can see desert in Utah, which is much closer". To avoid an international incident, we decided to keep quiet and not to reveal our nationality. The trip was a combination of hurry up, wait, hurry up, wait, and move along now. What a contrast with our tour group of nine the day before.

Hidden River Cave (Kentucky)

Hidden River Cave is, as the name suggests, an active stream cave system that feeds water from part of the central Kentucky karst plateau into the Mammoth Cave system. The entrance is a large collapse doline beside the main street in the town of Horse Cave. The cave is operated by the American Cave Conservation Association (ACCA), a non-profit environmental organisation dedicated to the conservation of caves and karst, principally in the US.

For many years, the cave stream was the source of drinking water and hydropower for the town. It first opened as a show cave in 1912, but closed in 1943 because inputs of domestic and industrial sewage made the cave very unpleasant. These sewage problems were not resolved until the late 1980s and at about that time ACCA decided to attempt a restoration of the cave and establish a museum in an old building beside the entrance. Fast forward to the present and the operation appears to have been successful. There are no unpleasant odours in the cave and the cave critters have returned. The impressive museum covers local natural history as well as comprehensive displays on caves, caving and karst, cave biology and ground water quality.

A long set of steps leads down into the cave from the bottom of the doline. Near stream level there are rusty relics from the water supply and hydropower days. A

Collapse entrance to Hidden River Cave beside the main street of Horse Cave
Photo: John Brush

metal walkway above the stream is a good spot to see white cave-adapted crayfish. The walkway continues up to a huge dome chamber. From the end of the path in the chamber, huge sediment banks can be seen beside the stream away in the distance. The show cave route is only about 300 metres each way, but is sufficient to give visitors a feel for the historic uses of the cave and for how urban development and agricultural practices impact on the underground world.

Diamond Caverns (Kentucky)

Diamond Caverns is just outside the Mammoth Cave National Park in central Kentucky. It has been open to the public since 1859 and is the second oldest show cave in the area. It is adjacent to the route of the former railway line to Mammoth Cave and derived considerable benefit from this when the line opened in 1886. Over the years, the cave has had quite a few owners and in 1999 it was purchased by five cavers and their wives, including Gordon and Judy Smith.

The impressive visitor centre is a former accommodation lodge and Gordon and his partners have visions of turning it into a national museum for the show cave industry.

The way into the cave is down a flight of steps inside the visitor centre and at the bottom, the pathway follows along a fossil stream passage for a couple of hundred metres and then back. Along the passage a vertical drop leads to the underground stream, which has been proven to connect through to the Mammoth area, although no negotiable route has yet been discovered. Above the pathway, the passage walls are lined with long drapery displays and there are some very fine shawls. In a few places where there is no decoration, there are fine solution features, including half tubes, pitting developed along bedding planes and a honeycomb structure similar to the tafoni weathering sometimes seen on surface rocks.

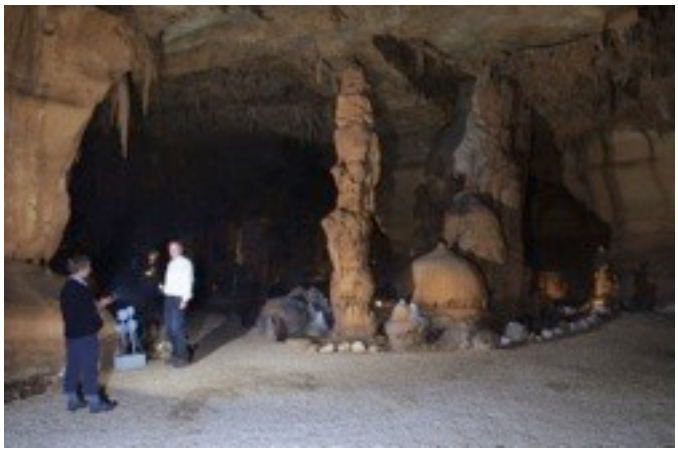
Small solution pits in the roof of Diamond Caverns
Photo: John Brush

Blanchard Springs Cave, Arkansas
Photo: John Brush

Blanchard Springs (Arkansas)

Blanchard Springs is a substantial stream cave system hidden away in a National Forest in northern Arkansas. It is not on a road to anywhere, so a visit requires a detour, no matter which direction you might be heading. However, the cave is certainly worth a detour. It has about 20 kilometres of passage on 3 levels, but visitors do not see any of the active stream level. In fact, only about 600 metres of the upper level are shown year round. A longer 2 kilometre trip is available over the summer, but was not available at the time of our visit.

From the visitor centre, twin elevators take visitors about 60 metres down into the cave. The main passage is an impressive 20-30 metres high and wide and is festooned with long fluted columns, large draperies and tall stalagmites. It is a most impressive chamber by any measure. The pathway meanders around the chamber and climbs to a higher breakdown section with more decoration and some huge guano mounds. A tunnel near the end of this section provides an easy route back to the surface where there is a bus waiting to transport the party 600 metres back to the visitor centre.



Marjorie Coggan with Manager Mike Burrell in Cave Without a Name
Photo: John Brush

Cave Without a Name (Texas)

This cave without a name, near Boerne in Texas, could almost be called "cave without a sign" as, compared to the other show caves in the San Antonio area, it is not very well signposted. However, perhaps as a measure of reassurance, there is a sign on the wall of the Visitor Centre saying "This is it" and "You found us". The cave is owned by Tom Summers, who many ACKMA members will recall attended last year's conference at Waitomo.

We arrived at a quiet mid-week time and we were fortunate to be taken into the cave by Manager Mike Burrell. Before we headed underground, Mike showed

Spectacular decoration in Cave Without a Name
Photo: John Brush

us a plot of the cave superimposed on Google Earth imagery, demonstrating how the cave extends under several properties beyond Tom's. Its 5 kilometre length is still being extended by cave divers.

Access to the cave is down steps in a curved tunnel beside the visitor centre. The steps then continue to spiral down around the natural vertical entrance shaft. At the bottom, the near-horizontal pathway is defined by aggregate sitting on the natural silt and clay floor. The passage is an estimated 10-12 metres wide and 5-8 metres high. Most of the decoration is massive, but small stalactites, delicate helictites and short straws occur high in the roof of the main passage and in a low section towards the northern end of the pathway. Towards the active stream end of the pathway, there is a multi-coloured drapery display and a large cascade of active rimstone pools. There are also some wide shawls and one of these has an unusual cluster of helictites that looks like an upturned bird's foot.

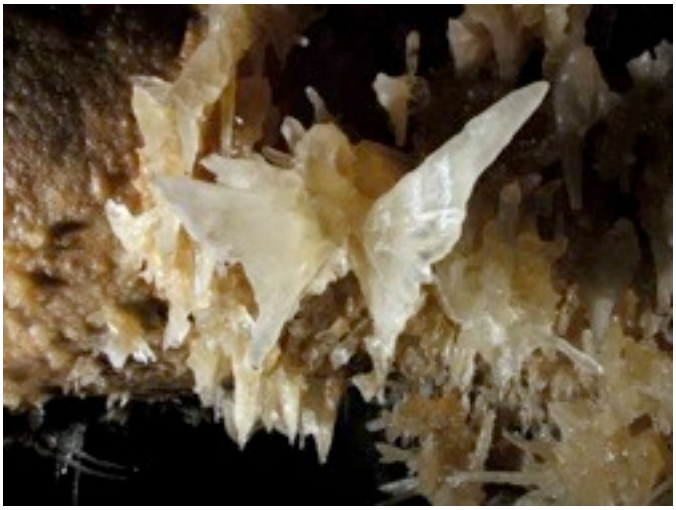
With just the two of us on the tour, it was a very relaxed, lengthy and interesting tour. Mike went to the trouble of detailing the history of the cave, pointing out obscure features and making sure we both had a good look at cave salamanders in the cave stream. It was one of the most informative cave tours we have ever experienced in an American show cave.

Caverns of Sonora (Texas)

Sonora is in rolling scrub country about 300 kilometres northwest of San Antonio. It is in the middle of nowhere and not much happens out there apart from cattle grazing and oil and gas production. From the road, there are just a few indications that this is oil country, but a quick look at aerial imagery reveals there are several hundred wells within a 5 kilometre radius of the cave. The wells not only point to the real wealth of the area, but also provide a clue about the origin of the cave. Unlike most limestone caves which are formed by weak carbonic acid solutions percolating downwards and dissolving the rock, this cave is believed to have been dissolved, at least in part, by sulphuric acid. The acid is formed when hydrogen sulphide originating in oil and gas reservoirs percolates upwards and oxidises as it mixes with oxygen-rich water. This is similar to how caves - such as the famous Carlsbad and Lechuguilla caves - are generally considered to have formed in the Guadalupe Mountains area of New Mexico.

The cave was discovered in 1955 and opened to the public in 1960. The visitor centre/ gift shop opened a year later. We arrived at the visitor centre not long after a tour had departed, but a helpful staff member kindly offered to take us down into the cave where we soon caught up with the tour, making a group of 6 plus the guide. Group size is limited to 12 and as we descended

Caverns of Sonora
Photo: John Brush



Top. The famous (and broken) butterfly decoration in Caverns of Sonora
Photo: John Brush
Bottom. The butterfly prior to the damage
Photo: www.sonoracaverns.org

deeper into the cave it soon became evident why this is so. Most of the passages are no more than a couple of metres wide and there is a profusion of decoration right beside the narrow meandering pathways. There is an understandable concern about vandalism and souveniring. After all, the cave's trademark butterfly formation fell victim to a vandal in 2006 when a wing was snapped off and apparently removed from the cave.

The density of decoration increases in the lower levels to the extent where there is speleothem growth on every surface. There are anthodites, helictites, coral growths, botryoidal encrustations, crystals, shawls and even some ordinary old stalactites and stalagmites, although some of these have coral or crystal encrustations. Some speleothems appear to have formed in water and today, a few shallow pools remain.

This is one of the most profusely decorated caves we had ever seen and was a fitting finale to our road trip.

Conclusions

With Gordon's assistance, the caves we selected to visit were varied, spectacular and interesting. All of them appeared to be in reasonable condition and were well managed. Considerable attention is paid to avoiding adverse impacts on the caves - ignoring, of course, the initial effects of developing the caves for public access. In all caves there were limits on party size, but having said that it would seem that the limits in Mammoth Cave are way too high. It might be a big cave, but having more than 100 people on a tour certainly detracts from the experience.

We saw virtually no signs of lampenflora in any of the caves (unlike some we visited in Pennsylvania and Virginia a couple of years ago). There was widespread concern about White-Nose syndrome, especially in caves managed by the US Government (eg Mammoth Cave and Blanchard Springs), where disinfectant procedures are in place.

The quality of tour commentaries varied but was generally reasonable. Two of the Mammoth area commentaries were excellent and comprehensive. It is not possible to comment meaningfully on all commentaries as on five of our 14 visits, it was just the two of us plus a guide and two of those trips were put on especially for us. On such small tours the normal commentary is usually dispensed with, especially when the guide becomes aware that we have been into a cave or two before, and it becomes a more personal, interactive and informative experience. On one or two of the other tours, explanations of cave formation processes were sometimes a little wide of the mark, either as a result of over-simplification or perhaps because a key point was omitted by the guide.

All caves allowed the use of cameras - free advertising as Tom Summers put it at Waitomo last year. But in some cases, it was stressed that tours must not be held up by photographers. Fair enough. Most operators ban tripods and some do not allow the use of video cameras and, as noted above, the Mammoth Cave National Park prohibits flash photography. In most caves, backpacks, camera bags and the like are not permitted.

In addition to the standard guided tours, all of the operations we visited had additional revenue-generating features. These varied from cave to cave but most commonly included a gift shop carrying a wide range of products (not always cave-related), adventure caving trips, underground musical performances and panning for gold/gemstones. At some caves ancillary activities and services like eateries, historic displays, canoe rental, zip-lines and camping were also available.

If we are able to do another trip to the US, the show cave at the top of our wish list just has to be one in Missouri where tours are conducted in jeeps. Just think, no steps, no walking.

LOOKING FORWARD, LOOKING BACK
CAPRICORN CAVES, QUEENSLAND

Ann Augusteyn

Twenty five years ago the Augusteyn family took over the ownership of Capricorn Caves from the Olsens who had discovered the caves back in 1881. Over one hundred people attended the celebrations in the Cathedral Cave, Robert Augusteyn prepared an excellent audio visual overview of the past twenty five years followed by a sneak preview of the new LED lights being installed by John Augusteyn. The evening concluded with a buffet dinner in the function area, speeches, photographs and the usual cutting of the cake ceremony.

N ISLAND OR A BAT CAVE

Tourist caves on the market

"HOLY Bat Cave, Batman, the bat caves are up for sale!"

Australia's largest freehold urist caves, 34km north of ockhampton, which are home to five varieties of bats, including the rare ghost bat, are on the market for

Olsen's Capricorn Caverns are on a 33.4ha property which includes a four-bedroom house with kiosk and an ablutions block.

Olsen's Capricorn Caverns are the largest privately owned tourist caves in Australia and have been operated by descendants of the discoverer, John Olsen, for 103 years.

Real estate agent Mr Greg Prange, of Raine and Horne Rockhampton, said the Capicorn Caverns could handle more than 400 visitors an hour.

"Olsen's Capricorn Caverns r esent an opportunity for a p. haser to own the largest of only three privately owned tourist caves in Australia," Mr Prange said.

There was unlimited potential "for future development in an atmosphere and lifestyle that is certainly unique in Australia, if not the world", he said.

Mr Prange said there was a potential tourist influx of thousands from the Iwasaki resort at Yeppoon and there was potential for a caravan park and camping area to be built on the site.

ZONIE, ROBIN! IT'S AN EVICTION ORDER!!

He said there were other cave systems on the property that were not open to the public.

The property is exempt from mining and the State Government has declared it an official fauna sanctuary.

The present owners are Rodney and Annette Olsen. Mrs Olsen said the limestone caves were renowned for their kaleidoscope colors and the spectacular effects created during the summer solstice.

The caves were geologically unique in Australia because they were created by rainwater, Mrs Olsen said. Other tourist caves were subterranean river caves.

— GLENN SCHLOSS.

L-R: Robert, Ann, Helen (Helmsworth) and John Augusteyn

Looking back

The last twenty five years have been an amazing journey. The family was full of excitement but very naïve with regard to what lay ahead when we took over Olsen Capricorn Caverns, as they were then named, in 1988. The property needed tender loving care. The only infrastructure was a kiosk/tea room which doubled as a family home. All roads leading to the caves were gravel and every time it rained the entrance to the kiosk flooded.

Ken not only had the vision for the property but also the technical skills and muscle power to execute his dreams. His achievements included the construction of cabins, 12 room lodge, high ropes course, climbing wall as well as a wheelchair ramp into the caves. All of this underpins the current success and sustainability of Capricorn Caves. The diversification of product from "just cave tours" to outdoor recreation and education programs, school camps and weddings, environmental management, cave lighting projects and all the ongoing refurbishments sustains staff employment all the year round. Assistance has been given to Queensland Museum's palaeontology work in the caves with visionary plans for the future. As the past is revealed and the future planned, the two are inextricably linked, as we see with regard to cave lighting.

A tribute book was passed round for signing and this is now a much treasured memento of a special gathering of friends, family, staff and colleagues. The messages were overwhelming and a heartfelt thanks to all those

who contributed. In response to a request from the Editor the following is an extract from the tribute book:

> *"Congratulations on 25 years! Your amazing efforts have really done wonders for the caves, especially their long term conservation, study and promotion of such endemic and fragile habitats. Providing such a unique experience for every single visitor and the fact that you have been so hands on with the place is a testament to your passion and care and love for it. Your support of our palaeontological research has been outstanding and so very inclusive that we all consider it a home away from home."*
>
> Fondest wishes, Scott Hocknull and the Queensland Museum palaeoteam.

Scott Hucknull at a dig site in Capricorn Caves
Photo: Steve Bourne

Stories from the past

With reference to Sasa Kennedy's article "The Memory keepers" in the December ACKMA journal No. 92, we are in the process of capturing the stories from the Olsen era and there are many surprises. Kelvin Olsen, fourth generation of the Olsen family, is currently researching and recording his own experiences at Olsen Caves. His research has revealed that the Norwegian Johannes Olsen was in fact born in Sweden; he was not present when his sons discovered the entrance to the caves, which probably occurred in 1881 and not 1882 as all the tourist pamphlets state. Kelvin recalls many fascinating anecdotes from his past. I will conclude with one account from his unpublished Memories of Olsen's Capricorn Caverns.

> *"In the early 1950s only one system of caves was electrically lit. Power was provided by a small single cylinder petrol engine coupled to a 32v DC generator. There was no battery bank to provide emergency lighting in the event of engine failure. For several months as an 8 year old my job was to sit during tours and continually adjust the fuel needle valve to keep it running. I got to know when the engine was about to quit and would urgently adjust the needle, where the tour group was when lights were switched on and off and stop the engine when the party left the caves. I would then go to the office await the next party when I would once again disappear through the scrub to start my generator monitoring duties. "*

What 8 year old today would sit for hours undertaking such a responsible job?

Looking Forward:

Twenty years later the same Kelvin introduced a new lighting system into the caves using 32v tungsten lights. This system has served the caves well for 40 years but is now in urgent need of replacement. Fortunately a TIRF (Tourism Industry Regional Development Fund) grant was obtained in 2013 to relight the Visitor Experience. The new LED lights are brighter, cooler and the use of solar power should significantly reduce energy costs. John Augusteyn, with the assistance of caves staff, when they can be spared from guiding duties, together with technical advice from Dave Rowling, is working hard to place the lights and run cables to CBus™ boxes. History repeats itself! But for now, stay posted for the official opening of "Relighting the Visitor Experience at Capricorn Caves".

Family photo in the 1990s
Photo: Ann Augusteyn

NARACOORTE and TANTANOOLA CAVES UPDATE

Deborah Carden

Summertime 2013/14

Naracoorte Caves National Park (NCNP) World Heritage Area is one of South Australia's Department of Environment, Water and Natural Resources (DEWNR) four commercial sites that operate businesses within distinctive natural settings, in our case three show cave tours and four adventure caving activities, plus a café and campground with tenting sites and bunkhouse accommodation. Tantanoola Caves is the second site managed from Naracoorte Caves – Tantanoola is a delight of a cave.

Visitor numbers to NCNP as been up this year (records are kept July - June) with multiple tours per person in December and January reaching the high uptake of the early 2000s. This was very pleasing after a static start to the year. Increases occurred across the board in regional, international and interstate markets. Numbers from the Melbourne and Adelaide have increased and internationals were up from 10 to 12% of the total. Tantanoola Cave's visitor numbers have remained steady compared to previous years. The frequency of high fire days in SA means constant assessment of the weather conditions and Naracoorte and Tantanoola Caves have been closed due to catastrophic conditions twice since New Year in 2014.

NCNP WHA Master Plan

The Master Plan was preceded by four stages - in 2009 the Education Programme was reviewed; 2010 saw the development of the Naracoorte Caves Visitor Strategy, followed in 2012 with the Brand Strategy and Interpretation Framework and an Interpretation Concept Plan.

The Master Plan has considered strategic visitor experience priorities, operational requirements and how will they be achieved - including but not limited to:

Tantanoola Cave speleothems
Photo: Steve Bourne

•Documenting the infrastructure, services and experiences

•Looking at the potential for private sector investment

•Deciding interpretation improvements

•Costing estimates

Development priorities are currently ranked in high/ medium/low clusters. Funding is likely to come from a variety of sources and until the plan is approved, planning and prioritising of funding applications is in an infant stage.

On 29 January 2014, a meeting was held for key stakeholders who engaged in a lively, interested evaluation of the plan presented by architectural consultant David Shannon (Shannon Architects, Adelaide) and interpretative consultant Karl Meyer, (Exhibition Studios, Adelaide). Attendees included Australian Fossil Mammal Site - Riversleigh (EO Jean Balson); South East Aboriginal Focus Group (representative David New); Naracoorte Lucindale District Council (CEO Helen Macdonald); Flinders University (Strategic Professor John Long; palaeontologist Dr Liz Reed); Friends of Naracoorte Caves (President Mick Dennis); Regional Development Australia (Biddie Shearing). Apologies were received from South Australian Tourism Commission, South Australia Tourism Industry Council, Natural Resource Management Board, South Australian Museum and the local Business and Tourism group.

Site staff input was gathered again on 6 February with staff this time being asked specifically to assess how the Shannon and Meyer designs would work from an operational perspective.

Feedback was invited from stakeholders prior to David finalising the document for presentation and approval by DEWNR Executive, after the Executive team have visited the site.

World Heritage Executive Officer and Reference Group

Naracoorte Caves National Park (NCNP) is a mega faunal fossil mammal site, co-listed with Riversleigh in North Queensland as the Australian Fossil Mammal Sites (AFMS) UNESCO World Heritage Area. Together the sites provide complementary evidence of the evolution of Australia's mammal fauna of the last 30 million years.

Obligations

The obligations of the managing agencies are to ensure the AFMSs are managed so as to enhance the understanding, protection, conservation, promotion and, where relevant, rehabilitation of the Outstanding Universal Values for which sites are listed. Until now, Naracoorte Caves WHA has not had an Executive Officer and community reference group. However in 2013 the site successfully applied for funding to establish an Executive Officer position. Key stakeholders who have participated in the Master Plan reference group will be invited to participate in a reference group, giving community perspectives around the management of the AFMS - Naracoorte as well as supporting the implementation of the Master Plan recommendations.

Thylacoleo carnifex *and the fossil bed, Victoria Fossil Cave, NCNP WHA*
Photo: Margaret Smith 2012

SAREX

In November 2013, a very successful Search and Rescue Exercise (SAREX) training session was run for Naracoorte Caves guides by Richard (Harry) Harris of CEGSA supported by Graham Pilkington and Ian Lewis, CEGSA, Dean George, SAAS, John Probert, local CFS. A full scale SAREX is proposed mid 2014.

ACKMA Conference 2015

Naracoorte Caves National Park and World Heritage Area will host the 2015 ACKMA Conference. The venue will be the Naracoorte Town Hall which is booked for Friday 8 May to Friday 15 May 2015.

DEWNR will establish a conference committee in conjunction with Naracoorte Lucindale District Council and Friends of Caves (our Friends of Parks group). ACKMA will be updated of the details at the AGM in May 2014.

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SOUTH ISLAND, NEW ZEALAND ROUND UP

Neil Collinson

Cavern Cave (aka the Dragon Cave) Greymouth – West Coast

Some participants from the 2005 ACKMA conference will recall visiting this cave which was inside the boundary of the Solid Energy Spring Creek mining operations. At the time of the conference the caves tubing operation by Wild West Adventures was operational. Subsequently this operation closed down and access was restricted due to proximity of mining operations. Mary Trayes reports that on behalf of NZ cavers Solid Energy was approached in late 2013 via the Greymouth Solid Energy Community Consultative Group about access to the caves. This was done because the Spring Creek Mine has been 'moth-balled' for time being and sufficient time has elapsed also for any subsidence due to the mining nearby in 2010 to have settled. Solid Energy's Environmental Manager has approved local cavers' access, taking their own responsibility for cave conditions (rock fall, water levels etc) as they would at any time when caving.

However before cave tours can resume it would appear that the onus is now on the operator to commission a full engineering assessment before commercial use can resume. When, and if, cave tours will resume is not known at this time.

Charlestown - Geoff Shurr (Norwest Adventures) operation now has a new base, and with excellent facilities including a café, opened in December 2013. Geoff's team has not yet had time for an official opening of the base as it's been too busy over the summer peak.

The Nile River Rain Forest Train continues to be the prime mover of visitors up the valley to the caves which are situated in Paparoa National Park.

Te Anau Glowworm Caves - A busy summer which has been much kinder weather wise with fewer days affecting by flooding. The programme of a biannual geotechnical inspection was completed in prior to the summer season and this partnership with OPUS has resulted in a number of improvements to our monitoring. This has included the addition of kinematic analysis of potential rock failure modes. We are also investigating an upgrade to real time monitoring using Linear Variable Differential Transformers accessed remotely via a web browser. This work is part of a continuous improvement program and adds a new level of technology to the current visual monitoring based around glass slides and sliding rod devices which still rely on guide's observations.

Above. ACKMA conference 2005 at Nile River Caves, Charlestone, New Zealand
Photo: Steve Bourne

Left. Caves entrance walk way, Te Anau Glowworn Caves, affected by receding flood waters December 2013. For the previous 12 hours the rushing water had filled this section of caves to the ceiling and tours were suspended.
Photo: Neil Collison

BOOK REVIEWS

Scott Melton

Jenolan Caves – The Complete Guide
Mark Hallinan 2013
Critical Concepts Pty Ltd Brisbane
268 pages $45 + P&H

"Jenolan Caves – The Complete Guide" by Mark Hallinan is perhaps the most comprehensive visitor guide book ever published about Jenolan Caves.

Come and explore the hidden wonders that make Jenolan Caves so special. The stories of the caves are revealed in a fascinating mixture of quaint historical photographs, informative illustrations, detailed maps, easy to read text and stunning colour photographs. Chapters cover the setting of Jenolan Caves, the geology of the caves including the development of Jenolan's world famous crystal displays, changing visitor experiences over time and a detailed description of each of Jenolan's show caves.

Not all of Jenolan's wonders are to be found underground however. The caves are surrounded by world heritage-listed eucalyptus forests which are replete with abundant wildlife. The book looks at the extinct megafauna that once roamed the Jenolan landscape and also describes some of the animals that may be encountered along the numerous walking tracks that surround Jenolan Caves.

This book is highly recommended for anyone seeking a comprehensive overview of Jenolan Caves in an easy to understand format.

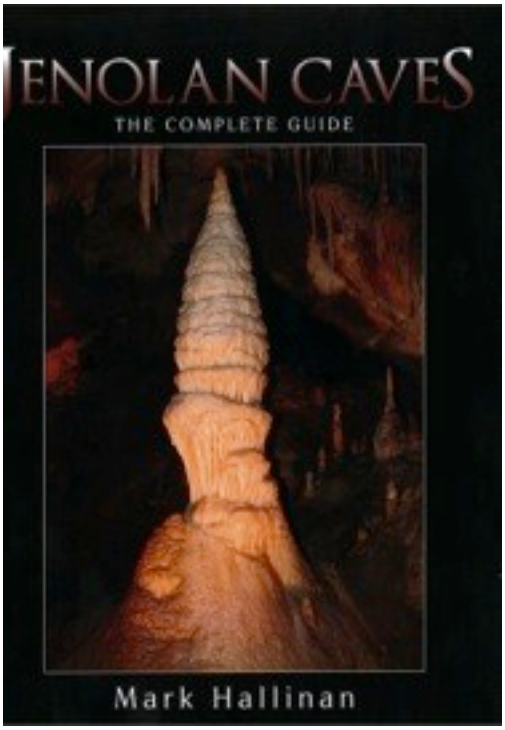
Guide to and Description of the Fish River Caves
An early account of a visit to Jenolan Caves (circa 1882)
Geo. H. Rawson
Jenolan Caves Historical & Preservation Society 2013
In association with the Australian Speleological Federation
96 pages $25.00 + P&H

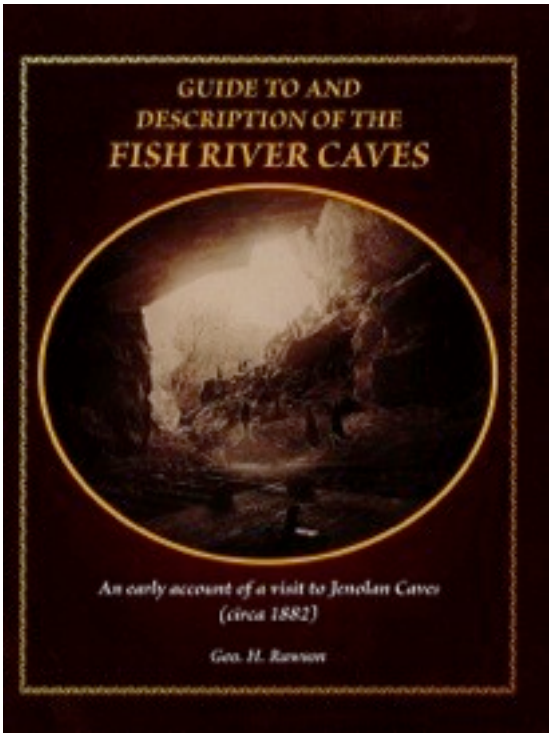
This book is a lovely account of a trip to the remarkable Jenolan Caves, then known as the Fish River Caves, in about 1882. Travelling to Jenolan in those days was an expedition of no light matter, and it is wonderful how many women not only made the journey but also explored the caves for many hours.

Everyone seems to have had an exciting time and the account is well written and accurate. This account by Rawson ranks with the best writings of early trips to Jenolan including Foster (1890), Trickett (1899) and Cook (1889).

Beautifully illustrated throughout with a selection of historic photos and engravings, this is a "must have" book for anyone interested in the history of Jenolan.

Both books are available from the Jenolan Caves Historical and Preservation Society by contacting Jenny Whitby at jwhitby@exemail.com.au.





LLOYD ROBINSON

Nicholas White

Lloyd Robinson 1927-2013

I will touch on some personal recollections of Lloyd Robinson as others have also written about his caving exploits.

Lloyd Robinson was an explorer, always looking to discover something new. Not for him repeated visits to old ground. When I started caving in Australia in the 1960s, he had already been caving at Bungonia, his first area. He had the travel bug and had been caving many places, particularly out of Margaret River. There he explored the Augusta Jewel Cave with Lex Bastion and Cliff Spack in 1958. Together Cliff and Lloyd developed the cave over the next year and it was opened in 1959.

Other phases of his caving were the repeated trips from Wollongong to the Kimberley, WA with ISS (Illawarra Speleological Society). It was Mimbi Cave in the Eastern Kimberley which he kept returning to. Joe Jennings said he should try and record wet season floods in the cave. Lloyd then applied his photographic knowledge to installing a camera to record floods. This camera had to have electromechanical flash mechanisms to trigger a flash with motor drive to advance the film and repeat the photograph. He kept making return trips to retrieve film or set up the camera again. Several times photographs were successfully taken but when he developed the film the emulsion just washed off. He continued this approach much later in the Bullita system, Northern Territory.

For some years he tried to obtain photographs using balloons in the Gunbarrel Aven in Wyanbene Cave in what is now Deua National Park. These trips involved various ways of generating hydrogen initially to fill balloons to lift a camera high up into the aven to photograph the walls. Later trips used helium. The results were never conclusive and it was not until the aven was physically climbed that was it found that there were no obvious passages leading off the aven despite the aven having its own microclimate with winds, mist and clouds.

I really only started caving with Lloyd in 1996 on a Bullita trip. It was on my next trip in 1999, because the exploration of the Bullita system was a long way from vehicles each day, Lloyd and I said we would do some ground searching to find the bottom end of the Bullita system. So we started off on day trips to see what we could discover. It was not until the third day of this in pretty intense heat that we found an "efflux". We could not get into the cave from it. We then went around and up over a bluff and quickly found an entrance. This entrance led to big passages, sections which flooded and were certainly close to the efflux. This was a cursory exploration but we took a GPS fix on the entrance and returned to the vehicle in Spring Creek some 8 km away and went back to camp. We were chastised for not surveying as we went but had looked at several hundred metres of passage with leads continuing everywhere. Not the time and place that day to undertake a survey! This became known as the SOGS section of the Bullita system. It was found on the 16th July 1999. The name comes from "Silly Old Goats Section" for the crazies who flogged around in the heat to delineate the extent of the system. We caved together each year at Bullita for some years after that. It was a very rewarding project needing a lot of teamwork. Highlights include extending the length to over 100 kilometres. On the best days survey teams of 2-3 people would return with new passage of about a kilometre. Lloyd and Dorothy proved invaluable to the success of these Bullita trips for nearly twenty years.

Lloyd Robinson in Trezzkin Cave, Chillagoe. Taken in April 2011 at the ASF Conference
Photo: Nicholas White

Of course Lloyd as well as being a traveller and explorer put time into the ASF and his own society, the Illawarra Speleological Society. He was the ASF President for some 7 years during which there was a major restructure of ASF which has served ASF well since. He was made a Fellow of ASF in 1995 and to the end managed the Awards Commission for ASF. Lloyd's legacy and imprint will last a very long time in ASF.