

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

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Since the beginning of the 20<sup>th</sup> 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 than 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.

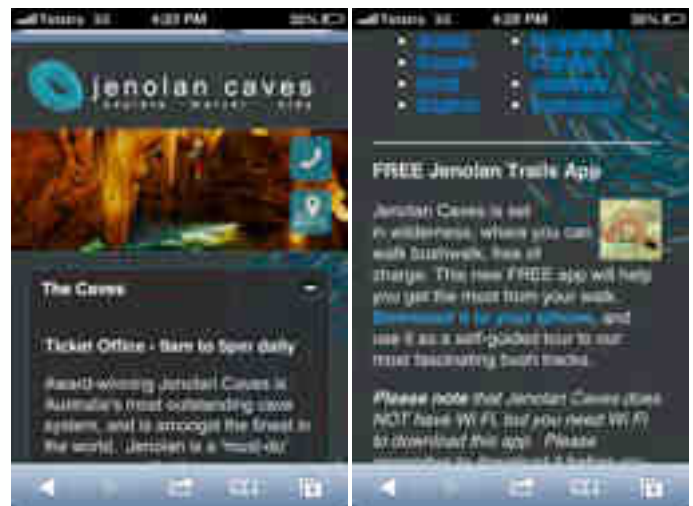


*Audioguides provide a tool to present a tour in multiple languages*

*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.