# PHOTOGRAPHIC CAVE TOUR

by
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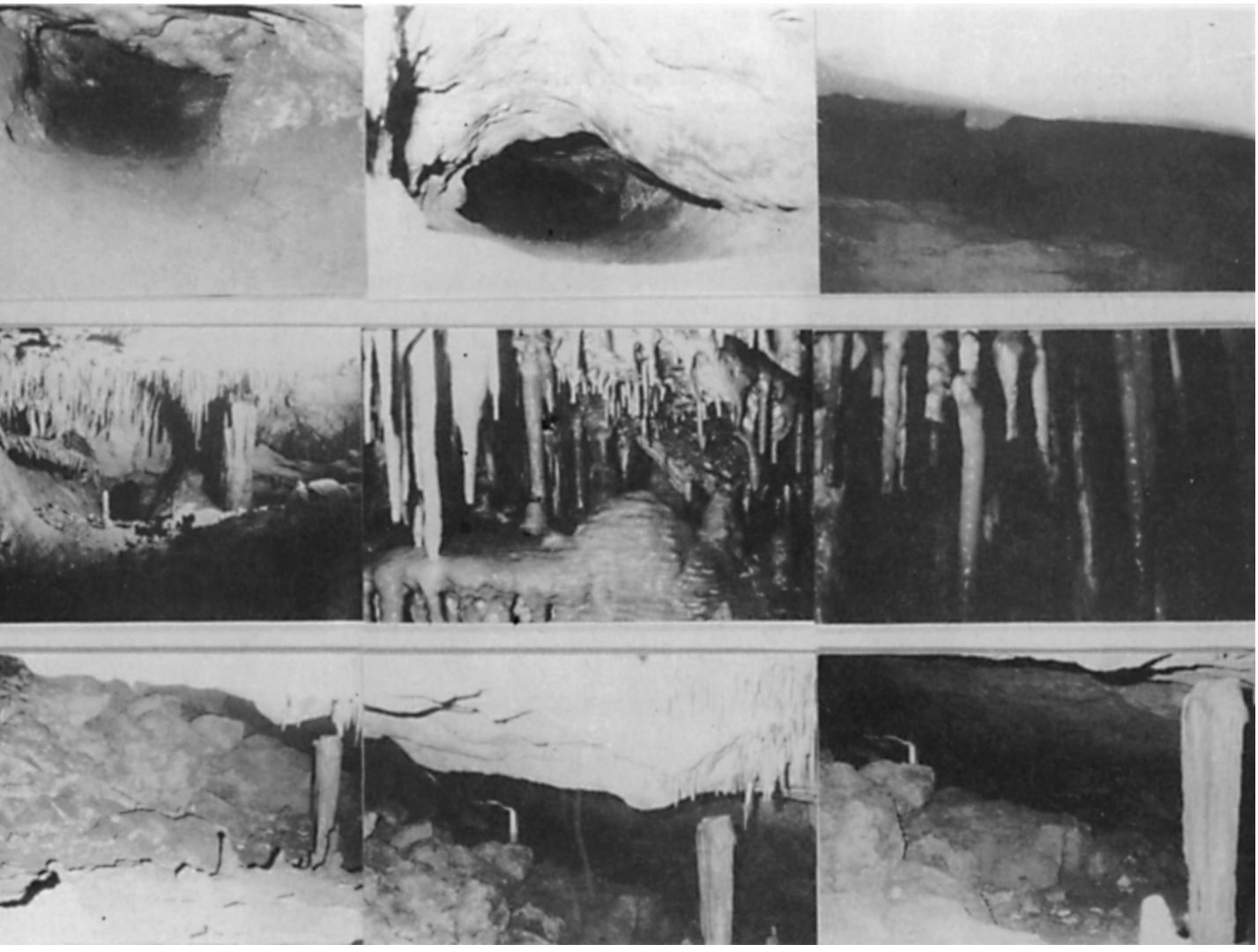
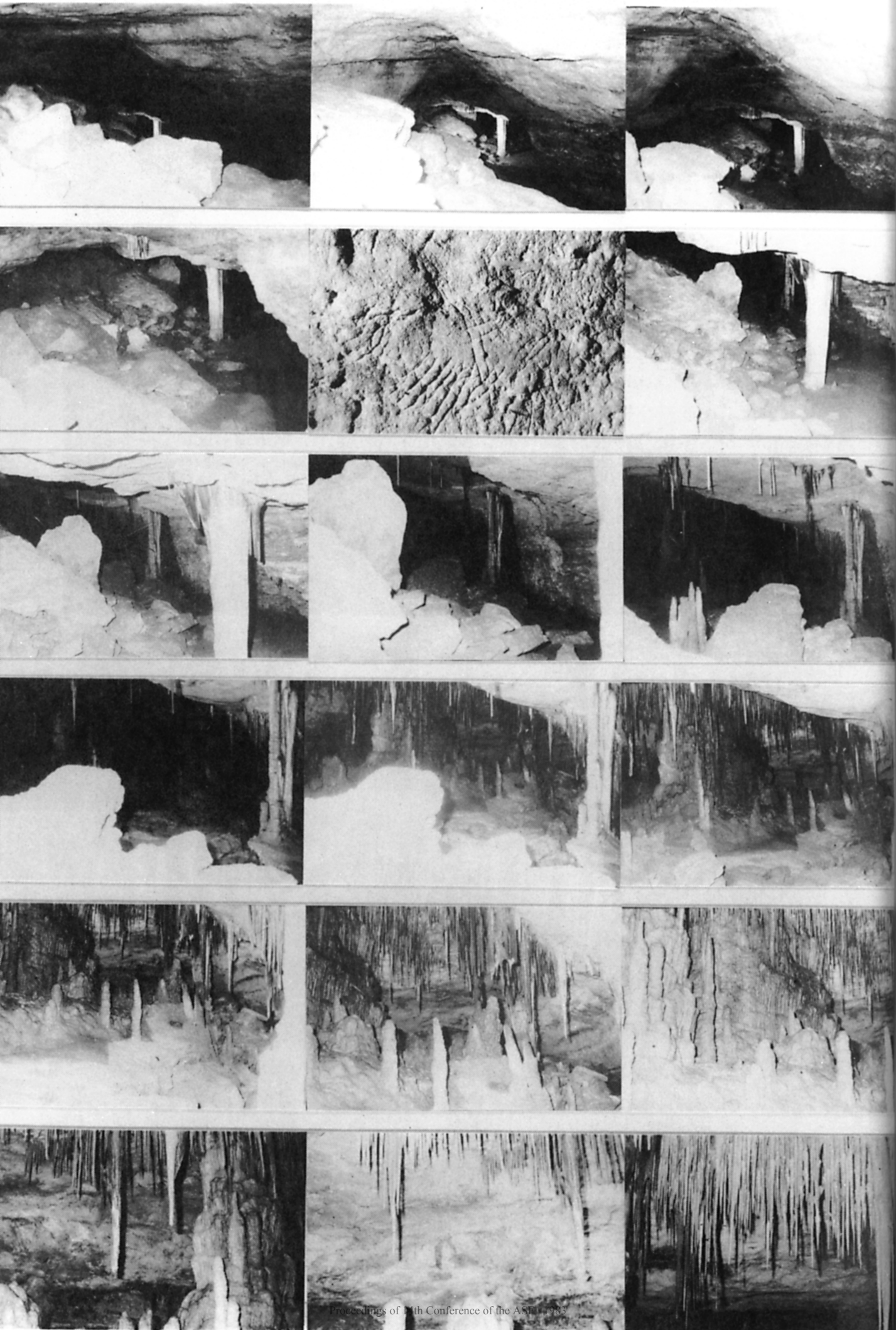
The required techniques to depict a cave to give the impression of moving through it are shown to be effective using two slide projectors with cross-fading and super-imposition. The problems encountered were mainly due to the time needed to complete the project, but careful attention to detail enabled remedies to be applied.





With the theme of this conference aimed at the visual aspects of speleology, I decided to experiment with depicting a complete cave with audio-visual techniques. The aim was to present the cave by sequence slides rather than movie film but attempt to attain the same result - the feeling of motion through the cave. It became obvious very early in the planning of the project that fading and dissolving methods would be needed to give this impression so the slides would need to be taken with these techniques in mind. Ideally, all photos in cross-fade projections should be in the same orientation either horizontal or vertical but with the nature of the caves available being horizontal and speleothems being vertical this presented a problem. Fortunately the cave chosen, Wombat Cave (U58), had most of its decoration at the end of the cave so I decided to attempt to make only one transition from horizontal to vertical and as smoothly as possible.

The slides were taken on four separate trips over a period of six months. After each session the slides were examined and a plan for the following trip was made to fill in gaps to make a smoother progression through the cave. Slides were taken into the cave and examined in situ to make sure that correct positioning of the camera was attained. It was decided that the lighting for all underground photography would be electronic flash as the logistics of providing flood lighting with its associated cables, generator and manpower was not possible for more than one session and it was not possible to do it all in one session because fill-in slides would be needed and a mixture of slides with different lighting would spoil the end result. Up to four flash units were used with the slaves attached, sometimes electronic and sometimes human. One problem with using flash is that until the film is processed it is not known how good the illumination is over the whole slide. With a bit of imagination and a lot of luck most of the results turned out reasonable.

During the project many unforseen and unpredictable problems arose. As the time period was over six months the cave water content changed and when attempting retakes and fill-in photos the amount of water on decoration had decreased which reduced the lustre of the subject. On another occasion when doing fill-in shots it was discovered upon examining previous slides that the cave had been changed. Rocks on the floor of the cave were no longer where they should be so a search had to be made to find and replace them before taking the photo. This reinforced the decision to take previous slides into the cave and examine the fine detail of the area of interest. As the cave entrance is a natural animal trap it is customary to look down the entrance hole before entering. On one trip it was discovered that a brown snake was waiting for us at the bottom of the ladder. The snake was duly rescued and brought to the surface but was found to be dead on arrival. Apparently a rock had fallen onto it from a great height even though the traditional "BELOW" call had been made. It was not wearing protective equipment. When we entered the cave on another trip we were greeted by the smell of a badly decomposed possum. Even though the remains were disposed of the smell had permeated throughout the cave and was not a very pleasant atmosphere to work in. A side effect of this was that there were hundreds of blowflies throughout the cave. Apart from the annoyance of having them follow us, when we were illuminating decoration for focussing and framing the blowflies would land on the decorations. This meant that we had to go over the area and remove the blowflies before taking the photograph. There were also the usual equipment problems of fogging lenses, moving tripods and moisture on flash contacts.

I decided against utilizing people in the scenes as it would be very difficult to have the same people on every trip to act as models although it would have been useful at times to indicate scale or to highlight some particular part of the scene. I also considered using different lenses for different scenes but decided to maintain a constant field of view approximately the normal eye field with a 50mm lens.

As mentioned earlier the projection of the slides was to be performed using cross-fading techniques so two identical projectors were purchased. A manual dual fader control was built and the projectors modified so that the lamp brightness could be controlled. A special frame was constructed to allow the two projectors to be mounted one above the other on a standard projector stand. The final selected transparencies were mounted in Agfa glass mounts to maintain accurate focus and also in an attempt to maintain good registration as some slides were

superimposed to indicate a progression of lighting. This was not totally successful as the registration of the slide mount in the projector is not accurate.

A manual fader was preferred over an automatic one so that the superimpositions could be attained and also so that varying times and depth of fade could be carried out. Unfortunately lack of time did not allow the audio part of the project to be completed for the conference but it is hoped that this will be rectified in the near future.

I feel that the experiment was a success and many uses for this type of display can be visualized. In education it can be used to demonstrate to students what a cave is really like. It can be used to show scientific processes such as bone collection and progression through a bone dig. In promotional activities a tourist cave can be depicted to entice the public to see it in real life. In training activities many techniques and processes may be shown in fine detail. All these can be done at a much cheaper cost than using movie film or they can be transferred to movie film or video for ease of display again at a much cheaper cost than doing originals in these media.

I was fortunate in having the same team providing the hands and feet placing and operating the flash units and carrying equipment through the cave. This meant that much less communication was required to achieve the desired result and also discussions amongst the team resulted in better pictures. I would like to thank the Ellis family for the enormous amount of effort and encouragement they provided throughout the project. I would also like to thank the Subterranean Foundation for providing the film and processing to enable this project to come to fruition.