AUSTRALIAN SPELEOLOGICAL FEDERATION
PROCEEDINGS 10TH BIENNIAL CONFERENCE

SECTION 7
PUBLICITY AND PROMOTION

THE PRODUCTION OF A CAVING MOVIE

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ABSTRACT

The University of New South Wales Speleological Society produced a 25 minute 16 mm colour caving movie of a general nature, showing most aspects of cave exploration and with a conservation biassed commentary. Production techniques and the many problems encountered during shooting "The Crystal Kingdom" are discussed in detail.

INTRODUCTION

Due to a fortuitous set of circumstances in Orientation Week at the University, several University of New South Wales Speleological Society members managed to interest Opunka, the University Film Group at UNSW, in the production of a caving movie. The original proponents of the idea, Chris Fisher and John Carmichael called a meeting of interested persons and subsequently UNSWSS formed a sub-committee to control production of the film and agreed to some financial support for the proposal. Opunka finally agreed to provide 270 m (900 ft) of 16 mm colour film, half the processing costs and use of camera, lens, tripod and film editor for a nominal hire fee.

Later the University Union was approached for a direct grant and this was provided from the Cultural Affairs section. It did not however, cover all the costs, but did enable purchase of another 130 m of film.

PLANNING

Although no one had any previous experience in movie making, quite a few good ideas were proposed at the initial meeting and finally Andrew Pavey, who had the most photographic and caving experience, was commissioned to produce a script, and was also nominated as Director. Chris Fisher took the job of cameraman and John Carmichael the onerous coordination task of Producer. Graeme Pattison was nominated to look into lighting and generator hire. From the host of applicants ("volunteers"), three were finally selected as "stars". The criterion was photogenic trogs and one female female. Keith Oliver, Rosalind Dall and David Perkins were the elected stars.

A number of caving areas were discussed and the final decision was to stick to one caving area where access to the caves was easy, and reliable. The caves had to be easy to move a large film crew, lights, cameras etc. through. Further, all possible locations had to be within a reasonable distance of the entrance to minimize the electric cable required as lighting was to be by portable generator situated at the entrance location,

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Cliefden Main Cave was finally selected. There was an excellent variety of speleothems close to the entrance, and although the cave was muddy it was an easy walk-through cave. Also, as a result of a recent intense interest in Cliefden, many members of the Society had a good knowledge of the cave. (Carmichael1974 a,b,c, Pavey 1974).

THE SCRIPT

The script was essentially the scenario for each shot. It was written roughly in order of the scenes as they might occur and each scene was numbered and verbally described. Also "in a majority of cases" the location of camera and crew etc., was carefully spelled out. In most scenes it was not necessary to drastically alter any of the specified location and shots. This was only possible because of Andrew Pavey's very accurate recollection of the cave and firm idea of what should appear on the final film.

After the basic script had been written and approved by the sub-committee, it was broken up into convenient days of shooting each in a specific part of the cave, and in the order in which it would be easiest to shoot them. The minimum number of camera set-ups is essential to completing filming in a reasonable period.

Any scenes which proved unworkable in the cave were scrubbed or combined with others in somewhat arbitrary decisions. A number of "saving" shots of formation and actors were made on the last session and proved valuable in the long run.

TECHNICAL

Lighting

Caves are dark holes in the ground and muddy walls absorb a lot of light, so in preliminary discussions with other movie producers and with some arm-waving caving fudge factor analysis, it rapidly became obvious that at least 4-8 500w photo-flood lamps would be required. It was found that a 5 kVA portable generator could be hired and that either 800w or 2kw Quartz Iodine lights were also available. After considering the budget it was decided to purchase 4 x 500w photofloods and hire one 2kw QI light. In retrospect we need not have bothered with the photofloods - surprisingly enough they produce almost negligible lighting in the cave as far as movie-making is concerned. The 2kw light comes on a portable stand but this was rapidly abandoned as impracticable in the cave. All lights were mainly hand held.

200m of electric extension cable was acquired as long extension leads and a small distribution box with a number of power outlets, plus a few short extension leads were used to distribute the light at the chosen location. Mud in the power sockets was not a problem although the generator was run at a slightly higher than normal voltage to allow for any potential drop along the cables. Two photo-floods were rather spectacular victims of drips and we considered that we were very lucky not to lose more. Various methods were used to hold the bulbs, the most useful being a large bucket and DMT traffic light reflectors.

The Generator

A portable 5kw generator is not very portable (weight 50-80kg!) and it was necessary to borrow Bruce Dunhill's tractor and trailer to transport the generator to the cave entrance. For the first two of the three weekends of underground shooting, a telephone line was rigged through the cave and a couple of brave (but bored and often wet) trogs minded the generator, starting and stopping it as required between scenes. The generator only consumed about 4 gallons of petrol during a weekend, so on the final weekend it was left running

continuously. Transport of the generator from Sydney was a bit of a bind but thanks should go to Bill Gamble (CEGSA), Joe Minney (OSS) and S. Wheatly (UNSWSS). Although the available light in the caves was adequate, a larger cave or greater distance from the entrance may not be feasible. Certainly any larger generator would prove almost completely unmanageable. We recommend moving extension cables through the cave on spools as it avoids messy, muddy tangles!

Film and Exposure

The lights had an effective colour temperature of 3200K so Ektachrome EHB stock was used. The normal film speed is 125ASA but it was rated up one stop at 250ASA. This proved adequate in most caverns with the lowest stop used being f2.8. The majority of shots were taken at f4 or higher. Exposure was determined from incident light readings taken on a Lunasix light meter. After the first "rushes" were viewed, it was decided to use the light meter at 200, not 250ASA in order to effectively uprate the film by an additional 1/3 f stop. Exposure was quite acceptable in medium sized chambers but in larger caverns more exposure (especially of the background) would have been desirable.

The above ground shots proved to be more of a problem than was initially imagined An 85B filter had to be used to correct the colour balance of the tungsten balanced film. The camera speed is fixed at 24 frames per second on the electric motor, which means an effective exposure of 1/60th sec. This low shutter speed, combined with "pushed" high speed film stock and bright sunny days resulted in light meter readings of f45, which were not available. A compromise had to be made and on one shot the clockwork motor was used at 64fps but was not highly successful as the mechanism only runs for 8 sec. The other main surface pan was shot at 24fps and f16 and with the hope that it would not be too overexposed (it wasn't). A pair of two-way walkie-talkies proved to be useful in co-ordinating camera and actors in the above-ground sequences.

The Camera

The camera used was a Bolex with a three lens turret and reflex viewing. The three lenses were a 16-80mm zoom lens (f4.5), a 25mm f1.1 macro lens and a 10mm f2 wide angle lens. All lenses were used in the cave on many occasions. The tripod was fitted with a Miller (fluid) pan-tilt head which ensured very smooth pans. The tripod is absolutely essential. A couple of shots pan-zoom required two people to operate the camera but otherwise Chris managed the job on his own admirably. The fancy (but solid) camera case provided by Opunka unfortunately did not fit through the entrance so the camera and lenses were carried around the cave in a plastic garbage bag in a frameless pack (not really recommended)!

A number of problems were encountered with the camera - the first weekend it chewed film about 20m into the first roll of film. The tear was repaired with insulation tape and then filming continued. Later there was a definite misalignment in the camera which scratched quite a bit of film stock and caused some focus problems in the film gate. For a while a lens was mislaid in the cave, but it was safely found the next day! In general, the camera survived quite well and didn't get very muddy at all. All the gear was washed at the end of each weekend - a major, messy task, but essential. It is very important for the cameraman to wear gloves in the cave to keep his hands clean for operating the camera.

Continuity and Location Shooting

When a film is shot in an order different to that which will finally appear on the screen, several difficulties arise. In a cave the foremost of these is the muddiness of the trog suits. It is not good to have the stars enter the cave in white trog suits, emerge from a rockpile with very muddy ones, and then appear later on in clean white ones again. A continuous and careful check must be kept on items like, "who's wearing the red helmet" or "carrying the pack". A tribute to our efforts in this item is the lack of serious discontinuity in the final product. Some of the production hassles centred around getting all three actors

together on any given weekend. Every scene was rehearsed several times before filming in order to minimise film wastage and cut costs. Reshooting scenes is both expensive and annoying.

After a session of six or eight hours of filming, much of which seems to be spent standing around and getting things moved and organised, the whole crew showed signs of fatigue, bitchiness, bouts of "let's tell the Director what to do". and even the occasional mud fight. As a study in group psychology this is no doubt very interesting but it didn't help get the film "in the can".

Editing and the Concept of the Film

Editing the film is a long, slow job and in this case we had 400m of film of which about 300m was finally used. Basically, all the film is cut up into lengths of one scene and these are then arranged in the required order and stuck together. A print of this is then made for projecting purposes. It is normal practice to run a copy of the raw film stock and use the copy to work out all the ideas before cutting the original... Unfortunately, our finances did not run to this and so a number of scenes appear in the film which would now, on second thought, be cut out.

The basic idea was to just make a caving movie in the first place. Later it developed that it would be aimed at several audiences:
a) the general outdoor loving public who know little about caving;
b) the speleos who would like to see a movie about caving;
c) internal audiences in UNSWSS, e.g. freshers who would be shown the film as an introduction to caving.

The film essentially tells the simple story of a party of three cavers exploring a cave, and shows scenes of wandering around in the cave, looking at formations and climbing a ladder; - with a conservation message at the end. Originally it was considered that three different sound tracks would be made. One for each of the three audiences, but all using the same film sequence. This turns out not to be very practical, although it could be done.

The voice-over commentary was written whilst watching the film and then recorded separately and transferred to the magnetic strip on the print. For the first few showings, only a roughly synchronised cassette tape was available as soundtrack. The final soundtrack incorporated music specifically written and selected for the film.

Titles

The film titles were shot in the School of Physics from black and white slides of the lettering. Some of the close-up crystal shots were also done from colour slides in the same way. This panning across still shots can be quite effective and enables images to be presented which would almost be impossible to get with the movie camera because of its size and weight i.e. movie cameras just aren't compatible with confined spaces!

Credits

Producer:	John Carmichael
Director/Script Writer/Editor:	Andrew Pavey
Cameraman:	Chris Fisher
Cast:	Keith Oliver/Rosalind Dall/David Perkins
Lighting:	Brad Jones, Paul Tapp, Graeme Pattison, Paul Woodbury
Continuity:	Bev Riley

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Clapper: Robyn Wilson

Sherpas: Helen Wallis, Bill Gamble, Richard Katsch, Trish Peterson, Phil Ireland, Joe Minney, Steve Wheatley, Alan Wrild, John Leonard, Tony Heat, Brian Cooper, I. Bowron, Dave Lowry, J. Gordon, S. Banks, T. Ball, R. Daniels

Equipment: Opunka Film Group

Financial Backers: University Union, Opunka Film Group, UNSWSS.

Budget

To give an idea of costs and items required, we present here a detailed budget for the movie. This budget does not show the actual cost to us, as short cuts and grants were available; it is intended to give interested persons an idea of the costs which do arise.

(early 1974 prices)

Equipment	Purchase Price	Hire Cost
16mm Bolex and lenses		$30 per day
Tripod		$5 " "
2 kw light (Blondie)	$132 each + $26 globe	$7 " "
800w light (Red Head)	+ $8 globe	not worth hiring
240v extension cable		$1 per 100ft per day
5kv generator		$10 per day
petrol	consumes about $2 per day	
Insurance on above	7½% of hire cost + Stamp Duty	
Telephones + cable	?	
Two-way radio	?	?
Distribution box	To make - about $10	
Generator transport	Allow petrol expenses for private transport	
Film		
16mm H.S. Ektachrome film	$26/400ft	
Processing original	6.4 cents/ft	
Forced developing (to 250ASA)	25% per stop	
Light corrected work print (recommended)	18 cents/ft	
Answer print	20 cents/ft	
Magnetic stripe	10 cents/ft	
Spool + storage case	Approx. $8	
Other Facilities		
Editing	?	?
Sound recording + mixing		?
Letraset & title slides	approx. $10	
Copyright for music	?	
Fee for narrator	?	
Colour correction filters	approx. $5	
Contingency	10% is conservative	

Total estimated expense to produce a 25 minute 16mm colour movie with sound on magnetic stripe, and using 1 camera, 1 2kw light and equipment hire for six days is approximately $700 (minimum).

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SCREENING ENQUIRIES

"The Crystal Kingdom" and at a later date "Kubla Khan" are available to ASF member societies for a nominal hiring fee. Enquiries should be made to the Producer, John Carmichael C/- U.N.S.W.S.S., Box 17, The Union, The University of New South Wales, Box 1 P.O., KENSINGTON. N.S.W. 2033.

CONCLUSION

"The Crystal Kingdom" is a 300m, 25 minute film about a simple caving trip with a conservation theme. The total amount of man hours involved in the production was about six hundred. Our costs were about $700. As a first effort we were fairly pleased with the result and certainly learnt a lot about the practical difficulties of shooting a movie in a cave. As a result of this we were successful in applying to the Arts Council's Experimental Film Fund for a $2,700 grant to make another film in "Kubla Khan", using experimental lighting (Diprotodon), and also making a video programme about the making of the film.

References

CARMICHAEL, J., 1974a Film Making at Cliefden. *Spar*, 35, 6.
CARMICHAEL, J., 1974b More Film Making at Cliefden. *Spar*, 35, 7.
CARMICHAEL, J., 1974c The Third Filming Session at Cliefden. *Spar*, 37, 13.
PAVEY, A., 1974 Final Filming Trip. *Spar*, 37, 13.

Additional exposure data

At Bungonia, Ektachrome EH (160ASA) was used with a 16x neutral density filter. For the gorge, which is in shadow and very "blue", an experiment using an 85B filter to correct the colour was tried. However it proved to be a bit too strong and a faintly orange gorge results.