SCRATCHED MARKINGS IN TANTANOOLA CAVE (L12), SOUTH AUSTRALIA.

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INTRODUCTION

Scratched markings occur on the walls of various Australian caves. In Koonalda Cave, Nullarbor Plains, where they occur in conjunction with finger markings in soft material, they were first noticed by Adrian Hunt in 1957 and first reported in the literature by Pretty (1960). Walsh (1964) described markings in Cutta-Cutta cave near Katherine in the Northern Territory, and discussed several alternative hypotheses which might explain their origin. Hallam (1971) described a further series of markings in Orchestra Shell Cave, Wanneroo, Western Australia. More recently, further series of markings have been noted in caves at New Guinea Ridge, Victoria (Jennings 1979) and further caves on the Nullarbor Plain (Davey et al., 1978).

With the possible exception of the markings in Cutta-Cutta Cave, all of these are considered to be of Aboriginal origin. Edwards (1971) placed these markings in a more general context, described somewhat similar series of markings from other situations, all of them definitely attributed to Aboriginal origin. The markings at Cutta-Cutta Cave are somewhat enigmatic, and Walsh (1964) was unable to arrive at a definite explanation. One of us has examined these, and believes Walsh gave insufficient credence to the possibility of the marks resulting from lizards being trapped within the cave (Hamilton–Smith et al., 1974). All markings in this cave are certainly consistent with scratching by lizards, and none seem to be of similar pattern to the more widespread Aboriginal markings.

The purpose of this paper is to report a further occurrence of such markings, in this case of the 'fine incised' character as described by Frank (1980). The present markings were first noted by one of us (Spate) in the course of preparing a draft management plan for the Tantanoola Caves Conservation Park.

All of the present authors are members of an Australian Speleological Federation study team, engaged by the National Parks and Wildlife Service of South Australia to prepare the draft management plan. The park itself consists of 14 hectares adjacent to the Princes Highway, approximately 25 km north-west of Mt. Gambier. Of the several caves in the park, the best known is Tantanoola Tourist Cave (L–12), discovered by Boyce Lane in 1930, and opened to the public shortly afterwards. Shortly after its discovery, the cave was examined and described by Tindale (1933) who reported on various mammal bones and other fossils, but made no reference to Aboriginal materials. The cave consists of a single cavern, irregularly shaped,measuring some 26 m x 30 m, and richly decorated with speleothems. It is situated in the Up-and-Down Rocks, a former sea cliff which forms a prominent landscape feature. The cave itself is located in the dolomitic bedrock, but its south-western wall is comprised of more recent material, which includes broken boulders of dolomite from the cliff, mixed with marine sands and other debris. Thus, it seems likely that the cave was once open to the beach, with a broadly arched entrance, and that it was only enclosed after the last marine retreat.

The markings are found on the south-eastern wall of the cave, as shown in Fig. 1. They occur on both the dolomitic bedrock and on a cemented mass of marine shelly sands of more recent origin.

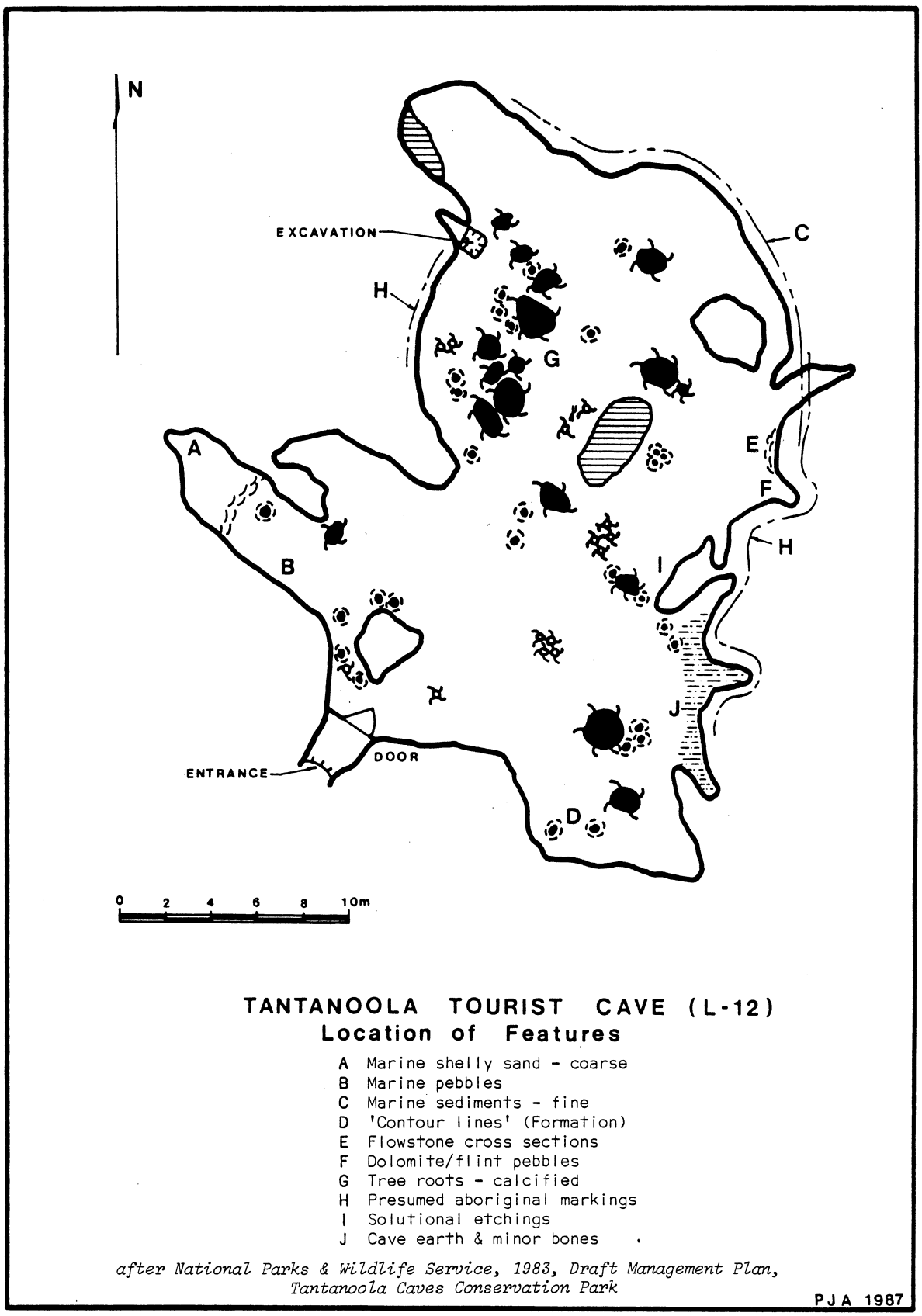

Figure 1.

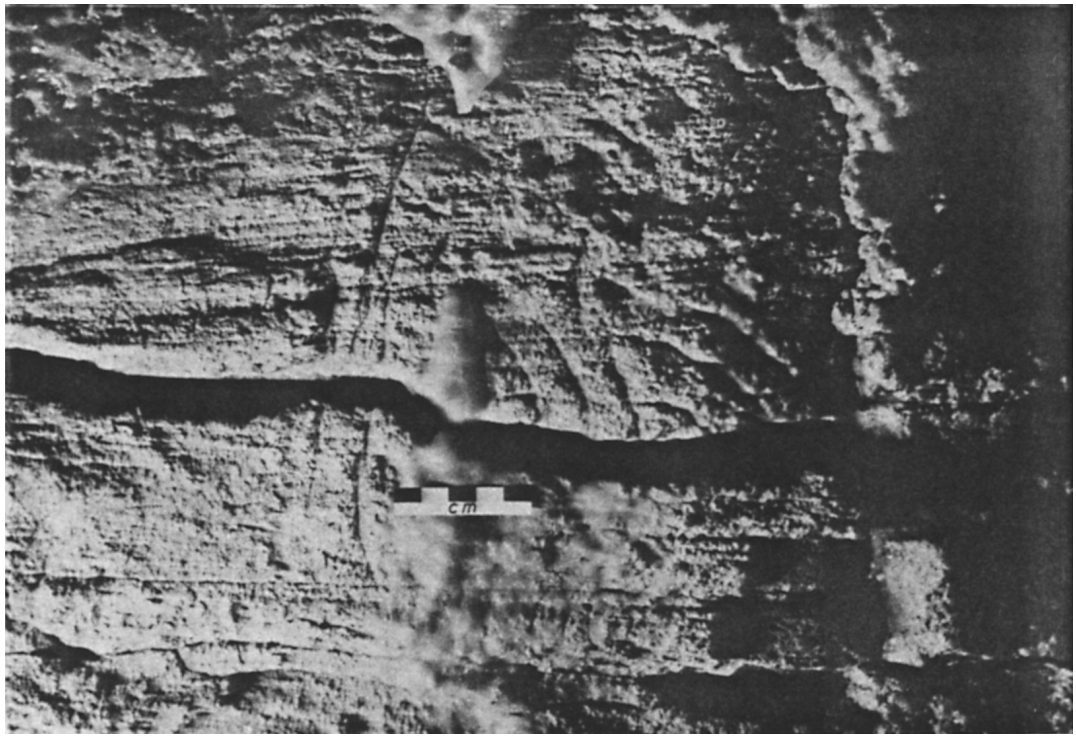

Plate 1

Plate 2

Photos: B. Gunn

DESCRIPTION OF THE INCISED MARKINGS

The incised markings occur over some 20 metres of the cave wall and are generally about 1.5 metres from the present floor. However, the original floor level was disturbed in the course of cave development, and its level at the time of the 1930 discovery is unclear. The markings are clustered, and this clustering seems to be related to the availability of relatively flat, even surfaces which were, at the time of marking, clear of flowstone.

Three patterns seem to occur, and these include:

(a) short, heavily incised and roughly parallel series of straight lines oriented both vertically and diagonally (Plate 1)

(b) series of incisions forming a diagonally placed lattice (Plate 2, in lower right-hand corner), and

(c) Sub-parallel curved incisions, usually in groups of 3 or 4 lines and generally placed more or less horizontally (Plate 2, centre).

The markings are generally not very deep, with those of group (a) perhaps no deeper than 3 mm, and others generally only 1-2 mm in depth. The relative frequency of the three patterns is probably in the order given above, with group (a) being the most common, although lack of time has precluded a thorough analysis. The three patterns seem to be mixed more or less randomly, with no obvious overall relationship.
Two kinds of change have taken place since the markings were first made. Cracking and slumping along bedding lines has broken the continuity of some markings (Plate 1). More recent deposition of both macro-crystalline calcite and flowstone has partially covered some markings and probably obscured others. This deposition has certainly served to harden and preserve the markings, and to prevent the fretting which would have otherwise occurred.

POSSIBLE INTERPRETATIONS

Although an archeological assessment is awaited at this stage, a discussion of possible origins may be useful.

1. Geochemical

   Any geochemical explanation seems unlikely, as the markings do not appear to have any relationship to any other structural feature. Small solution runnels do occur elsewhere in the cave, but these are distinguished by following natural flow lines, and by being U-shaped in section, rather than V-shaped. The markings upon which we are reporting actually intersect bedding lines, and other structural forms in a way which would seem unlikely in any geo-chemical process.

2. Animal

   A large range of animals, including man (see below), bats, possums, birds and lizards frequent caves, and have been known to leave markings of various kinds.

In general, animal markings demonstrate a clear relationship to the morphology of the animal concerned, so that scratches made by smaller mammals trapped in a cave are likely to be in sub-parallel series and vertical in orientation. The mix of patterns which we have described above, does not seem to correspond to any likely animal markings. The absence of markings below a level of 1.5 metres from the floor, also seems to preclude animal origin. So the notion of an animal origin seems unlikely.

3. Human

Recent human activity can be discounted. The slumping along bedding lines and deposition of calcite all indicate an age of more than 50 years, when the cave was first entered by white man.

However, Aboriginal origin seems plausible. The markings appear to have been artificially incised, and the patterns are somewhat similar to those clearly attributable to Aboriginals elsewhere in Australia (see reference listed below). On the Nullarbor Plain, incised markings have been found in caves also used as flint mines by the Aboriginal people. There is no evidence of flint at the Tantanoola Cave, although flint nodules occur within the cave. However, flint is readily available outside of the cave within the recent marine limestones (and generally throughout the South-east).

If determined after further study to be of Aboriginal origin, this series of markings offer better opportunities for determination of at least a minimum age than many such occurrences, using either dating of the last marine retreat from the Up-and-Down Rocks shoreline, and consequent closure of the cave, or the application of isotopic dating methods to the calcite deposition over the markings.

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POSTSCRIPT: Since presentation of this paper, a further analysis of the markings by Gunn (unpub.) shows that all the patterns consist of series of 2, 3 or 4 sub-parallel markings. Animal origin cannot therefore be discounted at Tantanoola. However, two of us (P.B.M. and E.H.S.) have since inspected similar markings at Naracoorte, South Australia. These are also in sub-parallel series, but of up to 6 or even 8 lines together. Moreover, they are widely variable in depth and spacing, to the point where animal origin seems extremely unlikely; in addition, their distribution within the cave is not compatible with either an aboriginal or animal origin. We admit to bafflement, but consider that the possibilities of either geochemical action or rock fracturing must now be further investigated.