Astronomical Significance of the Ahsin Bay Indian Pictographs in Quetico Provincial Park, Canada[1]

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ABSTRACT. A re-investigation of an Indian Rock Painting located in Quetico Provincial Park of Western Ontario as a possible representation of a conjunction of the moon and the supernova of 1054 A.D. is described. In spite of meeting all of the standard criteria for such an interpretation, it appears more likely that the painting represents an animal.

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INTRODUCTION

On 5 July 1054 (Julian Calendar), the waning moon passed within 2° of the Supernova of 1054 A.D. which we now see as the Crab Nebula. Brandt and Williamson (1979) have estimated that this supernova would have been about a magnitude brighter than Venus at its brightest. There can be no doubt that such an object, seen in close proximity with the moon, would have been a memorable sight. However, because of the motion of the moon with respect to the stars, the close proximity of the two objects would have been maintained for only a few hours. For residents of North America, these few hours would have occurred just before sunrise.

In 1955, W. C. Miller presented an interpretation of some Indian paintings in the Southwestern United States and suggested that they depicted the conjuction of the moon and the Supernova of 1054 A.D. Since then, additional examples have been found and are described by Brandt and Williamson (1979). These examples are all to be found in the desert Southwest of the United States, where it is presumed that the better weather would enhance the probability that the conjunction would be observed.

Based on a well-exposed Ektachrome photograph taken in 1979, Collins (1985a) reported that an Indian pictograph originally described by Dewdney and Kidd (1967) might also represent the conjunction event. This photograph (Collins, 1985b) clearly shows a 'crescent' with a 'cross' immediately to the right. Although Dewney and Kidd's early drawing indicated an 'overlap' between the 'cross' and the 'crescent', no indication of a connection between the two was evident in the photograph. On the basis of his own photographs and investigations of the Indian pictograph, Molyneaux (pers. comm.) of the Royal Museum of Ontario, was unable to confirm or reject the existence of the overlap due to the difficulties of photographing at the site. He preferred the hypothesis that the painting probably represented a bear. The issue was further complicated by a recording error in the account of Dewdney and Kidd (1967), which interchanged the attributions of the Ahsin Bay painting with paintings on Keewatin Lake.

To settle this issue and to verify the extent to which this site met the criteria for the supernova-lunar conjunction interpretation given by Miller, we revisited the site in August, 1985. The criteria given by Miller (1955) and others are reviewed by Mayer (1979), but briefly are:

1) A crescent of either a 'waxing' or 'waning' form should appear very near a large circle, a prominent pit, or a star-like form.

2) The glyph should be exposed to a northeastern horizon from which the event could be seen.

3) Archaeological evidence at the site of the glyph should be consistent with the 1054 date.

RESULTS AND DISCUSSION

Figure 1. shows several photographs, made with Panatomic X film, of the painting taken under various angles of illumination through a green filter to enhance the contrast of the red ocher pigment. The 'crescent' and 'cross' or star-like figure are clearly visible, apparently satisfying the first criterion. The site is located on a rock face at the back of Ahsin Bay on Payne Lake and has a rough east-west orientation with the azimuth to the east of 71° magnetic. It is accessible only from the water and about two days travel by canoe from either the north or south entry points of the Quetico Provincial Park located in Western Ontario. The current Eastern Horizon, which is unlikely to have changed significantly during the last millennium, is less than 7° above the Astronomical Horizon at the azimuth of the conjunction in 1054 A.D. Thus, the conjunction of the supernova and the moon would have been clearly visible, rising about 1.5 hours before the sun, to anyone sitting in a canoe before the rock face. Although no dates exist for any of the Indian Pictographs of the Quetico, there is evidence (Peruniak, pers. comm.) for a site occupation within eight kilometers of the painting, which dates from about 1000 A.D.

The dating of the Pictograph was felt to be the weakest link in the interpretation, so an attempt was made to obtain a relative date from an optically thin calcium oxide evaporate which covers about one-half of the painting. Should the source of the evaporate have become exposed with the departure of the last glacier, a crude absolute age might be obtained, as there is evidence (Bull, pers. comm.) that the rock face has been scarred by glaciation. Unfortunately, examination of the rock face indicated that the evaporate originates in a fracture of the rock face of more recent, but indeterminate age.

The most significant aspect of the painting regarding its interpretation is also illustrated in Figure 1. In all of the photographs, a faint connecting arc between the 'cross' and the 'crescent' is visible with varying degrees of clarity, confirming the original suggestion of Dewdney and Kidd (1967). The pigment is largely hidden in pits in the rock surface and is clearly visible only when illuminated from the appropriate angle. The arched struc-

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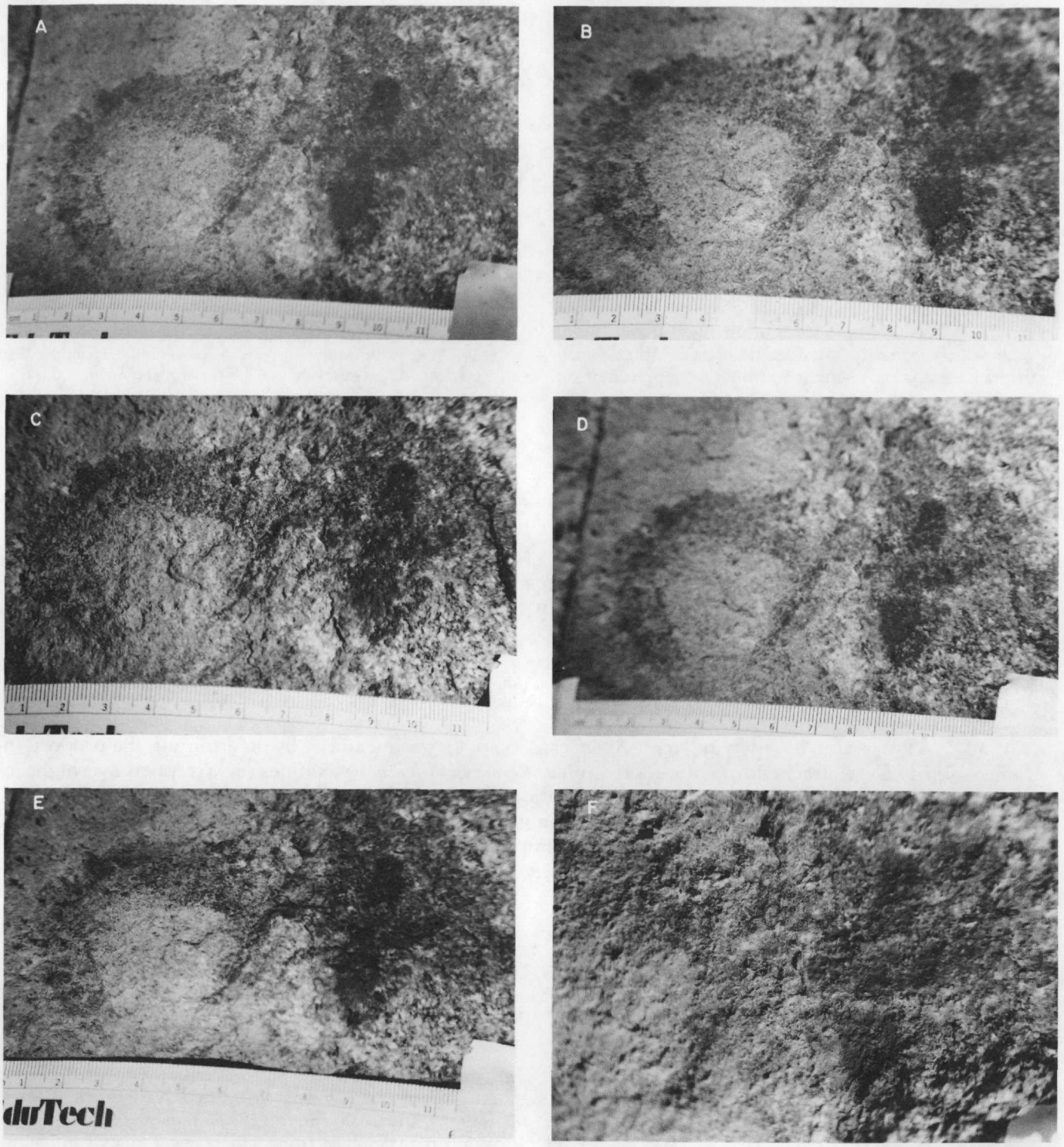

FIGURE 1. Pictures of the Indian Pictograph on Ahsin Bay in the Quetico Provincial Park, Canada, illuminated from different angles. Figure 1B was taken through a Kodak 80a blue filter; A and C-F were taken through a Kodak G2 green filter. The film was Kodak Panatomic X developed with Microdol. The scale visible in A-E is in cm. The lighting for A-C was from approximately 45° left, 0°, 45° to the right of the normal to the rock face as seen by the camera. D and E were illuminated from 45° above and 45° below the normal, respectively; F shows a close-up of the region between the cross structure and the crescent taken in available light (at about 1400 h CDT, 8 August 1985) and clearly reveals the faint connecting arch joining the two. The feature is also visible on the other views with a clarity that depends on the direction of the illumination. The effect of pitting of the rock surface on the visibility of the pigment is clearly demonstrated in A-E.

ture of this connection makes it unlikely that it was an accidental overstroke, but rather that it was made purposefully. This would seem to argue against the interpretation of the painting as representing the supernova-lunar conjunction of 1054 A.D. and to favor the animal interpretation.

The results of this investigation clearly indicate that photographic documentation of these paintings should be done with isotropic illumination such as that obtainable with a ring flash in order to eliminate the effects of shadowing resulting from the rough rock surface. The use of reflection photometry holds considerable promise for providing rough relative ages for those paintings partially obscured by calcium evaporates. In some instances, where the geological age of the evaporate can be sustained, it may even allow for approximate absolute ages to be obtained. Above all, those who would interpret the paintings of the Quetico region must accept the fact that they are essentially viewing examples of abstract art and should be wary of the influences of their own personal prejudices. We have here an example of an Indian Pictograph which virtually satisfies all of the Miller (1955) criteria for a supernova-lunar conjunction representation, but which is most likely not such a picture.

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