

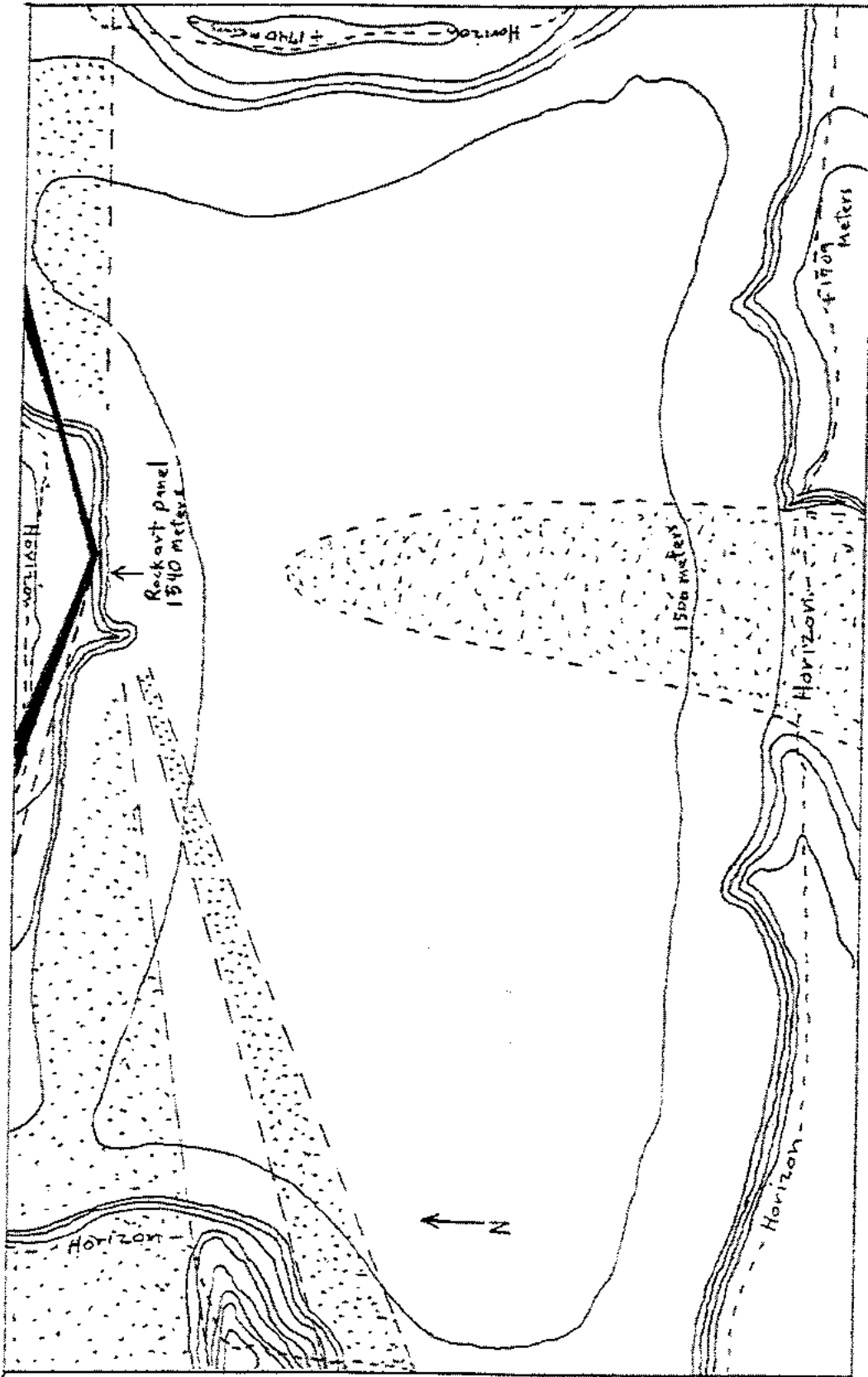
IMPLICATIONS OF SOLAR INTERACTIVE PANELS FOR ROCK ART PROTECTION

By Clay Johnson

Neither public nor scientific sensitivity to the nuances of rock art protection is particularly well developed. Books by archaeologists, videos by educational institutions, news stories on nightly TV continue to portray even environmentally sensitive people and rock art experts acting inappropriately in the vicinity of rock art panels. Naturally, even careful and caring members of the public feel safe in behaving toward rock art as they see experts do. The more interested or professionally involved a person is in the rock art field, the greater that person's responsibility to behave appropriately, and the greater the effect of that person's actions. The existence of interactive panels adds an entire new range of considerations to the type of protection needed.

The implications of interactive panels for protection of rock art sites may well be as urgent, important, and far-reaching as such measures are difficult to implement. In 1987 NPS Senior Archaeologist, Calvin R. Cummings (Cummings, 1987), stated for archaeological sites that in light of recent GAO studies, "...it would be totally reasonable to expect that the three reviewed agencies would immediately undertake a twenty year program to correct the deficiencies of the past twenty years." Meighan (1981) pointed out that "Rock art sites are among the most vulnerable of archaeological remains". In addition, it has now been shown (Johnson) that rock art as an interactive artifact is highly vulnerable to threats not obvious for a number of specific reasons, and that damage not apparent to standard recording methods may effectively destroy an interactive site, thus negating the possibility of an entire line of inquiry on questions of archaeological importance. The advantages of archaeological investigation of, as well as the public value of, an artifact still interacting with the environment as it functioned for its original makers should be obvious.

The importance of not touching glyphs or panels is obvious in light of the newly discovered importance of such features as depth and angle of pecking, roughness or smoothness of pecked edge, interaction of apparent random shapes or obliterated areas, and gnomon location possibilities. In addition, it is extremely likely that no site, including the one which is the subject of this paper, has even been thoroughly and accurately recorded regarding the glyphs themselves, much less interactions of the glyphs. It is necessary to consider rock art from a broad, environmental, site aspect rather than as an artifact detached from its surroundings. Until a rock art site has been thoroughly investigated for interaction, a zone or area approach to protection is necessary. Until proven otherwise, anything between the center of a rock art panel and the horizon must be considered as a possible part of the artifact. In practice, a zone approach as shown in Plate D1 probably would include all



ZONE PROTECTION FOR POSSIBLE INTERACTIVE ROCK ART PANELS

For this hypothetical panel, everything south to the horizon from the heavy black line (which should be drawn from top of cliff above panel center to points 30 degrees north of east and 30 degrees north of west) should be part of zone protection unless specifically eliminated as not capable of functioning as horizon or gnomon. The stippled areas in this hypothetical case would not support solar interactions and could be eliminated from zone protection on the basis of site survey.

possible interactive components. Although a practical gnomon distance from the panel may not exceed 10 or 20 meters, removal of large boulders on skylines, or building of structures or alternatively, road cuts, on horizons many meters away from a panel could change the effective sunrise or sunset time for a panel, thus negating its interaction. Zones should extend to the effective horizon for the panel.

Complete recording of glyph sites including interactive potential needs to be done. This has not to my knowledge been fully and completely done at any site yet. This need is urgent in light of the fact that even the best protective measures will take time to implement, and will not be 100% effective.

Damage to glyphs is a function of access (both to the glyph site and to the glyphs), visitor numbers, law enforcement presence, and visitor understanding of the fragile and irreplaceable nature of glyphs. See Plate D2 for an example of visitor impact. Official presence at rock art sites on public land needs to be increased. Public lands managers in the last few years have gotten bogged down in the office. Access to sites should be kept (or in some cases made) as tedious, time consuming or primitive as possible. Close access to glyphs should be restricted through education, alternatives such as video or slide programs in air conditioned visitor centers and sales of slides or photos, judicious placement of paths at glyph sites to unobtrusively steer visitors, and barriers where needed. Visitor numbers should not be encouraged to increase by "booster" publicity, and all entities interacting with the land management agencies should be regularly reminded that encouraging visitor numbers that destroy a site is ultimately self defeating.

For panels shown to not be interactive, a "zoo" approach (protect the glyph, let the visitors roam at will) may be sufficient. For interactive sites, the "wild animal park" approach is necessary: keep the visitors restricted to a specified area, let the glyph ecosystem function unhampered. Panels not yet categorized should be treated as interactive.

Camping should be prohibited within 500 meters of rock art sites. Encamped visitors often fail to maintain control of children and "outlaw" elements in their party, and free time to cause impacts is greater in camp.

Slopes below rock art panels must be protected to avoid increased erosion. Least damaging path for foot travel should be identified and established at glyph sites. This can often be done with very little effort or expense. Heavy equipment cuts which might increase erosion or cause slopes to slump must be avoided. Blasting, even at some distance, could disturb delicately balanced rocks which serve as gnomons or horizons for some interactions.

Any proposed roads or road improvements should avoid rock

art sites and/or include funding for adequate recording, study, and protection of nearby sites.

Salvage archaeology of rock art sites should regularly include thorough investigation and recording of shadow interactions, as this is where the major recoverable information in a glyph panel may be found.

Livestock must be excluded from the immediate area of rock art panels, both to lessen erosions and to avoid direct impact to panels. In many cases, only relatively minor fencing would be required.

VISITOR INTERACTIONS WITH MCKEE SPRING
PETROGLYPH SITE
June 16th and 17th, 1990

Note: "Close approach" indicates that approach to the petroglyph panels was stopped only by encountering the base of the cliff itself, effectively contact distance with the panels.

June 16, 1990

Hatch River pickup truck arrives 9:00 AM. 3 adults and 2 juveniles approach glyphs. Close approach was made to glyphs. Adult fingers were within centimeters of the glyphs. I was unable to ascertain if contact occurred. 2 juveniles both touched the glyphs and leaned against a panel. Visitors left site at 9:17 AM.

Hatch River bus arrives 10:00 AM. 6 adults and 6 juveniles approach glyphs. Driver remains with bus. Close approach was made to glyphs. Adult fingers were within centimeters of glyphs. Two adults clambered up a cleft between panels to the top of the cliff. Such clefts and cliff edges have now been shown to support specific site features which are a part of the artifact assemblage. 3 juveniles touched glyphs repeatedly and leaned against glyph panel. 1 juvenile repeatedly fingered glyphs even though told repeatedly by a relative to not touch them. Several adults were curious and asked me questions about the Fremont or about the petroglyphs. Visitors left at circa 10:11 AM.

Private vehicle arrives at top, or west end of site, 10:50 AM. An undetermined number of visitors approached the panel there. Direct observation of visitor behavior was not possible. Visitors left at 11:10 AM.

June 17, 1990

Hatch River Bus arrives approximately 9:50 AM. 3 adults approach glyphs. Close approach is made to glyphs. Adult fingers within centimeters of the glyphs. One adult steps on cultural feature. Visitors leave at 10:02 AM.

Adrift Adventures van arrives at site. 10 adults and 1 juvenile approach glyphs. Visitors are oriented by Adrift personnel before leaving van area and Adrift personnel accompany visitors to glyphs. Approach is orderly and as a group. Close approach to the glyphs is mostly avoided by the group approach, and the forming of a circle out away from the glyph panel itself while enjoying the glyph. The juvenile stayed with the adults of the group, and did not touch anything. 1 adult touched a glyph. Visitors leave at 3:48 PM.

To summarize, several things seem quite clear from this data. It should be noted that in every case that could be observed, visitation to the glyphs resulted in touching the glyphs, and in as close an approach as guide or physical barriers allowed. Average length of visit was about 15 minutes. Majority of visits are by concessionaires and occur between 9:30 and 10:30

AM. Concessioner behavior effects visitor behavior. The best protection is to avoid close visitor approach to the glyphs.

The effects of acid rain on rock art need monitoring and investigation. Decorative art work on stone buildings can be effectively (if laboriously and expensively) replaced. It would be impossible to duplicate the natural, random stone surfaces that hold rock art panels and contribute to the interactions. Even localized production of airborne pollutants upwind from rock art sites could damage them.

In education, stress the very real advantages to appreciating glyphs with a telephoto lens or good binoculars rather than close approach.

In case of purposeful vandalism, urge maximum effort to apprehend. Prosecution of vandals should include recovery of costs for studying damaged sites to retrieve maximum remaining information. When a glyph may possibly be of calendric or astronomic import, such studies should be done over a period of at least one year to identify all possible interactions.

Urge judges to levy large fines, require prison terms, and repay costs of prosecution. Professional archaeologists need to be more outspoken on law enforcement, protective measure, and in education of the public.

There is a problem of inadequate recording of glyphs, even at sites where supposed professionals have contracted to do the work. One reason is that certain faint or inaccessible glyphs may only be visible in certain light. Another reason is that even professionals tend to see the obvious to the exclusion of what is really there. Larger or more vivid glyphs get recorded, less obvious glyphs or features the observer hasn't been trained to look for get missed. Vandalism often isn't recorded. Irregular glyphs are not separated from exfoliation damage. Rock incorporation features are often unrecorded. The main reason is that not enough time is being spent at the site, by people trained to see. At a site I have intensively studied for some time, I still occasionally find a new feature. Recording should never be considered complete, but ongoing. The first step is recording of sites by public land managers or contract professionals. A good set of B&W photos with negatives and a set of color slides should be part of the agency file.

Artist sketches often have serious inaccuracies. The most valuable sketch is a result of projecting a color slide onto a sheet of paper and drawing over the resulting image, then returning to the site to verify any questionable features or shapes of the glyph and glyph panel. Vandalism present should be recorded with equal care. That much done, the agency archaeologist could get a lot of valuable help by drawing up a site sketch showing drawings of the recorded glyphs, duplicating it, furnishing it to patrolling rangers, and making it available

to dedicated amateurs upon written request and submission of a study plan and methodology.

In this way, all features would eventually be noted, and a further check on vandalism would be provided. Agencies would also have a degree of control over, and rapport with those likely to spend a lot of time at the glyph site. All work must be done without physical contact with the rock.

ELIMINATING INTRUSIVE RECORDING METHODS

It is a shame that in the case of rock art, which unlike other archaeological sites need not be damaged during study, intrusive recording methods used by professionals from Garrick Mallery's time to the present have resulted in damaged panels and glyphs. Worse is the fact that these methods are often recommended by professionals or quasi professionals to the public at large by means of various published documents. As a result of the publications, a method found to be damaging and discarded by professionals may still be in use by the public years later. It is time for the archaeological profession to assume the only truly safe position on duplication of rock art: no intrusive method is acceptable. In my studies of sun and shadow effects on glyphs, gnomons (shadow casting objects) have been located at distances of over 18 meters from the panel or glyph. Several gnomons have been located on unadorned rock within 10 to 40 centimeters of the glyph. One gnomon is formed of a small, raised, unpecked portion inside the glyph itself, perhaps half a centimeter high. In some cases the gnomons are located where someone casually viewing the panel might rest their hand or lean against the rock. One gnomon is on a detached boulder resting on slanting ledge of the bedrock about 6 meters from the glyph. People clambering up the ledge to access the top could dislodge or move this boulder easily, forever destroying the possibility of studying the interaction, and the overall site, which depends on interactions of multiple panels. Further, the depth and angle of pecking and the sharpness of the glyph edge have been found in some cases to play a large part in the observed interaction. Especially in the case of sandstone panels, even the sticky substance on the back of a scale stuck to the panel for size comparison during photography removes some grains of rock.

For the public, the only safe approach to rock art is a controlled and minimal one. Enjoy at a distance. People are not allowed to touch the Mona Lisa, either. For professionals, paraprofessionals, persons seriously interested in glyphs, the safe approach may be somewhat closer under conditions of study, but still does not include touching the rock in any way. This information should be speedily and repeatedly disseminated by the archaeological profession to all agency personnel, authors, contract labor, paraprofessionals, media people, and visitors.

Many researchers on rock art have commented that rock art is

being damaged at a rate that may find it gone in our lifetime. It would be a great shame if this priceless heritage, which may finally be on the verge of becoming understandable, should disappear because of our inaction.