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NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION NEWSLETTER



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THE PHOTOGRAPHY OF PETROGLYPHS AND PICTOGRAPHS

Hardwicke Knight.

A basic technique for photographic recording, worked out specifically in connection with the North Otago rock paintings and the Pitcairn petroglyphs, gives satisfactory results within certain limitations.

TECHNIQUE:

a. Apparatus and materials: A 35 mm camera with a lens giving high definition. (A Leicaflex with 50 mm f/2 Summicron lens, and a Contax with 35 mm f/4.5 Orthometar lens were used). Adox KB 17 film. Rodinol Developer.

b. Procedure: The camera is held in the hand as nearly as possible perpendicular to the surface to be photographed. A meter reading is taken and a stop used that does not require an exposure longer than 1/30th second. (This shutter speed is reasonable in the case of the precision instruments used, and would be with most models of the Leica and Contax, but not with the majority of single-lens reflex cameras.) The 50 mm lens should be stopped down to at least f/5.6. Photography should not be undertaken, without the assistance of flash, unless the light permits this exposure. The subject to be recorded should fill the frame, except for figures less than 30 cm across when it is better to keep sufficient distance to ensure adequate depth of focus. A metric scale is included, for use when enlarging, and is placed so that it can easily be cut off the final photograph if so desired.

Providing the lens is of high resolution, an acutance developer is used. Any acutance developer may be used, but it was found that Rodinol 1:100 for 16 minutes at 20°D with Adox KB 17 film gave the desired result, that is, some grain size of the fine-grain film is sacrificed to build up half-tones in the negative which restrain light-scatter during enlargement and results in apparently more definition in the final print. Enlargement is made to 10 x 12 inches on Agfa Brovira BH1 paper, developed in Johnson's Contrast FF developer. (A Leitz Valoy enlarger with Elmar 50 mm lens, stopped down to F/6.3, was used). The scale included on the negative is enlarged to an exact multiple, and a minimum variety of scale reductions are used. A smaller enlargement may sometimes emphasize the outline, but 10 x 12 inch enlargements are necessary to reproduce the rock texture convincingly.

TECHNICAL OBSERVATIONS:

Despite the very different techniques used in the creation of petroglyphs and pictographs, the same photographic technique serves for the recording of both. A flat lighting is most desirable. Side lighting, such as low sunlight or light reflected on to the surface from only one side, emphasizes the texture of the rock surface but does not increase the contrast between the drawing and the rock. In the case of petroglyphs, both rock texture and the engraving are increased in contrast and an improved rendering is not obtained. Increased contrast is often essential to define the drawing and this must be achieved photographically. If the pictograph is drawn in red pigment, but is very pale, by the use of a green filter. If the pictograph, originally black, is faded, by the use of an extra hard grade of printing paper (Agfa Brovira BEH1). If the petroglyph is indistinct, by utmost attention to the sharpness of the definition. When red pigmented pictographs are recorded, the green filter should only be used when added contrast is essential to distinguish the drawing. Normally red will reproduce boldly without a filter but with dark red drawings an orange (furniture red) filter and longer exposure will reveal more detail. In most scientific photography, definition is in itself capable of revealing structure and form, and side lighting filters or artificial treatment of the subject, will only detract from the value of the record.

USE OF FLASH:

When there is adequate daylight, it may be best to avoid making a rule of using the flash. A flash used close to the lens is liable to return a reflex from the rock face not detectable at the time of taking the photograph, and this will result in a hot spot on the final print obscuring fine detail. If there is skimming sunlight on the rock face, the sunlight should be completely shielded off, and the flash alone used. Since flat lighting is most desirable, the flash should not be used as a fill. When the light falls below the minimum for the exposure of the Adox KB 17 (40 ASA) film at the stipulated stop and shutter speed, it is better to use a flash than resort to a faster film. A low-powered flash, such as the Agfatron, with batteries charged, fitted to the shoe of the camera, is preferable to a heavy, powerful flash. The heavy outfit is not only unmanageable at difficult angles in rock shelters, but the high light output may necessitate more stopping down than modern fast lenses will allow.

INFRA-RED AND ULTRA-VIOLET PHOTOGRAPHY:

Experiments made using conventional infra-red black-and-white film and also Ektachrome colour infra-red film on pictographs suggest that these, as well as ultra-violet photography, may have some uses in research, but are not suited to routine recording.

WETTING THE ROCK SURFACE:

Pictographs are unquestionably increased in visibility when sprayed with water, and frequently pigment can by this means be differentiated from dark inclusions in the rock. This differentiation may be due to colour, for it is not so apparent on black-and-white photographs where both are rendered equally black. Experience shows that a good lens and acute development are adequate to emphasize indistinct drawings without resort to wetting. If wetting is used (after due consideration to the ethics of the act) then an area larger than that to be included in the photograph must be evenly sprayed.

On no account should a pictograph or petroglyph be emphasized by the addition to it of any pigment, not even chalk.

Photographic recording of the pictographs, when properly carried out, is the most scientific method because it leaves a maximum of judgment to the student who works from the record and requires a minimum of decision to be made by the field recorder. Tracings are to be deplored because either through tiredness or over-enthusiasm a too final decision is made at the time of recording which permits of no re-assessment later, and also because the pressure put on the rock face when a tracing is made is sufficient to cause the flakes and blisters common to limestone surfaces to crack and break away detaching minute portions of the pictograph.