



Center for the Integrative Research
In Conflict Archaeology

LOW-TECH PARALLAX PHOTOGRAPHY FOR IMPACT SCARS

A quick guide for small-arms impact scars
remote-assessment photography

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A quick guide for small-arms impact scars remote-assessment photography

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Part of the difficulty of positively identifying archaeological small-arms impact scars from photography is that the scar is fundamentally a three-dimensional feature that ends up compressed into a two-dimensional image. This guide offers a simplified method of getting an image that can convey the depth-dimension of a scar to a viewer on a computer screen for remote assessment, or for an appreciation of a scar's three-dimensional shape in a published format.

1. Set-up and context images
2. Taking the parallax photos
3. Viewing on a screen

1. Set-up and context images

Every good archaeological dataset needs context. In the case of impact scar photography, this should include a good plan diagram of the location on a structure where the scars occur. This doesn't need to be a scale accurate diagram if the wide-angle images are sufficiently clear, a simple dropped pin on a Google Maps image if often enough.



Figure 1 - A dropped pin on a Google Maps image gives enough information to know roughly which part of the building is being photographed in more detail

This should be coupled with a wide-angle image of the area in which the scars occur to provide feature-context. Often scars clip the edge of a buttress or wall corner, aimed at a probable target beyond, or occur on areas devoid of windows or doorways as the bullet impacts are those that miss their target and hit the structure behind. Only rarely are they targeted at windows and doorways where a structure has been actively defended or used as shelter. A wide-angle image of the scarring

location, ideally with a fixed measuring object such as a 1m ranging pole or a levelling staff to aid distance measurement and sense of scale, will help to identify the probable context of their occurrence, and potentially areas of further investigation.



Figure 2 - An array impact scars at the base of the tower of St. Bartholomew's church at Moreton Corbet, Shropshire, UK

Finally, a closer image of the scar group with a scale affixed to the wall will help to identify the relationship between the scars and their overall spread, which again can aid with understanding the type of fire against, and probable location of, the intended target.



Figure 3 - A closer image of the same impact scars at Moreton Corbet

2. Taking the parallax photos

Parallax imaging relies on the use of two images of the same object taken at slightly different angles, in the same way that depth-perception is achieved through typical human vision. To achieve this optimally for transmission to a computer screen, the images should be taken at a suitable distance, and angled such to reflect eye separation distance.

1. Position the camera at a distance somewhere between 50cm and 100cm from the target impact scar. Ideally, ensure there is a photographic scale or ruler attached to the wall close enough to the scar being imaged as to appear in the photo. This will also help with alignment and image adjustment later.

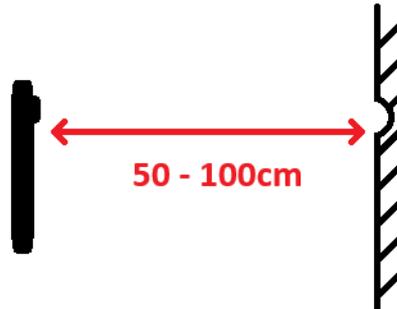


Figure 4 - Position the camera at 50cm to 100cm from the scar

1. Approximately align the camera with your left eye, and with the scar at the centre of the screen take a focussed image.



Figure 5 - Align the camera with the left eye

2. Without moving from the location, and as best as possible without rotating the camera, transfer the camera across to approximately align with your right eye. With the scar again at the centre of the screen, and take a second focussed image.



Figure 6 - Align the camera with the right eye and take a second image

Ensure that the images are taken in the correct order, or that the order is identifiable after leaving the site. Ideally, if taken sequentially left-to-right, the images with the earlier timestamp/image number will always be the left-eye image.

3. Viewing on a screen

CAUTION: This process can cause eye-strain, so take care not to cause eye injury or self-induce a head-ache!

This stage is relatively straightforward but can cause some discomfort. Open the images of the scar side-by-side on a computer screen in reverse, so that the left-eye image is located on the right side of the screen, and the right-eye image on the left, and with the scar at the centre of each image vertically aligned with each other.

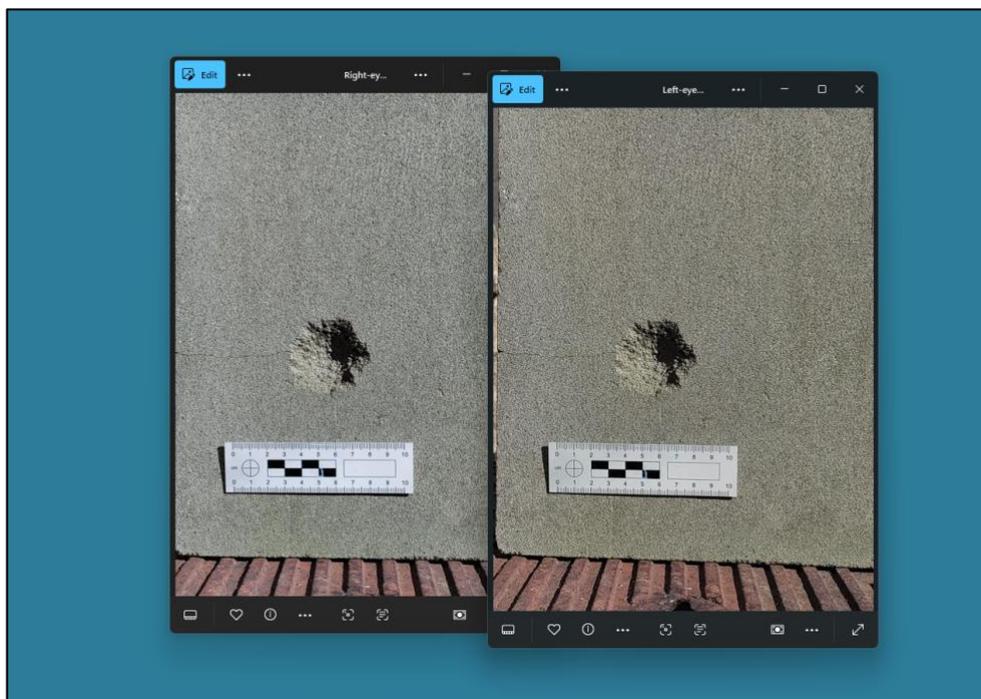


Figure 7 – Images of an experimental impact scar inverted and vertically aligned on a desktop for viewing

With the images in position, cross eyes so that the images overlap and align in the centre of your vision. Viewed together in this way, the images form an autostereogram, with the depth of the scar apparent as an optical illusion from the overlap of the two images.

This can be made easier by selecting and dragging the window of the fore-most overlapping image (in the example above, the left-eye image on the right) and moving it vertically to improve focus, or horizontally to reduce eye-strain and improve comfort in viewing. The closer the scars in the respective images are to each other will reduce potential eye-strain involved in viewing. It may also be beneficial to crop images to improve the position of the scars for further eye comfort.

With the images aligned and properly cropped, these can even be published digitally, or even for viewing in print should the author wish to invoke memories in the reader of magic-eye pictures from the 1990s.

Example autostereogram of an experimentally-produced impact scar

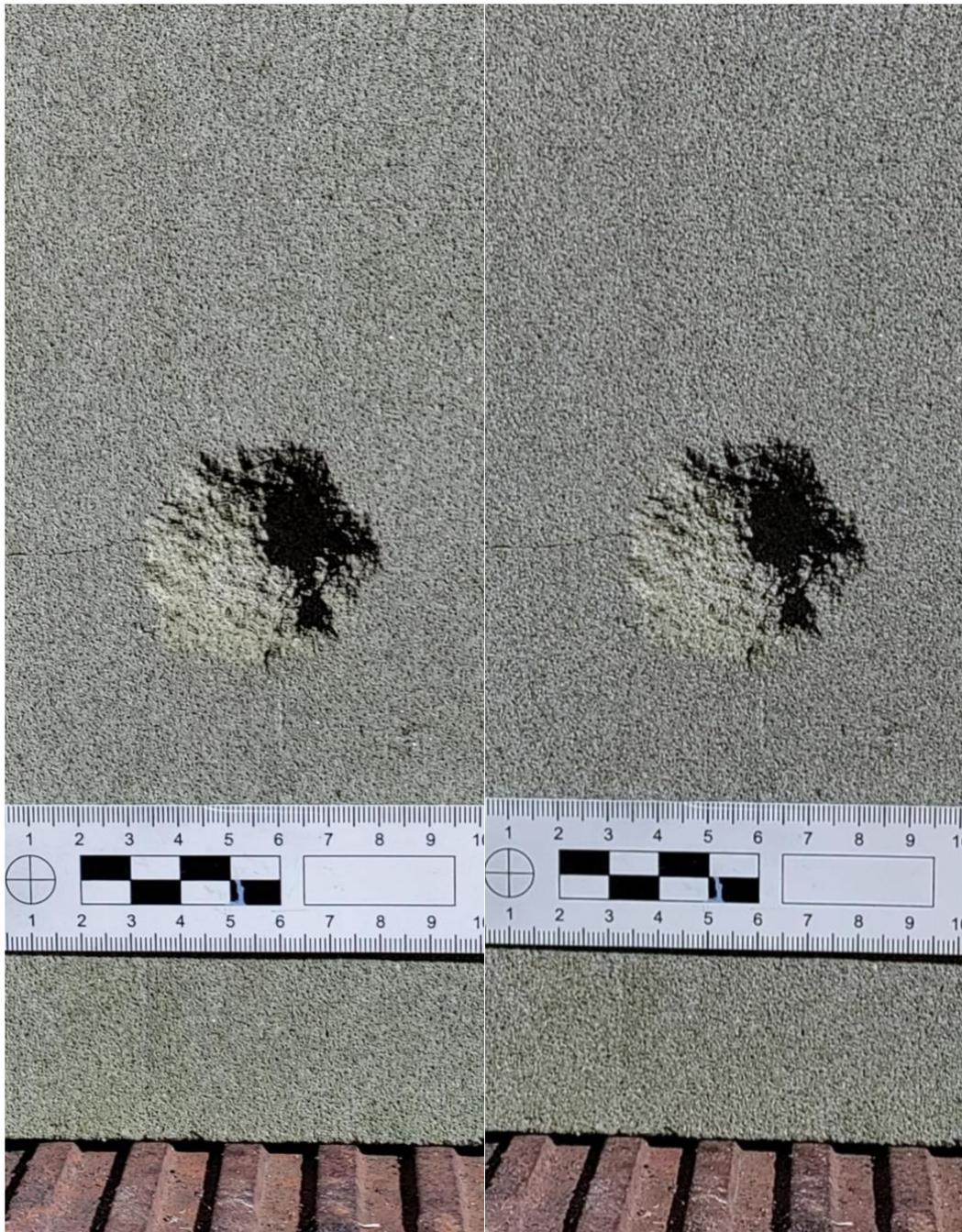


Figure 8 - Right and Left eye images respectively, cropped, partially colour-corrected, and vertically aligned