

Photography for Archaeologists Part I : Site specific record



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Introduction

This article is intended to be an introduction to photography for archaeologists. Before embarking on any serious site recording, it is advisable that you become familiar with your camera. It is recommended that you fully understand the basic functions of an SLR camera, such as shutter speed, ISO, aperture and depth of field as a starter point. Manual SLR cameras should be used and 'snappy' cameras should be avoided at all costs. Further information on artefact recording follows in a further article.

Before photographing trenches and features on site, there are certain issues that need to be considered. Firstly, you will need to think about photographic materials, whether you need good quality archival black and white film or whether you need colour (usually slide or transparencies as it is more stable for the archive). It is best to use two cameras loaded with both types of film and some site directors are happy to include digital these days although most County archaeologists still insist upon film for the archive. The difference between an image that 'will do' and a professional image is an issue of quality. Quality photographs will result in more archaeological detail; it will be a true record, rather than a poor image that looks something like the original. Do not forget that apart from the paper archive the photographs will be the ONLY pictorial way of capturing the archaeology after it has been destroyed by excavation and the importance of this is often lost in the field. A further article on achieving quality in photography will be discussed in a further article.

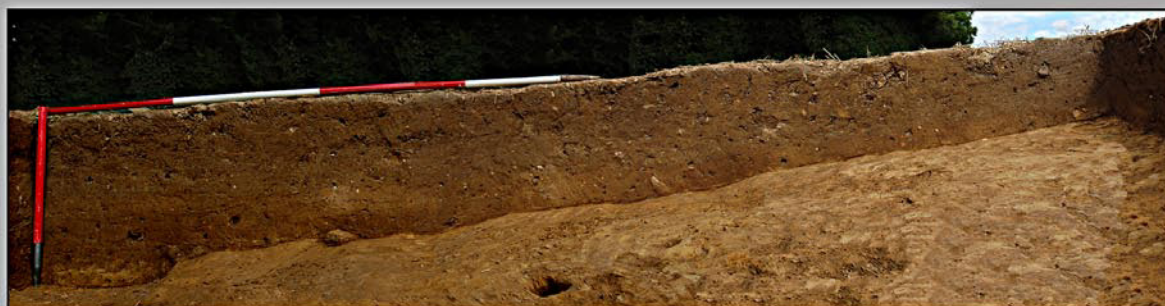
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Angle of viewpoint in trenches

Section faces

The laws of photography call for parallel planes if trying to minimize convergence, or distortion. The recording of stratified layers in section faces can prove difficult, as trenches are often narrow. It is desirable to gain as square a shot as possible, that is with the camera vertical and square on to the section face with the lens axis as near as possible to the mid-point of the section rather than looking down at an angle. This prevents spherical distortion to the edges of the frame, which is caused by lens foreshortening or perspective shift if lines are not parallel to the camera viewfinder. From a high viewpoint, the sections nearer to the camera would appear bigger and deeper than the sections further away from the camera. Using digital cameras are convenient as you can check instantly to see if you have achieved the desired effect first time. To gain a correct position, place the camera within the trench on a tripod, measure the lens to section distance (with a tape measure if needs be) and accordingly adjust the lenses' focussing ring (using the feet/meter scale if present) to line up the correct measurement if you cannot see through the viewfinder, which is often the case in narrow trenches. Alternatively put the lens onto auto focus if you have it.



West facing section edge, Lodge Field, Brightling 2008 (scales 2m and 50cm)

If you are unable to get the whole section in one shot you may want to consider the uses of composite 'joiners' where you shoot the section in several shots either horizontally or vertically and using software programmes such as Adobe Photoshop you join them together (Fig.2. was shot in nine images, raising the camera vertically on a tripod and overlapping each shot to minimize distortion).



Figure 1.

A true square-on photograph of a section face with the camera absolutely level (courtesy of Nicholas Haken).

Figure 2.

Composite 'joiner' using nine horizontal and vertically shot images making sure the camera was absolutely level for each shot, scales 2m. (Courtesy of Barcombe Roman villa dig, University of Sussex).



Figure 3.
A true square-on shot of a section taken in three vertical images and joined together, scales 1m.
(Courtesy of Pat Jones and the Boxgrove Project).

Try to avoid including too much sky or background detail above the top of the section at ground level as this may throw your exposure out and render the section details under-exposed, crop close to the top as in Fig.3. A misting of water will help bring out the texture and detail in the layers.

If you cannot fit a tripod into the trench, try hand holding the camera roughly half way up the section and keep it as square as possible. A useful tool you may consider purchasing for ensuring an absolute level position in this situation is a camera level, which slides into the 'hot-shoe' plate on top where an external flash gun is normally fitted (Fig.4).

Figure 4. Camera level slots into the hot-shoe plate



A good compromise can be met by holding the camera in this manner (Fig.6) but you will not be able to look through the viewfinder. A digital camera is ideal for setting up such a shot which you can use to preview the viewpoint and then position your film camera in the same spot. Fig.5 shows such a compromise with the same section shown in Fig.3 shot in one image.



Figure 5. Section face photographed by holding the camera inside the trench, halfway down the section using a camera level but without looking through the viewfinder, scales 1m. (Courtesy of Pat Jones and the Boxgrove Project)



Figure 6. Holding the camera halfway down the section face taking a square shot

Trench overview shots

When photographing a whole trench it may be necessary to use a stepladder (or improvise as in Fig.7) to gain a slightly higher viewpoint, if this is the case ensure for safety reasons that you have someone holding the ladder at the bottom to hold it steady. The extra height gained from using a ladder will enable the photographer to achieve a wider view of both the trench and other trenches or features alongside it. This gives valuable information about the context and relationship of other features on site, as well as considering the important 3-D depth of a single feature. Pictures of isolated trenches with no reference to other surrounding anomalies will have a limited use. It may be better to shoot a few pictures using a ladder as well as a few without, using the four cardinal points as starting points to view the trench from different directions to see which best position to shoot it from.

You need to think very carefully about where to place the scales in large areas as one will not be sufficient. Try staggering them in important areas and give a sense of depth as well as width/ length in deep trenches. You may need to use both vertically placed and horizontally placed scales in strategic points; think about minimizing coverage of important features but get them close enough to show a true representation of scale. See below for further details on the use of scales.

An ideal viewpoint for trench shots is the vertical position, however this can be difficult to achieve without expensive equipment such as poles and extending masts. A good investment is a tripod with a 'boom' feature which allows the camera to be positioned directly above features (Fig.8). As this does not give a high viewpoint, the images can be shot in sequence and joined together in a similar manner to the section shots discussed above.



Figure 7.
Even the use of a chair can add valuable height to an overview shot



Simple frames can also be made to accommodate the camera in a cradle, using remote control units to fire the camera shutter on automatic mode. I built a simple yet effective quadripod from copper plumbing pipe to shoot images from 3m high. The resulting images give high quality records of the trenches photographed in a cost effective manner; great for any thrifty site director! (Fig.9)

Figure 8. A simple knuckle jointed tripod gives an ideal vertical viewpoint



The use of such quadripods gives excellent results and the final images are of an extremely high quality, far surpassing the detail in a single shot, due to the amount of high resolution images used in one final composite shot. The results can be seen in Fig.10 below.

Figure 9.
Using the home-built quadripod with in-built scales. The camera is triggered by remote control. Photograph by Paul Derwent.



Figure 10.
Quadripod shot from 3m high comprised of nine images. Tiny details can be seen clearly when zooming in on a computer (Courtesy of Barcombe Roman villa dig, University of Sussex).

Lighting

It is always a problem achieving correct lighting when photographing features or vertical sections, unless they are deeper ones cut to a batter (at an angle to prevent overhang). It can be difficult to differentiate between layers of different soils, if they are similar colours but different textures. A common problem is shadow, with a trench half in the light and half out of direct light.



Figure 11. Diffused sunlight behind the clouds.

Figure 12. Direct sunlight diffusion without



It is best to wait for the clouds to diffuse the sunlight if it is a sunny day or to photograph the feature or section on an overcast day (Figs.11 and 12). However bright sunlight is not always a bad thing and slight side lighting is good for sections that have clear relief and surface texture, such as wall foundations, which are best shot from slightly above and to one side, showing the junction with the floor. If you find that one side is in shadow, use reflectors made of foil or white cardboard to fill-in the darker side. Flat soil sections or features maybe better with more oblique side-lighting in early morning or late afternoon sunlight. The best form of practice is to observe the trench in varying lighting conditions to determine the best results. Alternatively, the use of electronic flash to one side of the camera will enhance texture if used to light the surface at an oblique angle but this is not common practice and should not be attempted unless you are familiar with electronic flash. Alternatively compromises can often be met with a little creative thinking and 'items' close to hand can be utilized to cast shadow over trenches! (Fig.13).



Figure 13. Use people to cast shadows effectively where needed. Tarpaulins are often to hand and can also be used to good effect.

Scales

These are essential to give accurate measurements and a sense of size and depth. Generally you will find these in lengths of 2m, marked in 50cm bands ranging in size from 2m, 1m with 50cm and 25cm for smaller features. Smaller ones are available for artefact recording, which will be discussed in the next article. The scales need to be parallel to the edge of the cameras' viewfinder and square on to the edge of the section or trench and as close to features/artefacts where possible. If the camera is at a slight angle, place the scales at a parallel angle to the camera so that they are square on to the camera. This way, the scales are on the same plane as the lens axis, to minimise perspective distortion. If the scales



Figure 14.
Scales placed and photographed at odd angles and positioned in the wrong place can give confusing information

are not on the same axis as the lens, distortion will occur between the nearest point of the camera and the furthest point from the camera. However, care needs to be taken if trenches are deep, as scales placed at an acute angle will not give a true indication of depth or angle (Fig.14).

With large areas, three or more scales may be used, placed in the foreground, mid-ground and background for definitive reference points in equal proportions. These may be 2m survey poles or even people used as scales. If using people, it is best to have them in contrasting coloured clothing to their background so that they are more clearly recorded. It is important to note that scales should have the measurements recorded clearly on their surface, so it is instantly recognisable if the coloured sections are measured in 1cm or 10cms bands, for example (Fig.15).

In addition to the use of vertical and horizontal scales, you may wish to have a north arrow in position (Fig.16.), alongside a trench information board. If measurements



Figure 15. Small scales for small finds

are not included on the scales, remember to make a note of what size they are as it is easy to forget if your scales were 2m or 1m as some look very similar in a final photograph. It is always good practice to use some kind of photographic recording form in the same way that you would record context details (see next page.)

Photographic field recording notes

Site Name and location:

Field director:

Photographer:

Site type:

Film type:

Sheet number:

Date	Time	Frame	Weather	Context	Exposure	Direction	Notes
		1					
		2					
		3					
		4					
		5					
		6					
		7					
		8					
		9					
		10					
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		30					
		31					
		32					
		33					
		34					
		35					
		36					

other observations:

The board may be a small blackboard or a magnetic board which states the trench number and any context information (North arrows can easily be incorporated onto these boards). Consequently the photo can be easily recognised for salient features when writing up site reports. The problems of including such boards means that important details can be obscured and they do look rather cumbersome, so it may be best to take a shot with and without the board unless directed otherwise. Most units will use these boards but research digs often dislike using them, always check with the supervisor/director first.



*Figure 16.
Simple scales and an arrow
may be all that is needed
(scales 50cm).*

Lenses

It is advisable that the performing qualities of specific lenses are researched and understood before selecting and using. A basic, standard lens would be suitable for most situations, giving a view similar to that which we see with our own eyes. Distortion is minimal and they usually have a minimum aperture (e.g. f22) for maximum depth of field (maximum focussing range). Sometimes wide-angle lenses are useful in tight spots. They will 'squeeze' in information giving a wider viewpoint and are therefore good for placing sites in context with their surrounding environment.

However, they will give exaggerated edge distortion and enhanced perspective (Fig.17). They also make subjects appear smaller and further away (unless close to the camera) but are good for enhancing the focusing capacity (depth of field).



Figure 17.
Use of a wide angle lens will give you a wide perspective but may exaggerate scale!

Occasionally a slight telephoto lens may be used. This gives the effect of flattening perspective and is usually employed to photograph objects far away (Fig.18), making them appear bigger and closer. This may be useful when photographing different areas on site and investigating how they relate to each other.



Figure 18
A telephoto lens will 'flatten' perspective but will give you a narrower range of focus.

Cleaning up the site

It is far better to be fully prepared by making the effort to plan the pictures carefully by paying attention to small details. If images are being used for publication, clip the edges of the trenches carefully, also making sure that the baulk edges and profiles of the sections have been thoroughly cleaned back with a good trowelling and sprayed with water if dry (to enhance colours and cuts). The floor of the trench should be cleaned up and brushed and any bags, buckets or mattocks left lying around should be moved out of shot. Once the preliminaries of positioning scales, boards and arrows have been done, viewpoint and lighting can be considered.

Finally, don't forget that it may be worth taking a selection of shots for best effect, from different angles and viewpoints (unless finances dictate this liberal approach with costly film!). In addition, make sure that you really understand how to use the camera exposure controls before using the camera.

Recommended reading

Basic photography. Michael Langford, 7th edition 2000. Focal Press, Oxford.

Camera techniques in archaeology. V.M. Conlon, 1973. John Baker, London

Photography in archaeology and conservation. Peter G. Dorrell, 1994. Cambridge University Press, Cambridge.

Photography for archaeologists. M.B. Cookson, 1954. Max Parrish and Co., London.

Other Notes

Scales available from:

<http://www.pasthorizons.com/shop>

and

<http://www.aerial-cam.co.uk/scales.html>

Elevated mast services are available from the author. Please contact me for prices etc. at; <http://www.vertical-photography.co.uk>

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