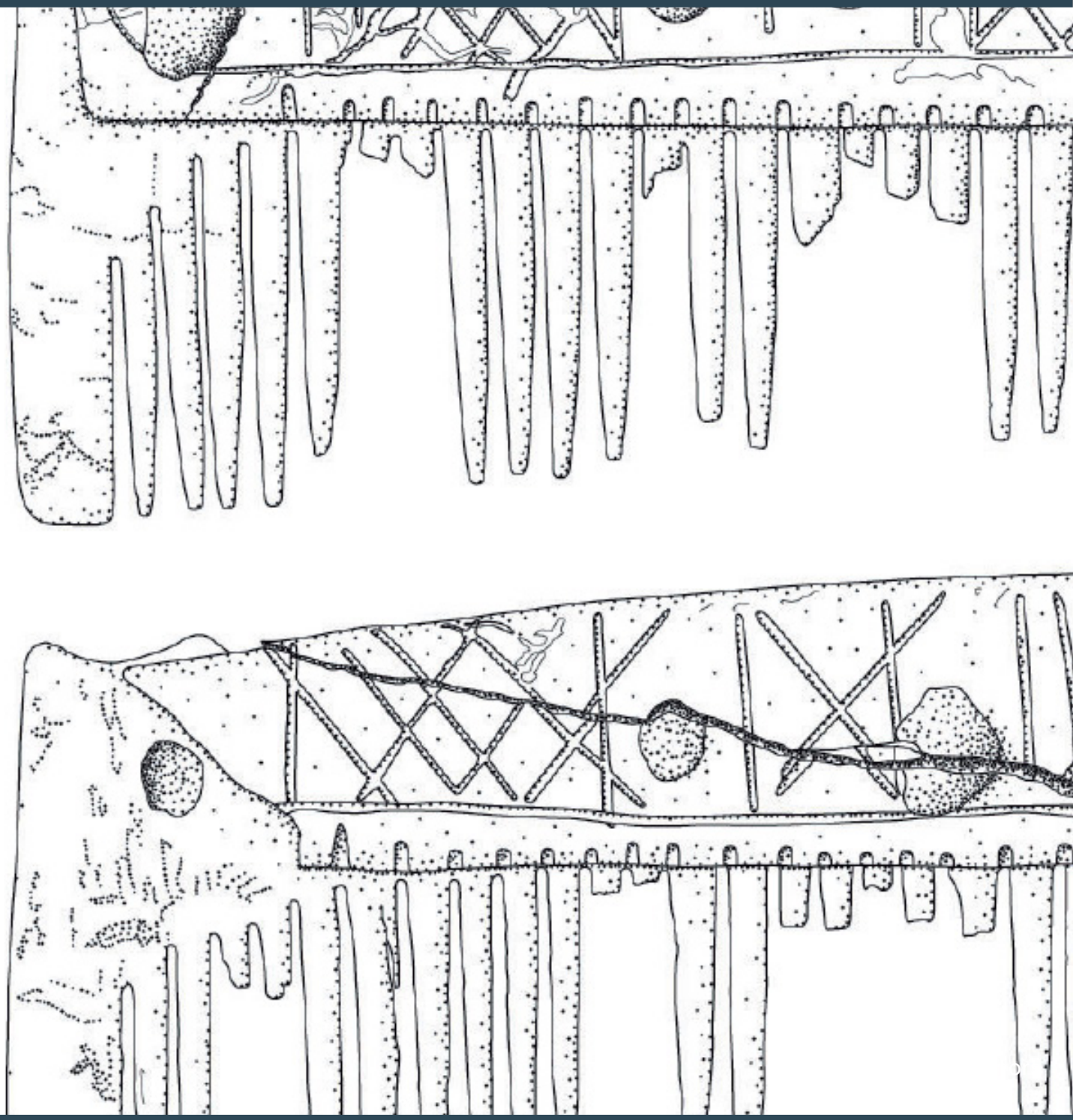
BAJR

Guide 32

Archaeological Illustration
Small Finds



BAJR Practical Guide Series
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June 2013

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BAJR GUIDE 32:

ARCHAEOLOGICAL ILLUSTRATION – SMALL FINDS

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Introduction

This guide aims to serve as a meaningful introduction to the illustration of small finds, not solely as an academic discipline, but as a discipline operating within a commercial environment.

As such I have written the guide with the following two aspects in mind:

Digital Technology

Few guides to small finds have been written in the past, and those that do were written before digital technology had made a significant impact on the way that archaeological illustrators work.

Collaborative process

Similarly, previous guides tend to make no mention of how important it is to be aware of the fact that the illustrator is part of an integrated process and needs to work within a set budget and does not work in isolation. An illustrator should be in touch with specialists to discuss significant aspects of any given assemblage, a project manager to discuss deadlines, and typesetters to confirm the preparation of illustration ready for submission to journals.

Accordingly, I have made particular reference to both how digital technology can aid the illustrative process, but also how an illustrator does not, (or at least should not), work within a vacuum, and is part of an integrated process.

Case studies

I provide two examples of small finds illustration that I offer as case studies: A medieval bone comb, and a clay smoking pipe. The process of measuring and illustrating these objects is extensively illustrated, and by applying the principles demonstrated, the reader should achieve a good understanding of how to tackle any small finds that they may be required to draw.

Purpose and principal of archaeological illustration

To clarify, '*small finds*' is a term that refers to archaeological artefacts of all kinds. Small finds, when recovered from an archaeological context can aid interpretation of that particular site.

One of the most common questions that the archaeological illustrator encounters is, 'Why not just photograph it?'. The answer is that whilst a photograph can complement a line illustration by communicating texture and colour, a well executed illustration will, alternatively, effectively communicate an object's three dimensional nature.

The purpose of an illustration is therefore:

- ***to produce an accurate and detailed record that can be used for comparison***
- ***to emphasise aspects of the object that the specialist has identified, (eg: maker's mark).***
- ***to inform others - images are often a simpler form of communication than text.***

This guide will address the most common strategies available when drawing small finds, but cannot cover all eventualities, there will always be unique objects that cross your drawing desk and as such will require a unique approach. However, whatever small find you are drawing the general principle remains the same; to draw an accurate outline of the object, as if viewed from directly above or from the side, and to scale.

Traditional Practice and Digital Technology

The principle of archaeological illustration outlined above remains the same, and digital technology has not changed this: What it has done has provided different tools, in the form of graphics software and scanning hardware to enable a more efficient execution of illustrations. This guide addresses how to illustrate small finds using existing principles within a digital environment which is now almost ubiquitous. Please note that this guide does not address the detail of how to illustrate digitally, as this will inevitably vary between illustration packages.

Colour scanning, photography and printing

With the advance in all three fields of technology, (scanning, photography and printing), it is becoming easier to include colour illustrations within publications – not least because colour printing is becoming cheaper. However, it is important to bear in mind whether an object would benefit from being portrayed as a colour or black and white image. A colour image would most likely suit a reproduction of an enamel brooch with several colours, for instance. On the other hand, a black and white image would be more appropriate to depict an object where the decoration is obscured by residual staining: In making a black and white illustration the illustrator is able to ignore such staining and show only the information that really matters.

Tools and Equipment:

Drafting film for initial pencil drawing.
Otherwise known as 'permatrace', this is tough and reliable, but scrap pieces of tracing paper are just as reliable for transferring profiles.

Hand torch or **angle-light** is useful to give you a raking light that will help bring out details upon the object.

Profile gauge for calculating the profile of an object. There will be instances where it is not appropriate to use a profile gauge, for instance where an object is particularly fragile.

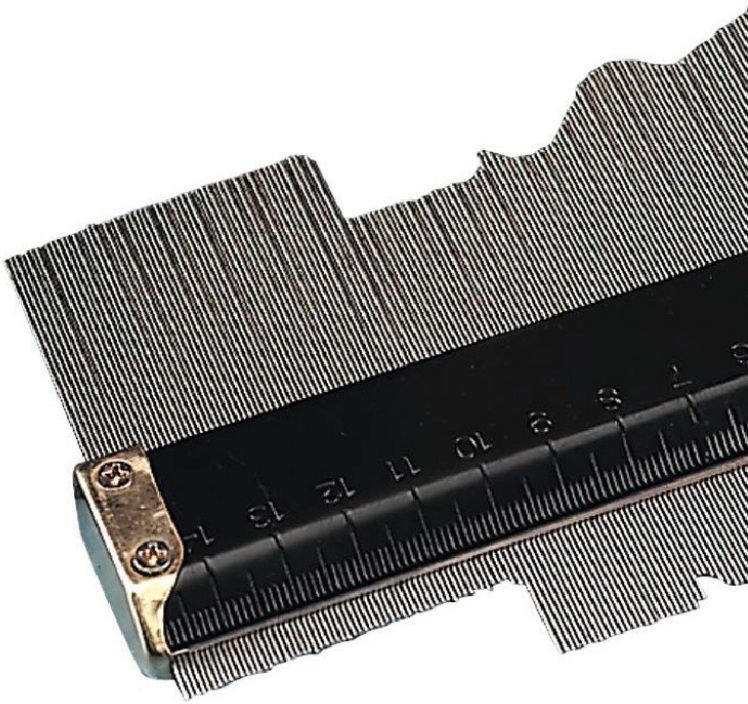
Calipers for measuring the dimensions of a particular object.

Pencils are necessary to help make the initial measurements. A hard pencil (3-4H) will be necessary to take a profile, complemented by softer pencils, (2B), for taking a rubbing of decoration.

Flatbed scanner for importing profiles into your software package. Flatter finds such as combs make ideal candidates to be scanned directly into software packages, as will be discussed later.

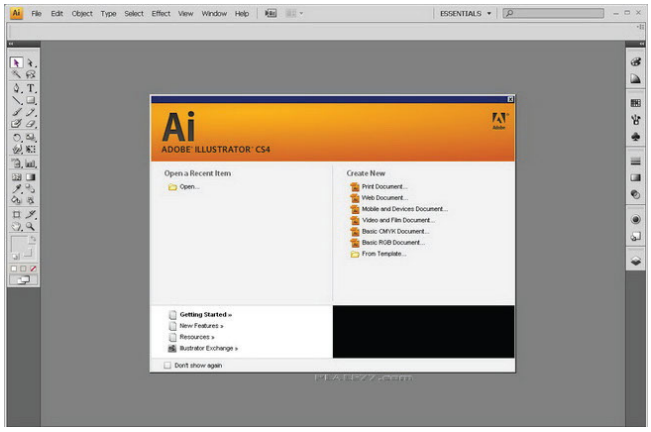
Drafting tape for combining permatrace profiles. Drafting tape is less 'sticky' than normal sticky tape and so allows the illustrator to experiment more freely at combining the permatrace to establish the correct profile.

Tissue paper - for rubbings of decorations to be found on objects.



Graphics tablet for illustrating in software packages. Most illustrators will find that a graphics tablet is more intuitive than using a mouse.

Illustration software package for drawing up the final illustration. The industry standard vector package is Adobe Illustrator, but there are a variety of software packages available.



Whilst some illustrators still draw free-hand, digital technology allows for more flexibility in terms of editing and 're-purposing'. For example, if the same illustration needs to be presented at different scales for a variety of different publications.

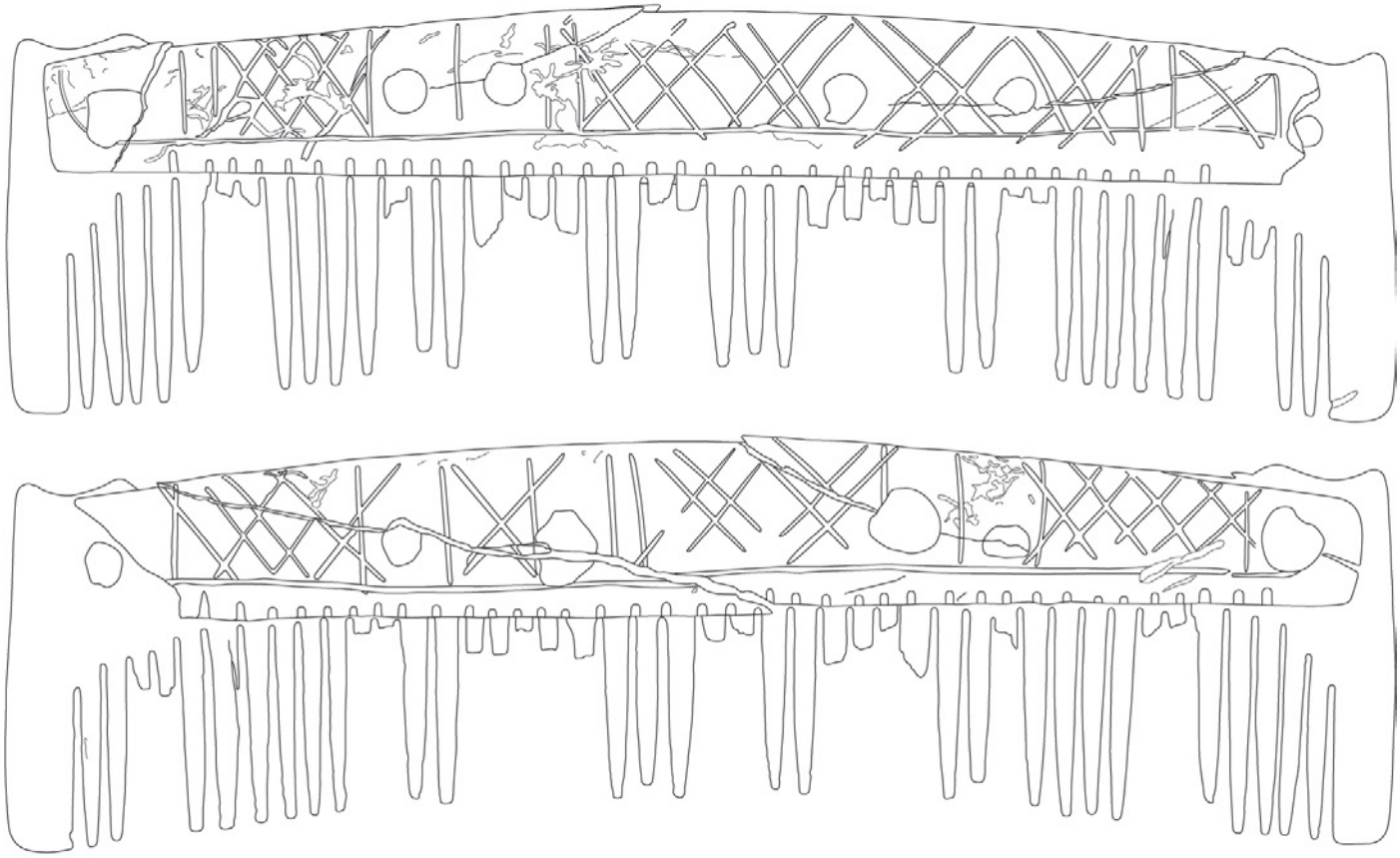
Conferring with the specialist

The illustrator does not – or at least should not – work within a vacuum: a preliminary discussion with the specialist will prove beneficial. A specialist will know the particular aspects of an object that should be emphasised within a drawing, which can be anything from a 'maker's mark' to some faint decoration that needs to be highlighted. They will also be able to recommend illustration priorities if there is a limited budget. As such, a good working relationship with the specialist will save time and money in terms of edits and so on.

Medieval bone comb from Eldbottle, Edinburgh

Illus 1: Photograph of the medieval bone comb, (© Headland Archaeology Ltd.). Whilst the photograph does demonstrate the texture and colour of the object, an illustration allows the illustrator to emphasise the decoration and convey the construction of the comb. One can immediately see how such a flattish object would lend itself to being scanned.

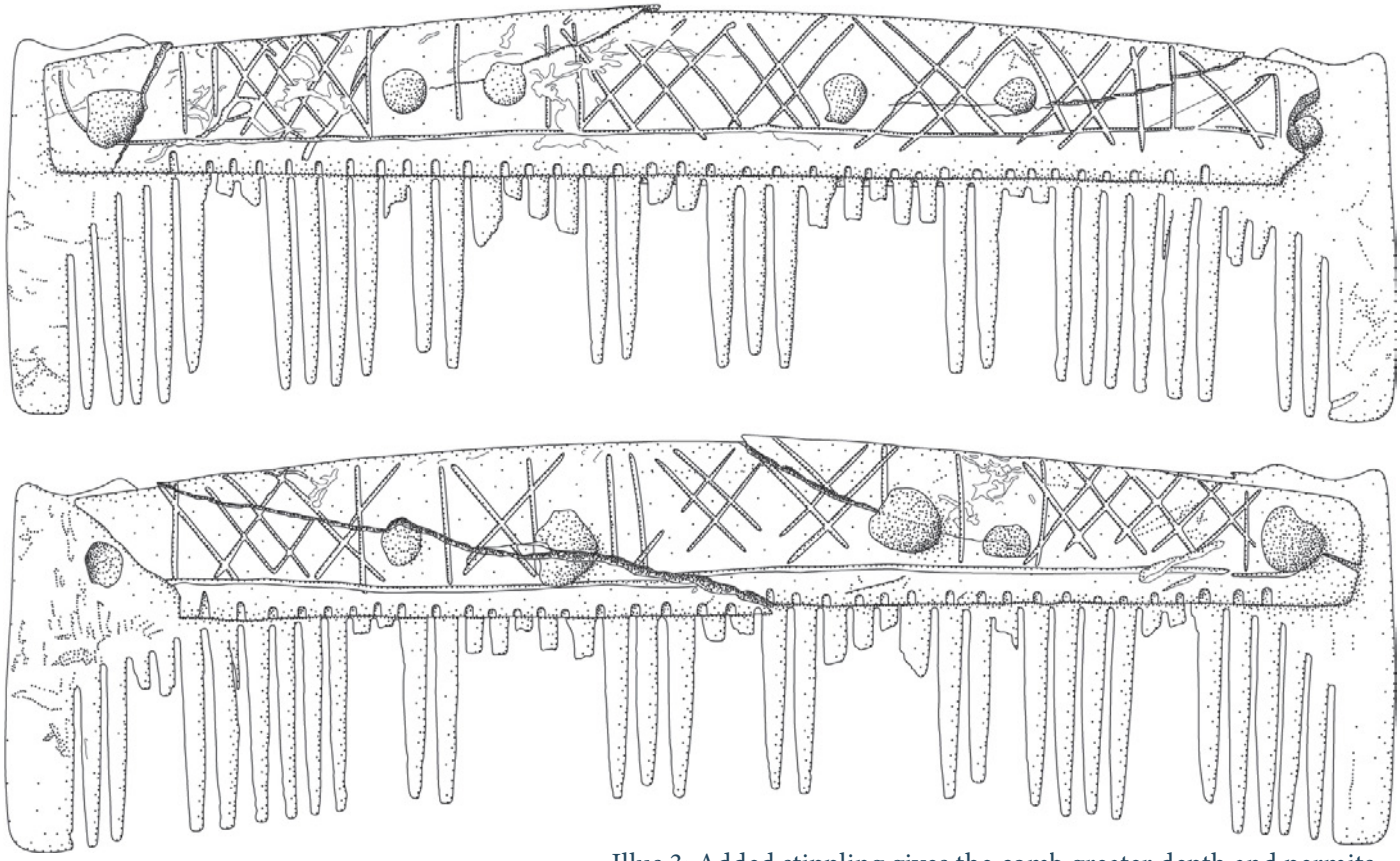
Flat, or 'flattish' objects are easier to deal with because they can be scanned directly into a graphics program without fear of distortion. The object can be measured using calipers and rectified within a photo-editing program to correct any distortion that may occur during the scanning process. The outline of the object can then be traced within a graphics program, I would recommend a line weight of between 0.3mm - 0.5mm. (Illus 1)



Illus 2: A line illustration of both sides of the comb appears quite minimalist, showing it's basic form and decoration.

Tracing (Illus 2)

The decoration can then be traced. Be aware that convention dictates that an object is always lit from the top-left. I would recommend a line weight of 0.3mm for decoration that is in shadow, and 0.15mm for decoration that is in direct light.



Illus 3: Added stippling gives the comb greater depth and permits the viewer to interpret it's form more easily.

Stippling

A well-executed line illustration is often sufficient to portray the most important information, and if you are working within a limited budget sometimes this is the only option. However, the most attractive illustrations are stippled, and though this takes additional time and therefore additional money, it gives added depth and form to the object.

Within a graphics program a 'stipple' is in effect a filled 'circle' that can be turned into it's own brush, (as in adobe illustrator). When using a graphics tablet the 'stippling' process can be carried out quite intuitively, just as would be done 'traditionally' with a rotring pen.

Section

Illustrations of objects should always include a section. There should be enough cross-sections of the object to allow somebody who has not seen the original object to be able to reconstruct it – at least in their mind's eye. As such an illustration would include more than one cross-section if the thickness/form of an object is quite varied. Depending on how robust an object is, a cross-section can be obtained using a profile gauge. However, since the comb is made from bone and is quite fragile it is better to use calipers and take measurements from which the section can be re-created.

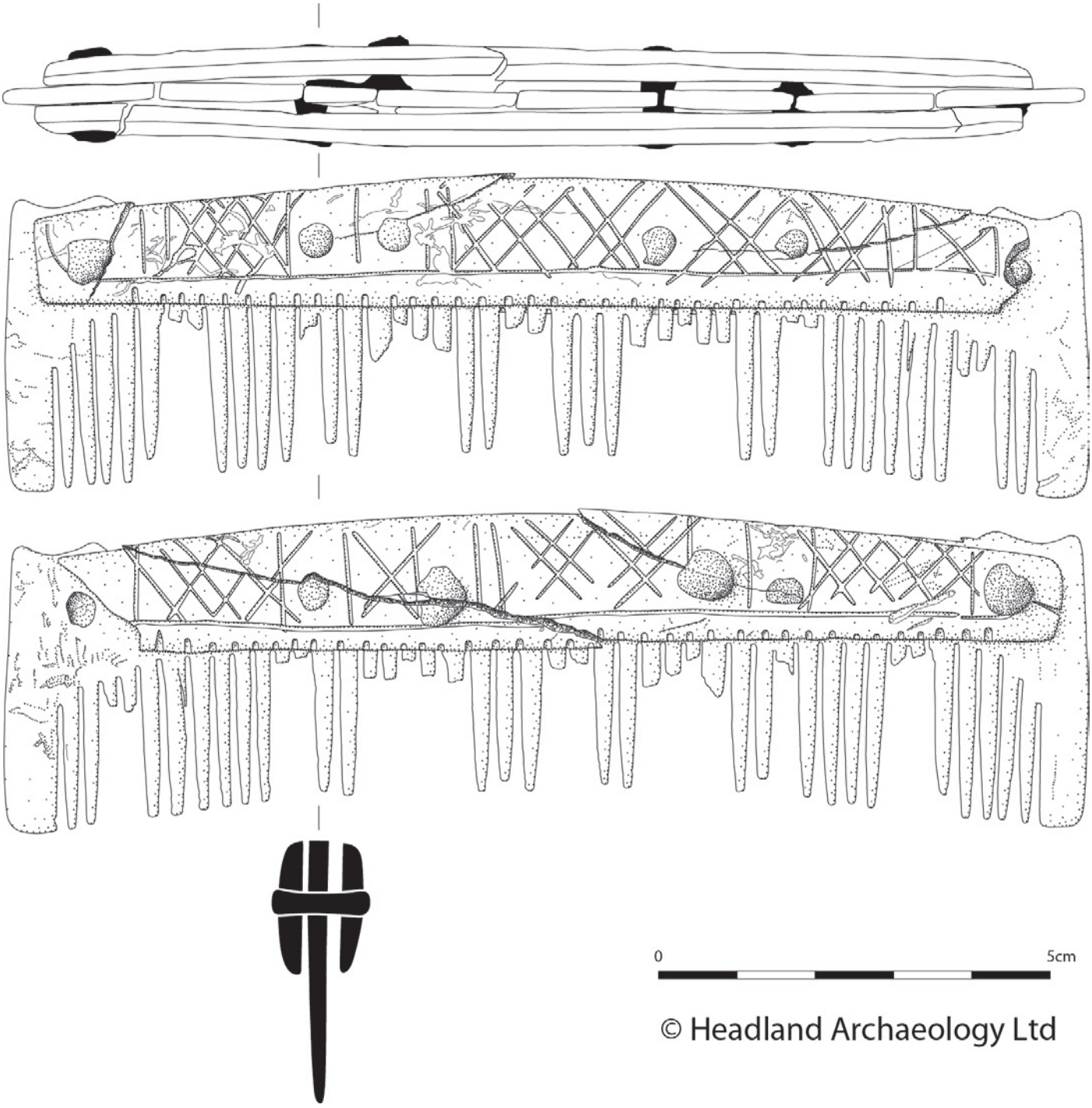
The viewer of the bone comb illustration will be able to see how the different views and cross-section combine to show how the bone comb was constructed from several different elements and held together with 'pins'.

Illus 4: An indispensable part of the illustration is the section that communicates how the comb was assembled. In addition to the section at the bottom of the illustration a 'top view' has been added.

Scale

Just as illustrations should always carry a section, they should also carry a scale. In this instance, the size of the comb means that it can be rendered at a scale of 1:1. The scale that an object is portrayed at is determined both by the actual size of the object and the dimensions of the publication that it is appearing in.

The illustrator will need to make a judgement call on the best scale to use, though standard scales are 1:1, 1:2, 1:3, and 1:4. For particularly small objects it may be necessary to scale the object up, for example, to 2:1, in order to examine the detail on, say, a brooch.

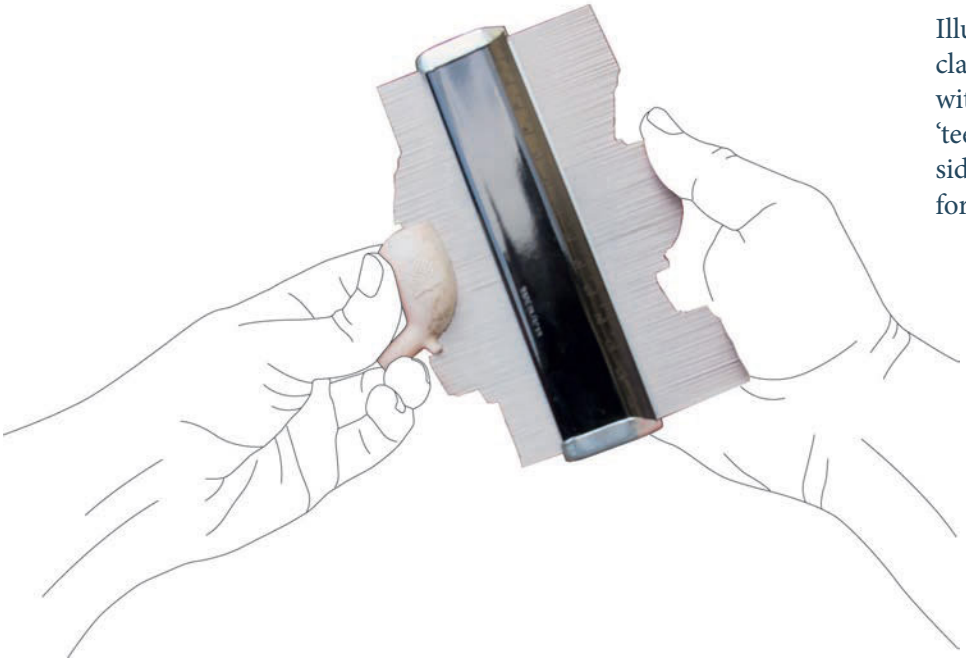


Illus 5: Every illustration requires a scale to indicate the size of the object. In this case, the comb can be portrayed at a scale of 1:1. In addition to the section at the bottom of the illustration a 'top view' has been added. Note that the top view does not carry stippling so as not to confuse the viewer, focussing on how the comb was assembled with the 'pins' that can be seen in solid black.

Smoking pipe from Newhailes, Edinburgh

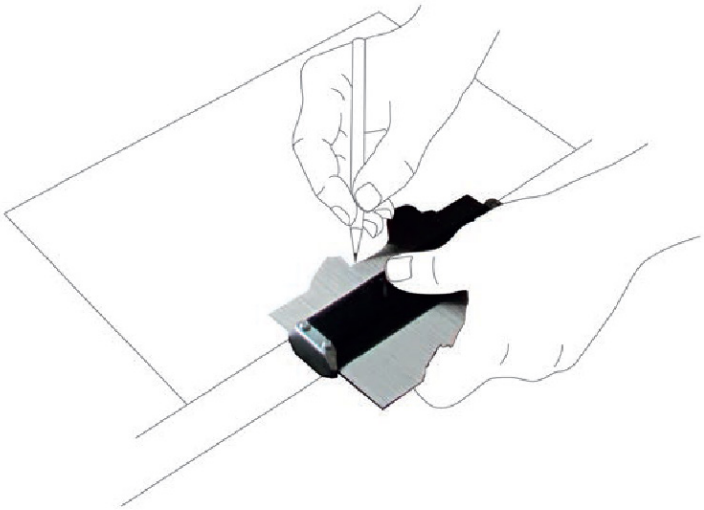
Obtaining an object profile

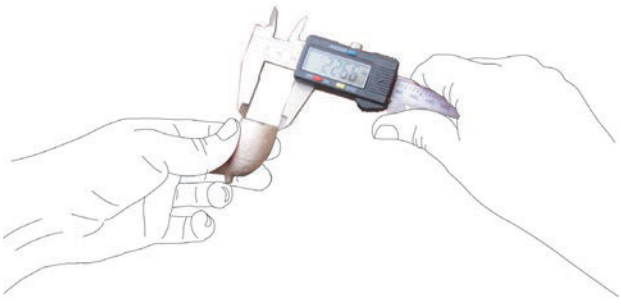
In contrast to the bone comb, the clay pipes are quite robust and so allow the illustrator to use a profile gauge upon the object to obtain a profile. This is achieved by gently pushing the 'teeth' of the profile gauge against the form of the pipe, (Illus 6).



Illus 6: Given the robust nature of the clay pipe, a profile gauge can be used with confidence: Gently pushing the 'teeth' of the profile gauge against the side of the pipe provides the external form of the pipe.

To obtain a complete outline of the exterior at least two profiles will need to be taken. These profiles can then be transferred to permatrace using a pencil to trace the profile outline (Illus 7), and then combined using drafting film. To match these profiles accurately it is best to use calipers to check measurements such as the diameter of the pipe bulbs (Illus 8).



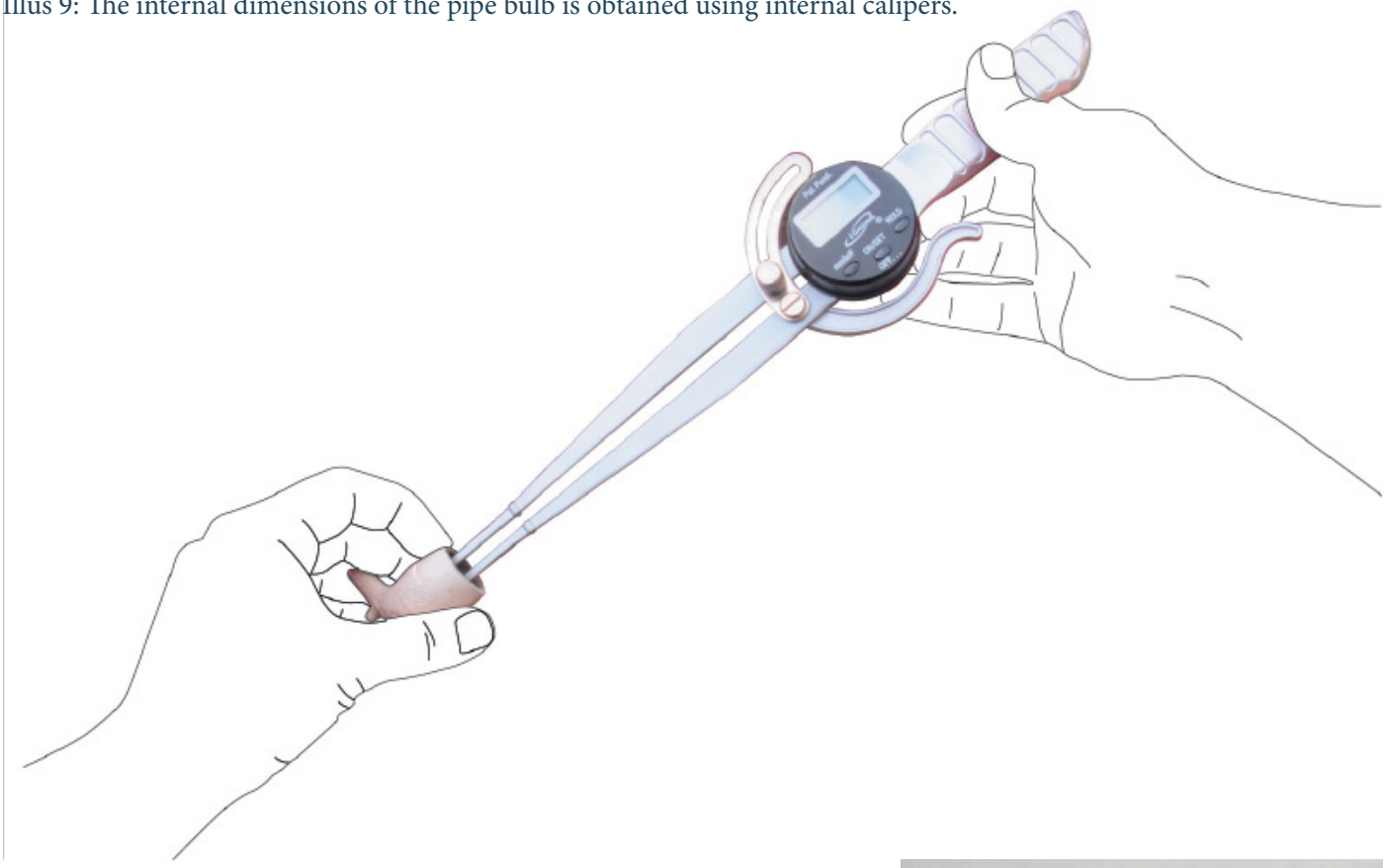


Illus 7 (left): The profile is transferred to permatrace by drawing a pencil across the 'teeth' of the profile gauge.

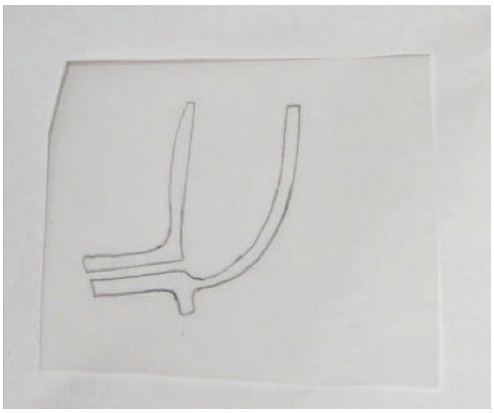
Illus 8 (above): The dimensions of the pipe is checked using calipers.

An additional set of profiles are required to accurately convey the interior of the pipe. Owing to the fact that the interior can be somewhat inaccessible a combination of profile gauge and internal calipers is probably necessary (Illus 9).

Illus 9: The internal dimensions of the pipe bulb is obtained using internal calipers.



After the interior profile has been successfully added to the exterior profile the complete profile can be scanned in and traced in a software package (Illus 10).



Illus 10: The completed profile seen here can now be scanned and traced within a software program.

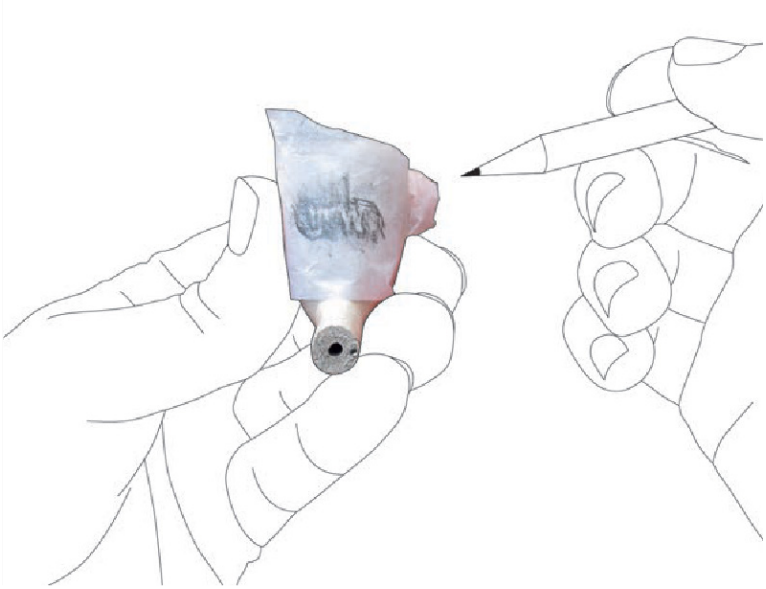
Illus 11: The decoration upon the pipe may be scanned at high resolution.

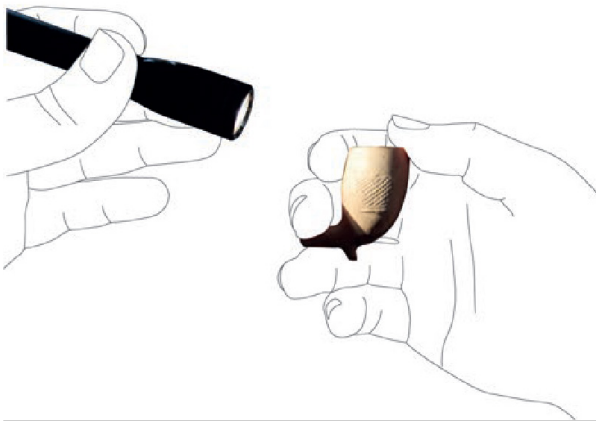
Drawing the decoration

Whilst a pipe is very much more of a three-dimensional object than the comb that was previously described, since the object is still quite small, the decoration – in most circumstances – can still be scanned in: The decoration is only a few millimetres away from the scanner and so can be accurately scanned, (Illus 11). Bear in mind that some compromise will be necessary when compressing a 3D object onto a 2D surface anyway: This is after all the perennial problem that cartographers face when representing the globe on a flat surface.

In circumstances where this is not possible, a tracing of the decoration using a soft pencil and tissue paper can be made (Illus 12).

Transferring the decoration accurately is not simply a case of tracing the scanned image: Using a flashlight or angle-light the illustrator is able to observe aspects of decoration in all its complexity, and ensure this is represented in the final illustration (Illus 13).



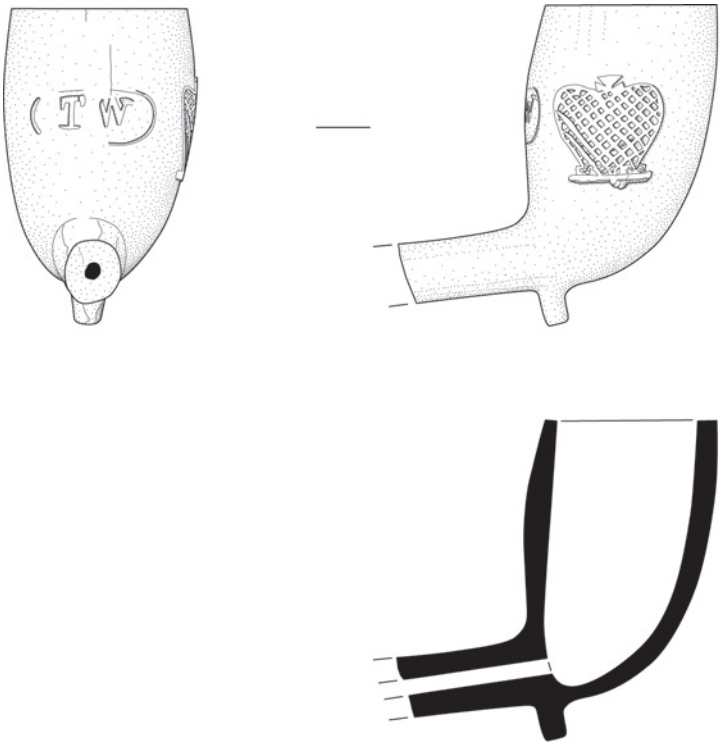


Illus 12 (above): The 'maker's mark' is obscured by the existing pipe stem so cannot be scanned. In these cases, the necessary details can be obtained by overlaying tissue paper and gently rubbing a pencil over the decoration.

Illus 13 (above right): A flash-light is used to carefully examine the decoration upon the pipe.

Illus 14 (below right): The finished pipe illustration, complete with scale and section.

Stippling the object and adding a Scale: Just as with the bone comb, a more fully realised depiction is achieved by stippling the object. As always, apply a scale to the drawing: Just as with the comb, the pipe is of such a size that a scale of 1:1 is appropriate. (Illus 14).



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Publication Preparation:

An integral but often over-looked part of the illustration process is preparing your files for print: It is worth spending time getting this right, since printers and typesetters are not necessarily aware of how you want your work presented, so it pays to make their work as easy as possible. Remember that they are not illustrators!

Submission format:

Avoid inserting images within a text document: Provide your text and images in separate – referenced – files.

Typesetters will often request that illustrations are submitted in either/or vector format, (eg: .ai – adobe illustrator), and tif, (Targetted Image File), as these are the easiest files to work with.

When exporting TIF files for print make sure you export your images to at least 300dpi. Remember that the lower the resolution the more blurry an image will be. In fact there is no harm in submitting an image at 600dpi.

Publication dimensions:

Make sure that you submit images that will fit the dimensions of the publication they are intended for: Journal dimensions, for instance, vary widely, and it is possible that if an image is too large for a particular format the typesetter will simply 'shrink' the image to fit, risking inaccuracy. Remember to include a scale!

Colour Preparation:

Remember to convert your file to CMYK – the standard model for printing. Colour printing uses the CMYK model of four ink colours (Cyan/ Magenta/ Yellow/ Key, in which Key=Black) Be aware of any Pantone swatches in your artwork; unless you need to include a specific Pantone colour match (in a logo, for example) it's best to convert the Pantone to a CMYK value to avoid paying for a fifth colour.

You can check the colour separation preview before sending it off to make sure only those colours you intend to use are present: In Window>Separations Preview, select Overprint preview; you can then selectively turn off any 'redundant' colours.

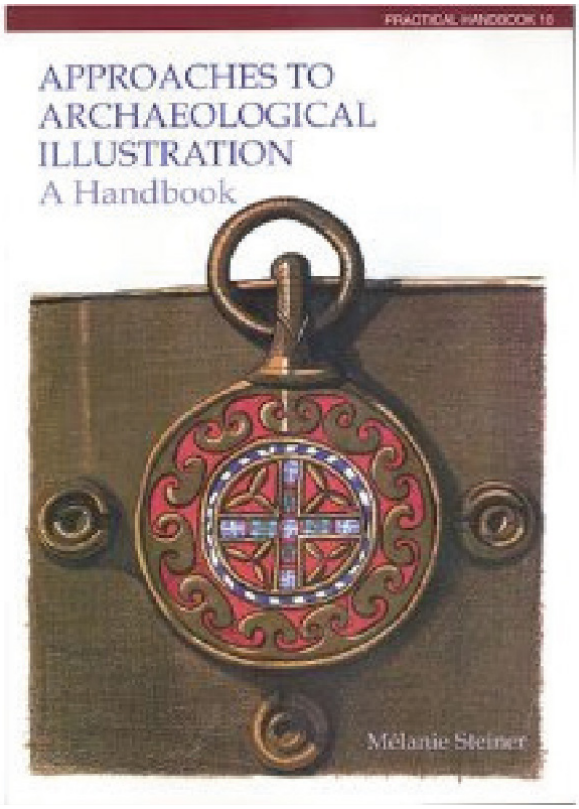
Quite often, you will just be sending illustrations to print that utilise only black ink. In this case, check that your document is in grayscale format. If your document includes coloured objects alongside the black objects, it is still good practice to ensure that any black objects are in grayscale format.

Line and stipple thickness:

It is beneficial to print out a sample illustration at a local professional printers before sending off your digital files: What looks fine on screen, may well appear far too faint upon the printed page and you would do well to safeguard against this.

Though this is not prescriptive, I would not recommend going below a line weight of 0.15mm, (for decoration that is catching the light instance), or a stipple diameter of 0.15mm. Remember that a vector program should allow the user to set the line weight to be measured in millimetres rather than points!

FURTHER READING



Steiner, M. 2005: **Approaches to Archaeological Illustration: A Handbook. Practical Handbooks in Archaeology No 18.** Council for British Archaeology. Association of Archaeological Illustrators and Surveyors.

This book, which contains, as one would expect, some beautiful illustrations gives an insight into how various illustrators have tackled a range of different artefacts and the range of unique challenges that they held.

ARCHAEOLOGY & ILLUSTRATORS

Dobie, J and Evans C, 2010 **A History of the Ancient Monuments Drawing Office. Research Department Report Series no. 33**-2010 ISSN 1749-8775

This book outlines the story of archaeological illustration as well as the more specific history of the Ancient Monuments drawing office. It is accompanied by wonderful illustrations throughout.

About the author

Thomas has worked as an archaeological illustrator within a commercial environment for around ten years, and previously as a field archaeologist. As such he is familiar with all forms of archaeological illustration, including small finds, pottery, lithics, site plans, sections, cartography and building plans and elevations.

He is available for freelance work and commissions: Please email contact@smallfindsdesign.co.uk or ring 07947140127 to discuss your requirements.