UCL - INSTITUTE OF ARCHAEOLOGY

COURSE NUMBER: ARCL0036 Archaeological Finds Illustration
2018/2019

Year *2*, *0.5* unit
15 Credits
Co-ordinator: Stuart Laidlaw
Co-ordinator's e-mail   tcfasjl@ucl.ac.uk
Co-ordinator's room number is 405
Telephone number 020 7679 4743
Internal 24743
The Turnitin 'Class ID' is **3884493** and the 'Class Enrolment Password' is **IoA1819**

Deadlines Friday 25th January 2018 (Essay) and Friday 1rd February 2018 (drawings)

Archaeological Finds Illustration

Course tutors
Stuart Laidlaw (**SL**)
and others for particular classes including Ulrike Sommer (**US**) and Sandra Bond
(**SB**).

Aims of the course
This part of the course will introduce students to both the academic and practical
aspects of traditional methods of drawing archaeological finds. The academic aspects
will concentrate on types of technique, style, materials and equipment used, the layout
and presentation of drawings for publication, scales, and the requirements for
publication reductions. The practical work will involve the preparation of drawings to
the 'camera ready' stage (i.e. presented to publication standard). The practical sessions
will concentrate upon the drawing of flints; pottery; metalwork, stone and bone
artefacts. The use of conventional silver based photography and digital photography
and computer production and manipulation of drawings will also be covered.

Learning Outcomes
Transferable skills other than the specific content of the course will include: some
basic drawing skills, hand-eye co-ordination, visual analysis, critical and interpretive
skills in studying primary data, learning to draw for reduction; skills of neatness and
how to present work for publication; and developing ideas in discussion. Confidence
in the use of simple cameras and digital manipulation will be instilled.

Course Information
This handbook contains the basic information about the content and administration of
the course. Additional subject-specific reading lists and individual session handouts
will be given out at appropriate points in the course. If students have queries about
the objectives, structure, content, assessment or organisation of the course, they
should consult the Course Co-ordinators.

Teaching methods

The range of teaching methods will include: short lectures; demonstrations followed by practise exercises, independent practice and discussions.

TEACHING SCHEDULE

Lectures will be held *13:00* on *Fridays*, in room *410 and then 405*. The lecture is followed by a practical class from 1.30 to 3 or 3- 4.30 groups will be decided in the first weeks.

COURSE SYLLABUS

Lecture List

Session 1 (2 hours) SL

Short lecture: An Introduction to the theory and practice of drawing archaeological finds. Line drawings and measurement.
Demonstrations and practise exercises: Drawing Pottery.(LM)

Session 2 (2 hours) SL

Practice in drawing various types of pottery from whole pot to sherds, plain and decorated

Session 3 (2 hours) SL

Demonstrations and practice exercises: Drawing Worked Flint artefacts

Session 4 (2 hours) SL

Demonstrations and practice exercises: Drawing Metalwork artefacts.

Session 5 (2hours) SL

Demonstrations and practice exercises: Drawing Organic artefacts (wood and bone artefacts)

Reading week no classes

Session 6 (2 hours) SB

Drawing with the aid of a microscope and video. Comparison of techniques.

Session 7 (2 hours) SL

Conventional silver based recording using a 5" by 4" camera to reproduce drawings to publication prints or plates in books.

Session 8 (2 hours) SL

Digital recording and imaging using a variety of cameras and methods.
Use of Photoshop and Illustrator as methods of drawing artefacts.
Use of Photoshop to make fills and hatches

Session 9 (2 hours) SL & AB

Computer aided design as a method of recording artefacts. Coin illustration using scanners

Session 10 (2 hours) SL

A seminar comparing the utility of the various recording techniques demonstrated on this course

Individual Study
Background reading and study of the drawing of artefacts.
Completion of drawings.
Mounting of drawings as publication - ready page layouts.

ASSESSMENT

Assessment for the course will be as follows:
THE ESSAY

The chosen essay should be approximately 1,500 words, including illustrations and bibliography.

1. Select any excavation report from a County Journal and discuss how illustration has been used to present the data. Use sketches and photocopies to demonstrate the use of illustrations.

2. From various County Journals select three excavation reports of the same period, such as Roman or Medieval sites, and with photocopies and sketches, discuss alternative ways of illustrating objects.

3. Who are pottery illustrations aimed at, the expert, the knowledgeable public or the uninformed? With this question in mind just how much information should be shown on a pottery illustration, and is the time spent doing such really of use? Compare and contrast the pottery illustrations from two excavations reports from County Journals with two general publications. such as the English Heritage Series.

4. Compare and contrast the presentation of pottery illustrations from three different periods, such as the Bronze Age, Iron Age, Roman and Saxon pottery, using an excavation report from a County Journal for each period

The Essay will count for 40% of the course marks
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Submission date Friday 25th January 2019

Portfolio of 4 artefacts - 2 pottery (one whole decorated pot and 1 sherd) - 1 flint and either 1 metalwork or 1 stone or 1 organic artefact

A black and white digital line output from one of the drawn artefacts.

These drawings and output will count for 60% of the course marks.

Submission date Friday 1st February 2018

Workload
There will be *10* hours of lectures and *20* hours of *practical laboratory sessions* for this course. Students will be expected to undertake around *50* hours of reading for the course, plus 50 hours preparing for and producing the assessed work. Independent project work will take about 58 hours. This adds up to a total workload of some *188 for 0.5 *hours for the course

If students are unclear about the nature of an assignment, they should discuss this with the Course Co-ordinator.

Students are not permitted to re-write and re-submit essays in order to try to improve their marks. However, students may be permitted, in advance of the deadline for a given assignment, to submit for comment a brief outline of the assignment
The criteria for assessment used in this course are those agreed by the Board of Examiners in Archaeology, and are included in the Undergraduate Handbook (available on the Institute web-site:
<www.ucl.ac.uk/archaeology/hbook/ugcommon/assess.html>). In brief, the grades used are A, B, C, D, E and F, with finer distinctions indicated by a plus (+) or a minus (-). All coursework **is marked by two internal examiners, and** can be re-assessed by the Visiting Examiner. Therefore, the mark given by the initial examiner (prior to return) is a provisional assessment for guidance only, and may be modified **after consultation with the second internal examiner, or** by the Visiting Examiner

SUBMISSION OF COURSEWORK

Because the assessed work contributes to the final mark for the course, the submission deadline for each piece of work is absolute. Late work will incur a penalty unless an extension has been granted in advance. If students are ill or have serious personal or family difficulties, they must complete an Extension Request Form (ERF) (copies available from room 411A) and obtain the approval and signature of the Course Co-ordinator AND either their Personal Tutor or the Year Tutor, ON OR BEFORE the submission date. ERFs should normally be accompanied by a medical certificate or other documentation justifying the circumstances (e.g. a note from their Personal Tutor). If students do not submit either the coursework or an ERF on or before the submission deadline, the maximum mark that can be awarded is a minimum Honours pass (40%). If there is an unexpected crisis on the submission day, students should telephone or (preferably) e-mail the Course Co-ordinator, and follow this up with a completed ERF.

All assessed work must be handed-in to the reception desk, for the Course Co-ordinator before 5:00 on the submission date specified. Allowing for vacations, every effort will be made to return assessed work within *two/three* weeks of the submission date. Within a fortnight of its return to students, the assessed work should be returned by students to the Course Co-ordinator, so that it ** can be second-marked, and** is available to the Board of Examiners. Because assessed work forms part of the student's permanent academic record, it needs to be retained until well after the completion of the degree. If work is not returned to the Course Co-ordinator, the student will be deemed not to have completed the course.
Word-length

Strict new regulations with regard to word-length were introduced UCL-wide with effect from the 2010-11 session. If your work is found to be between 10% and 20% longer than the official limit you mark will be reduced by 10%, subject to a minimum mark of a minimum pass, assuming that the work merited a pass. If your work is more than 20% over-length, a mark of zero will be recorded.
The following should not be included in the word-count: bibliography, appendices, and tables, graphs and illustrations and their captions.

Submission procedures *(coversheets and Turnitin, including Class ID and password)*

Students are required to submit hard copy of all coursework to the course co-ordinators pigeon hole via the Red Essay Box at Reception by the appropriate deadline. The coursework must be stapled to a completed coversheet (available from the web, from outside Room 411A or from the library)

Students should put their Candidate Number, not their name, on all coursework. They should also put the Candidate Number and course code on each page of their work.

Late submission will be penalized in accordance with these regulations unless permission has been granted and an Extension Request Form (ERF) completed.

Date-stamping will be via 'Turnitin' (see below), so in addition to submitting hard copy, students must also submit their work to Turnitin by the midnight on the day of the deadline.

Students who encounter technical problems submitting their work to Turnitin should email the nature of the problem to ioa-turnitin@ucl.ac.uk in advance of the deadline in order that the Turnitin Advisers can notify the Course Co-ordinator that it may be appropriate to waive the late submission penalty.

If there is any other unexpected crisis on the submission day, students should telephone or (preferably) e-mail the Course Co-ordinator, and follow this up with a completed ERF

Please see the Coursework Guidelines on the IoA website (or your Degree Handbook) for further details of penalties.
http://www.ucl.ac.uk/archaeology/administration/students/handbook/submission
Hard copy will no longer be date-stamped.

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Further information is given on the IoA website.
http://www.ucl.ac.uk/archaeology/administration/students/handbook/turnitin
Turnitin advisers will be available to help you via email: ioa-turnitin@ucl.ac.uk if needed.

Clearly there is no need for this with either the drawings or digital files.

Coursework submission procedures

- All coursework must normally be submitted **both as hard copy and electronically**. (The only exceptions are portfolios and lab books which are normally submitted as hard copy only.)
- You should staple the appropriate colour-coded IoA coversheet (available in the IoA library and outside room 411a) to the front of each piece of work and submit it to the red box at the Reception Desk (or room 411a in the case of Year 1 undergraduate work)
- All coursework should be uploaded to Turnitin by midnight on the day of the deadline. This will date-stamp your work. It is essential to upload **all parts** of your work as this is sometimes the version that will be marked.
- Instructions are given below.

Note that Turnitin uses the term 'class' for what we normally call a 'course'.

1.	Ensure that your essay or other item of coursework has been saved as a Word doc., docx. or PDF document, and that you have the Class ID for the course (available from the course handbook) and enrolment password (this is **IoA1718** for all courses this session - note that this is capital letter I, lower case letter o, upper case A, followed by the current academic year)

2.	Click on **http://www.turnitinuk.com/en_gb/login**http://www.submit.ac.uk/static_jisc/ac_uk_index.htmlhttp://www.submit.ac.uk/static_jisc/ac_uk_index.html

3.	Click on 'Create account'

4.	Select your category as 'Student'

5.	Create an account using your UCL email address. Note that you will be asked to specify a new password for your account - do not use your UCL password or the enrolment password, but invent one of your own (Turnitin will permanently associate this with your account, so you will not have to change it every 6 months, unlike your UCL password). In addition, you will be asked for a "Class ID" and a "Class enrolment password" (see point 1 above).

6.	Once you have created an account you can just log in at http://www.turnitinuk.com/en_gb/login and enrol for your other classes without going through the new user process again. Simply click on 'Enrol in a class'. Make sure you have all the relevant "class IDs" at hand.

7.	Click on the course to which you wish to submit your work.

8.	Click on the correct assignment (e.g. Essay 1).

9.	Double-check that you are in the correct course and assignment and then click 'Submit'

10.	Attach document as a "Single file upload"

11.	Enter your name (the examiner will not be able to see this)

12.	Fill in the "Submission title" field with the right details: **It is essential that the first word in the title is your examination candidate number** (e.g. YGBR8 In what sense can culture be said to evolve?),

13.	Click "Upload". When the upload is finished, you will be able to see a text-only version of your submission.

14	Click on "Submit"

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If you have problems, please email the IoA Turnitin Advisers on ioa-turnitin@ucl.ac.uk, explaining the nature of the problem and the exact course and assignment involved.

One of the Turnitin Advisers will normally respond within 24 hours, Monday-Friday during term. Please be sure to email the Turnitin Advisers if technical

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problems prevent you from uploading work in time to meet a submission deadline - even if you do not obtain an immediate response from one of the Advisers they will be able to notify the relevant Course Coordinator that you had attempted to submit the work before the deadline

Note that Turnitin uses the term 'class' for what we normally call a 'course'.

UCL-WIDE PENALTIES FOR LATE SUBMISSION OF COURSEWORK
· The full allocated mark should be reduced by 5 percentage points for the first working day after the deadline for the submission of the coursework or dissertation.
· The mark will be reduced by a further 10 percentage points if the coursework or dissertation is submitted during the following six calendar days.
· Providing the coursework is submitted before the end of the first week of term 3 for undergraduate courses or by a date during term 3 defined in advance by the relevant Master's Board of Examiners for postgraduate taught programmes, but had not been submitted within seven days of the deadline for the submission of the coursework, it will be recorded as zero but the assessment would be considered to be complete.
·Where there are extenuating circumstances that have been recognised by the Board of Examiners or its representative, these penalties will not apply until the agreed extension period has been exceeded.

Timescale for return of marked coursework to students.
You can expect to receive your marked work within four calendar weeks of the official submission deadline. If you do not receive your work within this period, or a written explanation from the marker, you should notify the IoA's Academic Administrator, Judy Medrington.

Citing of sources
Coursework should be expressed in a student's own words giving the exact source of any ideas, information, diagrams etc. that are taken from the work of others. Any direct quotations from the work of others must be indicated as such by being placed between inverted commas. **Plagiarism is regarded as a very serious irregularity which can carry very heavy penalties.** It is your responsibility to read and abide by the requirements for presentation, referencing and avoidance of plagiarism to be found in the IoA 'Coursework Guidelines' on the IoA website.
http://www.ucl.ac.uk/archaeology/administration/students/handbook

COURSEWORK FORMAT AND PRESENTATION

Essays must be word-processed and should be printed on one side of the paper, using double-line spacing. Adequate margins should be left for written comments by the examiner. Students are encouraged to use diagrams and/or tables where appropriate. These should be clearly referred to at the appropriate point in the text, and if derived from another source, this must be clearly acknowledged. Essays should be ca. *1500* words in length. Students should adhere to word limits on essays; they are intended to help ensure equality of workloads between courses as well as to encourage the useful transferable skills of clearly structured argumentation and succinct writing.

It is important that students reference their sources of information as accurately and as fully as possible. If a student summarises another person's ideas or judgements, or reproduces their figures or diagrams, a reference must be made in the text (using the Harvard convention) and all works referred to must be documented in full in a bibliography. Referencing styles are outlined in the Undergraduate Handbook (<www.ucl.ac.uk/archaeology/hbook/ugcommon/essays.html>).

PLAGIARISM

All work submitted as part of the requirements for any examination (which includes all assessed work) of the University of London must be expressed in the student's own words and incorporate their own ideas and judgements. All students have received a copy of the College's rules on plagiarism; the Institute's guidelines are included in the Undergraduate Handbook (<www.ucl.ac.uk/archaeology/hbook/common/IoAPlag.htm>). The examiners for this course will scrutinise all work for evidence of plagiarism or collusion between students. Plagiarism is defined as the presentation of another person's thoughts or words as though they are one's own. Plagiarism constitutes an examination offence under the University Regulations and students found to have committed plagiarism may be excluded from all further examinations of the University and/or College. ANY QUOTATION FROM THE PUBLISHED OR UNPUBLISHED WORKS OF OTHER PERSONS MUST BE IDENTIFIED AS SUCH BY PLACING THE QUOTE IN QUOTATION MARKS, AND THE SOURCE OF THE QUOTATION MUST BE REFERENCED APPROPRIATELY. The concept of plagiarism also includes self-plagiarism, which is the extensive use of the same sources and materials in more than one piece of assessed coursework, submitted for the same or for other courses taken as part of the degree. To avoid charges of collusion, students should always ensure that their work is their own, and not lend their essays or essay drafts to other students because they are likely to be penalised if the second student copies the work and submits it as their own. If students are unclear about the definition of plagiarism, they should review the notes on plagiarism and examples of good and bad practice with respect to sources, included in the Undergraduate Handbook (<www.ucl.ac.uk/archaeology/hbook/common/IoAPlag.htm>), and consult their Personal Tutor.

Keeping copies
Please note that it is an Institute requirement that you retain a copy (this can be electronic) of all coursework submitted. When your marked essay is returned to you, you should return it to the marker within two weeks.

Citing of sources
Coursework should be expressed in a student's own words giving the exact source of any ideas, information, diagrams etc. that are taken from the work of others. Any direct quotations from the work of others must be indicated as such by being placed between inverted commas. **Plagiarism is regarded as a very serious irregularity which can carry very heavy penalties.** It is your responsibility to read and abide by the requirements for presentation, referencing and avoidance of plagiarism to be found in the IoA 'Coursework Guidelines' on the IoA website. http://www.ucl.ac.uk/archaeology/administration/students/handbook

MOODLE

All courses now use moodle and the course name is ARCL0036. Some presentations will also be here.

COMMUNICATION

The primary channel of communication within the Institute of Archaeology is e-mail. If you wish to be contacted on your personal or work e-mail address, please arrange for e-mail sent to your UCL address to be forwarded to your other address, since staff and other students will expect to be able to reach you through your College e-mail - which they can find on the UCL web-site. Students must consult their e-mail regularly, as well as the student pigeon-holes in the Basement Common Room for written communications. Please also ensure that the Institute has an up-to-date telephone number for you, in case you need to be contacted.

ATTENDANCE

It is a College regulation that attendance at lectures, seminars and practicals be monitored, and a register will be taken. A 70% minimum attendance at all scheduled sessions is required (excluding absences due to illness or other adverse circumstances, provided that these are supported by medical certificates or other documentation, as appropriate). Attendance is reported to College and thence (if relevant) to the student's Local Education Authority. Students should also be aware that potential employers seeking references often ask about attendance and other indications of reliability.

HEALTH AND SAFETY

The Institute has a Health and Safety policy and code of practice which provides guidance on laboratory work, etc. This is revised annually and the new edition will be issued in due course. All work undertaken in the Institute is governed by these guidelines and students have a duty to be aware of them and to adhere to them at all times. This is particularly important in the context of the *laboratory* work which will be undertaken as part of this course.

FEEDBACK

In trying to make this course as effective as possible, we welcome feedback from students during the course of the year. At the end of each course all students are asked to give their views on the course in an anonymous questionnaire, which will be circulated at one of the last sessions of the course. These questionnaires are taken seriously and help the Course Co-ordinator to develop the course. The summarised responses are considered by the Institute's Staff-Student Consultative Committee, Teaching Committee, and by the Faculty Teaching Committee.

If students are concerned about any aspect of this course we hope they will feel able to talk to the Course Co-ordinator, but if they feel this is not appropriate, they should consult their Personal Tutor, Year Tutor, the Academic Administrator (Judy Medrington), or the Chair of Teaching Committee .

LIBRARIES AND OTHER RESOURCES
In addition to the Library of the Institute of Archaeology, most libraries in London will have general books on photography but seldom on archaeological aspects of the subject but for general photographic matters may be of use in this course.

Information for intercollegiate and interdepartmental students
Students enrolled in Departments outside the Institute should collect hard copy of the Institute's coursework guidelines from Judy Medrington's office.

Dyslexia
If you have dyslexia or any other disability, please make your lecturers aware of this. Please discuss with your lecturers whether there is any way in which they can help you. Students with dyslexia are reminded to indicate this on each piece of coursework.

Glossary of Types of Assessment with Learning Outcomes

Introduction

The following guidelines indicate the full extent of undergraduate assessment procedures and their learning outcomes within our department. These various types of assessment have been created in order to allow students to both draw upon and develop a diverse range of skills and individual talents. We believe that this range provides a balance between unseen and continuous evaluation strategies, allowing the discernment of real learning while not overly biasing towards students who are better in one type of assessment than another.

Glossary of Types of Assessment:
 (NB: Roman numerals refer to learning outcomes, see end of document)

Standard Essay – An essay based upon a specific question and researched via a range of reading (books, journals, online). Alternatively, the readings may be from a given reading list, or researched in addition to a given reading list (Ia, II [perhaps only in years 2 and 3, depending upon degree of independence involved in library research])

Practical Essay – A piece of written work relating to the analysis of specific, given datasets; this may include individual artefacts, lab data, epigraphic texts, questionnaire data, etc… (III)

Book Reviews – A short critical assessment of a book that also indicates wider knowledge and contextual situation of the source (Ib)

QATI – Critical commentary of about 600-700 words contrasting two articles, based around a structured format with headings: *Central Quotation* (a sentence or series of phrases that indicate the central argument of the text; *Argument* (summary of the argument in 5-7 sentences); *Textual connection* (discussion and comparison of the principal text with a second one); *Implications* (implications of the argument for the interpretation of the archaeological record). Commentaries are used as a basis of group discussion for a topic (Ia, IX)

Field and Lab Notebooks – Notes, observations (written and illustrative) on all aspects of fieldwork site visits and laboratory work, followed by reflective writing on the field/lab experience. (VI)

Portfolios – Assemblages of original illustrative or written work (may be sketches, technical drawings, computer websites, posters, exhibit plans, photographs, examples of field notebook entries, newspaper articles, museum/school oriented writing etc…). (IV, VII)

Powerpoint Presentation – Creation of a Powerpoint presentation file on a specified subject, integrating texts and graphics. (IVa)

Project Paper – A lengthy piece of original work on a particular topic featuring elements of independent research (original research may include a wide range of activities: library research, site planning, translations, practical study of assemblages, microscopic work, model building, certain placements [e.g. in museums, schools] etc…). Normally, project papers include an oral presentation of the project to the rest of the class (Ia, II, III, IVb)

Dissertation – A lengthy piece of original research on a topic determined by the student, in consultation with a supervisor. Topics may include fieldwork, labwork, or synthetic analyses of existing data. This project will normally be undertaken over the length of the academic year and will include an oral presentation component, normally with Powerpoint. (Ia, II, III, IVa, IVb)

Standard Unseen Exam – An essay based exam on a set of written questions and/or images which may include short answer questions, traditional longer answers, or a mixture of both. Completed within a set time limit (Va)

Practical Unseen Exams /Worksheets – Quiz or Practical work on pre-formatted sheets (including multiple-choice or yes/no questions and short answers [i.e. no more than one paragraph]) which may be undertaken while in class or lab (can include epigraphic and computer work for example). Only standard references permitted by the examiner may be used. This might also be set up on Moodle or similar online format (Va [depending on subject, may also include III])

Open Book Exam - essay- and/or quiz-based exam held in a specified location and for which students may bring a set number of sources of their own choice to use during the exam (Ia, Vb)

Take Home Open Book Exam - essay- and/or short answer question-based exam to be completed within a set period and for which students may use published sources of their choice. (Ia, Vb)

Group Work - collaborative project (poster, oral and/or visual presentation) organised and undertaken by a group of students. A group mark is given for the final project, individual members are assessed through a short written piece relating to the topic of the project, and through individual reflection on group dynamics in preparing, undertaking and completing the project. The group mark should form the lowest percentage of the final mark (VII, VIII).

Glossary of Learning Outcomes

Ia – Reasoned and Critical Assessment of Multiple Sources

Ib – Reasoned and Critical Assessment of a Single Source

II – Independent Research Use of Library/ Archival facilities

III – Independent Problem-solving based on Real Data Sets

IVa – Experience in the Production of Presentation Graphics at a Professional level

IVb – Experience in the Oral Presentation of Original Research Results

Va – Time Limited and Invigilated Assessment, Testing Comprehension and Critical Use of Taught Knowledge

Vb – Time Limited Assessment, permitting use of sources, testing the employment of information learned in class, as well as appropriate choice of sources, and independent research skills.

VI – Critical Self-reflection and Evaluation of Field Experiences

VII – Demonstration of the ability to Manage and Integrate Different Research Tasks.

VIII – Demonstration of Ability to Work as part of a team towards the Production of an Original Project

IX – Experience in an alternative forms of note taking and essay structure

ARCHAEOLOGICAL ILLUSTRATION   Library: Teaching Collection

• Adkins L. and Adkins R. 1989. Chapter 8: Drawing Finds. Archaeological Illustration. Cambridge manuals in Archaeology

• Ang Tom, 2002, Digital Photographer's Handbook, Dorling Kindersley

• Davies, A & Fennessy, P., 1997, Electronic imaging for photographers, Focal Press, London

• Dorrell, P.G. 1989, Photography in Archaeology and Conservation, Cambridge

• Evening, Martin 1998, Adobe Photoshop 6.0 for photographers, Focal Press, London (He also has other versions available from 5 to CS2)

• Green C. (no date) Drawing Ancient pottery for Publication. (Ed.) R. Bryant. AAI&S Technical Paper No2

• Griffiths N, Jenner A. and Wilson C. The Illustration of Ceramic Vessels. Drawing Archaeological Finds: A Handbook. Occasional Paper No.13 Institute of Archaeology, UCL

• Hamilton S. 1996. Reassessing archaeological illustrations: breaking the mould. (Ed.) Bryant R. Graphic Archaeology, The Journal of the AAI&S.

• Knight D. and Goddard J. 1997. The Illustration of prehistoric pottery: Requirements of the Pottery Researcher. Aspects of Illustration: Prehistoric pottery. Association of Archaeological Illustrators and Surveyors (AAI&S), Technical paper No. 13

• Langford, M.J., 1997, Basic Photography.6th Edition, Focal Press, London.

• Martingell H. and Saville A. 1988. The Illustration of Lithic Artefacts: A guide to drawing stone tools for specialist reports. AM&S Technical Paper No.9

• Orton C., P. Tylers and Vince A. 1993. Chapter 7: Illustration. Pottery in Archaeology, Cambridge Manuals in Archaeology

OTHER REFERENCES
Addington L.R. 1986 Lithic illustration: drawing flaked stone artefacts for publication. University of Chicago Press, Chicago and London
Allen, S.J. 1994. The Illustration of Wooden Artefacts. AAI&S Technical Paper No. 11
Brodribb C. 1970. Drawing Archaeological Finds for Publication.
John Baler Chase P.G. 1985. Illustrating lithic artefacts: information for scientific illustrators. Lithic Technology 14, 57 – 70
Piggott S. 1965. Archaeological Draughtsmanship: Principles and Practice. Part 1: Principles and Retrospect. Antiquity XXXIX
Piggott S. 1978. Antiquity Depicted: Aspects of Archaeological Illustration. Thames and Hudson

EQUIPMENT FOR ILLUSTRATION COURSE

Most of the following will be needed for the course:

Pencils - HB for general illustrations Rubber, pencil sharpener Ruler- with raised edge to take ink without smudging Callipers, dividers, compass, flexicurve Rotring pens (or equivalent type) for inking up illustrations Isograph - refillable Rapidograph - with cartridge refill Sizes 0.5, 0.35, 0.25 are useful but fine lined fibre tipped pens are very acceptable.

The following items are very useful:

T squares, set squares, engineers squares Template former for profiles Small square block (used for drawing pot rims etc) e.g. 4" x 4" wood block Masking tape Magnifying glass Drawing board (A3 size most useful) - any light-weight board will do

If you have any of the above items please do bring them along to the course - but do not go to any expense as most will be provided at the class.

Why Illustrate Archaeological finds?

A good illustration should convey accurate information about the artefact by using certain conventions which allow a uniformity of presentation, whilst enabling similar artefacts to be compared with one another.

The illustration will become a true record of lasting quality should the artefact be lost, stolen. broken or decayed.

The Aims of illustration are to show: -

1. The size, shape and form of the artefact

2. The thickness of the wall or body of the artefact

3. The manufacture of the artefact, such as whether a pot was coiled or thrown

4. To highlight any decorations

5. Demonstrate the number of component parts, such as inlays

6. By drawing the artefact to scale, either at the same size as the artefact (1: 1), or at double the size (2:1) for smaller complicated items, enabling direct comparisons to be made with other drawings

All these requirements are shown by a series of plans, sections and elevations. Different drawing conventions are used to demonstrate the various maternal that artefacts are produced from, such as ceramics, bone, metalwork, stone etc. Artefacts are always illustrated as if the light was directed from the top left-hand corner of the page.

The advantages over photography are: -

• Illustration produces accurate scaled drawings

• The cheapness in the production of line drawing

• Some decoration may be lost to the camera but can be highlighted with careful study by the illustrator

• Illustrations can 'unwrap' designs on pottery, showing them in their entirety

• Pottery illustrations can reconstruct the size and shape of the pot from a few sherds, which photography cannot do

Labels on diagram: Rim, Neck, Cross-section through handle, Shoulder, Inner surface of pot, Outer surface of pot, Profile, Centre line, Body, Section through wall, 902, Reconstruction in broken line, Base, 0 5 cm, Scale
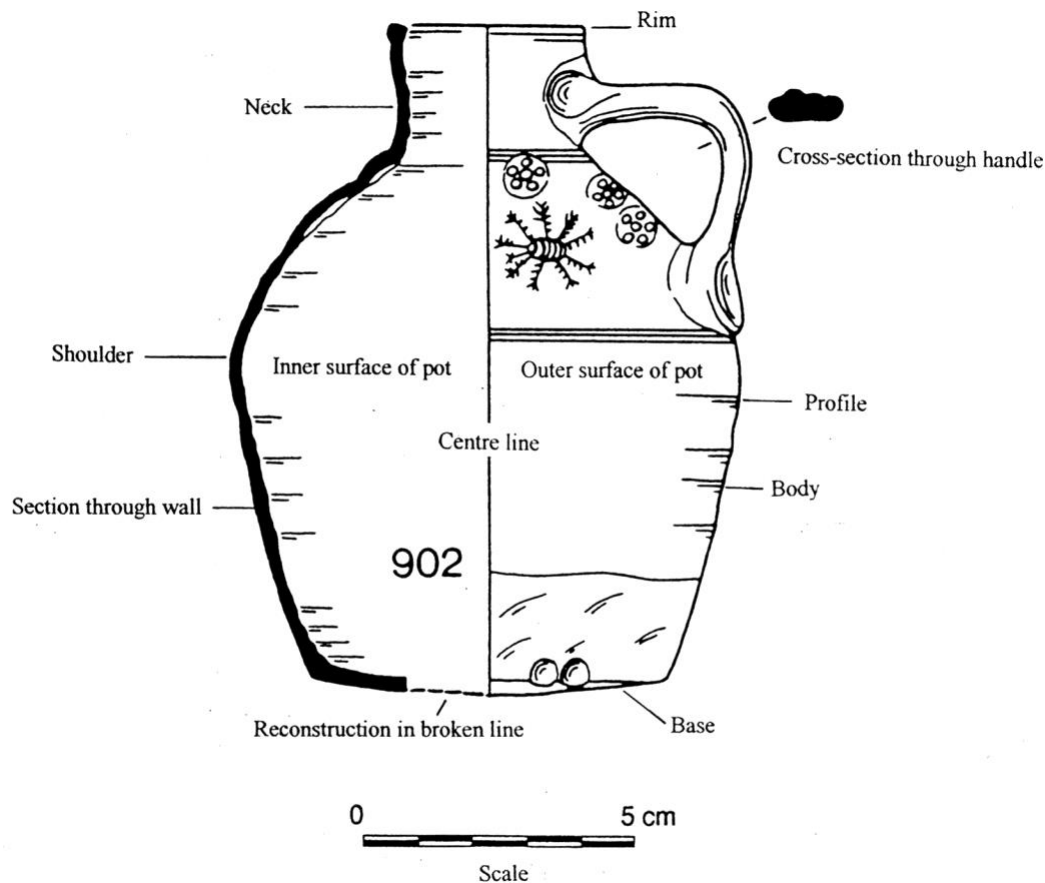
Pottery Illustrations

The conventions used in pottery illustrations show a central symmetry by the central vertical line dividing the right and left sides.

The right side of the drawing shows the exterior surface of the pot, whilst the left side demonstrates the inner surface and a cross-section through the wall of the pot.

Continuation Lines

Conventionally speaking the work seen by successive Assessment panels continues to embrace a wide variety of all standards of range and competence. However, it seems extraordinary to me how little involved in the drawn material some illustrators can be to the extent that aspects of manufacture are ignored. This also reflects on the finds researcher whose report presumably appears with the drawing. Another aspect of archaeological illustration which I see repeatedly is the use, misuse, neglect and misunderstanding of conventions. I have in mind the use of link lines, section lines and continuation lines both on pottery and on finds drawings and related materials. Confusion abounds it seems.

Link lines are used commonly when showing more than one view of an object but were ignored by most in the recent batch of assessees. Their use is advisable (and I think essential) in showing which views relate to a single object. They needn't be more than a couple of mm and I do them out of habit now. In pottery drawing they are unnecessary if relating a section, such as through a pot handle or sherd, to an

elevation view but it's surprising how often they appear in these circumstances. A section view is shown close to the elevation and the section's position and relationship to it is usually the job of section lines.

Section lines show where a slice has been taken through an object. In pottery drawing their use is normally relegated to protrusions on vessels such as handles and feet. They are quite unnecessary on sherd elevations where it is understood, by convention, that the section may be reconstructed on a zigzag line through upper and lower extremities of the sherd.

Continuation lines are a vital tier of information, both in pottery and in find illustrations. They show that a broken edge is present and indicate that the object represented is not complete. Don't let your finds specialist tell you otherwise! Lines of dashes are also used to reconstruct a lost profile to explain the part that remains. Yet the Panel is frequently shown drawings of finds whose completeness can only be guessed at. In pottery drawing such lines are normally confined to the section only. Appearing on the elevation profile they are unnecessary and repetitive of information which should be shown clearly on the section. They are never shown extending from the centre line unless a band of decoration obscures it. Pottery drawing should be a fairly logical process of explaining a 3D object on a flat plane. Complicated or unusual forms will always necessitate a bit of improvisation and invention.
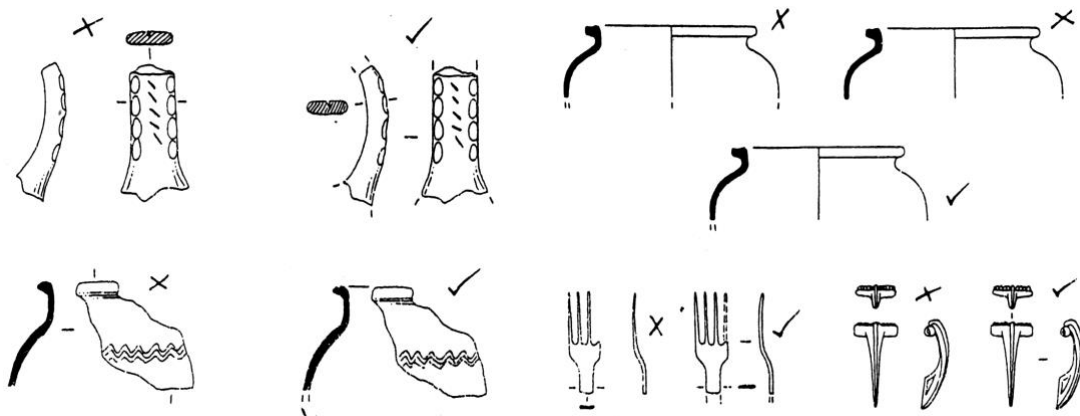
Illustrating Pottery Initial Measurements

Measure the radius of the base and the rim of the pot on the rim chart. Place the rim chart on a flat surface, then hold the rim of the vessel as close to the chant as possible and match its curvature to the circle it best fits and read off the radius (Fig. I).


Using the radius chart to find out the radius and percentage of the rim present.
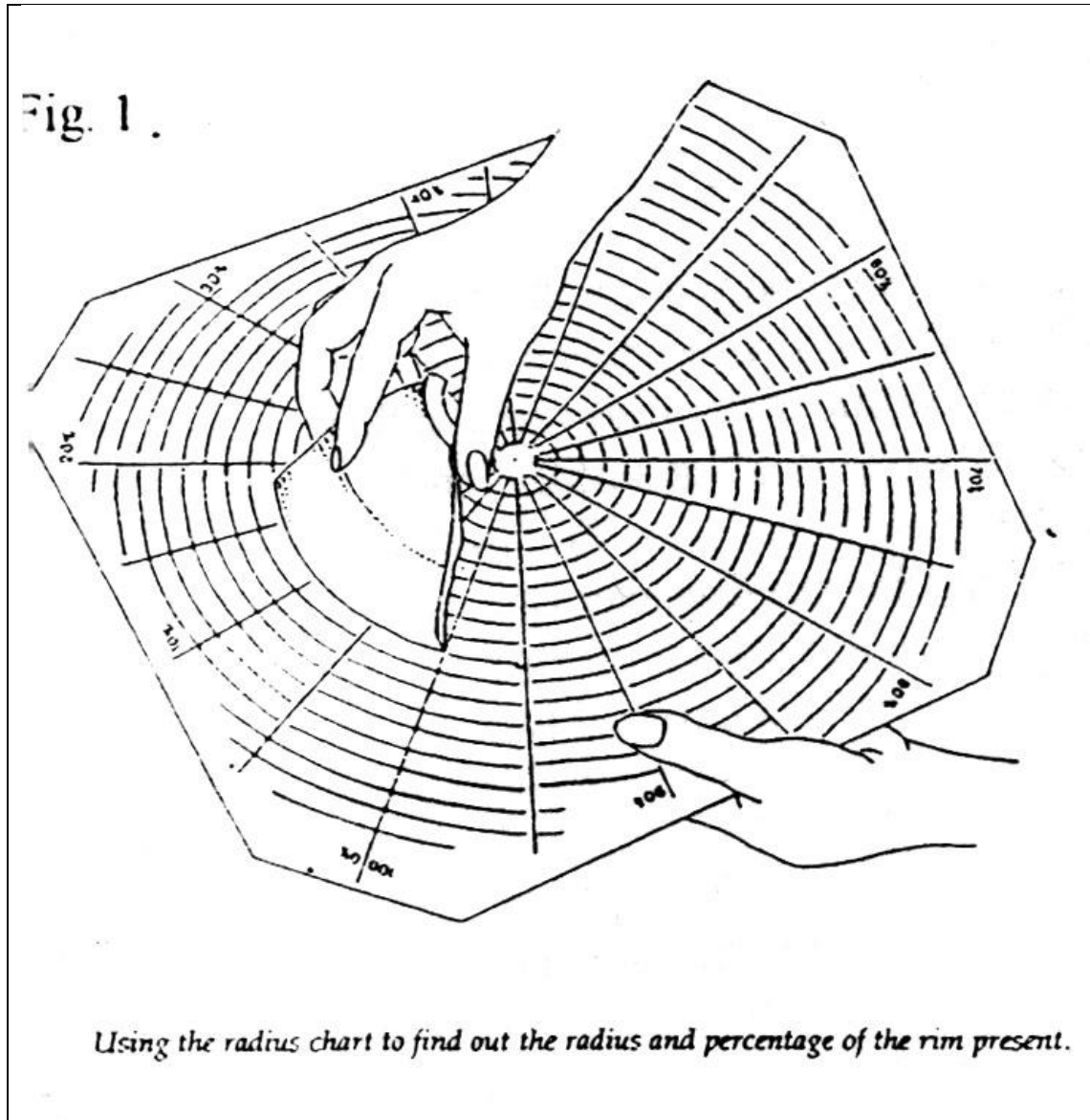
The maximum girth can also be measured on the rim chart by placing the centre of the base in the centre of the chart and projecting down from the widest part with an engineer's square (Fig. 2).

27
26
25
24
23
22
21
20
19
18
17
16
15
14
13
12
11
10

2 3 4 5 6 7 8 9

Archaeological Illustration ARCL0036

Fig. 2

Maximum width

Maximum height

Rim radius

30 mm

0

Radius chart

A diagram showing the measurements which can be taken while the sherd is still on the radius c[hart]
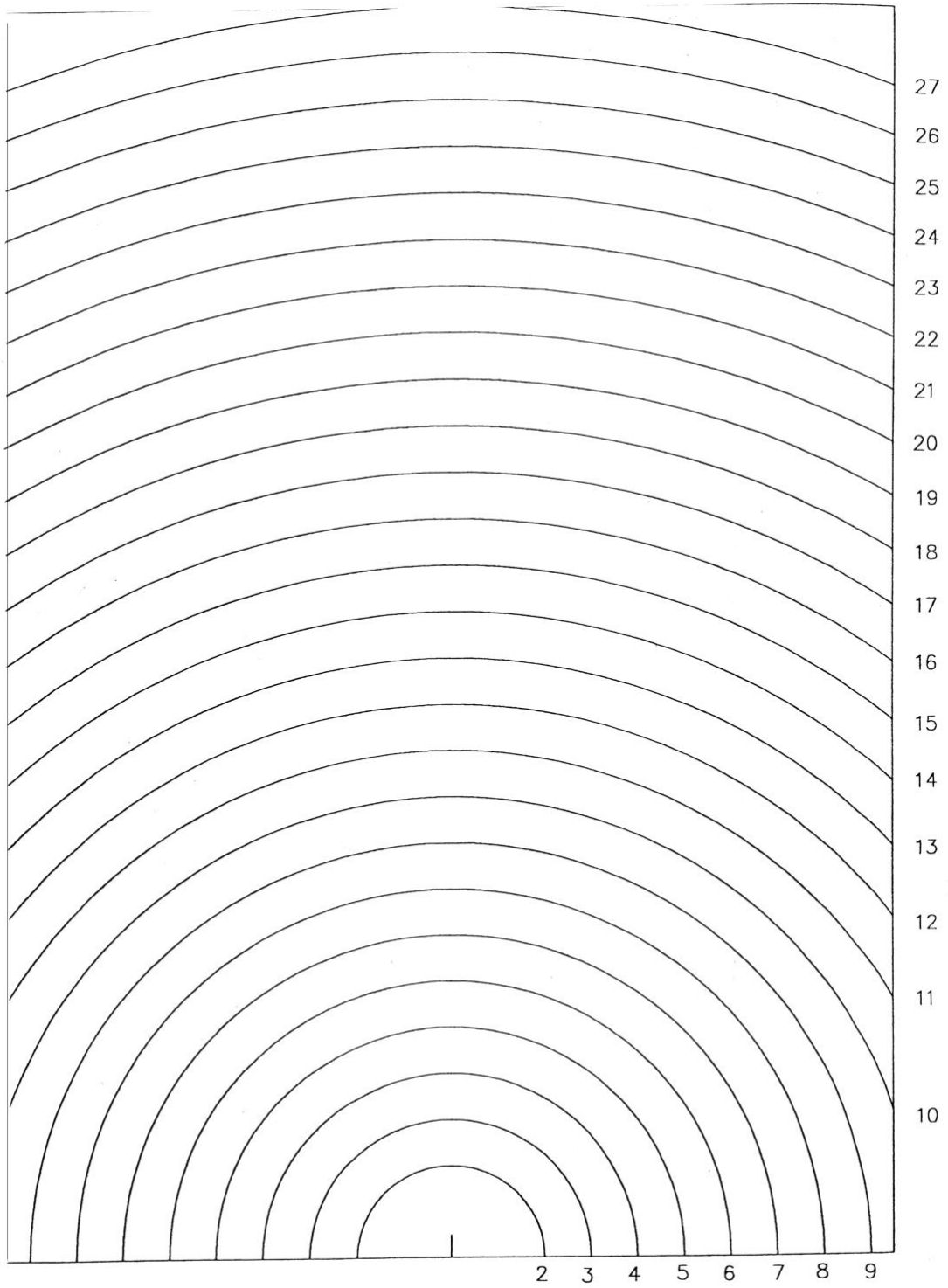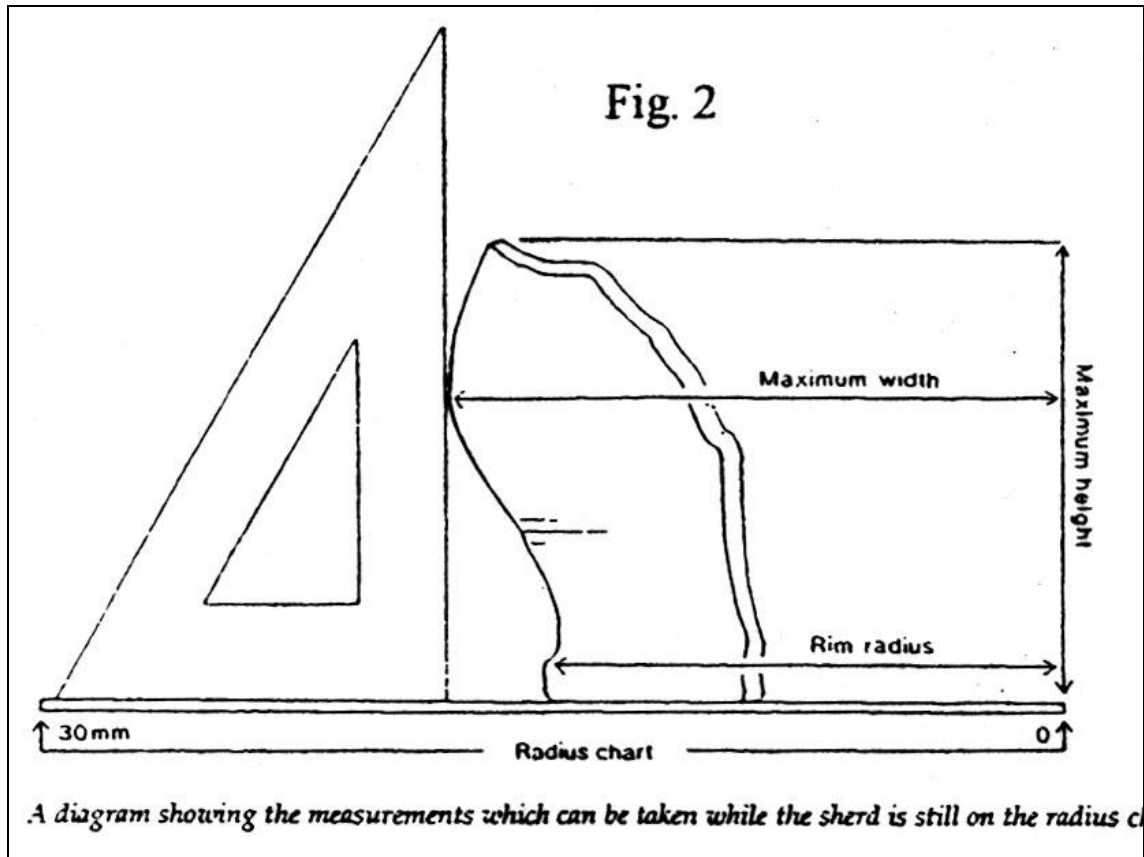
Measure the maximum height while the vessel is either standing squarely or inverted on the rim chart (Fig. 3)

Fig. 3
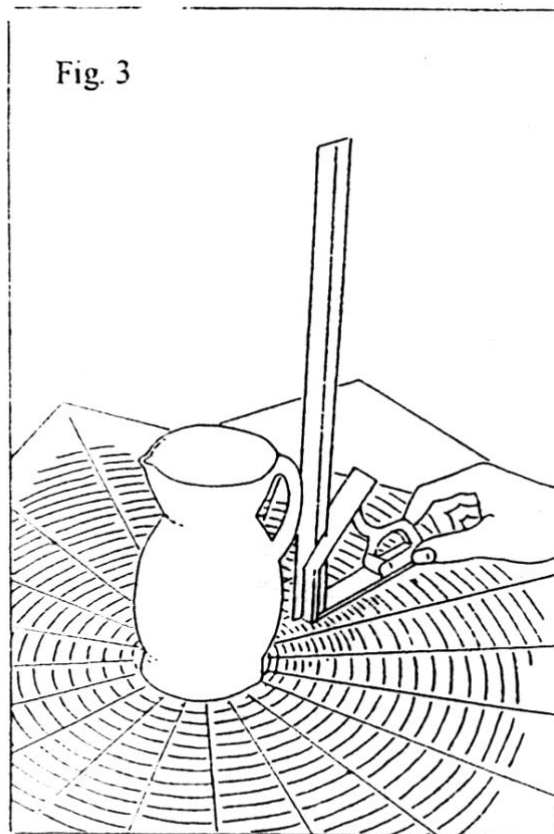
Measuring the height of a vessel while it stands on the radius chart.

Drawing a complete vessel

Take a sheet of drawing paper (bleed-proof paper is the best to work on if you are intending to ink up the pencil drawing), sticking the comers down with masking tape, onto a graph paper background on the drawing board.

Draw a straight, horizontal line with a T-square and, holding a set-square against it~ draw a vertical line at right angles to it. Alternatively use the graph paper background to draw the lines Allow enough room on either side for the maximum width of the pot to fit on the page. This will act as a Framework (Fig. 4).

Fig. 4

- Rim Diameter ——

Maximum
Vessel
Height

90°

— Base Diameter ——

A framework of measurements in which to draw your pots
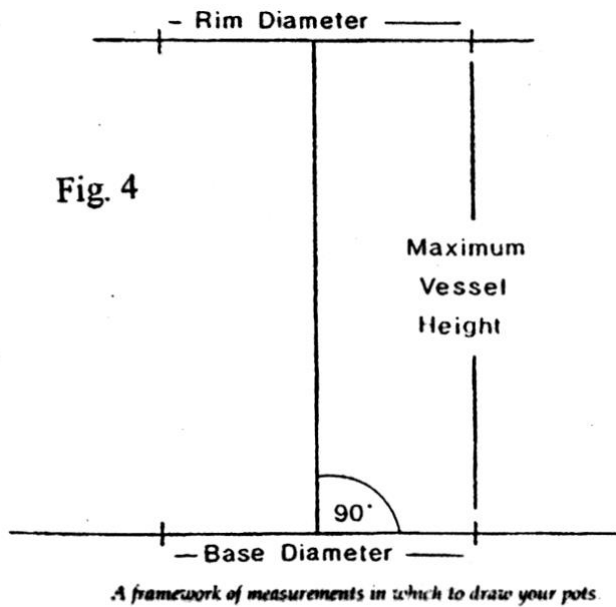
Make a mark for the top of the vessel on the vertical line, slide the T-square up to this point and draw another horizontal line Measure out from the centre line and mark the radius of the rim on either side. Do the same for the base and maximum girth. Rest the pot on its side so that the rim and base lie along the correct lines. One method of getting the pot aligned properly is to align a weighted square box (with 90° angles) with the uppermost horizontal line. The rim of the pot should be held flat against this and stuck with Blue-tack, making it easier to keep in place. Check that the maximum girth, rim and base marks coincide with those points on the pot by projecting down with the engineer's square.

When in the correct position use the engineer's square to project down from the sides of the pot onto the paper and mark with a dot. When this is done remove the pot and join the dots. Alternatively, a profile gauge could be used (Fig. 5).

Sometimes it is only necessary to draw down one side of the vessel in this way, as the other side can be traced if fairly symmetrical in shape.

Fig. 5
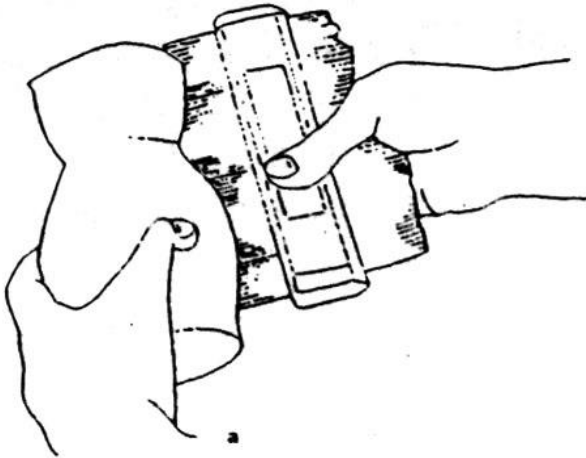
Using a profile gauge to estimate the shape.

Using callipers measure the width of the vessel wall and indicate this on the left-hand side of the illustration (Fig. 6).

Fig. 6
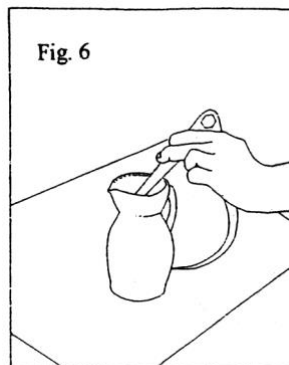
Using calipers to measure the thickness of the wall.

Draw in any distinguishing features, which occur, on the inside of the pot on the left-hand side and any external features on the right hand side of the pot. The important details to illustrate here are constructional details such as knife trimming and wheel-throwing marks, details of the fabric where visible (such as inclusions of shell or other temper), and methods of finishing such as the use and location of slip, glaze and decorative features. The latter will include the illustration of applied decoration such as pellets, strips and scales, stamps and stamp-bosses, incised decoration, and the use of different colours slips and glazes. Certain conventions can be used to indicate slipped and glazed areas, and different colours within these, these can vary from one period to another, as do certain house-styles, so it is important to always include a key with each page of illustrations.

Slip can be illustrated by the use of a broken line to denote the edge of a slipped area. Glaze - use three lines of dots of decreasing density to mark the edge of a glazed area, and broken lines as opposed to dots to shade in glazed areas.

Procedure for Sherds

If the rim is present measure the radius of the sherd on the rim chart and plot on the paper in the same way as the complete pot, but with a dash at each break to show the direction in which it would have continued if complete. The actual sherd outline is not illustrated in this case. To determine the stance of a rim, turn the rim upside down onto a flat surface, and when no light appears under its finished edge, its proper stance is known (Fig. 7).


Fig. 7
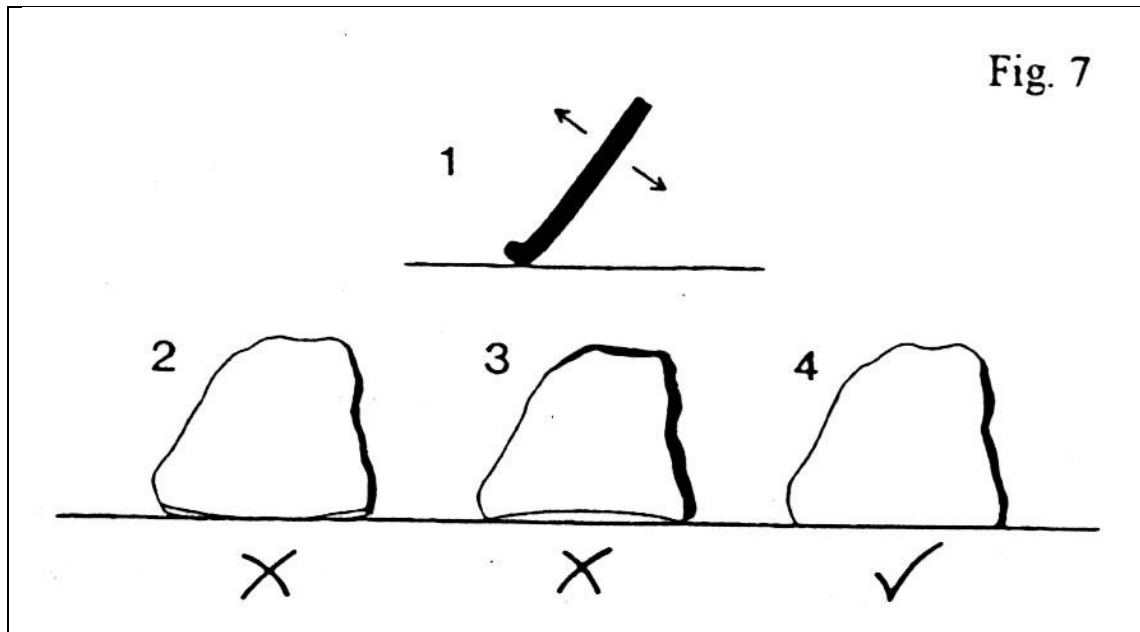
To draw this angle, repeat the action against a square block placed along the rim diameter line. However if the sherd is very small or has no rim, draw its outline, as an accurate rim measurement will not be possible. The sherd is normally drawn with its external face showing and its section at the left-hand side, with a short horizontal line between them to indicate that they are part of the same vessel. The section is always drawn with the external surface facing left and the internal surface facing right. If the sherd matches a larger form it may be possible to outline a reconstruction of what it might have looked like when it was complete. In this case it would be misleading if the sherd was not outlined to show how much remained. Pie charts can be added at this point to demonstrate just how much of the pot actually exists.

If the pot is not wheel-thrown it may have smoothing marks aligned horizontally. or a section that is thicker at one end witch would suggest the lower edge of the sherd, and therefore the direction it should be drawn. If none of these indicators are present the form can only be guessed, and would be worth drawing if unique in style.

Handles

When only one handle is present it is drawn on the right hand side of the vessel. A section is normally shown in the top right hand comer of the drawing and shaded in with black ink .The section is drawn so that its top is at right angles to the plane of the section. Show where the section was taken from by placing two oblique lines of equal length on each side of the handle. If the handle is decorated on the outside it is helpful to illustrate this (Fig. 8).

Fig. 8
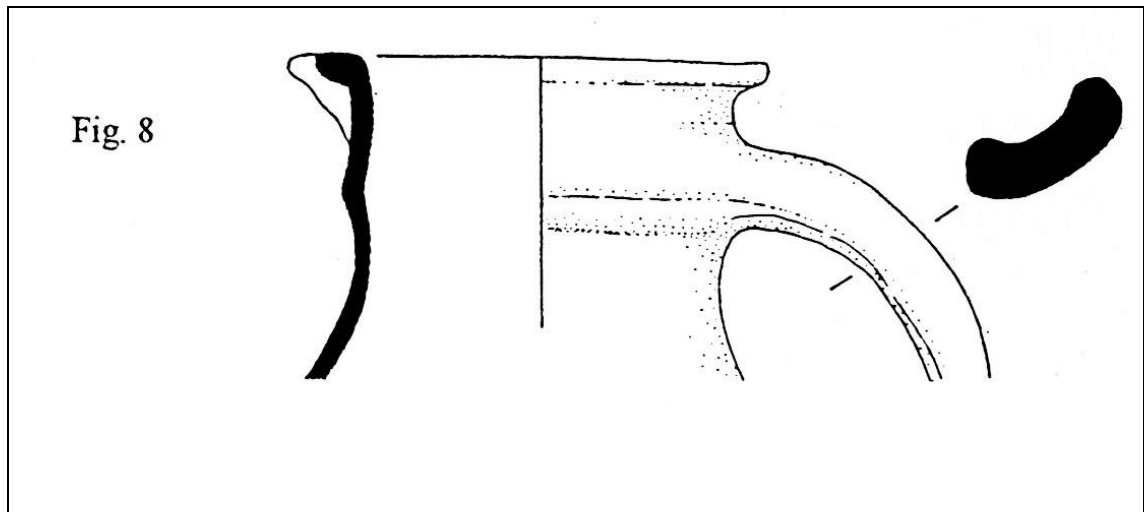
Plans

It may be necessary to draw a plan to illustrate a complicated internal decoration such as that on the inside of certain dishes and bowls. Use a compass to draw the outline of the rim immediately above the profile of the vessel. The plan can then be copied by measuring the decoration with dividers and plotting it into the compass drawn outline. It is particularly important to allow for distortion caused by parallax and always to keep an eye immediately above the pattern or detail to be copied. Decoration on flat surfaces will have the least amount of distortion and so should be plotted first. Shading should be done only when the whole plan is outlined (Fig. 9).

Fig. 9
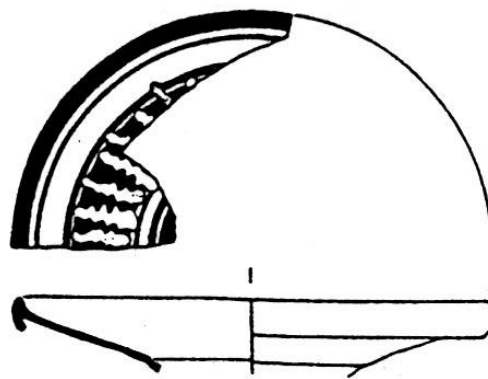
Inking In

The size of the reduction required must always be borne in mind. With pottery this is usually or 1: 4 or 1:2 of the drawn size. This determines the size of the pen. For 1:4 reduction a size 0.5 Rotring pen is needed for the outline and the centre line, and 3.5 and 2.5 for shading. Thinner lines may be lost in final reduction Keep the pen vertical to the page and do not press too hard. This will ensure the required flow of ink from the nib. When drawing long lines try to achieve them in one stroke if possible, since it is difficult to relocate the pen once it has left the page.

Unlike Roman pottery, Saxon, Medieval and Post-Medieval pottery illustrations do not include ruled lines other than for the vertical centre line, since, even when the vessels were made on a wheel they are still irregular. Draw both the top of the pot and the wheel-thrown marks by hand

The conventions mentioned above remain constant when inked in, but to emphasize the mode of construction the wheel-thrown sections are inked in completely while the hand-made sections are cross-hatched with a hatching machine set at 2.5mm, or with a T-square and 45° set square held against each other.

Paste-ups

Preferably the original drawings are used, but if not half-sized photographs or good quality photocopies are made. The full-sized original drawings are always clearer than half-sized copies, but the printer might not have a large enough camera, or you may wish to keep the original for your archive.

The replicas are cut to at least 1 cm from the outermost inked-in lines, leaving no sharp edges. They are arranged on an area of white card twice the page size required. It is important to arrange each centre line so that it is truly vertical and completely in line with the others. When they are in place, a blue pencil line around the edge of each helps fix them in exactly the right spot when gluing. Blue is not supposed to show when the black and white prints are made. They are then pasted onto the card with 'Cow' gum which, despite being a little messy, is very easy to rub off when dry. The best rubber for this is one made of dried 'Cow' gum which you can make for yourself Paint the edges round the individual drawings or copies with process white so that they will not show up as faint lines when printed.

WHO DO WE DRAW FOR?

In the1995 conference, Sue Hamilton from the Institute of Archaeology in London, presented a paper called "Who are pottery illustrations aimed at?". It was a deliberately provocative discourse on the merits of what we must regard as the normal conventions of pottery illustration, which, it seems, she has never found very useful. As the "expert" she said she needed more from the illustrations and asked why it was that we illustrators weren't doing more to present pot drawings in imaginative ways? Why indeed? I for one had thought that the convention had been devised by those who used it: a short-hand encoded device by which salient information was easily exchanged between experts. So what is the target audience for pot reports anyway? Who actually reads and benefits from the information in such reports? Should we even be publishing these drawings?

Lets assume, however, that there is some point in publishing archaeological reports (please), and such information, like a pottery type-series, should be presented in an easily accessible forum (however, one might question the validity of continually publishing Romano-British pots, I suppose!), and not simply give potential users the address where the archive is held. But we do need to get it right: it has to be useful and easily understood. Have we been getting it so wrong?

Dr Hamilton says that the first thing she does when using published reports is to mark-up the illustrations with information from the written report: colour, fabric type, site context etc. She advocates presenting all of this information with the illustrations. Well, this isn't a very radical move. I can remember a paper published in the early 1 970s suggesting just this (1). Placing this sort of information within the field of the drawings would upset no one.

Other suggestions presented by Dr Hamilton were a little more interesting, such as mixing scales, making reconstructions and including halftone details, and presenting site plans showing the distribution (and presumably re-distribution) of sherds from the same vessel.
In my opinion, Dr Hamilton had the answers to all of her problems. Is it really the illustrator who is perpetuating the use of dull, conventional drawings? If there is a dialogue, a partnership of equals between ceramicist and illustrator there need never be a problem: illustrators can adapt their talent to communicate in many ways.

I look forward to reading her paper in next year's Journal, and I hope similar debates are always on the agenda.

Sean Goddard

(1) Smith. Robert Houston 1972, An approach to the drawing of pottery and small finds for excavation reports, World Archaeology 2, 212-28

Reassessing archaeological illustrations: breaking the mould

Sue Hamilton,
Institute of Archaeology, University College London

Since the results of excavation are above all visual—we record, after all, very little we cannot see—it follows that illustrations form the core of the report, from which the text, descriptive or interpretive, stems Barker, 1979, p. 228.

Introduction

This article is spawned by a deliberately provocative paper which I presented to the AA1.S Conference in September 1995. The paper was entitled 'Who are the pottery illustrations aimed at? and much of the following considers issues raised in that presentation. I additionally take the opportunity of considering some wider issues concerning the role of archaeological illustration. The theme throughout is that we have fallen into the trap of formulaic excavation reports accompanied by equally formulaic illustrations. The illustrations collude in this situation by giving an unnaturally 'sanitised 'and' fixed view of the data which fails to engage the 'reader'. It is a well known fact that few of us work through excavation reports and their illustrations with a sense of excitement, hurriedly turning over the pages to read the next context description or to see the next image (Tilley 1989).

Archaeological illustration is a time-consuming business. There is little argument about why it is being done (Griffiths et al. l990, l). It is indisputable that it can be an effective means of documentation which both complements and expands photographs and written descriptions. The general similarity of illustration formats in British excavation reports indicates adherence to: consensus concerning the basic rules and conventions which should be used for visually presenting artefacts and features. What we see on the illustrated page is a tangible result of the hegemony of 'professional ' ratification procedures. More attention needs to be paid to a consideration of how the illustrations are going to be used, or perhaps not used once published.

Pottery Illustrations

By way of an example, the database that I will concentrate on is that of British prehistoric pottery, particularly Bronze Age and Iron Age pottery. Pottery comprises the commonest item of material culture remaining from later prehistoric sites in lowland Britain. Its breakability means that it readily becomes incorporated into settlement rubbish, and the reconstruction of the processes of its dispersal across site (e.g. via intra- and inter context joins) provides crucial evidence of on-site activity patterns (Lambuck 1984). The illustration of Inter prehistoric pottery needs to more evidently reflect and enable the central role that it has in archaeological interpretation.

The Prehistoric Ceramics Research Group (PCRG, 1992) recommends a minimum of eleven variables to be recorded in the analysis of prehistoric ceramic assemblages. Several of these variables can be and need to be, more actively addressed ON the illustrated page, and via illustration.

Text: at least four of the PCRG variables requiring recording (namely: form type, fabric type, technology and cross-context joins) would benefit from written

information being placed on the illustrated page. As a starting point, written information needs to include codes such as fabric codes (Fig. 1) and firing codes (e.g. 0X = oxidised; UNIOX = unoxidised; IRF = irregularly fired). For reconstructed pots which comprise joining sherds from different contexts (quite a common situation), coding of the sherd components as such would result in a more dynamic reflection of the process of reconstruction, and the role of pottery in reflecting site activities. Most researchers will first go through a pottery report and manually mark up these details from the written report onto the illustrations, in order to facilitate their process of interpretation (Fig. 4). Thus, the current format of presentation is failing to enable research even at an elementary level. As Goddard (1995) rightly notes, a plan to place this information on illustrations is not radical. It has been suggested before (Smith 1972), and indeed was effectively employed by E. C. Curwen in his excavation reports of more than sixty years ago, using Robert Gurd as illustrator (e.g. Current 1931). It is, however, not generally practised in the present! The use of explanatory text (more user friendly than codes) offers another option. The latter can be seen to work very effectively in Figure 2 where two texurally similar finishes (burnishing and haematite-coating) are distinguished using text. Figure 2 (also Fig. 3) additionally uses text in conjunction with a question mark to inject an indication of unresolved knowledge into the illustration. This simple device provokes thought, and emphasises the process of interpretation which the illustrations are a component of—as opposed to presenting a falsely immutable/resolved image.

The scale and detail of reproduction: for four of the PCRG's variables, the standard scale of reproduction (1:4 or 1:3) needs to be larger and/or used with greater flexibility, in conjunction with more illustrative detail. The four variables which I am particularly thinking of are: i) manufacturing techniques ii) surface treatment; iii) decoration— incised, combed etc.; iv) use-residues and use abrasion. My preferred publication scale for later prehistoric pottery is 1:2 (currently rare). It is often argued that publication at larger scales takes up too much space (and costs more). However, pots published at larger scales can be overlapped and closely spaced on the page with no loss of information—they certainly look more interesting when presented this way (Figs 2 and 3)! A larger scale allows detail to be placed on the drawings than would not otherwise survive reduction. Publication of illustrated pottery at smaller scales results in pages filled with swaths of uninformative 'white
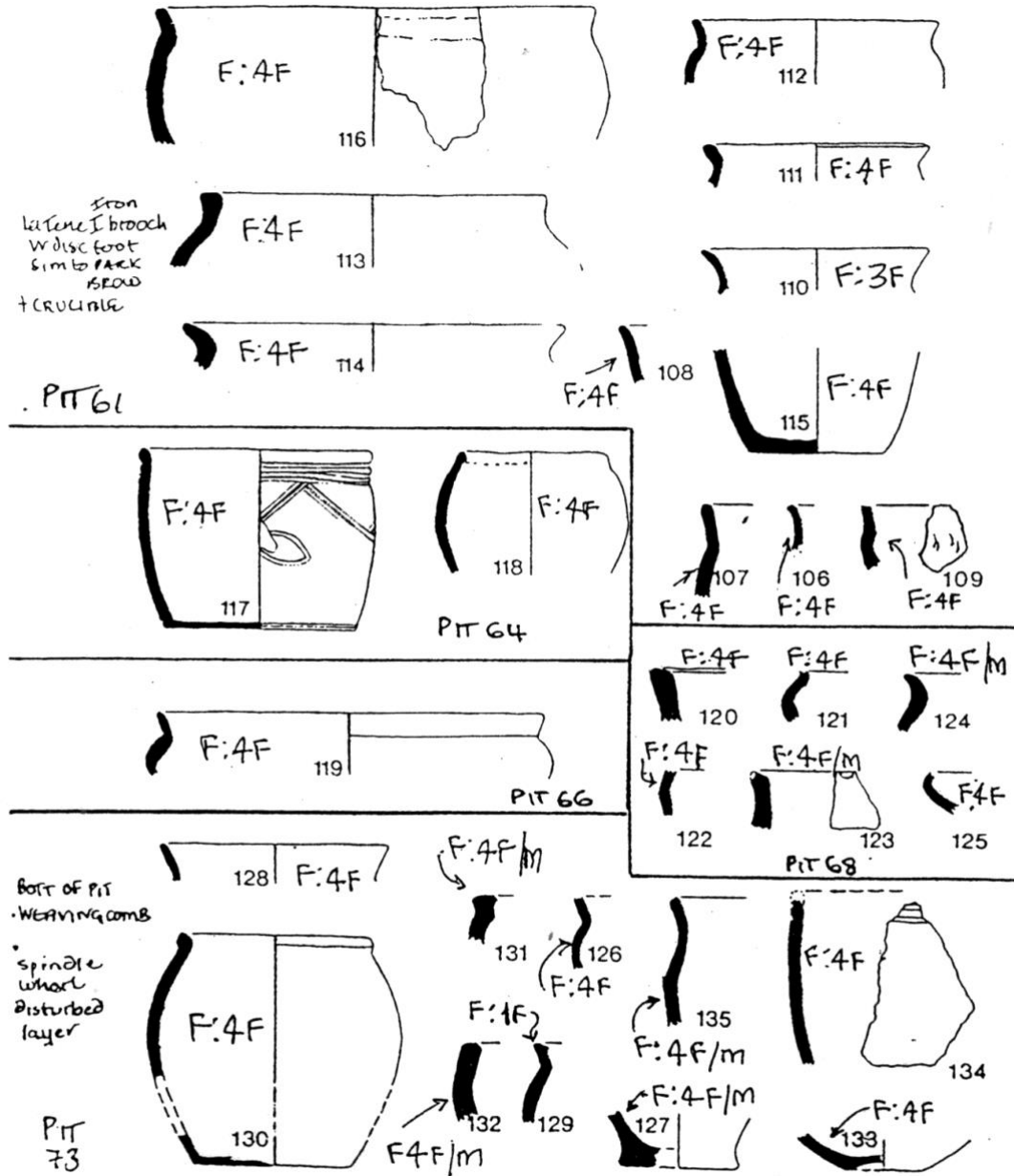
Fig. 4 Iron Age pottery from Slonk Hill, Sussex (published in Morris 1978) Scale 1:4. Manual annotations added subsequently, to facilitate analysis.
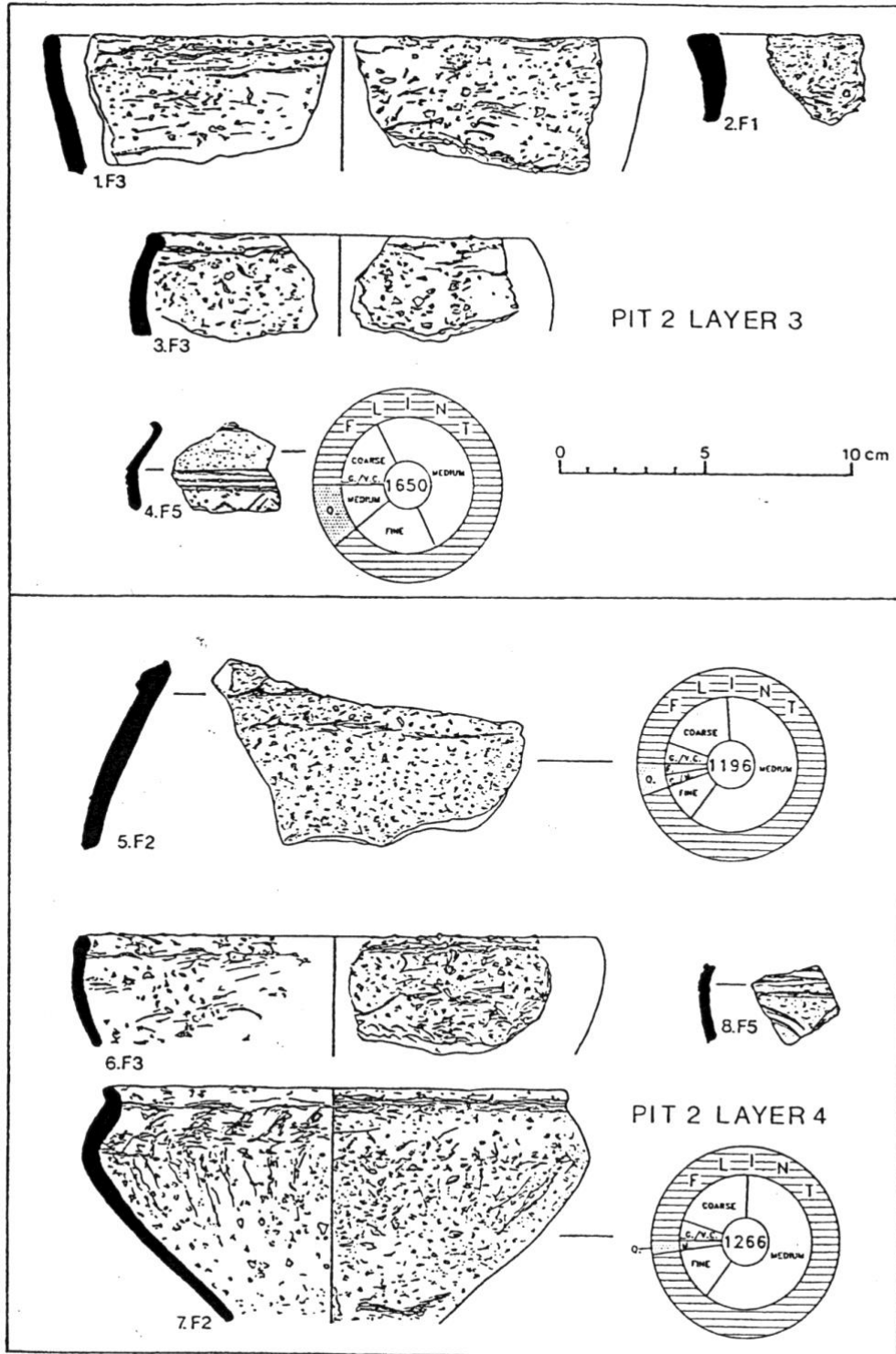
Fig. 1 Late Bronze Age pottery from Yapton Sussex (published in Hamilton 1987 and 1993. Key: 1. = vessel number; F3 = the fabric code. The number in the centre of each pie chart is the number of inclusions present in a 1g sample of pottery. The segments on the pie charts indicate the percentage of individual inclusion categories present in a 1g sample.
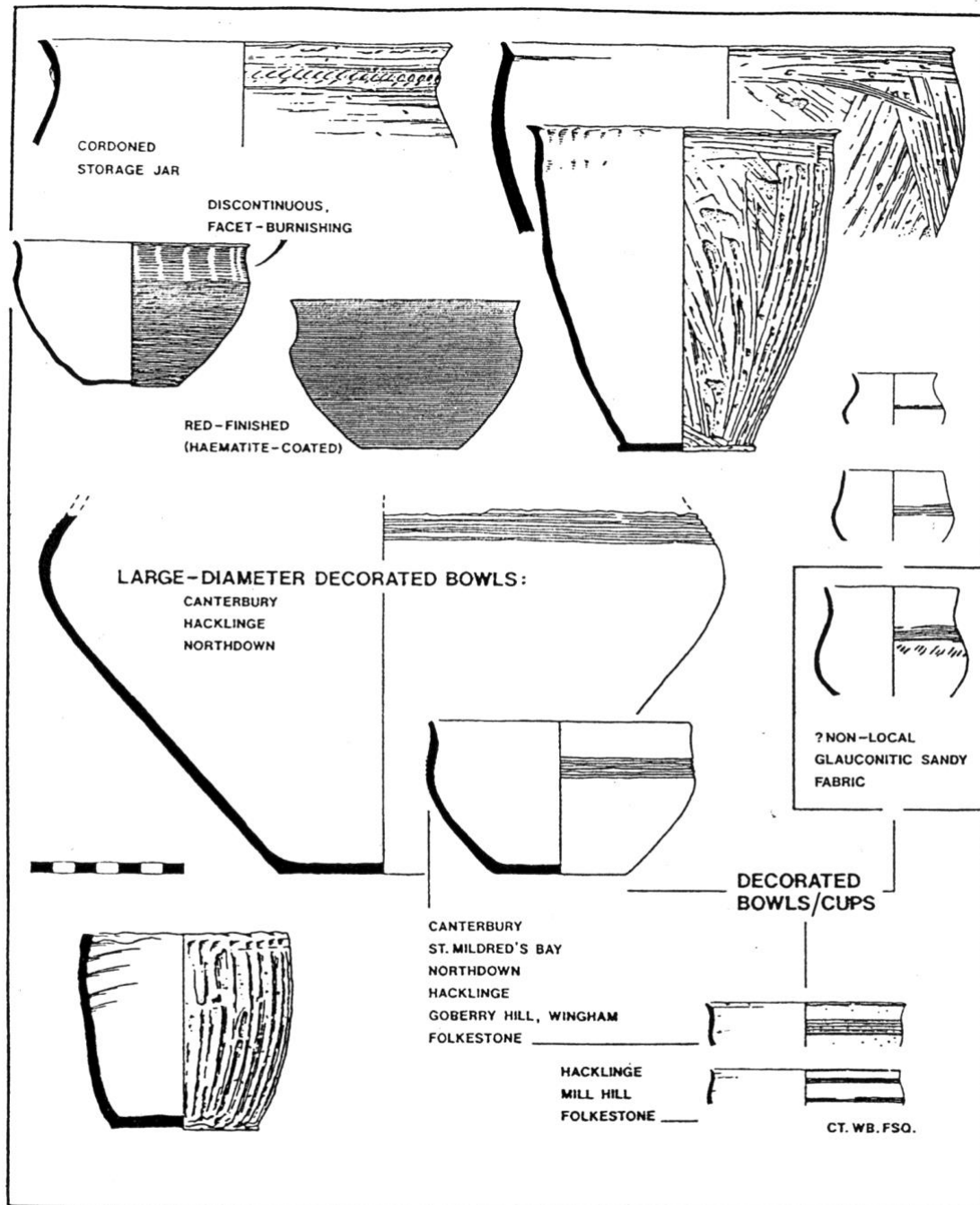
CORDONED
STORAGE JAR

DISCONTINUOUS,
FACET-BURNISHING

RED-FINISHED
(HAEMATITE-COATED)

LARGE-DIAMETER DECORATED BOWLS:
CANTERBURY
HACKLINGE
NORTHDOWN

?NON-LOCAL
GLAUCONITIC SANDY
FABRIC

DECORATED
BOWLS/CUPS

CANTERBURY
ST. MILDRED'S BAY
NORTHDOWN
HACKLINGE
GOBERRY HILL, WINGHAM
FOLKESTONE

HACKLINGE
MILL HILL
FOLKESTONE

CT. WB. FSQ.

Fig. 2 Late Bronze Age to Early Iron Age fine and coarse ware pottery from Highstead Kent, together with East Kent parallels (published in Macpherson Grant 1991a). Scale in centimetres.

APPLIED PLAIN
CORDONS:
NORTHDOWN
EDDINGTON FARM

? PRE-CORDON KEYING
? FOLKESTONE

REMNANT
COIL-PINCH
THUMBING:
CANTERBURY
HACKLINGE
FOLKESTONE

PROFUSELY
FLINT-GRITTED BASES:
CANTERBURY
FOLKESTONE
NORTHDOWN
MINNIS BAY
ST. MILDRED'S BAY — THANET
MONKTON ROAD
SARRE
GOBERRY HILL, WINGHAM
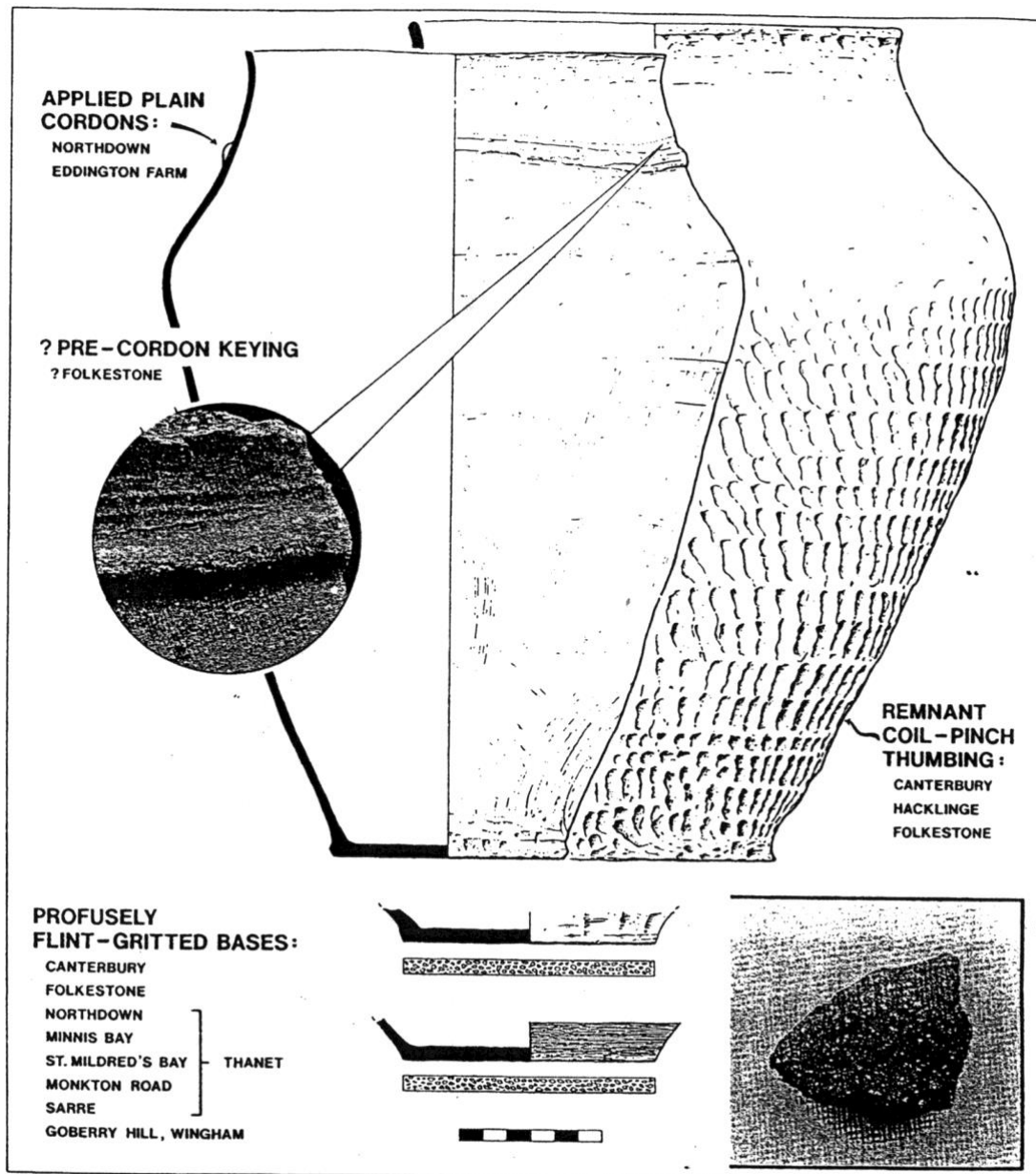
Fig. 3 Late Bronze Age to Early Iron Age storage jars from Highstead Kent (published in Macpherson Grant 1991a). Scale in centimetres.

space' (Fig. 4). Bland, 'white' drawings at their worst were a 1960s reaction to the explosion of rescue archaeology and the need to rationalise the labour involved in publication. These have been superseded by the rather more detailed archaeological drawings of the 1980s and 90s. For ceramics, this detail mostly relates to a greater indication of surface texture. There are, however, other aspects of ceramic technology which require more explicit detailing, and which are not so well understood or familiar that it can be left to written commercial description alone. These details include evidence of: i) specific construction and forming techniques —e.g. slab-construction, finger pinching, gritted bases; and ii) use-residues and their position—e.g. limescale, pitting, sooting. Several of these variables are of current research interest and have not been consistently recorded in pre-1980's publications. Figure 1 provides an example of the detailing of manufacturing techniques using 1:2 reduction: Vessel 6, a Late Bronze Age shouldered bowl, evidences slab building smear marks on the inside and outside of the shoulder join; Vessels 3 and G show a specialist trick

of rim formation specifically associated with Sussex Late Bronze Age hemispherical bowls—
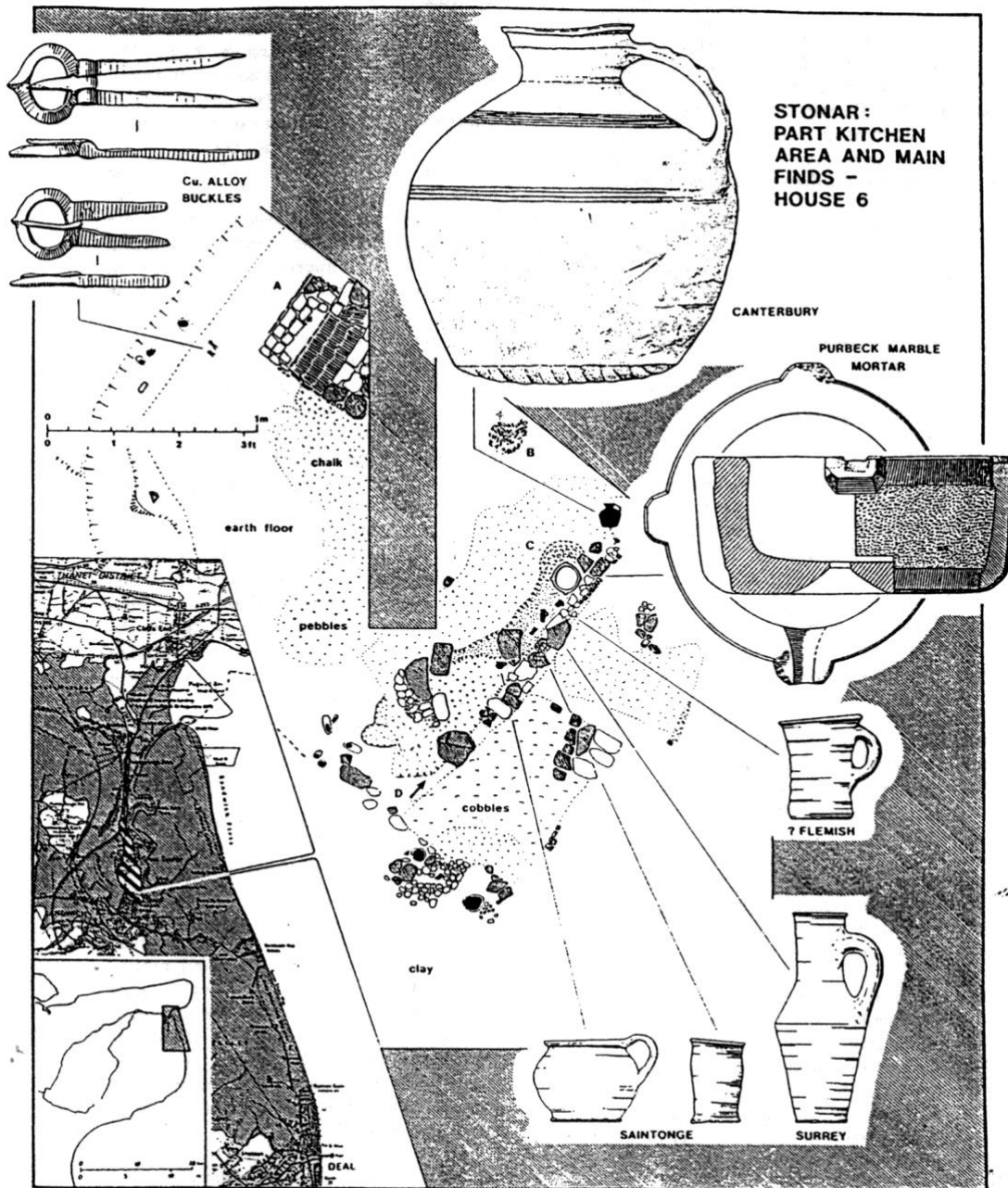
Fig. 5 Stonar, Kent: location and plan of House 6 together with medieval pottery finds (published in Macpherson Grant 1991b).

involving folding the rim edge over onto the inside and 'fixing' it by fingernail pressing (Hamilton 1987). Figure 3 shows the imaginative use of blowup halftone details to demonstrate pre-cordon keying, and profusely flinted bases alongside drawings of Late Bronze Age and Early Iron Age storage jars (Macpherson Grant 1991a). Blow-up details, and the mixing of scales can thus be used to produce a 'narrative' progression on the illustrated page leading the viewer from the general to the specific. Drawings and research: current research themes relating to Inter prehistoric ceramics include (PCRG 1991):

1. Chronology - isolating secure groups of stratigraphically associated pottery, dated by metalwork or radiocarbon associations.

2. Isolating the nature of deposition (via sherd joins), as an indicator of site formation process.

3. The use of pottery as an indicator of settlement organisation—functional variation in pottery associated with specific contexts/structures.

4. The organisation of production and exchange - incorporating a consideration of the raw material components, both clays and tempers identified in pottery fabrics.

Artefact drawings remain strikingly separate from such considerations. The isolation of single artefact categories on the illustrated page, seals their removal from their contexts and associations —which excavation initiated, and hinders holistic interpretation. We need to use forms of visual presentation which reflect the wider issues and research themes which later prehistoric ceramics are peculiarly well placed to contribute to. An elementary list of practices which might be more widely adopted for illustrating prehistoric pottery include:

1. Annotating the drawings with context information (Fig. 1).

2. Presenting stratigraphic 'closed groups' of pottery with representations of their other artefact associations together on the illustrated page.

3. Placing (or repeating) drawings of stratigraphically important pots on the plans and sections (Fig. 5).

4. Finding methods of visually expressing fabric components (NB which is n different concept to surface texture). One possible method of visually representing the results of detailed fabric analyses is shown in Figure 1

Excavation Reports and the Role of Illustrations

Formulaic layouts and drawings indicate a loss of confidence—in fear of breaking the 'rules'. The purpose of excavation reports is not just to record artefacts and features. The process of publication is redundant if it fails to make us think about material culture production and the social and economic strategies it relates to. The format of published illustrations in excavation reports requires deconstruction and reconstruction. We need to experiment with interpretative layouts and presentation. The same approximate layouts have been used for nearly forty years. These cannot be the only formats which are viable? The layouts have become so familiar that we are hardly drawn to look at any particular page, or indeed any page. Why not try eclectic, multi-media presentations —halftones, inserts, blow-ups, different forms of text and different styles of script, more labels, different scales, charts ~ combined together on the illustrated page to make connections, emphasize detail, and variously express similarities, diversity, and insecurity of attribution? We need to deny the spurious unity created by the hard edge of the page. Traditional page formats of pots (flints, bronzes etc.) aligned in horizontal rows with their centre lines ordered on common vertical axes—negates the potential to create a visual narrative, using selective disalignment to physically express dissimilarity or contextual disassociation

In response to my conference paper, Goddard (1995) asks who is perpetuating the use of 'dull, conventional drawings'. The answer is 'all of us'. Excavators and researchers can ask for different drawings, illustrators can suggest different approaches, professional bodies (e.g. the AAI&S) can promote diversity through their validation procedures, and funding bodies such as English Heritage can accept reports with 'unconventional' illustrators. The fact remains, however, that illustrations in current excavation and project reports mostly look the same. To break the mould someone somewhere has to publish a 'formal' report with a really striking and dynamic use of imagery which is preminently understandable, and which did not take more time or cost more money. It is a challenge—but at present the drawings are simply not challenging enough!

S. D. Hamilton l996

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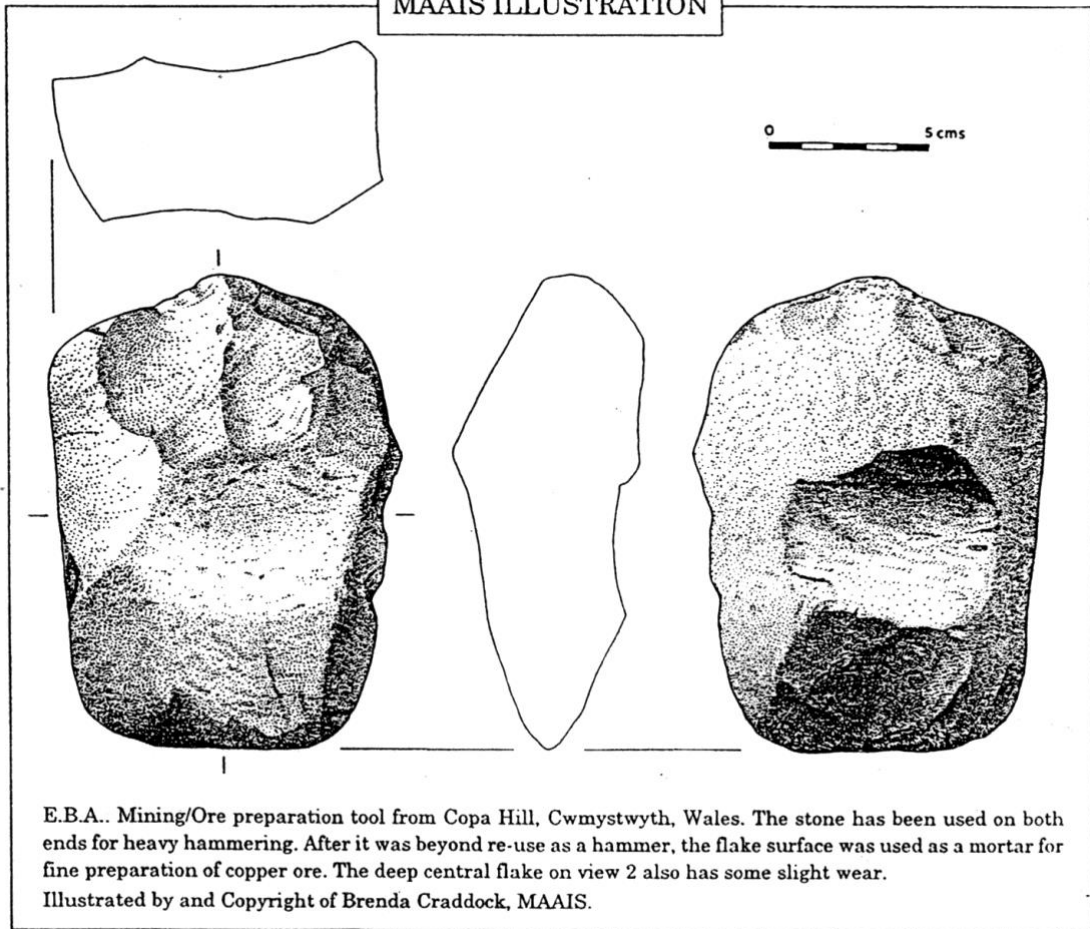
E.B.A.. Mining/Ore preparation tool from Copa Hill, Cwmystwyth, Wales. The stone has been used on both ends for heavy hammering. After it was beyond re-use as a hammer, the flake surface was used as a mortar for fine preparation of copper ore. The deep central flake on view 2 also has some slight wear.
Illustrated by and Copyright of Brenda Craddock, MAAIS.

WHO VALUES THE ILLUSTRATOR?

A REPORT ON THE 1996 TAG CONFERENCE

In December '96, Liverpool hosted the 18th annual TAG conference. One of the final sessions was entitled "Image and interpretation: the use and evolution of the archaeological illustration". Considering there were only about fifteen people there, two of whom were student members of AAl&S, the debate that followed became quite 'interesting' with a variety of contrasting points being aired regarding the two main subjects under discussion. The two topics concerned were illustration as a discipline and the future of illustration.

It was agreed that illustration is a valuable tool. This was followed by a discussion on the role of illustrations and of the illustrator. The idea put forward by the session organiser, John Swogger (Liverpool Uni) was that the discipline should not be isolated as a separate discipline to be carried out solely by professional illustrators, but that all archaeologists should be able to use the skill and create their own illustrations. This raised the point that archaeologists, both academic and field, do not have the time and perhaps the skill to carry this out whilst maintaining a high standard. It was suggested that increased 'education' of the archaeologist would aid the professional illustrator by means of maintaining a set of basic conventions. At the moment these are seemingly obsolete due to 'work' undertaken by the illustrator often being subject to the specifications of the individual archaeologist. It was also accepted that illustration tends to take a back seat in many degree courses ... should we be encouraging 'new blood' by means of workshops to perhaps set standards and encourage those new to the discipline?

The discussion touched on the different forms of illustrations and for whom they are intended. This was quite interesting as some delegates clearly did not understand the use of different illustrations to aid different groups and individuals. This was especially noticeable within the art of reconstruction, some preferring the more artistic approach and others favouring the more interpretative format. this latter format being pushed by the increased use of computer technology. One of the delegates who was very anti the new technology, having accepted that its use was inevitable, was clearly not prepared to find out that the real advances and advantages are.

I have tried, in an impartial manner to convey concisely and, I hope, precisely the main points raised. I now challenge you to voice your response. Do we have any clear objectives concerning the future of the discipline, or its present day- to-day application within the whole sphere of archaeology?

<div align="right">Louise D. Brown</div>

Archaeological drawings are in black and white

I'm sure we all do it. You're given something to draw and your mind either goes into auto mode and you draw the object at a set scale with set shading style with a set orientation as you've done all your life or you go and look at other peoples work and copy their way of doing it.

Why do we do it? Why are we still drawing the front view, side view and section? Why are we still using line shading for one object and stipple for another? Who started it anyway?

Well, I don't know for sure who started it. My education took place a long time ago and all the history of stuff went out of mind a long time ago. But I do know one thing - the styles of the drawings that were originally done for publication were dictated by the printing methods available at that time. So - in the good old days of letterpress printing drawings were reproduced on blocks as engravings (on the end grain of boxwood).

Plate engraving was also a possibility, either in copper, zinc or even steel, but because the process differed from the raised image of letterpress type the engravings had to be printed separately and inserted into the book at the binding and finishing stage.

It was engraving that gave us the line shading style that is used (often so badly) in the depiction of archaeological artifacts and the line conventions that we use in our maps, plans and sections.

Engraving of a saucer brooch: "Anglo-Saxon Cemeteries at Filkins & Broughton Poggs, Oxfordshire"; Archaeologia XXXVII (1857)

Some early l9th century books, whilst being typeset used drawings that were executed on litho stones. The German engraver Aloys Senefelder (1771-1834) developed litho printing on stone in 1796. Almost a century later aluminium and zinc plates were being used but the biggest change was the invention of offset lithography in 1905. Many of these illustrations were very attractive to look at, especially the drawings of artifacts because the fine texture of the litho stone being worked on came out in the drawing. It gave the illustration a fine texture - is this what we try to imitate with our stippling?

As printing improved and methods changed then the methods of transferring the image to the page also changed. With letterpress woodblocks gave way to photo etched blocks. Half tone screens allowed for photographic greyscale tints and even photographs themselves could be printed. The advent of offset lithography made the transfer of type and image to the page into a whole new ball game. Whilst offset lithography has been with us for a very long time, it was only in the last thirty years

that real advances had been made. The most significant move forward was the introduction of phototypesetting. Now we have desktop publishing and plate making (for print) direct from disc or ISDN line. Even traditional photographic imaging is being side-stepped with the use of digital cameras and image scanners.

So where does that leave the archaeological illustrator? We started out using drawing skills that were created so that the image could be transferred to the printed page. That was over a century ago. Do we still have to do things in a way that was being done over a hundred years ago?
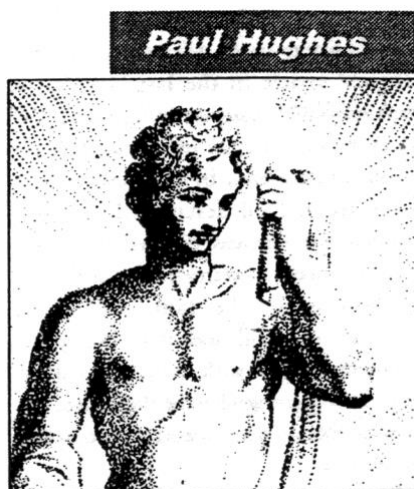
Detail of copper engraving from a medical publication (1809)

The answer is no. We have many opportunities open to us now when it comes to illustrating archaeology, because the technology of print has changed. The opportunities are enormous and exciting and they are more accessible now than they've ever been

(And I'm not even going to mention virtual reality and the Web.)

AAIS Newsletter July 1997

The line is dead. Long live the line

I would like to start a debate based on Paul Hughes' article in the last Newsletter, "Archaeological drawing are in black and white" which raises a number of important issues for illustrators and, by implication, this Association. Paul describes how print requirements may have dictated illustration styles. His main concern seems to be that we are still using the same styles, but, unfortunately' Paul does not develop his arguments or share with us his vision of the future by suggesting what the alternatives are. So, what follows is my gucss at the source of his concerns.

The way I read it, he asks: why do we draw archaeological material in the way we do, at the same scales, with the same orientation, and why, in particular, do we still use line or stipple rendering' Paul's concern implies that the drawings most of us produce are inadequate in some way, or that we impose restrictions of style and technique on

ourselves which hinder our performance. The profession may never have consciously planned a schema for the presentation of visual information; there arc no national or international standards to uphold, but we do have conventions and loosely applied rules. Are they so rigid, however, as to be restrictive or difficult to apply? I don't think so

I have always assumed that we draw material to provide an accurate and easily understood version of the real thing. For me, the fundamental questions to be addressed are

• why are we drawing the material?

• what information do we need to transmit?

• what is the best way of delivering the information'

• what level of accuracy is required?

• who is going to use the finished drawing, and how?

Firstly, someone has to decide that the material is worthy of a drawn record. Then the illustrator has the task of translating the three-dimensional reality into a drawing. The scale and detail of the drawing will depend on the nature of the material and the expectations of the users. At all times the illustrator will make a measured and measurable drawing, working as accurately as possible The drawn record should work as a guide, in a way which is readily understood by users. So far so good . . .

Paul imagines that, when faced with an unfamiliar drawing task, we all slip into autopilot, find examples of other's work, choose the style we like for the material and mimic the technique for ourselves. To a certain extent this is true. On the other hand, if, in our search for' good', convincing models, we find examples which convey the correct message, then why not copy the style?

There are now a number of courses teaching archaeological illustration, but many of us have come into the business via an art training or are archaeologists who can draw. I for one had no formal training and yes, I did make it up as I went along. I had some drawing ability and a background in ceramics, metal- and wood-working; I was familiar with technical drawing and had a clear understanding of the mechanics of the established presentation, which is understood and used by many other groups such as architects and engineers. I still seek out what I think are good examples and modify the style for my own needs but this introduces another contentious issue: aesthetics. What exactly makes a good drawing?

I don't have a problem with the way most material is portrayed and wouldn't mind if someone came up with a new approach, but what exactly would that be ' Sue Hamilton in Graphic Archaeology (1996, pp 20-27) says that conventional presentation for prehistoric pottery is inadequate for her needs. She supplements the 'normal' pot drawing with information about fabric types, halftone images and other finds drawings, and includes site/feature plans on the same page as the pot. No problem: the pot specialist calls the shots and we the illustrators create the page. At

least Sue knows what she wants but what about everyone else? How many other users feel current conventions are inadequate, and why?

Paul says that the only reason we use line is as a continuation of a tradition based on printing needs: from a fifteenth century wood engraving to a nineteenth century steel engraving, line was almost all there was to show form. Whilst the line technique of engraving was successful in producing fine detail and tonal range, the fact is that line as a successful illusion of reality is very much older and much more basic than print. We are simply talking about drawing. Drawing uses line as an encoded symbol: a language.
The line can represent the edge of an artefact or the top of an excavated feature; the list is a very long one. The human brain handles these abstractions very well most drawn images are immediately understood as a version of reality.

Lines can have subtlety and feeling for the subject. There are huge differences between lines in charcoal and pencil, dip-pen and pen, and the line made in computer packages, but there is nothing inherently wrong with line or stipple. The fact that relatively primitive printing techniques could only handle line was just chance.

So, what is it that Paul has a problem with? Is it that he thinks we shouldn't be drawing at all? Would a photograph do? No problem for me as I'm also a photographer, but it is no easier to make a good photograph than to make a good drawing and the variable scale within photographs means they can't be used for measurement. Or does he think we should make a break from the traditional hand-drawn pen and ink illustration to a wholly electronic medium? Would it still rely on line?

Increasingly, publishers and their printers no longer take traditional camera-ready copy for paste-up. Instead, perfectly good PMT's are being scanned at low resolutions to provide digital copy and ruined on the way. What would a move to digital output be if not a reaction to modern print technology? If we need to record artefacts at all, then the most complete record isn't a drawing. A hologram or a ten second video sequence, with the object on a turntable, would be much better.

There have always been good archaeological illustrations, but alongside the good there have also been the bad or barely adequate. Non-illustrators probably don't care very much about visuals, and editors certainly don't. Illustrators' concerns are rarely heard: we are probably drawing for ourselves and our peers. Editors would never accept muddled or misleading text, but they are more than happy to take poor and sometimes meaningless illustrations. So, before we launch ourselves into new visual media we ought to have a much firmer foundation, a better idea about what we are really trying to achieve and how we should do it. What concerns me more than the constraints of 'house styles' or old and routine methods, is the generally poor quality of archaeological illustrations being published now. Print has been around for centuries, and in the closing years of the twentieth century we ought to be getting the basics right. lf we expect to have our illustrations reproduced as black ink on paper, then I don't see any real alternative to the use of line and line and stipple rendering. If the future is not in "black and white", then Paul should tell us what he thinks it is going to be in.

Sean Goddard

House Styles: do we still need them?
Should not uniformity and standardisation be our primary objective?
Oliver Jessop

Introduction

Illustrations, as Stuart Piggott says, 'transmit information according to an agreed code of conventions which translates actuality into forms and lines in one or more colours, usually black on white, in a manner which will convey to the observer the features of the original which the illustrator wishes to present (Piggott, 1965).

Piggott's statement suitably sums up his perception of archaeological illustration in 1965. It is the aim of this article to briefly consider the situation today, especially in regard to institutional house styles, and the illustration of small finds, excavation plans/sections and location maps, for which the methods of graphical representation are perhaps the most diverse. I would like to suggest that there are problems with such diversity, and that the situation may be improved by a greater standardisation towards one or two particular styles of illustration. The overall standard of published work is not falling, but attention to detail and clarity of information can often be sacrificed for a 'certain feel' or 'standardisation of image'. Such a view is shared by Hamilton (1996, 20) who writes that we have '. . . fallen into the trap of formulaic illustrations and reports'. Whether we are individually responsible for this current situation or not, we must work together to find a method of working that is acceptable to everyone.

Why do we draw

In more recent years there have been a number of articles concerning the purpose of archaeological illustrations and the problems faced by the profession today; for example, Goddard (1996), Hamilton (1996) and Roberts (1995). All illustrators are being placed under increasing pressure to produce accurate, detailed and visually informative pieces of work, in a short space of time and at virtually no cost. Often, the commissioners of work undervalue the importance of a good illustration, and also, appear to be totally unaware of how much time, care, and effort goes into creating a drawing for publication. But, if this is indeed the case, why do we just accept the current position? We are part of the archaeological community, and actively enable others to understand complex information. It is for this reason that we have a responsibility to change the perception of the work that we produce. If bodies like the AAI&S do not take a prominent lead in the future development of the profession, then who will?

Archaeological illustrations are a welcome break in many academic texts, and are normally immediately understandable by the reader. Without visual images, it becomes almost impossible to satisfactorily understand and interpret archaeological excavations and data; the phrase, 'a picture can say a thousand words', applies here. The raw information, recovered from excavations is often fragmentary and incomplete, having suffered physical damage during burial. However, a clear and accurate two-dimensional illustration can provide a vast amount of visual information, which is too expensive to reproduce photographically. The overall success of an archaeological illustration must depend on its accuracy, presentation and the use of sections and alternate views. Diversity in appearance tends to occur when the surface

rendering is applied. Whatever techniques are used, it should be immediately apparent what is being illustrated, be it copper alloy, iron, glass or lead. For this reason, archaeological illustrations are rarely considered works of art. Having been drawn for a specific purpose, they, '. . . should be a clear, accurate representation of the object, one that can be reproduced, and not an artistic rendering suitable for hanging in a gallery' (Griffiths et al, 1991, 23).

Institutional and individual styles

Apart from the 'formulaic report layout', the techniques of surface rendering are often influenced by an established 'house style'. For example, it is possible to look through any major archaeological journal and see up to four or five styles of illustration and presentation (Figure 1). Major organisations, such as English Heritage, The Royal Commission and The British Museum, all maintain individual styles, and it is therefore a formidable institution, often with many years of stability behind it. It can stamp the seal of approval of the museum or institution and sets a minimum standard for the work in hand. Once the illustrator or drawing office has adopted and taken on board the range of strokes and flourishes that combine to form the correct effect, the accepted output is maintained.

At times however, I feel that the variety of styles causes confusion to the reader, which can be considered unprofessional. Maybe change is necessary, as Hamilton suggests (1996, 26), We need to experiment with interpretative layouts and presentation . . . the same approximate layouts have been used for 40 years'. We must not change, just for the sake of it but if it can produce an overall benefit for both illustrators and others involved with archaeology, then it is well worth considering.

I am not suggesting that we all need to become clones of one another, and individuality must be encouraged, but the general approach should be consistent. An example of this may be, using only stipple or line strokes and not both, depending on the institution one is working for. No two people are alike, and therefore the work of no two illustrators will be the same, as no two authors are identical. A balanced approach between increased standardisation and individual personality, should be fostered.

Increasing financial constraints and a lack of time greatly affects the quality of our work. As Mike Rouillard pointed out to me in May 1996, : . . in the task of drawing a large corpus of objects of varying degrees of complexity to a tight deadline and even tighter budget, most illustrators opt for a quick, easy and standard method of rendering: Subsequently, drawings are simplified to the bare minimum, which can gradually become accepted as the norm. Occasionally, when in some cases it is only the profile that is important, should we spend time filling in surface texture simply because it is perceived as being standard practice? On the other hand it could be argued, why should surface texture, colour and aesthetic beauty of the artefacts be sacrificed? Drawings need to be tailored to the job in hand. Also, overworking, and the illustration of extensive corrosion deposits, is unnecessary. The primary role of those involved with illustration, must be to present the maximum amount of information, in the clearest way possible, using the minimum amount of fuss. Again, Piggott (1965, 176), sums this up by saying, Archaeological drawings have no need to be repellent and unattractive, any more than the text need be badly written'.
Conclusion

Illustrations must have a purpose and a target audience, and therefore our approach will vary depending on what is required. It is vital that standards are maintained and that the ability to enhance a report or paper by the illustrator continues, not being completely replaced by the 'user friendly' computer graphics programme. We must continue with techniques of shading that we feel comfortable with, but gradually moving towards overall uniformity. I feel that the standardisation of certain basic conventions, which is adhered to already, should be our main objective. The development of schematic styles of illustration, already encouraged by English Heritage, would seem the most logical. They are relatively straightforward to adopt, and each type of material, such as bone, pottery, stone or leather has a different method of surface rendering, which is quick to identify and understand.

Regrettably, if the current state of apathy is maintained, and the large and influential units and organisations do not take the first step and encourage others, then a unified approach is impossible. There needs to be a real will and determination for change. We must create' guidelines, even if at a cost to ourselves and the loss of our favourite styles. A certain amount of the artistic beauty of traditional illustration will be lost, but vital information can be transmitted to the reader. It must be born in mind that we are providing an easily understandable visual image to others, who also have a part in the development of a new style of illustration. If they can understand what is drawn, then why both change?

I apologise if I have suggested, perhaps unfairly at times, that illustrators are to blame for the current problems facing them. However, it is important that we actively address certain issues and try to collectively solve them. I feel that a possible way forward is to adopt a unified approach throughout the country; all iron work for example will be drawn in a similar style. What I suggest, may appear rather harsh and drastic, but any changes that do occur, will not take place overnight. Ultimately, artefacts and plans will be easier and quicker to complete, and those looking at them will instantly recognise what is being represented.

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long, cylindrical vessels, used in the northern Kingdom of Israel and Phoenecia during the Iron Age IIB period, about 2,800 years ago, were made to carry anything from grain to wine in commercial trade.

One of the Hazor researchers argues that all of these jars were manufactured in Hazor, and that some were exported to Tyre[2]. But the archaeologist who found the jars in Tyre claims that, if anything, they went in the opposite direction — the Hazor jars were imported from Tyre[3]. A third study, by Gilboa, argued that the existence of tiny, but consistent, morphological differences between the Tyre and Hazor jars indicates that the jars are not the same at all, but were each made in their own home city[4]. Tests using the profilograph backed up Gilboa's contention — the jars from each city are far more similar to each other than to those from the neighbouring area. The discovery might not help to clear up any confusion about trade between the two cities, but it does show that archaeologists can benefit from a standard, objective system to judge similarities and differences in pottery.
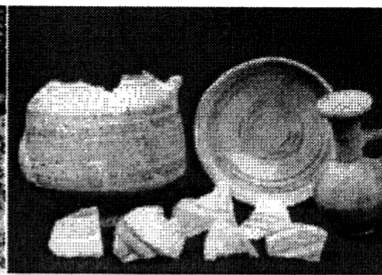
Subjective view

But even Smilansky's technique cannot remove all subjectivity from the process — someone had to decree that rim shape is among the best deterministic factors, for example. "We began with a great deal of respect for archaeologists," Sharon says. "Our assumption is that the computer's job is to provide an emulation of the archaeologist's intuitive processes — with a grain of salt."

Nor will something as simple as an equation describing the rim of a pot ever completely replace the watchful eye of a trained archaeologist. "There's a lot more to identifying pottery than looking at drawings," says Jodi Magness of the University of North Carolina at Chapel Hill, an expert on Roman pottery. "It also involves familiarity with the fabric, which means things like colour and texture. You have to handle a lot of pottery to become familiar with it. Some pottery experts even taste pot shards to identify them."

"There's something about the human mind's ability to deal with data that so far computers don't do," says Aren Maier of Israel's Bar-Ilan University, who excavates at Tell es-Safi, a site southwest of Jerusalem. Maier is so far sceptical of the value of the simple drawings produced by computer programs such as Smilansky's. But, he adds, "it could be that that's enough — especially given our need to save time, space and resources".

That is exactly what the profilograph technique promises to do. "What do you do when you have 100,000 pot shards?" asks Gilboa. There are simply not enough artists to cover that much work. "There's no question that there's a ton of pottery and not

Smilansky's role, meanwhile, has been to program the computer to interpret these drawings. His program creates a 'curvature function' from the lines — a mathematical representation of features such as the shape and size of the pot. For the moment, his program emphasizes the shape of the top few centimetres and rim of the pot — a diagnostic characteristic that many archaeologists think is the best indicator of when and by whom the pot was made.

The technique's great advantage is its objectivity. "Hand drawings are inevitably biased, no matter how objective they try to be," says Gilboa. "The artist will often have the excavator's theories in mind when looking at a piece, and when the archaeologist reviews the drawing he'll often tell the artist to emphasize a feature that he thinks is important."

"Most drawings are not accurate," agrees Robert Sablatnig, a computer scientist at the Vienna University of Technology in Austria. "Archaeologists somehow classify their findings in their mind and then draw what they think they should draw to make the classification correct. When you examine the original fragments, they often don't have the same features as in the drawing."

To test the usefulness of the profilograph, Gilboa, Karasik, Sharon and Smilansky turned their attention to an ongoing dispute about evidence of trade between Hazor, a site north of the Sea of Galilee that was a major urban centre during the Iron Age, and Tyre, a city in modern-day Lebanon that was once a major Phoenician port. A large bulk of evidence points to the fact that these two nearby cities were engaged in trade. But there have been arguments about whether there is additional evidence for this in the large collections of 'torpedo' jars found at both sites. These

Given the wealth of findings from Tel Dor (above and right), a computer log of pottery shape will be a huge bonus. Future databases will also aim to incorporate information on clay type and colour.

enough people who can work on it," says Maier. Part of the problem is that drawing and comparing bits of pottery is seen as an unglamorous job. "It's the kind of work you generally do for a doctorate and then never touch again," says Gilboa. "The general feeling in the field — it's totally mistaken, of course — is that the study of pottery is for wusses," adds Maier.

But that means that masses of pottery from a site such as Tel Dor are never drawn or analysed, potentially leaving interesting facts undiscovered.

One reason that Tel Dor was chosen as a laboratory for automatic analysis is that the pottery in the area changed relatively rapidly over time, with fashions in the city shifting every few decades. During Israel's iron age, around 3,200–2,600 years ago, the profiles of pots shifted from looking like bent femur bones — with knobs and indentations adorning the top — to simpler S-shaped profiles resembling the horn of a longhorn cow, passing through myriad styles in between.

An archaeologist who chooses to publish drawings and studies of only one or even a handful of these pieces will probably miss something that could provide excavators at another site with crucial information about relations between the two communities, says Gilboa. Even if all the pottery is drawn and analysed by hand, it is likely that few people will bother to look them up in the weighty excavation reports — a process so slow and laborious that it is seldom carried out, she adds.

An automatic technique, together with a computerized database of the results, would solve these problems. But the profilograph is not the only possible technological solution. Sablatnig, for example, is working on a different experimental system that uses photographs to form a three-dimensional computer image of a broken pot. This process is faster than using a profilograph, so Sablatnig does not restrict himself to looking at the tops of pots. As a result, he gains a more complete picture of the reconstructed piece. But so far it is unclear which method will prove more powerful in comparative studies. Smilansky points out that his own curvature functions are more versatile than Sablatnig's, as archaeologists can use them to specify the aspect of a pot's shape in which they are most interested. The pair plan to collaborate to devise the best possible method — one option that Smilansky is already investigating is the possibility of using lasers to image the pieces.

Shaping up

Others, including research teams at Brown University in Providence, Rhode Island, and Arizona State University in Tempe, are also tackling the problem.

But many of these systems suffer from the fact that they address only one element of the pottery — its shape. What's more, to reconstruct the image of a pot from a few shards, they assume that the vessels they are looking at are basically symmetrical. Prudence Rice, an archaeologist at Southern Illinois University in Carbondale, points out that people from the Americas did not use potter's wheels, so this assumption does not apply to pieces from the New World.

Instead, archaeologists rely more heavily on other criteria, such as colour or the composition of the clay, to identify such pieces. "I don't see how these three-dimensional images are going to replace that," says Rice. Smilansky and Sablatnig are working together to develop imaging methods that can capture features such as painted pictures on the pots. And Orton, one of the pioneers of automated comparative archaeology, is working
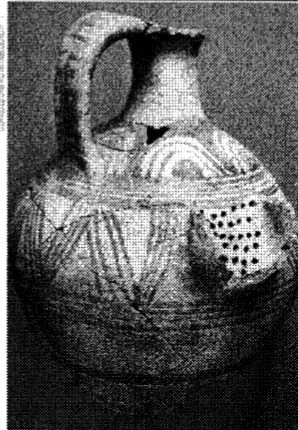

on adding information about colour, texture and clay type into his databases of pottery shards. But he has not been able to automate the collection of that kind of data — he is still doing it all by hand.

In the end, even if these teams succeed in establishing profilographs or laser-imagers as standard equipment on archaeological digs, the kind of comparisons that Gilboa wants to carry out will also require back-logging information from previously published excavations into a computer format — an immense amount of work that Rosen and her colleagues could never achieve. Gilboa nevertheless dreams of an international and comprehensive pottery database that will make serious comparative work not only possible, but a pleasure. Maybe then, she thinks, archaeologists can begin to answer questions that they have not yet been able to address, such as whether pot shape changed over time because of fashion trends, new technologies or both. Who knows? Maybe working on pottery will even become glamorous again. ∎

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Archaeological Illustration ARCL0036

Flint Illustrations
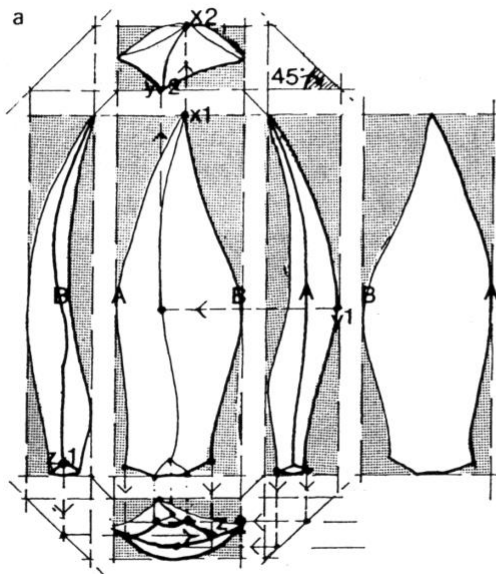
a) Layout and relationship of views.
Points on the end views can be located by projecting across from others, eg:
$x1 - x2$ distal points from dorsal view
$y1 - y2$ highest point of profile projected across to the dorsal view and up (or could be down) to the end view.
$z1 - z2$ right hand edge of butt is projected down to 45° line across to meet with line dropped from dorsal view.
Note also how the thickness of the butt was arrived at. In practice, much of this can be done by eye, but it is necessary to understand the basic principles when dealing with complex pieces - and as a check on your accuracy.
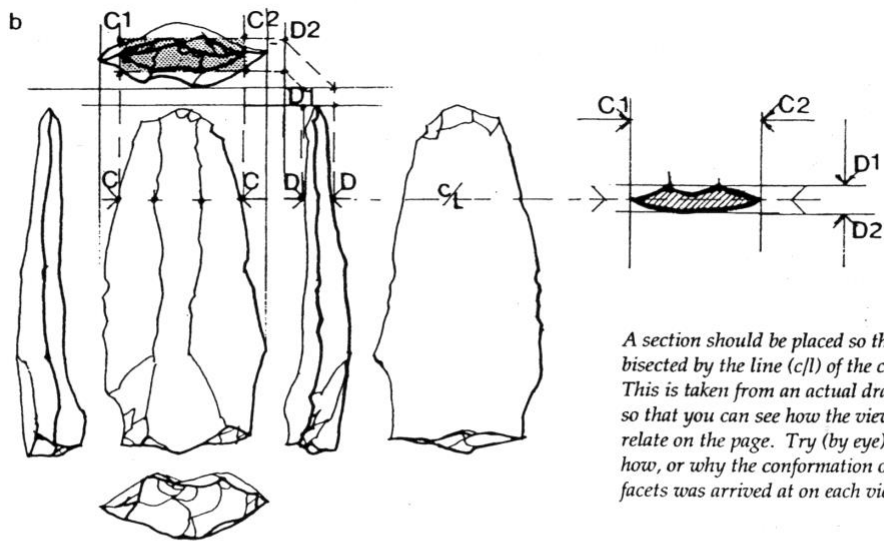
A section should be placed so that it is bisected by the line (c/l) of the cut. This is taken from an actual drawing so that you can see how the views relate on the page. Try (by eye) to see how, or why the conformation of the facets was arrived at on each view.

b) Constructing a section
The 'box' containing a section for any given point is determined by the width (C) and the thickness (D), at that point. It is the view you would have if the flint were cut across and you were looking end-on at the upper piece. A section is put 'the right way up' in relation to the line of the cut (c/l) as shown. The dimensions of the box can, of course, be measured directly from the flint, and other aspects (facets etc.), taken from the relevant drawn view using dividers.
If you find these diagrams difficult to understand at first it is worth persisting, as they are based on common sense. When you come to realise how they work it will give you control over the positioning of your drawings on the page.

The relationship and construction of required views.

The arrows indicate
direction of blow
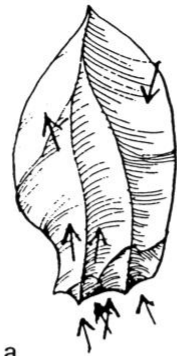
a

b

Direction of
notional light

0.13   0.13   0.13 |0.25   0.13 |0.25
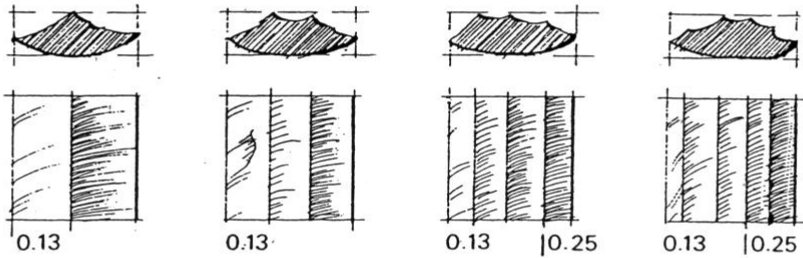
c

Shading.

a) *Hatching follows the direction of blow, modified by the 'light' falling on the facet.*

b) *To best express the character of a piece, it is desirable to work towards a technique which combines accurate observation with freedom of line. This can only be done with practice, and (perhaps) inventing your own methods of conveying details and surface anomalies.*

c) *There is no golden rule about the density of shading. The final decision can only be made relative to a piece (or a group of pieces on one plate). It is preferable to use a thicker pen for large areas which require a darker tone.*

1 cm

Technology on trial

As more and more printers will only accept digital copy these days, we ought to consider what is to become of our drawings. Should we scan them, or draw them on computer in the first place? And what's the difference? Perhaps a comparison might be useful.

Right: Pottery drawn by hand on film, reduced to 1:2 on copy camera, scanned at 1200 dpi and reproduced at 1:4. Placed as a TIFF file (Tagged Image File Format). File size: 1233 KB
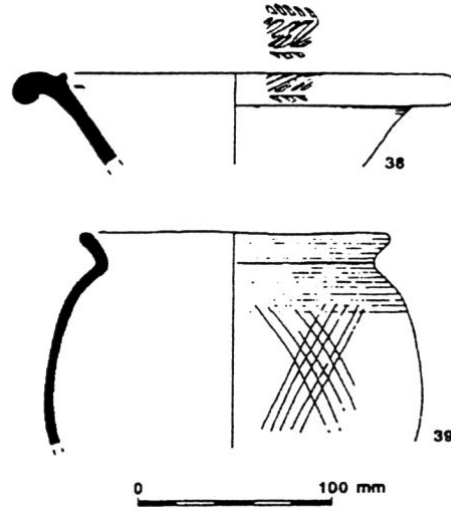
Right: Pottery drawn in Adobe Illustrator, drawing placed directly into PageMaker. File size: 2.4 KB
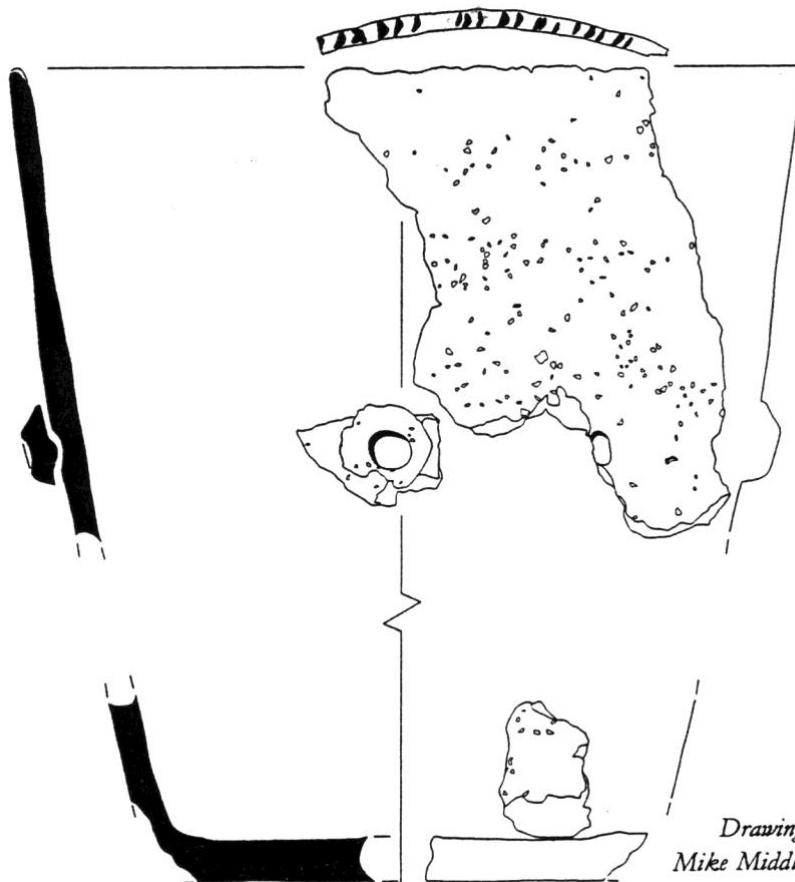
Drawing by
Mike Middleton

Tiffs are "raster" images, made up of pixels, so quality depends on the resolution of the scan, but high resolution increases file size and can become impossibly large. These images can be edited to some extent using software such as Photoshop, but not with the flexibility available to a vector drawing.

Packages such as Illustrator and CorelDraw produce vector graphics,which are composed of lines rather than pixels. Drawings can be re-coloured, re-sized and re-shaped in the computer without diminishing their sharpness or smoothness; individual elements within a drawing can be moved independently of all other elements. The images are resolution independent; image quality depends on the resolution of the printer, not the image.

Lesley Collett

Session Seven

Large format cameras

Lens panel Film panel

Front tilt

Back tilt

Rising & falling front

Rising & falling back

Cross front

Cross back

Swing front

Swing back

Front focus Back focus
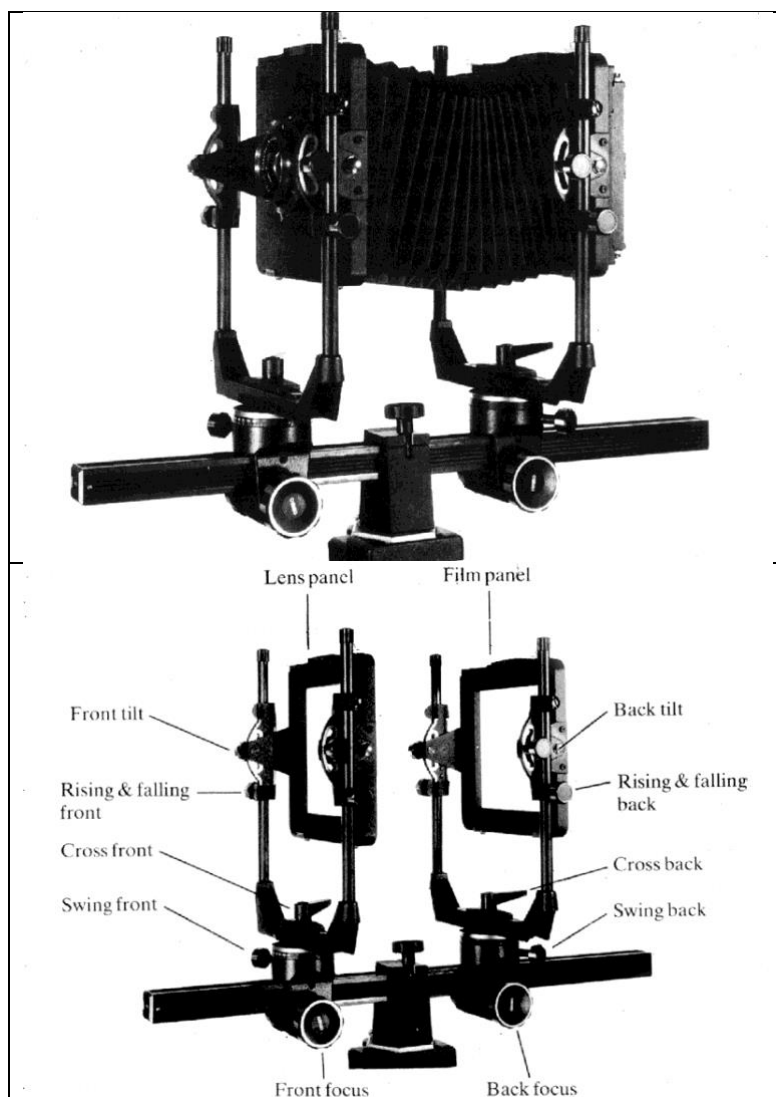
Large format black-and-white negatives can give results of the highest resolution and finest grain, and by the use of camera movements the proportions of the image can be corrected and the plane of sharp focus extended. Colour negatives and positives of such size are normally necessary only for the highest standard of publication, however, and the cost of film of such formats is considerable. Moreover, the equipment is bulky, and few commercial laboratories are equipped to deal with large-format sheet film. Of the two types of large-format camera in general use- monorail and baseboard (technical) cameras- monorail cameras are the more flexible and have the greatest range of camera movements. They are extensively used for architectural photography and for flat-copy photography, where the size of the film, and the possibility of exact adjustment of the camera are of the greatest value. Indeed, it is barely possible to copy such originals as fine engravings or drawings on any smaller format. Baseboard cameras have the same advantage of size, but have a more restricted range of camera movements. They are more portable than monorails, and they can, with a certain amount of difficulty, be hand-held, whilst monorail cameras can only be used only on a tripod. Both types of camera need a supply of film holders together with darkroom facilities for loading and unloading film.

The standard length of lens for a 5" x 4" (10.2 x 12.7 cm) camera is 150 mm; the usual wide-angle lens is 90 mm, although shorter lenses are available. A longer - than - standard lens - 210mm or 240mm - is useful but rarely essential with the large format. The quality of the negative should be such that a small part of it can be enlarged if necessary.

Light meters are devices based on photo-electric cells which measure the light reflected from an object or scene and display the information in terms of exposure.

The most accurate meters are separate units which can be used with any camera, but all modern 35mm cameras now have built-in meters which measure the light actually falling on the film-plane (through-the-lens or TTL meters) and give readings through the eyepiece.

In order to record black and white documents or drawings with maximum clarity, a film of extremely high contrast is necessary with very sharp division between the tones. The greatest contrast, and the finest detail can be recorded by using a 'lithographic' film, such as Kodalith (available in 35mm lengths and sheet film sizes). For the best results, however, this has to be developed by inspection in a special developer; a skilled process which could prove impossible to arrange. A slightly lower degree of contrast and fineness of detail can be achieved with a line film like Agfaortho 25 Prof. or Kodak Technical Pan 2415 (developed in D-l9 developer). Ilford XP2 400 is especially useful for black-and-white photography where a black-and-white processing service is not available since it is processed in the same way as colour negative film. Although a relatively fast film - 400 ISO - it has a fine grain structure and very great exposure latitude.

Tripods

The heavier and more stable the tripod the better, but even a light tripod is better than none. The most useful are the centre-column type with independently adjustable legs and a pan-and-tilt head rather than a ball-and-socket. Built in spirit levels--which can be used to level the camera--are also desirable. An overall height of 1.5 or 2m is often valuable, and if they are to be used for such things as recording wall-paintings or architectural details, a greater height still is desirable. It is often also of value to be able to remove the head and position it on the bottom of the centre-column, or to be able to reverse the column, so that the camera can be used close to the ground or pointing downward. If the tripod has a removable bolt for holding the camera, it is vital to keep one or two spares - such things get lost only too easily.

Cable releases

These are used for firing the shutter when the camera is on a tripod or stand. The most useful length is about 20cm, and the type with a locking device is valuable for long

exposures. Without a cable release, a shake-free exposure can be achieved by using the self-timing device, if the camera has one.

Spirit levels

For photographs of structures, or such things as walls and sections, it is preferable to have the camera perfectly level across its width. This is best achieved with a small spirit-level which many large-format cameras have built into their bodies. It is vital to level the camera in this way if taking a series of photographs to be joined together later as a panorama. If the camera is not levelled, the resulting mosaic will curve either up or down.

Scales and information labels

All record photographs, whether of sites, architectural detail or movable objects, should include a scale.

Photographs of all smaller movable or potentially movable objects should also include a scale, preferably of a size similar to the artifact: a one centimetre scale next to a 40 cm high vase, for instance, would not be very informative. The scale should be placed either horizontally or upright close to, but not overlapping, the object. It is important to make sure that the scale is in the same plane as the object, preferably about halfway back in its visible depth. In this position, not only will it give the most accurate indication of the size of the object, but if the scale is focused sharply it will ensure that the object is centered in the depth of field. All scales should include the unit of measurement (e.g., cm, in) and the length of one segment printed on it, since a simple black-and-white stick of unknown length is of little value.

Tungsten lighting

There are two types of tungsten lighting commonly used in photography; tungsten bulbs and tungsten-halogen units. Tungsten bulbs are suitable for most sorts of record photography, but low-wattage bulbs, up to about 200W, have too low a colour temperature, that is, they are too yellow for use with colour film. However, for such things as photographing coins in black and white, they are perfectly adequate. 500W bulbs with a colour temperature of more than 3000K are more useful and give out enough light to allow reasonably short exposures. They also, however, give out a considerable amount of heat, and with many organic materials, (wood, paper, fabrics, etc.), great care has to be taken not to leave the lights playing on the object over-long. All tungsten bulbs give out less light and become more yellow in colour with age. Over-run or photo-flood bulbs are occasionally useful. These are domestic-size bulbs with thin filaments which give a far higher light output than their wattage suggests, at the expense of a short life. They are designed to maintain their colour temperature of 3400K throughout their life.

Tungsten-halogen units

These have a high output of light which remains almost constant in colour throughout their life, which is longer than that of tungsten bulbs. They are relatively expensive although their length of life may offset this, and they can be housed only in specially-

designed holders. They are rather fragile while alight and immediately afterwards, and they run at high temperatures, so most housings incorporate a fan-cooling device. Most projectors and spotlights are now built for tungsten-halogen lamps. Spots are often best used with snoots, tubular front - extensions which restrict the width of the beam and both spots and floods with 'barn-doors', flaps that can be used to cut off part of the beam.


Object photographed with tungsten light on daylight film

Object photographed with daylight on tungsten film

Correct choice of film and light

Session Eight

Digital Imaging in Archaeology

The digital revolution has changed the printing industry and now has major implications within archaeological photography. The use of digital cameras on archaeological sites and the scanning of conventionally taken silver images have implications for published reports. However, to best understand the advantages and disadvantages of conventional photography over digital photography, we need to have an understanding of how the image is recorded in the two different ways.
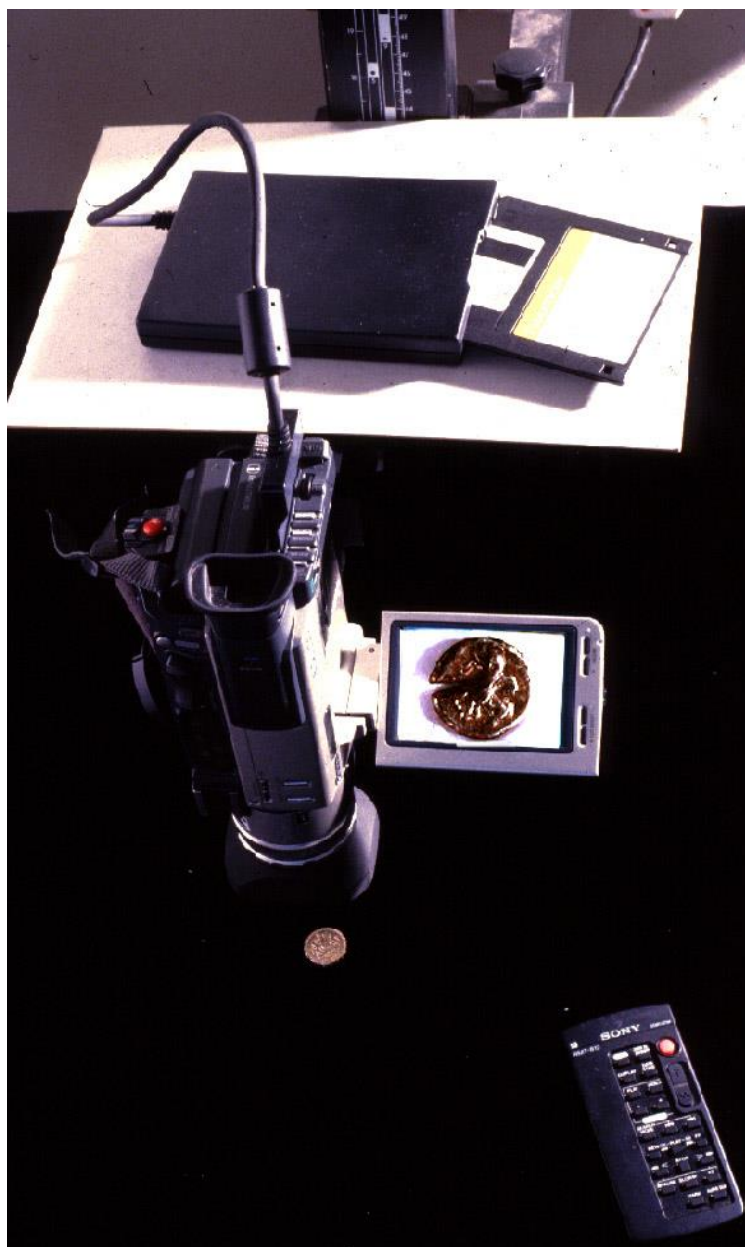
Traditional silver-based cameras operate in a similar fashion to the eye in that light passes through a lens which inverts and focuses the image onto a light sensitive area - the retina in our eyes and a piece of film in a camera. The intensity of the light hitting the film is adjusted by an aperture control within the lens and by the amount of time that the film is exposed to the light. The resolution or resolving power within silver-based mediums depends on the sensitivity of the film material in that less light-sensitive films are thinner and will resolve finer detail than faster films. In addition, the lenses produced on conventional 35mm cameras will resolve detail that can be as small as 20 microns. The out come is that on a 35mm transparency the image information would equate to a two billion pixel digital camera.

Digital photography usually employs traditional camera optics and mechanisms and replaces film with an electronic light sensor. These sensors are either built into removable film backs for use with normal medium format and 5 x 4" cameras or housed in modified 35mm camera bodies which take advantage of automatic focusing

and subject-related exposure programmes. Digital camera sensors, CCDs (Charge Coupled Devices), record a fixed number of image details quoted as a number of pixels. A cheap entry level typical amateur use array would be of the order of 1096 by 1820 pixels giving a total of 2,000,000 pixels. This would be called a megapixel camera and are of limited quality for use in powerpoint presentations, insurance records or estate agents details. Each of the pixels has to record the light falling upon it as unique value.

In order to create a digital image the CCD digitises the light falling on it and digitises it into a computer readable form. The arrays come as either Area (also known as Matrix) or linear. The Area array is large enough to produce an image in one exposure or three consecutive exposures though red, green and blue filters giving a full 24 bit image. Electronic flash is usable on Area array CCDs if they are one pass systems (i.e. if the image is captured in one exposure), but would have to be used three times on three shot single area cameras. All low and medium cost digital cameras are Area array and often have flash built in. It is worth noting that the Area array may well be a lot smaller in area than a normal 35mm film and the optics of the lens should be of a very high resolution so that the circle of confusion of the lens is as small as the gap between the individual CCDs elements (which can be as little as 7 microns).

Linear arrays scan the image one line at a time and can produce high resolution files with long exposure times of about one minute and so are only usable for object photography without the possibility of camera movement. These can only be used with no camera or object movement and with continuous source lighting like daylight, HMI lights or high frequency fluorescence tube arrays. This is the technology that is used in flat bed scanners and so has a proven track record.

The dynamic range of negative film and CCDs is very high with a contrast range of 700:1 being recordable (this would be similar to photographing a scene in very bright sunlight that contained a white alabaster pot, in full light, and an black obsidian flint, in full shadow). This range makes negative film far less sensitive to slight over or under exposure recording something with a lower contrast range. Slide film has a lower dynamic range about 80:1 that is compensated for by the film having a higher visual contrast. Printing paper has a range of about 70:1 so all the media have to condense the information to fit the prints range.

In tests carried out in America on a large group of people, most of them were able to resolve differences of between 150 and 350 different tones on a black to white tone wedge. The number of grey levels supported by most image-handling applications on a computer is 256 which is normally sufficient to fool the brain into thinking that a black to white tone wedge is smooth. Eight binary digits bits (one byte) are needed to enumerate these 256 grey levels. Most analogue to digital converters, built into digital cameras, have a greater bit depth than this as they chop the analogue information into 1,024 (10 bit) or 4,096 (12 bit) grey levels. This supersampling can improve image quality even though the outputted grey levels will be reduced to 256. In a colour image the information requires an 8 bit number for red, green and blue which results in a choice of over 16,000,000 colours. This resulting file occupies three times the storage space of a black and white file.

Designed for your imagination
COOLPIX995

PowerShot G2

Portable digital cameras have a built in memory that will enable a number of images to be stored within its memory. The number of the images will be directly related to the resolution and any compression of the images. Additional memory cards are often available to increase the number of images stored but are currently expensive. The downloading of these images frees the cameras memory again.

The resolution of a digital image is the number of pixels in the horizontal and vertical directions that have been captured by a scanner or digital camera. A 3 shot single area CCD with 4,048 by 4,048 elements (like a digital back for a 6cm square medium format camera) would capture an image about 14 inches square with an output resolution of 300ppi (pixels per inch). This would be suitable for high quality printing in art books. Each pixel would contain a unique image detail. If the image was only wanted for Web page design, coarse newspaper printing or on screen use only the resolution needs to be only 72ppi so that a very basic level digital camera with a 400 by 600 pixel capture would only display at 4.5 by 6.5 inch sharply.

The storage of digital files, which for A4 full resolution colour images can be in the order of 30Mb, creates problems. American creative design companies at present make three copies of their files and aim to recopy them on a seven year cycle as they agree that all storage solutions have a finite life. A typical Compact Disc will record 650 to 740 Mbs of digital information so would give 20 to 30 full resolution images. The photo CDs that are available will take up to 100 full resolution images by a loss free compression system that condenses the information from a scan and then re-expands the image and compares the two and notes the differences so that when the file is next re-expanded the corrections make the condensed image the same as the original. The computing power required to make these condensed versions of images is not yet available in a desktop computer. Currently extra hard drives with a capacity of 250 to 1000 Gbs are available using USB2 connections as well as firewire which are practicable methods of connecting to storage with the proviso that changing the operating system of the computer can cause the drive to become unrecognisable. DVD super drives are also becoming more common giving in the order of 4.5 Gbs of storage on recordable DVD discs and 8.5 on Dual Layer discs. I would predict that alternative storage media will be developed in the near future that will continue to

bring down the cost of storage of data and should be aimed at producing more stable and archival media.

The permanence of output from computer files is under scrutiny from many sources and depends on the particular printer, ink and paper combination. Most output in the commercial world is not aimed for permanence so that the deterioration of images in bright conditions is not a major problem as the file may be easily reprinted. A guide is that silver based colour prints will have a storage life of between 12 to 17 years (Fuji archival paper should be good for 60 years) and that Inkjet output a life of between 1 and 17 years. Better results are given with Laser printers (10 Years) and Electrostatic printers (42 years). I have printed from 10 by 8 inch glass plate negatives from 1897 that have hardly deteriorated and show superb quality and resolution. The 150 year development of silver based photography has made the storage permanence of film and papers more predictable.

Further reading: Evening, Martin 1998, Adobe Photoshop 6.0 for photographers, Focal Press, London; or versions 5.0, 7.0 or CS (1-4).
Langford, M.J., 1997, Basic Photography.6th Edition, Focal Press, London;
Davies, A & Fennessy, P., 1997, Electronic imaging for photographers, Focal Press, London

TOOLBAR SHORTCUTS

Pop-up menus are listed from center out

Version 6

- (M) Rectangular Marquee
- Eliptical Marquee
- Single Row
- Single Column

- (L) Lasso
- Polygon Lasso
- Magnetic Lasso

- (C) Crop

Move Tool (V)

Magic Wand (W)

- Pencil (N)
- Line

Slice Tool (K)

(J) Airbrush

Paint Brush (B) Pencil

- (S) Rubber Stamp [Clone]
- Pattern Stamp

History Brush (Y)

- Linear Gradient (G)
Paint Bucket [Fill]

Magic, background and eraser

- (R) Blur
- Sharpen
- Smudge

- Dodge (O)
- Burn
- Sponge

Direct selection (A)

- Type (T)
- Type Mask
- Vertical Type
- V. Type Mask

- (P) Pen
- Freeform Pen
- (+) Add Anchor-Point
- (−) Subtract Anchor-Point
- Convert Anchor-Point

Notes tool (N)

- Eyedropper (I)
- Color Sampler
- Measure

Rectangle tool (U)
Rounded corner
Oval tool
Polygon Tool
Line tool
Shape tool

(H) Hand [Pan]

Zoom (Z)

(D) Default Colors

Switch Colors (X)
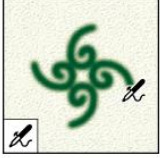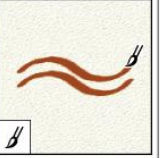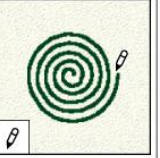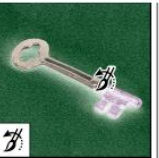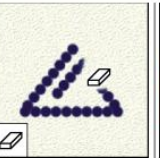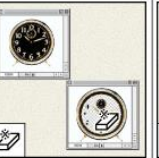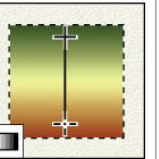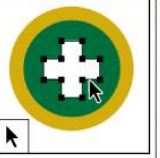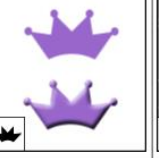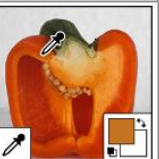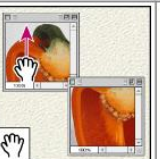
(Q) Quick Mask Toggle

(F) Screen mode toggle

- Pressing letter in parentheses activates tool.
- Shift + Shortcut to cycle through hidden tools.

Jump to imageready

Archaeological Illustration ARCL0036

The marquee tools make rectangular, elliptical, single row, and single column selections.	**The move tool** moves selections, layers, and guides.	**The lasso tools** make freehand, polygonal (straight-edged), and magnetic * (snap-to) selections.	**The magic wand tool** selects similarly colored areas.	**The crop tool** trims images.	**The slice tool** creates slices.
The slice selection tool selects slices.	**The airbrush tool** paints soft-edged strokes.	**The paintbrush tool** paints brush strokes.	**The pencil tool** paints hard-edged strokes.	**The clone stamp tool** paints with a sample of an image.	**The pattern stamp tool** * paints with part of an image as a pattern.
The history brush tool * paints a copy of the selected state or snapshot into the current image window.	**The art history brush tool** * paints with stylized strokes that simulate the look of different paint styles, using a selected state or snapshot.	**The eraser tool** erases pixels and restores parts of an image to a previously saved state.	**The background eraser tool** * erases areas to transparency by dragging.	**The magic eraser tool** erases solid-colored areas to transparency with a single click.	**The gradient tools** create straight-line, radial *, angle *, reflected *, and diamond *, blends between colors.
The paint bucket tool * fills similarly colored areas with the foreground color.	**The blur tool** blurs hard edges in an image.	**The sharpen tool** sharpens soft edges in an image.	**The smudge tool** smudges data in an image.	**The dodge tool** lightens areas in an image.	**The burn tool** darkens areas in an image.
The sponge tool changes the color saturation of an area.	**The path selection tools** * *make shape or segment selections showing anchor points, direction lines, and direction points.*	**The type tool** *creates type on an image.*	**The pen tools** * let you draw smooth-edged paths.	**The custom shape tool** * makes customized shapes selected from a custom shape list.	**The annotations tool** * makes notes and voice annotations that can be attached to an image.
The eyedropper tool samples colors in an image.	**The measure tool** * measures distances, locations, and angles.	**The hand tool** moves an image within its window.	**The zoom tool** magnifies and reduces the view of an image.		

Archaeological Illustration ARCL0036

Image menu
- Mode
- Adjust
- Duplicate...
- Apply Image...
- Calculations...
- Image Size...
- Canvas Size...
- Crop
- Rotate Canvas
- Histogram...
- Trap...

Mode submenu
- Bitmap
- Grayscale
- Duotone
- Indexed Color...
- ✓ RGB Color
- CMYK Color
- Lab Color
- Multichannel
- ✓ 8 Bits/Channel
- 16 Bits/Channel
- Color Table...
- Profile to Profile...

The typical file opens in the Red Green Blue colour mode which is used for most Desktop publishing packages. I first crop their image to minimise the size of the file. Then I look at the levels and adjust them so that the image appears to have full range of tonal values. It often is worth trying the Auto levels control box or variations with photographic to give good results.

Window menu
- Hide Tools
- Show Navigator
- Show Info
- Show Options
- Show Color
- Show Swatches
- Show Brushes
- Show Layers
- Show Channels
- Show Paths
- Show History
- Show Actions
- ✓ Untitled-1 @ 300% (Layer 1,RGB)

When opening the desktop palettes it is useful having 3 or 4 open for speed but I use at least open Navigator, Brushes and Layers. If I am working with version 6 or 7 I also open History. The number of palettes that it is convenient to have open will depend on the size of screen and the resolution use. It is possible to stack the palettes and bring them open or tuck out of view when needed.

The Action palette is one kind it allows you to program a series of commands and apply them to a batch of files so that it needs several files in the same way and then saved them in a new folder.

Select menu
- All
- Deselect
- Reselect
- Inverse
- Color Range...
- Feather...
- Modify → Border..., Smooth..., Expand..., Contract...
- Grow
- Similar
- Transform Selection
- Load Selection...
- Save Selection...

When selecting an area using of the Magic wand or the Lasso selection tool it can sometimes be useful to smooth the selection. This will incorporates all areas that all have not been selected like odd spots and will even out the edges selected with the Lasso.

Filter menu
- Last Filter
- Fade Fill...
- Artistic
- Blur
- Brush Strokes
- Distort
- Noise → Add Noise..., Despeckle, Dust & Scratches..., Median...
- Pixelate
- Render
- Sharpen
- Sketch
- Stylize
- Texture
- Video
- Other
- Digimarc
- Signum

Image menu (Adjust submenu)
- Levels... ⌘L
- Auto Levels ⇧⌘L
- Curves... ⌘M
- Color Balance... ⌘B
- Brightness/Contrast...
- Hue/Saturation... ⌘U
- Desaturate ⇧⌘U
- Replace Color...
- Selective Color...
- Channel Mixer...
- Invert ⌘I
- Equalize
- Threshold...
- Posterize...
- Variations...

Filter menu (Sharpen submenu)
- Last Filter ⌘F
- Fade Fill... ⇧⌘F
- Artistic
- Blur
- Brush Strokes
- Distort
- Noise
- Pixelate
- Render
- Sharpen → Sharpen, Sharpen Edges, Sharpen More, Unsharp Mask...
- Sketch
- Stylize
- Texture
- Video
- Other
- Digimarc
- Signum

The filters are various two of filters I use a lot. The dust and scratches filter averages out neighbouring pixel values and lowers dust marks etc. The filter must not be whole pictures as at first it seems to add interest but however if you apply the filter then select the History brush along side it in the History palette then choose the previous state (mark and a select all you open the main history if not also and break) then undoing up on the dust and marks with the History brush with a suitable size to see state and make them disappear. The unsharp mask filter should be applied at the very end to sharpen the image.

Photoshop hints sheet 2001

1   How to make a large picture from 2 overlapping photographs.

2   Take 2 or more photographs with about 40% overlap in as consistent a method as possible

3   Input the photographs to a computer

4   Open them in Photoshop

5   Take the middle photograph and ensure that it is square and level (use the eyedropper palate 'i' straight line tool to draw along a straight line and the apply image/ rotate/arbitrary and agree to the value shown by pressing the carriage return control.

6   Make the canvas size lager in the direction that you wish to enlarge the image by using Image/canvas size

7   Open the next picture and select all (control+A) and v (move) to drag the selection to the first picture

8   Open the layer palate and select an opacity of 60 %

9   Try to position the new layer on top by using the move tool (v) and the up and down single pixel move buttons on the keyboard

10 The level can be resized and rotated by using the transform palate or Control+T

11 Reset the opacity on the layer

12 Re crop (c) and flatten control+E

Save

Digital camera terminology

A AE Lock

Stands for Auto-Exposure Lock. This enables you to take a light-meter reading from part of an image, and then hold that setting while you compose the shot.

Aperture

Behind the lens of your digital camera is a circular iris that opens and closes to determine the amount of light falling on the CCD*. Altering the aperture also changes the depth of field*.

Aperture priority

A semi-manual exposure option. The user sets the aperture according to the depth of field* required, and the metering system sets the shutter speed to obtain the correct exposure*.

Artefacts

Compressing an image sometimes causes noise to creep in as angular blocks or artefacts.

Automatic

An exposure mode found on digital cameras, in which all the camera settings - including ISO*, white balance*, shutter speed and aperture* - are chosen by the camera. This is useful for newcomers to digital photography.

B Barrel distortion

If you take a landscape snap with a wide-angle setting and notice the horizon seems to curve, you've been hit by barrel distortion. This is when the camera's lens distorts an image so it appears spherized.

Bit depth

This is the number of bits you have to describe the colour of a photo. The more bits, the more accurate the output. A 24-bit image uses 16.7 million colours, known as 'true colour'.

Buffer

A buffer is RAM (Random Access Memory) inside a digital camera, which can store images before they're written to a memory card. This means you can shoot several photographs without having to wait for each to be saved.

C Calibrate

Calibration is altering the settings of a device so it conforms to a standard. You can adjust the calibration of a monitor so that what you see on-screen is accurate.

Centre-weighted metering

This is when the camera takes a light reading from the whole frame based on what's in the centre of the image.

CCD

Charge Coupled Device - the light sensor in a camera that records an image. It consists of millions of tiny light sensors, one for each pixel. The size of a CCD is measured in megapixels*, and the more the better.

Cloning

An image-manipulation term, where one section of the picture is cloned and then positioned over another to conceal any flaws or unwanted elements.

CMOS

Complimentary Metal-Oxide Semi-conductor - a light sensor that offers higher resolutions than a CCD* at a fraction of the cost.

CMYK

Stands for cyan, magenta, yellow and black - the colours used in four-colour printing to create all the other colours. This is different from computers and digital cameras, which use RGB*.

D Default

Standard settings of an object - such as a digital camera - that are defined by the manufacturer. In many cameras, once the power is turned off and back on, the camera returns to these settings. Many devices enable the user to store their own preferences as Custom settings.

Depth of field

When you focus on a subject, some detail behind and in front will be in focus. The distance between the nearest and furthest in-focus objects is the depth of field. This is changed by altering the aperture* - a small aperture equals a larger depth of field.

Digital zoom

Some digicams can zoom in on an image by expanding it in-camera. The zoomed area looks bigger but contains the same number of pixels, so will look blocky. Not to be confused with the superior optical zoom*.

dpi

Stands for dots per inch. The quality of a photo printer is determined by the number of dots of ink per inch outputs.

Dynamic range

The difference between the brightest and darkest parts of an image. If a shot has very bright highlights, dark shadows and everything in between, it's said to have a wide dynamic range.

E Effective pixels

Your digicam may claim to have 3.34 megapixels* on its CCD*, but some won't be used for taking the picture. Some pixels are painted black for colour balance, while others fall outside the range of the lens. Effective pixels are the ones used to capture an image.
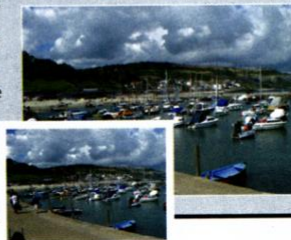
EV

Exposure Value. This refers to the amount of shutter speed or aperture adjustment needed to double or halve the amount of light.

SCENE MODES

PORTRAIT

SPORT

LANDSCAPE

MACRO & CLOSE-UP

NIGHT SCENE

Cloning

COVER UP IMPERFECTIONS

Cloning is an image-editing technique for covering up those unwanted areas of your digital photograph. The precise name varies within each program; in Photoshop it's called the Clone Stamp tool, while in Paint Shop Pro it's called the Clone Brush. It works by selecting one area of the image and replicating it to cover up another area – a technique that's especially useful for removing the odd finger that may have strayed in front of the lens or for covering up any other elements you don't want in your photograph.

Some image-editing programs enable you to determine the size of the area covered up by using the Brush palette; you can use a small brush to conceal tiny blemishes, such as dust on a camera lens and a large brush for bigger areas. In Photoshop 7.0 and above, the sizes range from 1 – 2,500 pixels and you can also use the other brush shapes, while in Paint Shop Pro 8 the hardness, step, density and thickness of the clone can also be adjusted.
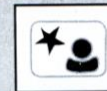
EXIF

GET IN THE KNOW

When you press the shutter to take a photograph it isn't just the scene that you're capturing – Exchangeable Image File (EXIF) data about the scene is also stored on the memory card as a compressed file. Information includes the camera model, date the picture was taken and specific detail about which settings were used. This information can then be accessed from a range of sources including programs such as Photoshop Album, ACDSee 6.0 and Windows XP.

All the sample camera shots on our cover CD are in their original file format so you can view the EXIF information.

CAMERA ACCESSORIES

TRIPOD

Get your hands on a tripod to make sure your photos are free from camera shake. A tripod is essential for long exposure shots with slow shutter speed or those taken at maximum zoom. Look for a sturdy model, but one that's still light enough to carry around easily. Alternatively, try a monopod (a one-legged tripod) or a mini table-top model – these are ideal for indoor shooting. You can pick up a decent tripod for under £20.

SPARE BATTERIES

There are several types of rechargeables on the market, including lithium-ion (L-ion) and nickel cadmium, but the best type is the high-capacity Nickel-Metal Hydride variety, or Ni-MH. A set with charger will cost around £15, and cells can usually be recharged up to 1,000 times. Because of a digicam's hunger for power, always carry a spare set when out in the field.

FLASHGUN

Most cameras have a built-in flash, but this is only really any good for illuminating subjects up to 10 feet away. For top-quality images in poor light, it's worth buying an external flashgun, but make sure your camera has a hotshoe connection so you can attach an external unit.

Exposure

When you take a picture, the camera's light meter determines how long the shutter should be open for and how wide the aperture* should be to gain the correct exposure. If a picture's too dark, it's underexposed, and if it's too light then it's overexposed.

EXIF

The Exchangeable Image File (EXIF) format enables image data, such as the date and time the shot was taken and the exposure*, to be stored on the camera's memory card.

Fill-in flash

This is additional light from an external flash, lamp or reflector that's used to soften or 'fill in' areas of shadow caused by the brighter main flash. The result is an image that's generally more subtly illuminated.

Filter

There are two definitions for the term filter in digital photography: the thin item you put in front of the lens to add a coloured tint or shade to the scene, or the effects found in an image-editing program, that can be applied to a picture.

f-number/f-stop

The f-number/f-stop is the ratio of the aperture* of a camera's lens to its focal length*. A higher-quality lens will have a smaller f-number, which means a wider maximum aperture, thus more light entering the lens.

Focal length

This describes the magnifying power of a lens. The longer it is, the greater the magnification. Conversely, the smaller it is, the more wide-angle the lens. It's worth playing with the focal length to see what you can achieve.

FireWire

Faster than USB, this is a type of connection between computers and a range of different equipment, including digital cameras and card readers.

GIF

This type of file stands for Graphic Interchange Format. Due to the high level of compression it applies, this format is particularly appropriate for photographs that are for display on the internet.

Interpolation

Some cameras and editing programs can increase the size of an image by adding pixels. They attempt to match the colour and brightness of surrounding pixels. There are several resampling methods, including bilinear, 'nearest neighbour' and bicubic.

ISO

Stands for International Organisation for Standardisation. In digital photography, the ISO is a way of expressing the light sensitivity of a camera's CCD*.

JPEG

This file type stands for Joint Photographic Expert Group, and is the most commonly used system of image compression. Using a sliding scale between file size and picture quality, it enables cameras and computers to squash a large picture into a small amount of memory.

L-Ion

Lithium-Ion - the latest kind of rechargeable battery. It holds more power and doesn't suffer from 'memory effect', where a battery when recharged only registers additional charge rather than its full capacity.

Megapixel

A measure of the size and resolution* of the pictures that a digital camera can produce. Megapixel means a million pixels, or a million light sensors on the CCD*. The higher the megapixel rating of the CCD, the better.

Optical zoom

Many digicams now feature small optical zoom lenses. This means that they can be adjusted to magnify the scene before you (zoom in) or, alternatively, to capture a wide-angle shot (zoom out).

Plug-in

A piece of software that operates from within another program, but not on its own. A huge variety of plug-ins are available for Photoshop, including creative filters and effects that once loaded, can then be accessed through the main menu system. Many programs, such as Extensis Mask Pro, are specifically for use as a plug-in.

Program exposure

An automatic setting where the camera's metering system selects the best aperture* and shutter speed combination for a shot.

Prosumer

A broad term that refers to a digital compact camera with a range of manual controls, many of which can be found on an SLR. They are capable of taking pictures at a professional standard and usually have a minimum resolution of 5 megapixels

Resolution

The more pixels there are in a digital image, the sharper it appears. This is the resolution - expressed as dots per inch or the image's height and width in pixels, such as 1,200 x 1,800.

RGB

Every digital image on a computer has three channels - red, green and blue. Every on-screen picture is made up of varying amounts of these three colours, as opposed to CMYK*.

Shutter lag

Because of the way digital cameras work, there's often a delay between pressing the button and the camera taking the photo. This is called shutter lag.

Shutter priority

A semi-manual mode that enables you to specify a shutter speed while the camera sets the aperture* for correct exposure.

Slow-sync flash

This opens the shutter for the same amount of time as normal but fires the flash just before the shutter closes. It's ideal for night photography to illuminate subjects in front of dark objects.

SLR

Stands for Single Lens Reflex. A mirror or prism reflects the light coming in through the lens to the viewfinder, so when you look through it you see exactly what the camera sees. This system is only found on the high-end digital cameras.

Spot-metering

This metering mode enables you to take a light reading from a small area in the middle of the frame. It's the best way of dealing with tricky lighting.

TIFF

Tagged Image File Format is used for saving digital photos. TIFF is a lossless format, so quality isn't reduced by saving.

White balance

This is how digicams adjust to different lighting conditions. Cameras usually have pre-set options, such as Sunny and Cloudy.
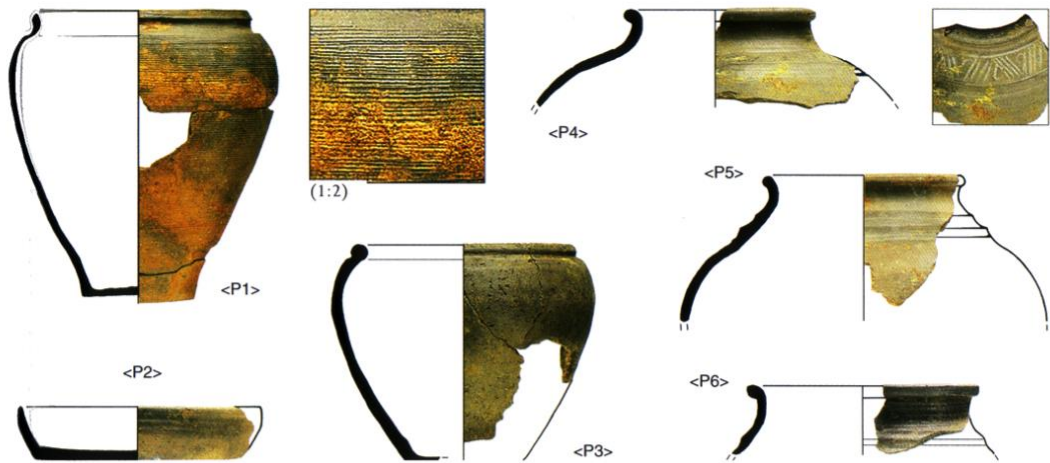
Archaeological Illustration ARCL0036

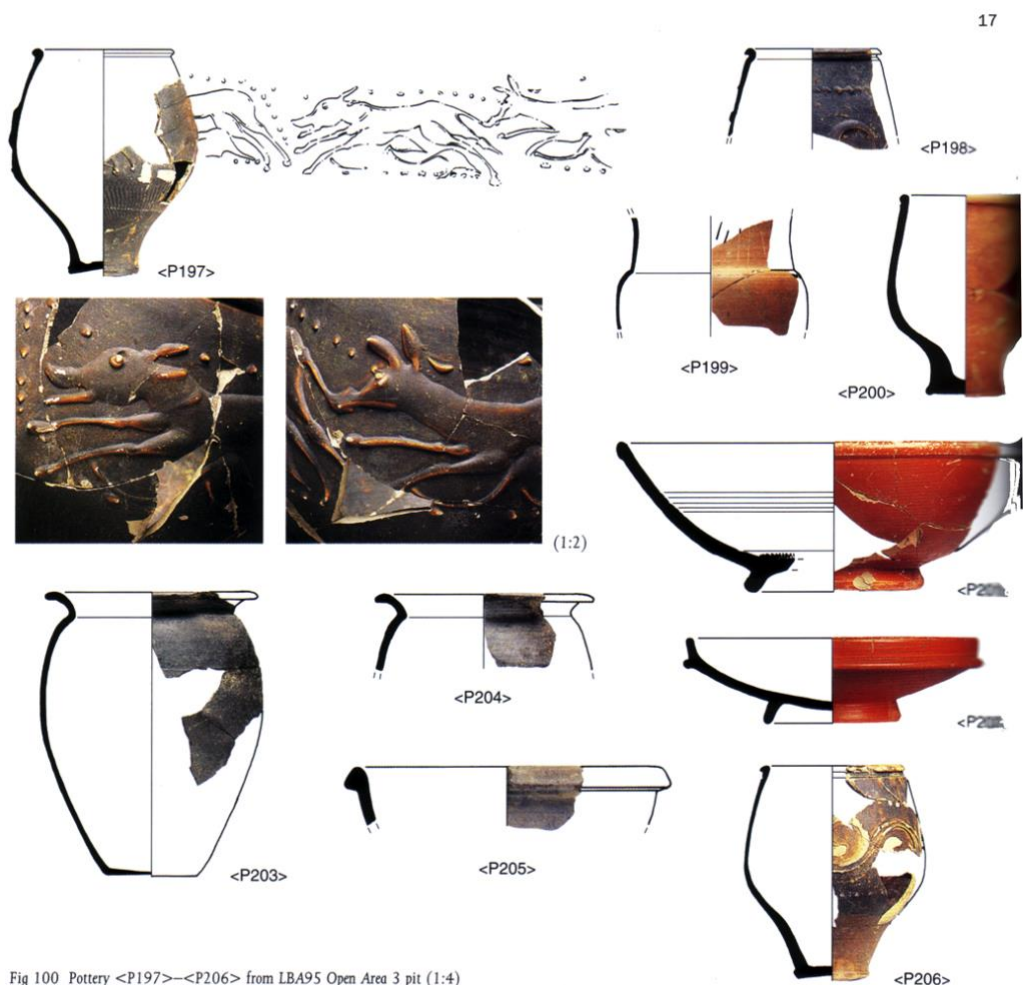Fig 16 Pottery <P1>—<P6> from the quarry pits (1:4)

Fig 100 Pottery <P197>—<P206> from LBA95 Open Area 3 pit (1:4)

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An Illustration from Settlement in Roman Southwark Published by MoLAS Archaeology service. Monograph #12 1991-8 by James Drummond-Murray and Peter Thompson with Carrie Cowan.

APPENDIX A: POLICIES AND PROCEDURES 2016-17 (PLEASE READ CAREFULLY)

Archaeological Illustration ARCL0036

This appendix provides a short précis of policies and procedures relating to courses. It is not a substitute for the full documentation, with which all students should become familiar. For full information on Institute policies and procedures, see the following website: http://wiki.ucl.ac.uk/display/archadmin

For UCL policies and procedures, see the Academic Regulations and the UCL Academic Manual:
http://www.ucl.ac.uk/srs/academic-regulations ; http://www.ucl.ac.uk/academic-manual/

GENERAL MATTERS

ATTENDANCE: A minimum attendance of 70% is required. A register will be taken at each class. **If you are unable to attend a class, please notify the lecturer by email.**

DYSLEXIA: If you have dyslexia or any other disability, please discuss with your lecturers whether there is any way in which they can help you. Students with dyslexia should indicate it on each coursework cover sheet.

COURSEWORK

LATE SUBMISSION: Late submission will be penalized in accordance with current UCL regulations, unless formal permission for late submission has been granted. The UCL penalties are as follows:

- The marks for coursework received up to two working days after the published date and time will incur a 10 percentage point deduction in marks (but no lower than the pass mark).
- The marks for coursework received more than two working days and up to five working days after the published date and time will receive no more than the pass mark (40% for UG modules, 50% for PGT modules).
- Work submitted more than five working days after the published date and time, but before the second week of the third term will receive a mark of zero but will be considered complete.

GRANTING OF EXTENSIONS: Please note that there are strict UCL-wide regulations with regard to the granting of extensions for coursework. You are reminded that Course Coordinators are not permitted to grant extensions. All requests for extensions must be submitted on a the appropriate UCL form, together with supporting documentation, via Judy Medrington's office and will then be referred on for consideration. Please be aware that the grounds that are acceptable are limited. Those with long-term difficulties should contact UCL Student Disability Services to make special arrangements. Please see the IoA website for further information. Additional information is given here http://www.ucl.ac.uk/srs/academic-manual/c4/extenuating-circumstances/

RETURN OF COURSEWORK AND RESUBMISSION: You should receive your marked coursework within one month of the submission deadline. If you do not receive your work within this period, or a written explanation, notify the Academic Administrator. When your marked essay is returned to you, return it to the Course Co-ordinator within two weeks. You must retain a copy of all coursework submitted.

CITING OF SOURCES and AVOIDING PLAGIARISM: Coursework must be expressed in your own words, citing the exact source (**author, date and page number**; website address if applicable) of any ideas, information, diagrams, etc., that are taken from the work of others. This applies to all media (books, articles, websites, images, figures, etc.). **Any direct quotations from the work of others must be indicated as such by being placed between quotation marks**. Plagiarism is a very serious irregularity, which can carry heavy penalties. It is your responsibility to

abide by requirements for presentation, referencing and avoidance of plagiarism. Make sure you understand definitions of plagiarism and the procedures and penalties as detailed in UCL regulations: http://www.ucl.ac.uk/current-students/guidelines/plagiarism

RESOURCES
MOODLE: Please ensure you are signed up to the course on Moodle
APPENDIX TO BE INCLUDED AT THE END OF EVERY COURSE HANDBOOK, EXCEPT THOSE FOR CORE COURSES, WHICH SHOULD INCLUDE THE PAGE ABOVE INSTEAD

INSTITUTE OF ARCHAELOGY COURSEWORK PROCEDURES
General policies and procedures concerning courses and coursework, including submission procedures, assessment criteria, and general resources, are available on the IoA website. It is essential that you read and comply with these. Note that some of the policies and procedures will be different depending on your status (e.g. undergraduate, postgraduate taught, affiliate, graduate diploma, intercollegiate, interdepartmental). If in doubt, please consult your course co-ordinator.

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http://www.ucl.ac.uk/srs/academic-manual/c4/extenuating-circumstances/