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Teaching with objects

1 Introduction

Archaeologists know, of course, that objects are not just objects. A layperson with no archaeological knowledge, faced with, say, an Anglo-Saxon cremation urn, would be unable to identify it. There is nothing inherent about that object which could place it in its context of use, or in its place in time. It does not have its country of origin, or its date of manufacture, inscribed on it for all to see. We, as archaeologists, however, know precisely what it is; in what contexts similar objects have been found, and in which areas such urns are thought to originate. This is because we are inculcated with that mass of ideas and information that is archaeological expertise. In our role as teachers, it is our aim to transmit some part of this expertise to our students — to inculcate our students in that mass of information that places objects in context.

Undergraduate teaching is not just about transmitting facts, however. As well as teaching students what to think, we also attempt to teach them how to think. Every discipline revolves around the use of appropriate practices and analytical skills. In archaeology we try to teach the ways in which data can be analysed and evidence interpreted, and to show students how to construct logical and coherent arguments. This paper will describe a computing application under development, the Virtual Teaching Collection, which hopes to support these educational goals.

2 What are Objects and How are they used in Teaching?

If objects do not speak for themselves, what gives them their meaning? In archaeological contexts, the answer to this would arise from a combination of factors:

- In what country or area was it found?
- What was the archaeological context in which it was deposited? (i.e. a cemetery, a settlement?)
- Where, and in what contexts, have similar objects been found?
- What other objects was it associated with?
- Where, and in what contexts, have these associated objects been found?
- What are the academic debates surrounding these objects?
- What consensus has been reached on the nature and dating of these objects?

and so on.

We make sense of an object by placing it in the framework of knowledge which we all create in our careers as archaeologists. An object's positioning in such a framework is reliant on the contextual information available. Through our lectures, practicals, seminars and assigned reading, our students build up a coherent picture of the past. The student increasingly associates a series of initially unrelated objects to information about their use, manufacture, significance and their roles in archaeological debates.

Subsets of these frameworks can be represented as narratives, or stories, in which the objects play a starring role. Teaching is about enabling our students to construct their own frameworks of reference. We do this by creating narratives which our students can grasp; narratives that convey the current issues and significant relationships surrounding those objects. Once they have adequate frameworks constructed out of these narratives, in terms both of facts, and of theories about those facts, then they (hopefully) will be able to critically analyse and interpret further information. These narratives are to some extent personal to the lecturers and students concerned, for they arise out of each individual's own framework of knowledge. Different lecturers will draw on different objects and their related contexts in varying ways in the construction of different (and sometimes contradictory) narratives. The aim of the Virtual Teaching Collection is to provide software tools which offer the flexibility to do this quickly and easily.

3 How is archaeology taught?

The tools which lecturers employ to these ends can be summarised simply as words and pictures. Archaeologists have always used visual representations to talk about their subject. From the time of the earliest antiquarians, their maps, illustrations and later photographs and film have been central modes of presenting information about the past. In the archaeological lecture the backbone of information is provided by the slide illustrations, while the

lecturer constructs verbal narratives around these images. The students (those that are still awake) attempt in the darkened room to take notes on what the lecturer is saying, usually mis-spelling site names and object types in the process.

The seminar is more intellectually stimulating, as there is greater interaction between teacher and student. The teacher can, through his or her questioning, and assessment of course-work, determine how much information the student has gained, and can partially reconstruct the frameworks which he or she has constructed around it. This instruction does, however, largely take place without the aid of any illustrations, for the use of slide illustrations is difficult in the more flexible and informal atmosphere of the seminar. Students too, are limited to what can be described in words in the essays which are the standard form in which work is submitted.

An alternative form of instruction which has arisen over the past few years has become known as 'course-ware', fixed packages of information, usually in the form of tutorials, which the student can work through at his or her own pace (Laurillard 1993: 149-162). Such course-ware constitutes a form of publication; it is like a text-book, presenting mediated, and often seemingly authoritative, texts which cannot be changed or adapted by the user, whether that user be student or teacher. We would argue that such packages are of little use in areas which deal with material culture. Objects can be employed in narratives in a multitude of ways, and with the development of new theories and frameworks, those narratives are, and should be, highly changeable. Most archaeological teaching at university level draws on information that is constantly changing. The work of the university lecturer is as much to keep the student abreast of changing information and interpretation as teaching the 'facts' of archaeology. The relatively inflexible nature of course-ware, with programming skills needed to make alterations, necessarily makes it inappropriate for use in such teaching contexts. What is needed instead is a resource base, of images, other representations such as video, sound, 3-D photos and models, and associated contextual data and related texts, which lecturers can draw upon (and add to) in the construction of their narratives, using appropriate software tools in their presentation (Laurillard 1993: 211).

4 The Virtual Teaching Collection

The Virtual Teaching Collection is comprised of two separate entities, the CabiNET software, which provides searching, presentation and narrative tools, and the Archaeology and History of Science Collections which are examples of what can be achieved using CabiNET. CabiNET is perhaps best seen as a computer application like a word-processing or spreadsheet package. By using the software, the user creates, not text documents or spreadsheets, but collections. In the same way that the format of a novel does not determine its contents, CabiNET is merely a tool in the hands of users.

The Collections for archaeology and history of science do not explore the limits of what can be created; they merely give some indication of the possibilities.

4.1 The archaeology and history of science collections

The two Collections that are being initially developed each consist of over 2000 images and other representations of objects, along with the related contextual information for each object or artefact illustrated. Within the Archaeology Collection, these objects span the Neolithic to the Medieval period in Britain. As well as directly related information, such as descriptions of each object and details of its excavation or discovery, the Archaeology Collection will also include text resources, with longer narratives on topics such as typology, chronology and the archaeology of gender, as well as bibliographies, glossaries and pointers to other resources.

These collections will provide a broad resource which can be used to support a variety of different teaching requirements. Though several narratives will be included, these are seen, much as any work, as the view of that author. The resources in the collection can easily be modified, added to and reorganised by the users who will want to create their own narratives for their own teaching needs.

4.2 CabiNET

CabiNET is an easy to use and well presented suite of software tools, engineered in C++. Using these tools, the user can create his or her own collection, and can search, retrieve, display and browse the existing collections. The presentation tools will allow the user to compare different objects, to identify and display significant details, to create links to related images, video and text, and to embed representations in their own authored texts, whether these be straightforward documents, or more complex hyper-textual formats.

The tools have been designed for ease of use. Many of the standard Macintosh features, such as drag and drop, have been adopted, and much thought, including the use of a professional designer, has been given to the graphic design involved in the user interface. It is our intention that users should be able to learn to use CabiNET in a very short period of time, usually less than a day, and to this end the workings of the software are designed to be extremely intuitive.

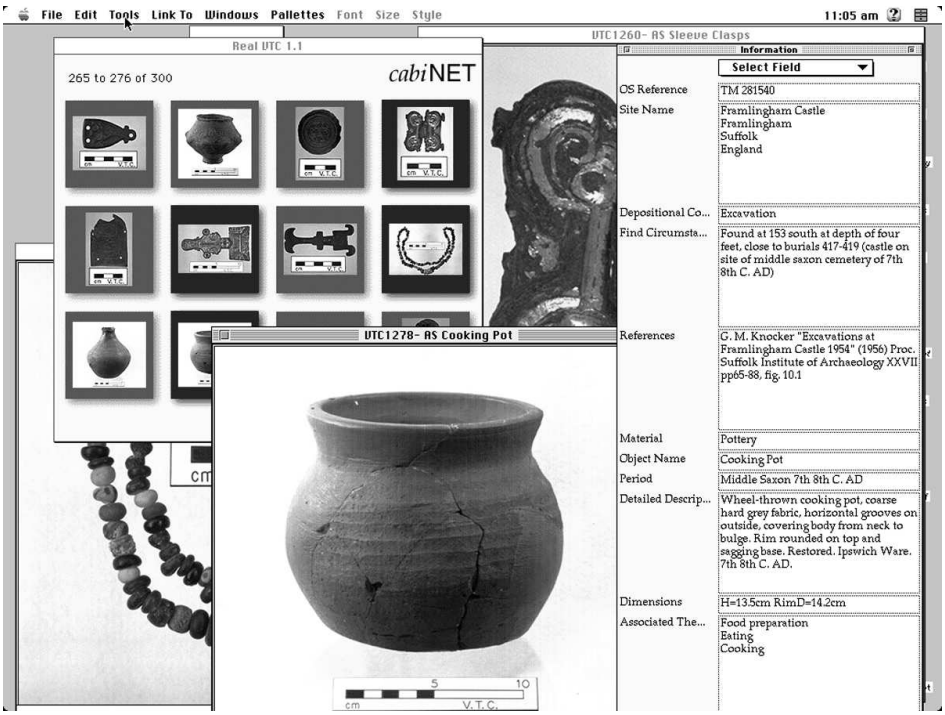

Figure 1. The CabiNET tools.

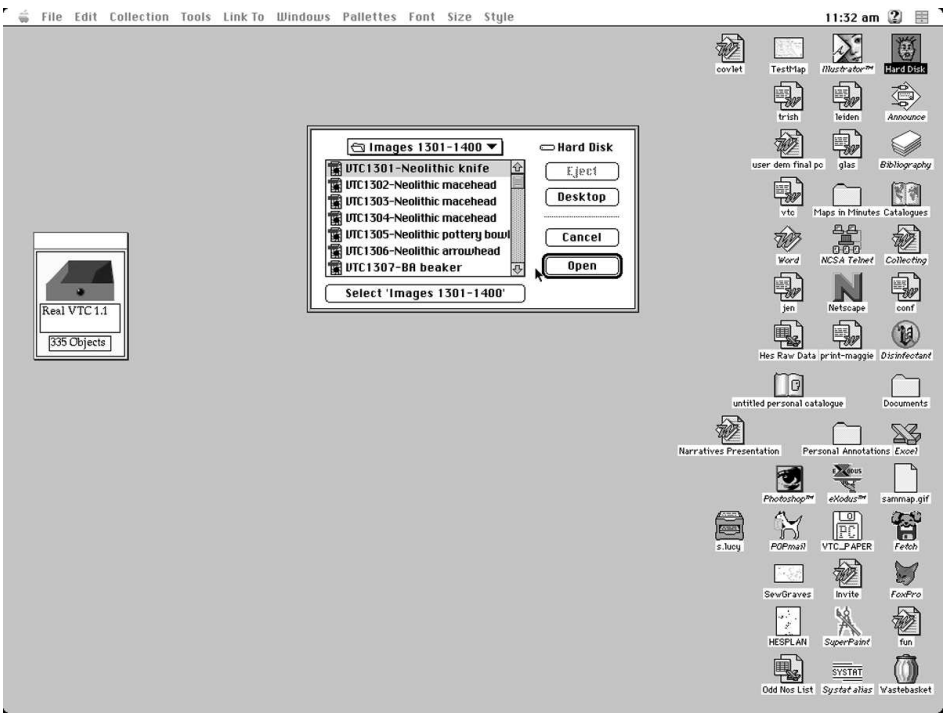

Figure 2. Importing an image into a Collection.

CabiNET is centred around the images and representations of the Collections, whether these collections are those provided or the user's own. It is very simple to import images, texts, video and 3-D representations from the packages which created them into a new or existing collection.

Each object-image is associated with its own database form, containing as much information as possible in fields

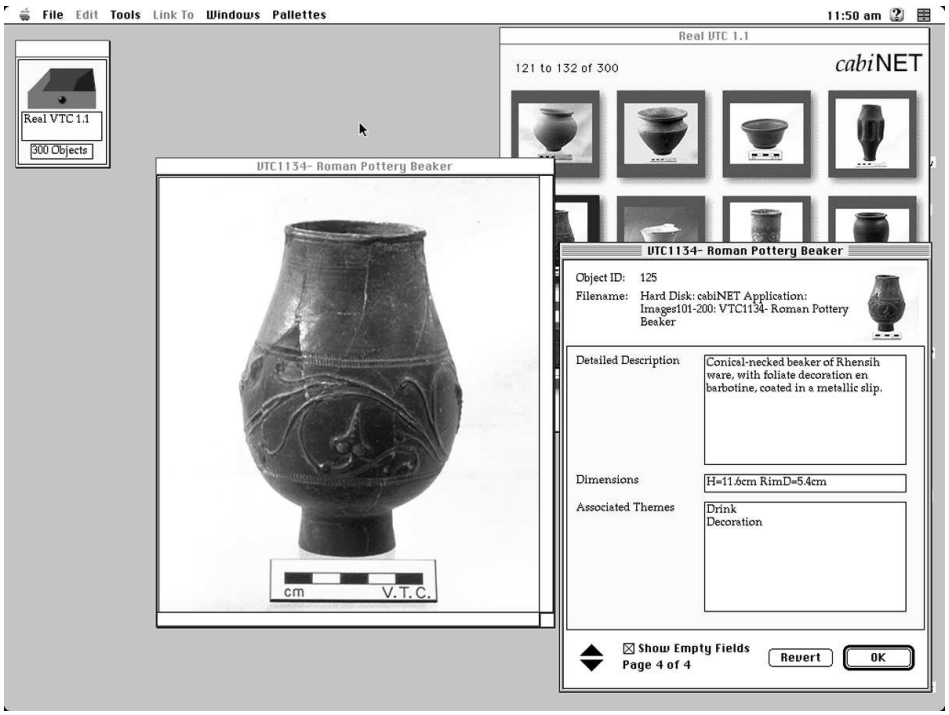

Figure 3. Using the Database form.

specifically designed by the creator of each individual collection. Thus in the Archaeology Collection, these fields relate, among other things, to contexts of discovery and to information about the dating and identification of objects. However, the database form is completely editable so the user can add, edit or delete data as needed. New fields can also be added, old ones deleted, and existing ones altered.

The user can choose to examine the form related to a particular object at any moment, or s/he can choose to have an information window permanently open, displaying selected fields whenever an object window is active. Object-images are thus bundled together with the database forms. They can also be bundled directly with other relevant information, such as descriptions or other texts relating specifically to that object or to other representations of the object. At any time, the user can easily add in similar links.

There are many ways of linking objects together. Images can be directly linked, by the simple gesture of dragging the small icon of one over the large representation of the other, and naming the link.

With the 'links' palette open, the user can immediately identify which other objects or texts an image-object is linked to, as soon as that window is clicked on. Images, other representations and texts can all be related to each other in a sort of 'web'.

Another, more indirect way of linking objects is to include them in a linear, or hyper, text. A user, reading through a written text, can click on a picon (picture icon) to bring up an image of the object under discussion, or on highlighted words to bring up other related information, such as glossary terms, bibliographies, or other related texts. In CabiNET, hypertext links can be made at any time and linked images can simply be dragged and dropped into the text. To forestall the problems of incoherence and navigation in this medium, we have chosen to adopt the standard Mac environment, whereby all windows stay open until explicitly closed by the user. This should help the user locate themselves more readily than in other formats, where only a single window is open at once, or navigation is achieved by the use of directional arrows, or other mapping systems.

As well as linear and hypertextual documents, we are also developing other methods of presentation. One of these is the slideshow. At the moment, this is done by sweeping a selection of objects onto a palette, arranging them in order, then displaying them, using the mouse as the next slide button.

Although some would argue that this is an inefficient way of teaching, considerable improvements can be made by using modern computing technology. It will eventually be possible, using future versions of our slideshow, to show more than one image on the screen at once; to display text alongside these images (thus hopefully preventing comical spelling of names and places); to allow drop-down notations

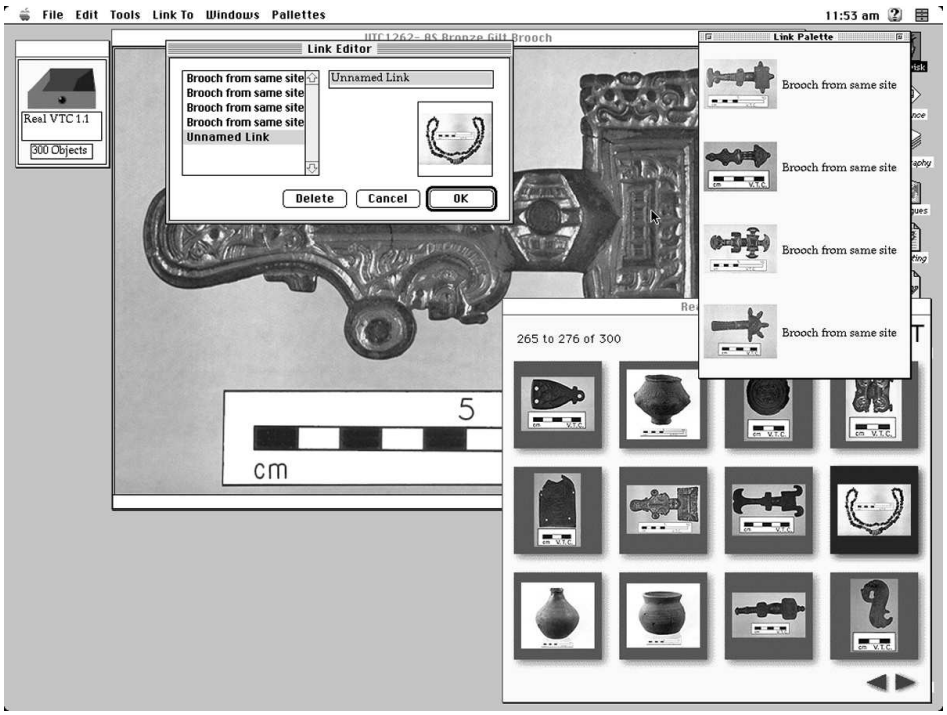

Figure 4. Linking an image to another image.

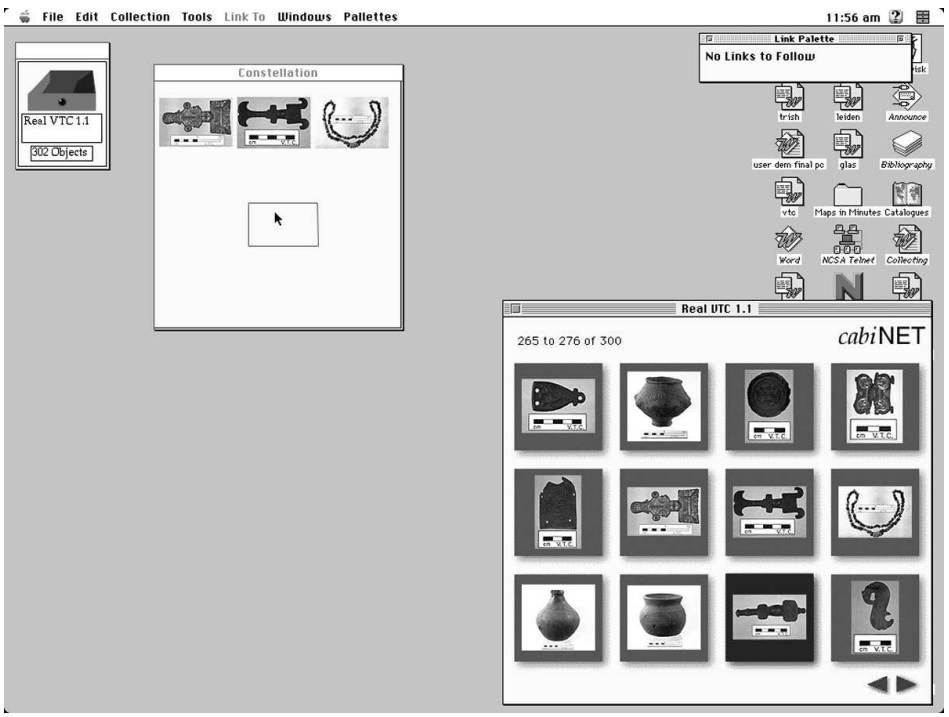

Figure 5. Constructing a Constellation.

to aid description; and to provide more flexibility in display, allowing the user to jump to any point in the sequence at will. Hopefully these innovations will serve to make lecturing more dynamic and informative for the students.

The Virtual Teaching Collection is a very flexible package, and therefore we hope that it will be used in a number of ways. There will of course be those, assuming they can be persuaded to use it in the first place, who will

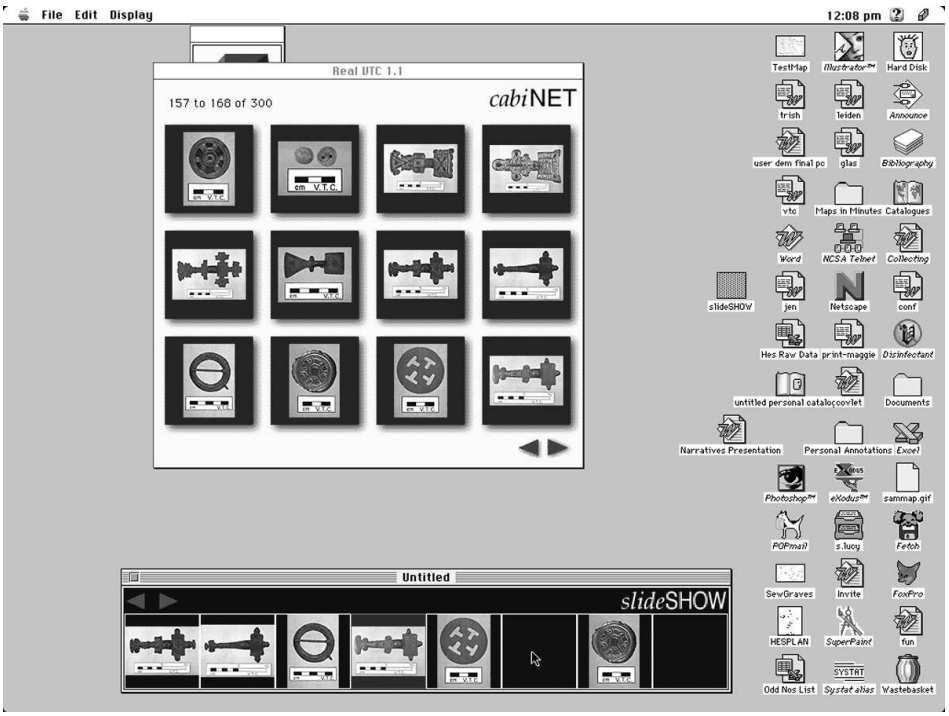

Figure 6. Producing a slideshow.

just use it as a glorified slide collection. We hope, however, that there will be others more willing to explore its potential. We see it being used in the traditional lecture situation, but perhaps with a lecture remaining on open access afterwards for students to work through at their own pace. We see it, perhaps, replacing the lecture to a certain extent, allowing the lecturer more time for the individual tuition which can transform a student's understanding. We would also like to see students themselves using the software to create their own presentations, perhaps as seminar work, perhaps even as a replacement for the traditional essay. Given the highly visual nature of archaeology, it does seem a little strange that the vast majority of our students' work goes unillustrated.

5 Conclusions

The Virtual Teaching Collection aims to combat problems of access in archaeology and history of science teaching collections, and, in the course of this, explore how we can better use objects in teaching. For those departments without their own teaching collection, the Archaeology Collection represents a valuable resource which can be drawn upon at all levels of teaching. Even for those departments with such collections, the Virtual Teaching Collection, uniquely, offers easy access to the related contextual information about artefacts which is so often confined to museum accession registers. It also represents an expanded resource which students can draw upon in their own work.

The flexibility of the presentation tools frees the lecturer from the rigidity of the slide presentation and brings the full potential of related information to their presentations. There is increased freedom of movement between images, and these can be placed in more than one narrative at a time. Objects can also be freely associated with each other and with explanatory texts. It also provides a more interactive resource than a lecturer's slide collection, or the objects in a teaching collection. Students can easily access information about objects, and can examine links which the lecturer has already created within the Collection.

Obviously, the images within a Collection cannot replace the actual objects. There can be no substitute for the actual look and feel of an object. However, to restate the point made in the introduction, objects gain their meanings from context. The use of CabiNET can make access to such contexts simpler and easier, facilitating the creation of narratives which draw upon a rich visual and textual resource.

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Laurillard, D. 1993 *Rethinking University Teaching*. London: Routledge.

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