

A MICRO COMPUTER CATALOGUE FOR EXCAVATION SMALL FINDS

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Introduction

The Welland Valley Project is responsible for the survey and excavation of a series of rural multiperiod sites in northern Cambridgeshire, and has been concerned with solving some of the problems of excavation data management (Pryor 1980), by means of a 48K Apple II microcomputer with two 5 inch floppy disks (Booth 1980 with refs; Booth this volume). This paper discusses the necessity for, and implementation of, one of the programs now in regular operation: the small finds catalogue.

Data for this system comes from the Project site at Maxey, Cambs.: a twelve acre complex of cropmarks which, through intensive survey and excavation, has yielded evidence for settlement from c4th millenium BC to c4th century AD. Over 90% of the excavated artifacts are Iron age and Roman wheelmade pottery fragments which present no immediate problems of conservation, storage, or classification, so that analysis of such material can safely await the post excavation phase.

The remaining artifacts, numbering nearly a thousand, are termed small finds and require immediate basic classification by virtue of a wide variety of object types and fabrics encountered; and conservation and storage methods to be applied. In response to this need, a system was developed to store all the principal attributes of a given small find in a closed record, sort these records by any attributes, and thus generate simple hard-copy catalogues tailored to individual needs. Considerable time is saved by having a system which automatically manipulates finds data, an advantage that is particularly significant to a small project team.

Scope and operation (DRC).

The record

The computer record for each find lists provenance, method of excavation, storage location, object name, object date, condition, dimensions, weight, fabric, methods of manufacture, and function. The record contains 29 fields, 15 of which are numeric. The 9 coded text fields are responses to a total of 144 coded text options offered by the program. The remaining 6 fields are free-text, one of which is a <15 character keyword.

Each object, whether a potsherd or small find, is given a finds number in the field from one sequence, currently in excess of 20,000 (19,000 of which are pottery). One small find may therefore be separated from the next by hundreds of numbered potsherds. Consequently when it is entered into the system, it is assigned a study number which locates its record within the file. This duplication of numbers is to be regretted, but results from imposing one system onto another six months after excavation began. It is only a problem at Maxey and small finds on future sites will be assigned separate numbers.

Writing the record

The record consists of the following (see Fig. 1):

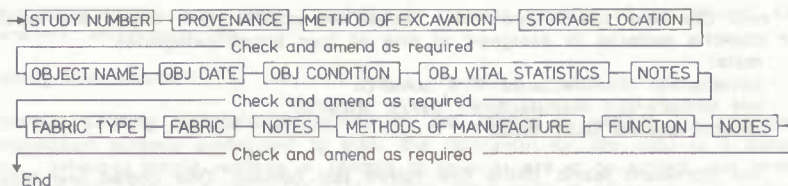


Fig. 1: The small finds catalogue: writing the record.

(i) Provenance (Ten numeric fields).

All provenance information comes from pre-printed record forms used in the field by the excavator, and comprises:

study number	layer number
structure number	finds number
feature number	depth below stripped surface
section numbers	grid reference (to within 1m)

(ii) Method of excavation (Five coded text options. One coded text field).

The operator selects one method from five:

conventional excavation	other
wet sieving	uncertain
dry sieving	

(iii) Storage location (Numeric field).

Finds are bagged (or if necessary kept in cushioned plastic containers) and stored in rigid cardboard boxes. Each box is allotted a number from 900 to 999. If the find is elsewhere, the operator inputs 999 and uses the notes to clarify.

(iv) Object name (Free text).

Up to fifteen characters of keyword are recognised by the system. Thus loom weight, nail, object are accepted and can be searched for when sorting.

(v) Object date (Fourteen coded text options. One coded text field).

The user selects one date from thirteen periods offered, from MESO to P/MED, but if in doubt can select UNCERTAIN.

(vi) Object condition (Five coded text options. One coded text field).

The user selects one from the following:

complete	fragmented complete
incomplete	fragmented incomplete
fragment	

An item is considered incomplete if it is substantial enough to be graphically constructed, otherwise it is considered to be a fragment.

(vii) Object vital statistics (Four numeric fields).

If the necessary measurements are not available at the time of input, one may hit RETURN; or if a necessary measurement is not available, input N/A.

The measurements are:

length (cm)	depth (cm)
width (cm)	weight (gm)

(viii) Dominant fabric type (Four coded text options. One coded text field). An object's material is assigned to one of four broad categories:
metal
furnace/kiln manufactured (F/K MANFD)
not furnace/kiln manufactured (NF/K MANFD)
natural worked (NAT WKD)

(ix) Dominant fabric (thirty five coded text options. One coded text field). Thirty five fabric options are written into the program, a selection of which is offered depending on which of the four fabric type categories has been chosen. The operator may choose only one fabric; problems can be clarified with the fabric details notes, below. The fabric options are as follows:

copper; copper alloy; gold; iron; lead; pewter; silver; steel; tin; other metal; indeterminate metal.

daub; leather; mortar; plaster; textile; other NF/K MNFD; indeterminate F/K MNFD.

antler; bone; flint; horn; ivory; shell; stone; wood; other NAT WKD; indeterminate Nat WKD.

(x) Fabric details (Free text. Fifty characters maximum).
Used for clarifying one of the above.

(xi) Methods of manufacture: shaping/working (Thirty coded text options. One coded text field).
Twenty-seven shaping/working techniques are written into the program, plus OTHER SHPG/WKG; indeterminate SHPG/WKG; SHPG/WKG not applicable. A selection of these is offered according to which fabric was entered.

(xii) Methods of manufacture: Joining (Sixteen coded text options. One coded text field).
Thirteen joining techniques are written into the program, plus OTHER; INDETERMINATE and NOT APPLICABLE. All of these are offered irrespective of which fabric has been entered.

(xiii) Methods of manufacture: finishing/decoration (Twenty four coded text options. One coded text field).
Twenty one techniques, plus OTHER, INDET., N/A are offered irrespective of fabric. The user must select one only.

(xiv) Manufacture details (Freetext. Fifty characters maximum).
As fabric details above.

(xv) Functional classification (Eleven coded text options. One coded text field).

These eleven functional categories form the basis of the Chenhall system of artifact classification (Chenhall 1978); the user selects the category for which the artifact was originally created:

structures	art objects
building furnishings	recreational artifacts
personal artifacts	societal artifacts
tools and equipment	packages and containers
communication artifacts	unclassifiable artifacts
transportation artifacts	

The Chenhall system is hierarchical, though for this purpose only the broadest categories are used (Crowther 1981).

(xvi) General Notes (Free text. Five lines/250 characters maximum).

This provides the opportunity to elaborate on any aspects of the record, cite parallels, references, etc.

Editing the record

Whether altering transcription errors as the record is written, or amending information already committed to disk, the operation for the user is a simple one. Whether single records or ranges of records are to be edited, the format remains the same. A series of fields within the record is presented for editing, as follows:

(User response followed by ***)

```
STUDY NUMBER 42          FIND 1542
14 Name.....PIN
15 Dating.....R.B.
16 Condition.....Fragment
16 Length.....2.9
17 Width.....0.35
19 Depth.....N/A
20 Weight.....0.5
21 Object details.....Head only
```

```
Correct ? (RETURN/N)    N***
Change which line ?     17***
Length (CMS) ?          3.9***
```

```
STUDY NUMBER 42          FIND 1542
14 Name.....PIN
14 Dating.....R.B.
16 Condition.....Fragment
17 Length.....3.9
18 Width.....0.35
19 Depth.....N/A
20 weight.....0.5
21 Object details.....head only
```

```
Correct ? (RETURN/N)
```

Printing the record

There are two options available for printing:

- (i) Printing a selected range of records.
- (ii) Printing records conforming to conditions defined by the user.

The second option presents the user with the opportunity to manipulate finds into a great variety of catalogues, depending on which fields he wishes to search by within the record. If he does not wish to sort by a given field, the user inputs minimum and maximum values for that field, for example:

```
Minimum Length ?       0***
Maximum Length ?       999***
```

If a field is significant, for example Condition, whereby the user only wishes for complete objects to be included in his catalogue, he specifies the same value for minimum and maximum values in that field:

```
OBJECT CONDITION          4 FRAGMENTED COMPLETE
1 COMPLETE                5 FRAGMENTED INCOMPLETE
2 INCOMPLETE              MINIMUM VALUE ?    1***
3 FRAGMENT                MAXIMUM VALUE ?    1***
```

Hard copy records are formatted as illustrated in Fig. 2. Each record is conveniently headed by its STUDY NUMBER, FABRIC, and OBJECT NAME.

```

41      CU ALLOY  FIBULA BROOCH  N 00 SMALL FINDS PRINTOUT          DATE OF PRINT 1.4.81
STUDY NO.  SITE  STRUCTURE  FEATURE  SECTIONS  FIND NO.  LAYER  DEPTH  GRID REF.  METHOD  BOX NO.
41      N 00  0          12B      (0-0 )  2740    1      .05    2842/7729  FMS SHOVEL 901

OBJECT : FIBULA BROOCH          DATING : R.3          CONDITION : INCOMPLETE  NOTES : BODY ONLY
LENGTH : 5.3  CM                WIDTH : 0.9  CM          DEPTH:  N/A  CM          WEIGHT: 2.0  GRM

FUNCTION:PERSONAL ARTIFACTS      FABRIC : CU ALLOY      NOTES :
MANUFACT:CAST                   JOINING : JOINT N/A   DECORATION: DEC N/A    NOTES : PLAIN FLAT CURVED; NARROW AT CLASP & TOWARDS TOP

NOTES : A LARGE BROOCH; SUBSTANTIAL CATCHPLATE; ATTENDING TOP HALF OF BODY (1DECORATED) WOULD HAVE TO CURVE BACK A LOT TO WORK. ** 00
N RACKRETH TO EXAMINE **

42      BONE     PIN           N 00 SMALL FINDS PRINTOUT          DATE OF PRINT 1.4.81
STUDY NO.  SITE  STRUCTURE  FEATURE  SECTIONS  FIND NO.  LAYER  DEPTH  GRID REF.  METHOD  BOX NO.
42      N 00  0          233      (2-3 )  1542    1      .1     2802/7736  WET SIEVE  900

OBJECT : PIN                    DATING : R.3          CONDITION : FRAGMENT  NOTES : HEAD ONLY
LENGTH : 2.9  CM                WIDTH : 0.35 CM       DEPTH:  N/A  CM          WEIGHT: 0.5  GRM

FUNCTION:TOOLS AND EQUIPMENT     FABRIC : BONE         NOTES : ** TO BE IDENTIFIED **
MANUFACT:CARVED                 JOINING : JOINT N/A   DECORATION: INCISED   NOTES : SHAFT+PARED; HEAD=CARVED/INCISED

NOTES : HEAD ENDS IN SHALL COME ABOVE 3 BROOCHES; CONICAL FIELD DECORATED WITH INCISED CROSSER; 2 GROOVES AT BASE OF HEAD: DATE=LAT
L' 2C (M' CRUNNY J HANN)

43      FIRED CLAY  LOONHEIGHT  N 00 SMALL FINDS PRINTOUT          DATE OF PRINT 1.4.81
STUDY NO.  SITE  STRUCTURE  FEATURE  SECTIONS  FIND NO.  LAYER  DEPTH  GRID REF.  METHOD  BOX NO.
43      N 00  0          195      (0-0 )  2819    1      .05    2845/7700  FMS SHOVEL *02

OBJECT : LOONHEIGHT           DATING : BELGIC IA   CONDITION : FRAG INCON  NOTES :
LENGTH : 13.5  CM             WIDTH : 4.7  CM      DEPTH:  16.2  CM          WEIGHT: 014  GRM

FUNCTION:TOOLS AND EQUIPMENT     FABRIC : FIRED CLAY  NOTES :
MANUFACT:HARD MADE              JOINING : JOINT N/A   DECORATION: DEC N/A    NOTES :

NOTES :

```

Fig. 2: The small finds catalogue: printout.

Printouts of unwritten records are used for recording data to be put into the system. As well as being cheap, this avoids the duplication of information associated with pre-printed input cards, yet at the same time avoids the inevitable waste of computer time which results from taking measurements at the keyboard.

Programming matters (BKWB)

This program utilises the General Program for Archaeological Database Management (Booth 1980). The program is designed to do all of the tasks required to maintain a simple data-base system. These were identified as:

- Input of data from keyboard to disk
- Editing of individual records
- Automatic editing of a series of records
- Printing out all or portions of the file
- Retrieving, and printing out records conforming to certain characteristics
- Printing out the numbers of unwritten records
- Erasing records
- Setting up a disk ready to receive records

In order to implement this program with the data structure for the small finds catalogue it was necessary to decide which parts of the General Program to use. The program as originally conceived proved to be too long, as coding and decoding of complicated fields (for instance Fabric Type above) is costly in terms of space. Additionally it was decided not to implement the automatic editor, the options to print the numbers of empty records, and for erasing records, were incorporated within the editor. It took approximately 20 hours to write the data structure of the small finds catalogue into the general program,

very little time being required for debugging, as the program structure had already been thoroughly tested.

The program has proved to be workable, with small problems being tackled by David Gurney, of the Welland valley project. However the retrieval system is cumbersome in use, as the user has to retrieve on all fields. This powerful option is time consuming to set up. A more recent implementation of the General Program (Sites and Monuments record) for David Hall, Fenland Field Officer, allows the operator to select which fields will be searched for retrieval. An improved format for the printed catalogue has yet to be designed, combining clarity with economy of space on the printed page.

In use the Program has demonstrated the utility of having a standardised format, into which a variety of data structures can easily be fitted. It has been relatively easy to operate, and the standardised structure makes maintenance straightforward. Future implementations will doubtless include improvements suggested by this first use of the General program, but the overall pattern is likely to remain the same.

Discussion (DRC & BKWB)

This small finds catalogue has now been operating for nine months, and provides satisfactory basic documentation for all project finds not of pottery or animal bone. The system generally asks questions of the material which the non-specialist may answer, concerning itself with morphological attributes that can be discerned with either the naked eye or a hand lens. Where questions do require specialist knowledge, or where any of the coded answers would be misleading, the user is able to select a suitable answer option and qualify it in free text. The system can thus be used by anyone with a reasonable familiarity with archaeological finds, and the ability to type. The hard copy records which the system generates are infinitely reproducible at little cost, and allow specialist enquiries to be furnished with standardised documentation.

It should be noted that this system deals with neither conservation nor graphics: the visual record consists of monochrome 35mm photographs, taken before conservation, of all finds that warrant such treatment. These are stored as contact prints in the Conservation Record, an 8" by 5" card index. These cards are retrievable by FINDS NUMBER rather than STUDY (ie Record) NUMBER, and thus provide a useful bridge between the field records and the computer archive, a post-excavation system for detailed finds analysis. The system as it stands, is an information store which can juggle data, and consequently answer a wide variety of questions at the excavation stage. Most importantly, it provides a sound foundation on which post-excavation research may be built.

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