The Access Data Base

Design

Numbering finds.

Access enables the use of automatic (sequenced) numbering which allows a unique find number to be allocated during initial data entry.

We thought it might help to make up a "composite find number" consisting of field number/sequence number, which was written on the bag. Whilst this helped visually for sorting purposes it was not a useful or sensible thing to have done from a data base point of view and it was not used after an initial period. We started by using this as the primary key but soon discovered in writing queries that the format nnnn/nnnnnn did not work as expected in relationships, possibly because the field number element needed to be text, so did the whole. We reverted to using sequence number only in relationships and queries. Composite field number was redundant as the combination of field number and sequence number could be written on the bag anyway! The mistake has not affected the use of queries and our results as we never used composite code as anything other than a list field in queries. The message is normalise the data and when it is already in first normal form, don't mess with it!

We compounded the error for find numbers 158 to 406 inc where the sequence number element of the composite find number does not correspond with find number. We chose, temporarily and wrongly, to make composite find code sequential, so when a find was deleted (e.g. because it was rejected after data entry stage by a specialist as not being worked flint, or being stone not pottery after being entered in the data base) the next composite number was allocated instead of its own sequence number.

This notation broke data management rules of normality (first normal form, etc) and we should have known better!

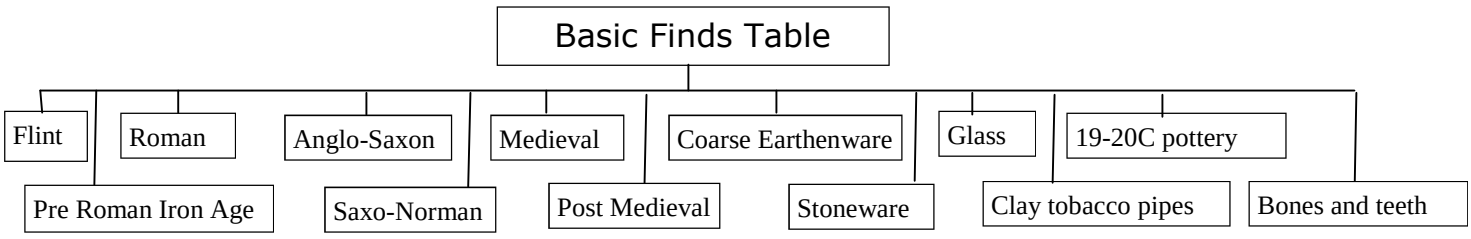
Categorising finds

Finds covering a wide span of time and types (pottery, flint, metal, clay pipes etc) will inevitably have different characteristics one wishes to record. A single flat file, with one record per find would have been highly inefficient, have many redundant fields and be cumbersome for data entry.

We devised a strategy of basic finds table and category sub table, each of which has a one to one relationship with the basic finds table (BFT) based on find (sequence) number. In the case of a number of pottery categories the range of characteristics was the same but it became convenient to have separate sub tables, e.g. medieval and post medieval pottery.

We started using codes for data classifications of one sort or another, but quickly decided that look up forms with full text was a lot more meaningful and quicker for data entry. Professionals still seem to prefer codes, with an associated translation table!

Figure 1



Basic Finds Table			
Field name	**Data type**	**Associated look up table**	**comments**
find number	Sequenced auto number		Primary key, used to link with sub table
OS Field Number	text		Text because numbers sometime begin with 0
Plot?	Yes/no		This was going to be used to list entries to be plotted on the GIS, but once we acquired the GIS we realised queries would be used for this and it was redundant
Transect Number	text		Initially transects (walking line) were numbered. After doing several fields we realised we should have used letters, but decided not to change the ones we had done! There were rarely more than 52 transects so generally no more than double letters were need (we restricted ourselves to the sequence AA, BB, CC etc.)
Stint Reference	text		Initially stints (collecting area 2mx5m) were identified with letters. After doing several fields we realised this had complications (long lines needed multiple letters and confusion set in with AA, AB, BB, CD etc!) and it would be simpler to use numbers, but decided not to change the ones we had done!
OLD FIELD LETTER	text		Part way through the project we mapped the 1883 field boundaries against the modern map and decided more meaningful finds distributions would be achieved by analysing them by old fields not modern ones. The text was a letter identifying each old field within the modern field number . A composite number could then be generated to uniquely identify each old field (eg 0007A, 0007B etc).
1776 field	integer		As with the old field letter, we needed to be able to analyse some distributions by 1776 field boundaries
Easting	Long integer		OS coordinates, entered in blocks after basic data entered using a query as a method of data entry. This required one person on a laptop to call out transect and stint to another using the GIS to read back the coordinates for the first person to enter.
Northing	Long integer		
Composite Find Code	Text nnnn/nnnnn		Redundant for reasons explained on page 1
Find Category	Look Up	Find Categories	A broad categorisation - see look up table
SubTable	Look Up	specialism	Used to indicate which sub table the extra data would appear in. Probably not strictly necessary but useful on occasions when using Access routines to find duplicates or unmatched data to check on consistency . We did occasionally find data items in the wrong sub table, or missing.
Walker's name	Look Up	Names of walkers	Self explanatory
Notes	Text, max 150 ch		Notes proved useful in many ways. Special markings, clay pipe manufacturer's names etc

At the end of the project we walked a field outside the parish at Granby Lane to collect roman and iron Age material. A table NF Basic Finds table was created for this data. The data was not entered into sub tables and not analysed in detail.

Flint Sub-table			
Field name	**Data type**	**Associated look up table**	**comments**
find number	number		
Composite Find Code	text		
Material	text	Flint materials	
Corticated	text	corticated	
Burnt	text		
Form	text	Flint form	
Tools	text	Flint tools	
Core	text		
Comment	text		
date range	text	Flint dating	Date attributed on basis of known dated finds in same assemblage
Jenny Date	text	Flint dating	The archaeologist assigned to assist with flint only dated when she was certain about a piece
Length	Double precision		
Breadth	Double precision		
marker	text		See note below*

Note * Markers were designed to allow data from several sub tables to be grouped in one temporary table to allow a single query to produce a list of data from all or a selection of sub tables or a location. It was used infrequently and fell into disuse.

Pre Roman Iron Age (Sub-table) (PRIA)			
Field name	**Data type**	**Associated look up table**	**comments**
marker	number		See note on page *
find number	text		
Composite Find Code	text		
Notes	text		
early date	Long integer	Default -750	Used when compiling and querying composite tables, not relevant to specific pieces
late date	Long integer	Default 100	

Roman Sub-table			
Field name	**Data type**	**Associated look up table**	**comments**
Find category	text		
find number	Long integer		
date group	text		
Composite Find Code	text		
Notes	text		
Fabric	text		
fabtype	Look up	Roman Fabric	
Count	Double precision		
Abrasion	Double precision		
Part	text		
Form	text		
Vessel type	text		
RimD	Double precision		
RimP	Double precision		
Condition	text		
Comments	text		
Dectec	text		See notes overleaf on subsidiary Roman description tables
Decmotif	text		
Decmotif2	text		
Decpos2	text		
Dectec3	text		
Decmotif3	text		
Decpos3	text		
Joinds	text		
Same	text		
DR	text		
Field	text		
DateRuth	text		
Date	text		Created by project to standardise entries in date group
Marker	text		See note page 3

Other Roman tables

The Roman sub-table was created and populated by the Roman specialist, who seemed not to favour look up tables. However, she also created and populated a series of subsidiary tables which translated the codes she used for a number of columns. There was some inconsistency within codes (e.g. BBD, BDH, BNH, BNHG all meant burnished!)

These tables are:

Roman Decoration1 list
Roman Decmotif3
Roman Decoratio2 list
Roman Decpos2
Roman Decpos3
Roman Dectec2
Roman Dectec3
Roman Fabrics
Roman Forms
Roman Part list

Two of the subsidiary tables summarised find characteristics as well as decoded them- e.g. A table gave the count for various forms

Roman Fabrics
Roman Forms

Sub-table Anglo Saxon			
Field name	**Data type**	**Associated look up table**	**comments**
find number	Long integer		
Composite Find Code	text		
Type	text	Anglo Saxon type	
age	text		E.g 500 - 800
Date range	text	Anglo Saxon Date	All are "Early-Middle Saxon"
notes	text		
marker	Text 2 ch		See note on p3

Sub-table Saxo-Norman			
Sub table	text		Default to Saxo-Norman, redundant field not used
find number	Long integer		
Composite Find Code	text		
Type	text	Lack of look up table caused inconsistencies in data entry that had to be corrected using search and replace. Age texts overlapping, not good for analysis and classification	Table produced by another researcher in mistaken belief that it needed to be separate from Anglo Saxon. Designed without use of look up table - a mistake!
age	text		
Date range	text		
notes	text		
These two sub tables should have been one. Date range would have been used to distinguish periods.			

Medieval Pottery Sub-table			
Field name	**Data type**	**Associated look up table**	**comments**
Composite Find Code	text		
find number	Long integer		
part	Look up	part	
rim diameter	integer		
Form	Look up	form	
Type	Look up	Type code	
Age	text		Free form entered as specialist examined find. Led to serious overlaps and inconsistencies in terms used (see note *). Look up table medieval dates resulted for use in queries.
date range	Look up	age category	A general classification used by medieval specialists - e.g highly decorated, late medieval,
Notes	text		
marker	text		See note on page 3

Note *
The problem of inconsistent classification terminology used by experts on different days dogged the project and caused more off line work than it should have. Post analysis we had to generate table of ages used and agree summary periods to enable any sort of intra medieval analysis. We recommend a schema be agreed beforehand which meets the desire for precision on the one hand and the need to have limited numbers of classes for statistical purposes on the other. See sub table medieval dates which categorised the ages by earliest and latest date in order to achieve some sort of non-overlapping classification. Numerical values are more useful than textual ones -eg 900 - 1150 rather than 10th-mid 12th C!

Post -Medieval Pottery Sub-table			
Field name	**Data type**	**Associated look up table**	**comments**
Composite Find Code	text		
find number	Long integer		
part	Look up	part	
rim diameter	integer		
Form	Look up	form	
Type	Look up	Type code PM	
date range	Look up	PM date range	For PM we did manage to impose a set of standard date ranges - possibly because we eventually became our own experts!
Notes	text		
marker	text		See note on page 3

Stoneware Sub-table			
Field name	**Data type**	**Associated look up table**	**comments**
find number	Long integer		
Composite Find Code	text		
Part	Look up	part	
Form	Look up	form	
Colour (outer)	Look up	colour	
Colour (Inner)	Look up	colour	
Thickness (mm)	text		
Date Range	Look up	Stone ages	Look up table imposes standard date ranges on overlapping text information
Type code	Look up	typecodeST	Initially we included earthenware with stoneware but changed our mind later and separated the two into sub tables of their own. Field is redundant.
Nottingham/Crich?	Yes/no		Indicate if origin Nottingham/Crich; made selection by origin easy
Display?	Yes/no		Is the item worth displaying?
Notes	text		

Glass Sub-table			
Field name	**Data type**	**Associated look up table**	**comments**
find number	Long integer		
Composite Find Code	text		
No of items	integer		In the first year we did not separate similar items into separate bags. We did so retrospectively for pottery but not for glass. Keeping note of the number of items helped build distribution maps based on total number of finds rather than count (OK where strictly one per bag).
Description	text		
date range	Look up	Glass dates	The expert completed spreadsheets, we transferred to Access and needed this table to standardise his text categories.
draw	Yes/no		Worth recording by drawing?
Notes	text		

Coarse Earthenware Sub-table			
Field name	**Data type**	**Associated look up table**	**comments**
Composite Find Code	text		
Find Number	Long integer		
no of items	integer		In the first year we did not separate similar items into separate bags. We did so retrospectively for pottery but not for glass. Keeping note of the number of items helped build distribution maps based on total number of finds rather than count (OK where strictly one per bag).
Part	Look up	part	
Diameter	Long integer		
Form	form	form	
Type	form	earthenware type	
Date Range	Look up	stone ages	Look up table imposes standard date ranges on overlapping text information
Notes			
marker			See note on page 3

Bones and teeth Sub-table			
Field name	**Data type**	**Associated look up table**	**comments**
Find Category	text		Teeth or bone - would have been quicker data entry with a look up table!
find number	Long integer		
Composite Find Code	text		
origin	Look up	Bone origin	List of animals
part	Look up	Bone part	eg rib. vertebra, jaw, canine etc
Notes	text		

Clay Pipes Sub-table			
Field name	**Data type**	**Associated look up table**	**comments**
composite find number	text		
find number	Long integer		
letter	text		a,b, etc identifies find where more than one in a bag
no of items	integer		In the first year we did not separate similar items into separate bags. We did so retrospectively for pottery but not for glass. Keeping note of the number of items helped build distribution maps based on total number of finds rather than count (OK where strictly one per bag).
category	Look up	Clay pipe descriptions	
draw?	Yes/no		
early date	Double precision		Allows queries to list pipes in specific periods. Should have been integer!
late date	Double precision		
broad date band	text		Four codes A = pre 1750, B = post 1750, C pre 1750 but closely dated, D = post 1750 but closely dated
description	text		

19-20C (pottery) Sub-table			
Field name	**Data type**	**Associated look up table**	**comments**
marker	text		See note page 3
Find Category	Look up	19-20c category	
find number	Long integer		
Composite Find Code	text		
Type	Look up	China fabric type	
date	text	Hardly used as these finds not analysed in detail. Year 1 were and may be entered in which case we shall need a look up date table!	
Notes	text		
no of items	integer		

Data Entry

Basic Finds Table (BFT)
Finds were collected at a central point, washed, dried and bagged individually (mostly!). Information written on the bag was Field No, Transect letter, stint number and walker's initials. The finds were then sorted into broad finds categories and reserved in separate vegetable boxes (large tray types, from Bingham Market!) for separate categories. This made finding groups of similar finds easy and it was more efficient to database in batches by category. One member's dining room and very large table were commandeered for this job for the whole season!

Data entry was carried out by pairs of project members, one reading and writing onto the bag, one entering data on a lap top. Initial data was entered as finds were bagged and the bags numbered. A data entry form was devised to make this as foolproof a process as possible. Data items entered at this time were

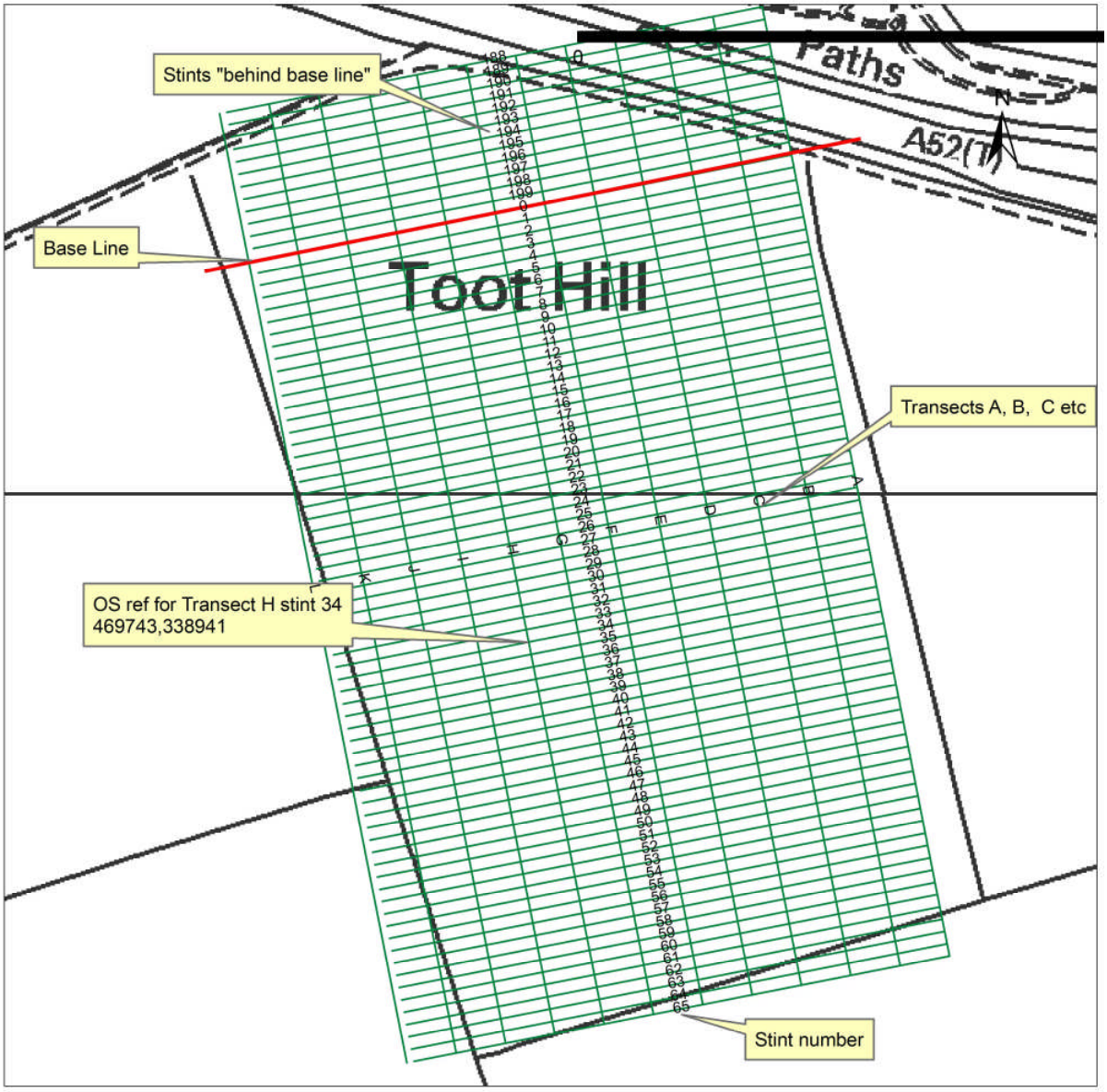
Find category - look up table to assist. User entered a default category for the session and then protected it from change. This sped up the process and minimised errors.
OS field number
Transect number
Stint letter
Walker's name (look up table)
Notes - anything remarkable or different about the finds - eg lettering, strange markings etc.

OS Co-ordinates
Professionals use GPS these days with a portable data entry logger! In year 1 we used pencil and paper, from year 2 onwards we used the GIS. A grid representing the transects and stints for a particular field was drawn by hand in year 1 and thereafter for us in ArcMap by BGS (even after we acquired our own copy of Arc it was much more efficient to have the professional do this job!). In year 1 a single individual had a print of all finds for a field (see below) and manually identified and wrote down the coordinates which were then entered into the data base. This was tedious and error-prone. From year 2 onwards we used the ArcMap grids and had one person on the lap top reading out transect and stint, and entering coordinates on the lap top as they were identified by the GIS operator. By this means we could do about 500 sets in a two hour session. An Access query was designed as a data input form with just the required view on the Basic Finds table - see below. A typical field grid is overleaf.

find number	OS Field Number	Transect Number	Stint Reference	Easting	Northing
3955	0007	A	10		
3986	0007	A	11		
8713	0007	A	12		
3987	0007	A	12		
8714	0007	A	16		
3988	0007	A	16		
3989	0007	A	18		
3990	0007	A	19		
4041	0007	A	199		
3950	0007	A	2		
3949	0007	A	2		

Similar semi automated approaches were adopted to allocate finds to old fields and 1776 fields. This used a combination of viewing the finds distribution for a modern field on the GIS but against the 1776 or 1883 map background and a query based input form as a separate window on the same computer to input **Old Fields letter** and **1776 fields** data. We could have used data selection by graphics on the GIS and exported the results but this would have taken as long as doing it by eye. We would be more competent at this process now!

Typical transect/stint grid produced for finding co-ordinates using GIS.



Sub-tables

Once finds had been examined by experts the specific data could be entered on sub tables. Sometimes the expert provided the data as a spreadsheet (clay pipes, glass), an Access table (Roman) or a word table (Flint). In other cases we worked from written notes on a form produced from the BFT. For medieval finds we entered the data on the lap top as the expert called out the information - fast and furious! This worked well - we achieved rates of up to 60 finds an hour.

Look up tables

Access provides a facility known as look up, whereby a series of choices for data entry can be displayed for the user to select. This enables consistency of data entry both in being able to specify a range of acceptable entries and ensuring consistent spelling. Unfortunately we were not able to find a method of forcing a choice and some data entering volunteers managed to enter incorrect data using free text from time to time. Unless we have missed something this seems to be a weakness of Access. Frequent use of edit>search>replace helped correct these errors!

Many look up tables consisted of a single field, which is displayed to the user when entering data in the relevant field in the data table.

These are listed overleaf

(look up) Field and Farm Numbers			
Field name	**type**	**Related to**	**comments**
Farm	text		
Field Number	text	OS Field No BFT	
Date started	date		Date field walking started
Date Finished	date		Date field walking finished
area	Single precision		In hectares
year	byte		To be able easily to list data by year walked
field easting	Double precision		Should be long integer
field northing	Double precision		
Open Field?	text		Never used
Hinterland	Look up	Hinterland	Hinterland is a single field look up tables

Look up old field ID and coordinates			
Field name	type	Related to	comments
OS NUMBER	text		Modern field number
Old letter	Text (1 character)	OS Old Field in BFT	Allocated maually, reading from GIS with 1883 map overlaid on modern OS. Old field polygons generated at same time on GIS.
easting	Double precision		Should be long integer Used for anchor point for labelling field polygons in GIS
northing	Double precision		
area	Double precision		Used for statistics for old field data

Look up 1776 areas			
Field name	type	Related to	comments
Field	integer	1776 field no BFT	Number of 1776 field from survey
Acres	Double precision		Size of original field (see below)
Hectares	Double precision		
acres now	Double precision		Used for statistics for old field data Sometimes part of 1776 field lay outside area walked
hectares now	Double precision		
fiieldNum	Double precision		As field but using double precision because of compatibility issues with GIS/MDB files (see below)
Easting	Double precision		Should be long integer Used for anchor point for labelling field polygons in GIS
Northing	Double precision		

look up specialism
19-20C
Anglo Saxon
boneandteeth
brick etc
clay pipe
Coarse Earthenware
drain
Early/Middle Saxon
flint etc
glass
late medieval
medieval
metal
night soil general
post medieval
pre Roman Iron Age
review tbc
Roman
Saxo-Norman
stoneware

Relates to
Basic Finds Table - sub table field
Identifies relevant sub table.
Useful for using Access tools to check for duplicate or missing data between tables. If we had understood referential integrity a bit better we might have used that!

names of walkers	
name	**Number**
Adrian Henstock	1
Alan Hopwood	2
Allen Ashmore	3
Alwyn Davies	4
Ann Carswell	5
Anna Rust	6
Barbara Wood	7
Baz Knight	8
Bernard Jarvis	9
Bob Terry	10
Brian Rollinson	11
Brian Williams	12
Etcetera...	

Relates to
Basic Finds Table - walkers name field
Identifies walker
Could have been used to compare walkers' find rates etc but was not (we are an amateur organisation!) A professional group might want to use it to see who might need further training.
Occasionally used to track down a walker for a photograph in press for a particularly special find!

look up find categories Category
Big Pot
Bone
Brick
Ceramic Tiles
China
Clay Pipe
Coal
Coins
Drain
Earthenware
Flint
Glass
Horse Shoes
Metal
Miscellaneous
Missing
Pottery
Rough pot unclear
Round tile
Shell
Slag/Clinker
Slate
Slate Pencils
Stone
Stoneware
TBC (to be confirmed)
Teeth
Terracotta
Tile
Unglazed earthenware
Unglazed Floor Tile
Vitrified brick
Wood

Relates to
Basic Finds Table - Categories field
Used for input assistance.
Identifies which sub table contains additional data
Provides a means of extracting by category data not assigned to sub tables - e.g. miscellaneous, coins etc
TBC was a way of keeping track of items yet to be assessed

look up hinterland
Hinterland
Lake
Margin of Lake

Relates to
Look up field and farm numbers
Used to generate statistics for various categories of find when trying to assess possible dates for reduction of prehistoric lake area. Used by researcher without access to GIS which would have been a more elegant method using two polygons and selection by graphics.

Three look up tables for assisted data entry.
Relate to Flint Sub-table fields;
- Corticated
- Form
- Tool

look up corticated
corticated
Heavily
Lightly
Corticated
Corticated
Heated
Burnt
Calcined
Heated?, glossy

look up flint form
Type
Arrow head
Axe Head
Bifacially-worked piece
Blade
Blade fragment
Bladelet
Bladelet fragment
Blade-like flake
Broken piece
Chip
Chunk
Core
Core fragment
Core rejuvenation
Crested blade
Crested bladelet
Crested piece
Denticular
Flake
Flake fragment
Natural
Nodule
Plough bashed lump
Polished axe fragment
Polished fragment
Scraper
Spall
Test Piece
Thermal
Wedge
Wedge/Core

Look up flint tool	
tool	**tool**
arrowhead	Miscellaneous retouched piece
Arrowhead fragment	Notch
Barbed-and-tanged arrowhead	Oblique truncation
Bifacial tool	Piercer
Bifacial tool fragment	Piercer + scraper
Chisel arrowhead	Polished axe fragment
Denticulate	Polished axe or knife fragment
Denticulate fragment	Polished discoidal knife/axe fragment
Denticulate/notch	Polished stone axe-head fragment
Dihedral burin	Polished tool fragment
Edge-polished fragment	Scraper
Fabricator	Scraper + notch
Gun Flint	Scraper + wedge
Hammerstone	Scraper end and side
Hammerstone fragment	Scraper fragment
Hollow scraper	Scraper, end
Knife	Scraper, fragment
Knife + hollow scraper	Scraper, horseshoe
Knife fragment	Scraper, on thermal
Knife, edge-retouched	Scraper, short end
Leaf-shaped arrowhead	Serrated piece
Leaf-shaped arrowhead fragment	Strike-a-light
Microdenticulate	Strike-a-light/hammerstone
Microlith	Used piece
	Wedge

look up flint dating					
code	**dating**	**marker**	**General date**	**early date**	**late date**
12	Early Bronze Age	Lithics	F5-Bronze Age	-2500	-750
5	Early Mesolithic	Lithics	F1-mesolithic	-8500	4500
8	Early Neolithic	Lithics	F2-Early neolithic	-4500	-3800
7	Late Mesolithic/ Early Neolithic	Lithics	F1-mesolithic	-8500	4500
10	Late Neolithic	Lithics	F4-late neolithic	-3000	-2500
11	Late Neolithic/ Bronze Age	Lithics	F5-Bronze Age	-2500	-750
4	Late Upper Paleolithic	Lithics	F6-Palaeolithic+	-10000	-8500
3	Lower Paleolithic	Lithics	F6-Palaeolithic+	-10000	-8500
6	Mesolithic	Lithics	F1-mesolithic	-8500	4500
9	Neolithic	Lithics	F3-Neoltihic	3800	3000
2	Palaeolithic	Lithics	F6-Palaeolithic+	-10000	-8500
1	Pleistocene	Lithics	F6-Palaeolithic+	-10000	-8500
13	Prehistoric	Lithics	F7-Prehistoric	-8500	-750

Can’t see what this was used for. My have been to do with contracting field and farm reports. Fairly irrelevant - delete from final copy of data base.

There were no look up tables for PRIA.

Sib-tables for Roman finds are described earlier - page 5.
There were no look up tables for Saxo-Norman sub-table.

These are good examples of look up tables to assist data entry. They are common to the following sub-tables:

Medieval
Post Medieval
Stoneware
Coarse earthenware

look up part
Part
base
base + body
base + foot
base + rim
base + shoulder
body
body + foot
body + rim
body and handle
body near handle
cylindrical spout
flanged rim
foot rim
footed base
handle
handle (plug attached)
handle + body
interned rim
inverted rim
lid
lid-seated rim
lug handle
neck
pie crust rim
pulled handle
rim
rim or handle
rim/body
rim/shoulder
rod handle
shoulder
spout
stopper
strap handle
strap handle (thickened)

look up form	
Form	**Form**
balaster jug	jar
Bellamine	jardiniere
bottle	jug
bottle or jug	lid
bottle/wine jar	loving cup
bowl	lugged bowl
butter pot	meat plate
candle stick holder	medicine bottle
chamber pot	mug
cistern	mug/bottle
cistern/jug	open form vessel
comport	ornament
cooking pot	pancheon
costrel	pipkin
cullender	plate
cup	pot stand
decoration	preserve jar
dish	saucer
drainage pipe	small bowl
enclosed form	small jar
figure	spirit bottle
flagon	squat jug
flanged bowl	stewpot
flared jar	storage vessel
flask	tankard
ginger beer bottle	tea pot
globular jug	tile
hollow ware	unknown
Honing Stone	wine jar
ink bottle	

These two look up tables relate only to the sub table Medieval.

Look up Type Code
Full Name
Cistercian
Gritty ware
Humber ware
Keighton ware
Light bodied gritty ware
Lincoln Early Shelly
Lincoln sandy fabrics
Medieval glazed
Medieval sandy
Midland purple
Nottingham coarse/pink/orange
Nottingham early green glazed
Nottingham Green Glaze
Nottingham Light bodied green glazed
Nottingham Reduced Green Glaze
Nottingham splashed
Pancheon ware
Reduced Sandy
Shelly ware
Stamford ware
Surrey whitewares
Unknown

Look up age category
Age category
Early medieval
Highly decorated
Late medieval
Not Medieval
Saxo-Norman

MARKER
OF = Open Field
PE = Post enclosure
Used to differentiate and amalgamate periods for field reports.

Look Up PM date range			
date range	**early date**	**late date**	**marker**
16-17C	1500	1700	OF
16-18C	1500	1800	PE
16C	1500	1600	OF
17-18C	1600	1800	PE
1740-1780	1740	1780	PE
17C	1600	1700	OF
17C - mid 18C	1600	1750	OF
17-early 19C	1600	1825	PE
18-19C	1900	2000	PE
18C	1700	1800	PE
early 16-17C	1525	1700	OF
Early 16C - mid 17C	1525	1650	OF
late 16-17C	1575	1700	OF
late 16C	1550	1600	OF
late 17-18C	1650	1800	PE
late 17C	1650	1700	OF
late 17C - mid 18C	1650	1750	PE
mid 15C - 17C	1450	1650	OF
mid 17- early 18C	1650	1725	OF
mid 17C	1650	1700	OF

These two PM look up tables relate only to the sub table Post Medieval.
Date range and descriptions used for data entry assistance. Early and late dates used in queries to allocate numerical date bands to text or to pottery types.

Look up Type code PM			
description	**early date**	**late date**	**sheep group**
Black Slipware	1650	1700	18thC
Black ware	1650	1730	17-18thC
Bourne ware	1450	1637	
Brown Glazed Blackware	1650	1730	
Cistercian ware	1525	1650	16-17thC
Coarse Black Ware	1650	1700	17-18thC
Late Midland Purple	1575	1700	
Light Bodied Black Ware	1650	1725	17-18thC
Light Bodied Gritty Ware			
Mottled ware	1690	1750	18thC
Purple Bodied Sandy Coarse Earthenware	1575	1700	16-17thC
Sandy bodied mottled brown glaze	1690	1750	
Sandy Coarse Earthenware	1575	1700	16-17thC
Slip Trailed	1500	1750	
Slip ware	1680	1750	18thC
Ticknall Flask	1625	1675	16-17thC
Tile Black Glazed	1600	1750	
Tin glaze	1600	1750	
Undifferentiated Blackware			
Unknown			
Vitrified Glazed Coarse Earthenware	1675	1750	
White Bodied Blackware			
x	0	0	
Yellow Slipware	1650	1700	
Yellow ware	1500	1700	16-17thC

Sheep group
Used to divide certain PM finds into three groups, 16-17C, 17-18C, 18Cto add to 'Sheep group composite table, which included data from other sub tables already categorised into these groups. The name was something to do with identifying pasture!
Used to generate graphs for the 3 centuries for 1776 fields but not used for final analyses.

Look up Stone Ages				
century	early date	late date	broad date	NS 19C marker
Late17-19C	1675	1900	BB	N
19C	1800	1900	BB	N
18/19C	1700	1900	BB	N
Late18/ mid19C	1775	1850	BB	N
19/20C	1800	1950	BB	N
17/early20C	1600	1925	BB	
20C	1900	1950	BB	
18C	1700	1800	BB	
17C	1600	1700	AA	
17/18C	1600	1800	BB	
16C	1500	1600	AA	
Late 17/18C	1675	1800	BB	
late 17C - mid 18C	1675	1750	AA	
Late17/ early18C	1675	1725	AA	
Mid18/20C	1750	1950	BB	
Early16/ mid17C	1525	1650	AA	
mid18- end18C	1750	1800	BB	
16/17C	1500	1700	AA	

Related to Stoneware and Coarse Earthenware sub tables.
Century = date range in sub table.
Used in queries to divide original text date overlapping ranges into broad none overlapping date ranges.
NS marker for allocating finds in these ranges

Look up table Glass dates relate to Glass sub table. Used in queries to:

1 categorise text dates into numerical date ranges (early and late dates)
2 Marker for use in field and farm reports
3 NS = include in night soil analyses (named NS 19thC marker in table)
4 NS(cd) closely dated Night soil categories for more refined analysis (not used in the end). (named CLOSEDATENS in table)

Look Up Glass dates

date range	early date	late date	marker	NS	NS (cd)
unknown					
Roman or 17thC	0	1700	open field		
Possibly Roman	0	1900	post enclosure		
Roman or 18thC	0	1800	open field		
Roman or 19thC	0	1900	post enclosure		
Roman	0	400	RB		
Roman or 20thC	0	1900	post enclosure		
16th-18thC	1500	1800	open field		
17th-18thC	1600	1800	open field		
17thC+	1600	1800	open field		
17th-early 18thC	1600	1725	open field		
17th-20thC	1600	1900	post enclosure		
17th-19thC	1600	1900	post enclosure		
17thC	1600	1700	open field		
mid 17th-early 18thC	1650	1725	open field		
late 17th-19thC	1675	1900	post enclosure		
late 17th-18thC	1675	1800	post enclosure		
18thC+	1700	1900	post enclosure		
18th-early 19thC	1700	1850	post enclosure		
18thC	1700	1800	post enclosure		
18th-19thC	1700	1900	post enclosure		
18th-20thC	1700	2000	post enclosure		
mid 18th-19thC	1750	1900	post enclosure		E
late 18thC-19thC	1775	1900	post enclosure		E
late 18thC+	1775	1850	post enclosure		E
late 18th-19thC	1775	1900	post enclosure		E
19thC+	1800	2000	post enclosure	N	
early 19thC	1800	1850	post enclosure	N	E

Look Up Glass dates

date range	early date	late date	marker	NS	NS (cd)
19th-20thC	1800	1950	post enclosure	N	
19thC	1800	1900	post enclosure	N	
19th-early 20thC	1800	1925	post enclosure	N	
mid 19thC	1825	1850	post enclosure	N	C
early-mid 19thC	1825	1850	post enclosure	N	E
mid 19thC-early 20thC	1850	1925	post enclosure	N	C
mid-late 19thC	1850	1900	post enclosure	N	C
mid 19th-mid 20thC	1850	1950	post enclosure	N	C
mid 19th-early 20thC	1850	1925	post enclosure	N	C
mid 19th-20th C	1850	1950	post enclosure	N	C
mid 19thC+	1850	1950	post enclosure	N	C
1870-1900	1870	1900	post enclosure	N	C
1870-1930	1870	1930	post enclosure	N	C
1870-1890	1870	1890	post enclosure	N	C
late 19th-20th C	1875	1950	post enclosure	N	C
late 19th-early 20thC	1875	1925	post enclosure	N	C
late 19thC+	1875	1950	post enclosure	N	C
late 19thC	1875	1900	post enclosure	N	C
late 19th-mid 20thC	1875	1950	post enclosure	N	C
1880-mid 20thC	1880	1950	post enclosure	N	C
1880-1910	1880	1910	post enclosure	N	C
1884-1890	1884	1890	post enclosure	N	C
20thC	1900	1950	post enclosure	N	M
early-mid 20thC	1900	1950	post enclosure	N	M
early 20thC	1900	1925	post enclosure	N	M
1912-1928	1912	1928	post enclosure	N	M
1920's+	1920	1930	post enclosure	N	M
mid 20thC+	1925	2000	post enclosure	N	M
mid 20thC	1925	1950	post enclosure	N	M
mid-late 20thC	1950	2000	post enclosure	N	M
modern	1950	2000	post enclosure	N	M
1960s+	1960	2000	post enclosure	N	M
1960's+	1960	2000	post enclosure	N	M

look Up earthenware type	
Type	**category**
Brown-glazed ce	
Brown-glazed slip-coated ce	18thC
Glazed Red Earthenware	16-17thC
Light-bodied coarse earthenware	
Pink-Bodied black glazed ce	18thC
Red-bodied black glazed ce	19thC
unknown	
Vitrified Glazed Coarse Earthenware	18thC

Related to Earthenware sub table.
Used to assist data entry
Category used for some early queries but not in final analyses.

Look up tables related to 19-20C sub table.
Used for data entry assistance

Look Up 19-20c category
Category
Big Pot
China
Earthenware
Pottery
Unglazed Pottery
Unglazed Red Earthenware

Look up tables related to Bones and teeth sub table. Used for data entry assistance

Look up origin
Origin
cat
chicken
cow
dog
horse
human
kitten
lamb
pig
sheep
small mammal

Look Up Bone part
Part
canine tooth
ear bone(s)
femur
horn
jaw + teeth
Leg
pelvis
rib
rib + femur
shin
skull
teeth
tibia
toe bone
tooth
vertebrate
wishbone + shoulder blade

Look up tables related to Clay Pipes sub table. Used for data entry assistance

Look up clay pipe descriptions
description
bowl
bowl base
bowl frag
bowl frag with heel
bowl frag with spur
mouthpiece
spur
stem
stem
stem near bowl
stem near mouthpiece
stem with heel
stem with spur
stem/bowl junction
wig curler

Look up China fabric type
type
bassalt
big pot
black glaze
black transfer
blue and white transfer
blue transfer print
bone china
brown transfer
brown ware
cane coloured ware
cream ware
earthenware
green transfer
hand painted
internal white glaze cane coloured
ironstone
pearl ware
porcelain
slip banded cane coloured ware
white
willow pattern
yellow glaze

Extracting the Data

Access has a very flexible and reasonably intuitive query facility for extracting data. We needed a number of types of query, sometimes for particular location, sometimes for the whole parish. Our most common types of standard query were:

Distribution tables, listing all finds in a category (this might be by sub tables or by location etc) with coordinates for exporting (as DBF files) to the GIS for mapping.
Statistical tables summarising groups of finds per hectare by old field etc, again for export to the GIS as files to join to geographic information (field polygons) for displaying find rates.
Count or sum queries for producing numerical tables based on find categories, field numbers etc.
Cross tab queries for presenting data under multiple headings in a more user friendly manner.

Normal Select query results table

Field Number	OLD FIELD LETTER	Type	per hectare
0111	B	Pink-Bodied black glazed ce	0.59
0111	B	Red-bodied black glazed ce	1.78
0111	B	Vitrified Glazed Coarse Earthenware	0.59
0111	C	Brown-glazed ce	0.66
0111	C	Brown-glazed slip-coated ce	0.22
0111	C	Light-bodied coarse earthenware	0.88
0111	C	Pink-Bodied black glazed ce	8.81
0111	C	Red-bodied black glazed ce	5.51
0111	C	Vitrified Glazed Coarse Earthenware	0.88
0208	A	Brown-glazed ce	8.68
0208	A	Brown-glazed slip-coated ce	0.75
0208	A	Light-bodied coarse earthenware	0.75

Cross tab query results table

Field Number	Type	Old fields		
		A	B	C
0111	Brown-glazed ce			0.66
0111	Brown-glazed slip-coated ce			0.22
0111	Light-bodied coarse earthenware			0.88
0111	Pink-Bodied black glazed ce		0.59	8.81
0111	Red-bodied black glazed ce		1.78	5.51
0111	Vitrified Glazed Coarse Earthenware		0.59	0.88
0208	Brown-glazed ce	8.68	1.32	
0208	Brown-glazed slip-coated ce	0.75	0.99	
0208	Light-bodied coarse earthenware	0.75	0.99	
0208	Pink-Bodied black glazed ce	39.62	25.00	
0208	Red-bodied black glazed ce	26.42	32.24	
0208	Vitrified Glazed Coarse Earthenware	2.64	2.63	

Many ad hoc queries were generated during the project before the final analyses stage as an aid to understanding the data. and testing theories. Some compared ways of displaying or analysing data.

A number of composite tables were generated to allow merging of data from sub tables with different date descriptions or other quirks for analysis as a unit. These were necessary to deal with the division into sub tables, they would not have been needed if a single flat file had been sued for data storage, an approach rejected for reasons given on page 1. The table “18C markers” is an example with data drawn from post medieval and stoneware sub tables.

A group of tables named “extract table…” contain data excluded when we decided to use 20m transect data only. These tables contain the discarded data from the alternate transects.

Farmtest series of tables brings all data into one table by period for the farm and field reports. The Field Report Summary Table is a look up table to assign periods in the queries that appended data to these farm test tables.
NEWNS and Night Soil Assemblages series of tables are composites to bring night spoil element in from different sub tables.

Relationships

The descriptions of tables and sub tables included reference to the relationships between them. A relationships map is available on the data base by clicking on **tools>relationships.** A simplified relationships diagram is on page 24.

Data transfer between Access and GIS.

Arc Map will not read Access files, but will read DBase5 (DBF) files, which is a widely used standard. Access will save query results or data tables as DBF files when you export them to say a folder for importing into ArcMap.
Three problems can occur.

1 If your file name begins with a number not a letter, Arc will have difficulty joining the table with an Arc file (or indeed if you have named an Arc file beginning with a number) Always start names with a letter - it took a long time and several phone calls to ESRI to sort this one out! Our project revolved around dates so we got into a bad habit of starting file names with a year!

2 When Access saves a file in .dbf format, it converts integer numbers to double precision. This prevents joining dbf tables with Arc files on the basis of the join element being integer in Arc. Thus in several attribute tables in Arc we had to use double precision instead of integer for a number of fields, since the data types of the join field must match.

3 DBF file names are limited to 8 characters, which can cause problems when you use multi character names in Access! The Access name will get truncated when you save, which can lead to duplicate names!

Simplified Data Base Relationships Diagram