

**Illustrated
Monumental Inscription
Transcriptions**

in

CD ROM Format

Detailed Building Instructions

by

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2. Preface

This manual describes all the stages involved in the production of an Illustrated MI transcript in CD format. It was prepared by Alan Simpson whilst developing this process for Oxfordshire Family History Society's MI CDs. In reading it, you may feel I have been over-prescriptive in specifying the exact style and layout to be used when setting up folder structures, typing up the transcript and preparing the plans. I have done this deliberately. It is not an attempt to stifle your creativity. However if you stick rigidly to these instructions, there is a good chance that you will be able to put together your first CD without problems and with no need to get involved in any "programming". You are of course perfectly free to do things differently to suit your own way of working. However there is a good chance that you will then need to make modifications to some of the programs and macros to make them work properly. The end result may well be better or just more personalised, but you will probably have to do a bit more work to get there. The choice is yours!

The rest of Section 2 is devoted to outlining the process and explaining the principles involved. From Section 3 onwards, I have tried to spell out a recipe for you to follow.

The various macros, basic programs and templates used are copyright © Alan Simpson but their use by other family historians, to produce CDs for their local graveyards is positively encouraged, which is why I wrote this manual.

This **manual** is included on the more recent finished CDs I have produced. These also contain a **skeleton** transcript and the customised tools I have written to make the task easier. The techniques used have evolved as I gained experience in producing CDs. The transcript prepared in August 2003 for St Mary's Parish Church, Cholsey, is the first to include this manual in its present form and the examples provided are based on this church. The latest version of this manual and the skeleton can be found on my web site www.shotover.clara.net in the **Illustrated MIs on CDRom** section. The site also includes a brief tutorial on HTML in the **Weave Your Own Web Site** section, which may be helpful if you are not familiar with the basics.

2.1 Crucial Processes

The benefits of presenting an MI transcription on CD are that pictures of the graves are easily included and that it can be viewed on a PC, rather than a fiche reader. However there are a number of crucial processes which are required to make this a practical proposition.

- A cheap recording medium, large enough to hold all the data. Made possible by recordable CD technology.
- A way of recording a large number of pictures digitally at low cost. Made possible by the advent of digital cameras.
- A readily available display technology. Made possible by web browsers.
- A means of converting a text transcript to HTML form automatically. Made possible by the software presented below.

2.2 The Software Tools

Here are details of all the tools I have used in creating this CD. Some are essential, others just make life a little easier.

Microsoft Word is used to input all the transcriptions and its macro language is used to automate production of checking sheets during transcription and to automate the generation of HTML pages from the transcript. I use **Version 6.0** which is now quite old. However everything works fine with more recent versions of Word. The macros are automatically translated to the latest format the first time they are run without any changes being required. Other word processors that support a macro language can probably also be used, but you would have to re-write the macros from scratch.

IMSI TotalCAD Version 1.0 is used to draw the plan of the graveyard and to export it as a DXF file, for conversion into the GIF file and HTML client-side image map required for the CD. This program was supplied free on Cover-Disk No. 149A accompanying the March 1999 edition of PC Plus magazine. An enhanced version is now (March 2009) sold for a very modest price, under the name Total CAD 2D-3D. Both are closely related to the more advanced, and expensive, program TurboCAD which can also be used. Any other CAD program capable of exporting DXF files could probably be used as an alternative but the detailed instructions given here would obviously not apply.

A **Digital Camera** is required to photograph the graves. I use a Fuji FinePix 1300, but any camera capable of delivering an image of 640 x 480 pixels will do. It is desirable to take pictures directly at this resolution, rather than at a higher one. You will be taking a lot of pictures and re-sampling every one in your painting program would be tedious. The aim is to use pictures straight from the camera as far as possible. For the same reason, you need a camera with enough memory to store a lot of pictures if you are not to be making a lot of trips to the graveyard. Pictures taken at resolutions up to 1280 x 960 can be used, but they will make the loading of pages noticeably slower, without giving significantly better picture quality when viewed on-screen.

Paint Shop Pro is used to manipulate the plan image and for any adjustments required to the photographs. (As mentioned above, the majority of the pictures are used straight from the camera, with no adjustment). I use **Version 5.0** which was also obtained from a magazine Cover Disk, (PCFormat, No. 140, October 2002). Current versions are available commercially. Any photo handling program will do this job, provided it can read and write JPEG and GIF files and can read DXF files.

GIMP is an alternative and completely free, open source image editor. It can do the same job as Paint Shop Pro. The only limitation being that it cannot read DXF files. However the next program, CutePDF can be used to obtain images directly from TotalCAD as pdf files, which can be read by GIMP. This has the advantage of producing a higher quality final image.

CutePDF Writer is a free utility that is installed as a Windows printer driver. Selecting this as your printer creates a pdf file rather than printing to paper. It is available free from

<http://www.acrosoftware.com/Products/CutePDF/Writer.asp>

jpegtran.exe is used to automate the rotation of photographs. Digital cameras normally produce pictures in landscape format, but for the majority of graves a portrait orientation is preferable. You could rotate all the pictures one-by-one in PSP, but this would be time consuming and there would be some small quality degradation since the picture must be uncompressed, then compressed again. **jpegtran** can perform the whole operation on the compressed data. This program is part of the **Independent JPEG Group's** free JPEG software. This software package may be freely distributed and so is included with the **skeleton**, in the form of a ZIP file, **jpeg6bexe.zip** in the **utility** folder and also as the unzipped file **jpegtran.exe** in the **rotate** folder. The documentation files in the ZIP give details about the program.

rdjpgcom.exe is another program from the **Independent JPEG Group**, also contained in the **jpeg6bexe.zip** archive. It is used to interrogate individual JPEG files, to extract picture size and orientation information

automatically. This is used to automate the process of ensuring that the pictures in the final CD transcript are in the correct orientation. It is included in unzipped form in the **orient** folder.

browsercall.exe is required in the root folder to allow Windows to launch the first page **index.htm** in the user's default web browser when the CD is inserted. **browsercall** has been generously made available as freeware by its authors, Ashzfall. Details of this and an explanation of why it is needed can be found on their web site at: <http://www.ashzfall.com/products/autorun/browsercall.html> Provided you base your CD on the skeleton I have provided, **browsercall.exe** will automatically be present in the root folder of the CD you are building.

Microsoft Excel Version 5.0a is used to prepare the index of names. However this is not a critical function. Any spread sheet program will do the job. Indeed it can probably be done just as easily as a table from within Microsoft Word. The data is in any case imported into a table in Word, before being converted to HTML.

Microsoft QuickBASIC Version 4.5 has been used to write some of the automation programs. These are all distributed as compiled programs, so if you are following my recipe exactly, you will not require QuickBASIC yourself. However if you want to change anything, you may need this program or a similar version of Basic, in order to make the changes.

1-4a rename is a freeware program that can be used for renaming groups of files in a logical fashion. I use it to rename the photograph files from the filenames produced by the camera, to the correct grave-number filenames. It may be downloaded from it's author's web page at <http://www.1-4a.com/rename/download.htm> or can sometimes be found on magazine cover disks. I currently use version 1.56.0.

Change Case is a program that allows you to change the case of filenames throughout a folder and all its sub-folders. I use it to ensure that all filenames are in lower case before finally releasing the CD. The case of filenames does not matter on the Windows operating system, but if someone is using your CD on a different operating system, e.g. Unix, the case of the filenames must match that specified in the links within each page. **Change Case** is written by Hai Li and may be freely downloaded from his web site at <http://www.zealsoftstudio.com> or can sometimes be found on magazine cover disks. All its author asks is that you send him a postcard. I currently use version 3.1.

Xenu's Link Sleuth is a program intended for detecting broken links on a web site. It is not used for building the CD, but is useful for checking for any grave numbers that are referred to in the index or plan, but which don't exist in the transcript. It is written by Tilman Hausherr and is available for downloading free from his web site at <http://home.snafu.de/tilman/xenulink.html> I currently use version 1.2b.

2.3 The Word Macros

Most of the "clever stuff" is done by Microsoft Word macros. These are all contained within a single document template **mirecord.dot** which is used for preparing the initial transcript. This word document forms the basis of both the paper/microfiche transcript and the CD version. It is crucial that this should be the case, since when corrections are required during checking and proof reading, there must only be one master-document to which the corrections are applied. For the same reason, the process of converting this document to either of the two final forms, must be fully automated. Otherwise there will always be a temptation to apply changes and corrections further "downstream".

A copy of the document template is included in the **macros** sub-folder in the **skeleton**. Instructions for installing the template are given in Section 3.2 below. In addition to the template, the individual macros are saved as text files in the **macros** sub-folder. This is just intended to help people who want to use a different word processor and so need to adapt the macros. The function of each of the macros is now described.

PrintCheckSheets macro is designed for use when preparing the original transcript. Its role is to inspect the master transcript document and print out just those entries which are still in need of checking. The process is described below, when the format of the transcript is discussed. This is used so frequently, that a tool bar button has been created to invoke this macro. The text listing is **printche.txt**

MitoHTML macro does the job of converting the master transcript document into a series of separate HTML documents, two or more for each grave. It may be used to convert the entire transcript, or just a small portion of it. The text listing is **mitohtml.txt**

IndexToHTML macro converts an index of names in a Word table, into an HTML index page. The text listing is **indextoh.txt**

Orienter macro automates the process of inserting picture orientation codes into the master transcript. It expects to find these codes in a single file **orient.txt** located in the same folder as the transcript. This file is generated automatically from the image files, by a process described below. The text listing of the **Orienter** macro is **orienter.txt**

PrePro macro is an experimental macro which attempts to pre-process transcripts prepared by other people in a variety of formats into the strictly defined format required for conversion into HTML. The transcript should first be converted into Word format, preferably by choosing “Save as Word 6 Document” from whatever word processor has been used. It is then pasted into an empty document based on the MIREcord template (in order to give it access to the macros). Then PrePro is run, with fingers firmly crossed. In so much as it is impossible to be sure what conventions other people will use, PrePro is likely to need some “tweaking” to suit an individual file. However provided the transcriber has been consistent, it should then do the job much faster than converting the whole thing by hand. The text listing is **prepro.txt**

2.4 Master Transcript Document Format

The format for the master transcript document was originally established to standardise and simplify the preparation of MI transcripts, long before there was any thought of converting them to CD format. It has remained largely unchanged with just a small addition to the “code line” to allow the preferred orientation of the photograph to be specified. In establishing the format the following objectives were set.

- Typing up of data to be as easy as possible, with no need to think about a layout at this stage.
- Format to be such that any inconsistencies are visually obvious.
- No use of tabs or indents, which can easily change as word lengths alter.
- The final appearance to be similar to that used for recent Oxfordshire Family History Society MI transcripts; to be clear to read on paper or microfiche, with the grave number easily identified; to be reasonably efficient in its use of paper or fiche space in order to keep the final document compact.
- An easy way of including “coded” data, to identify which transcriber(s) have worked on a particular grave and whether it is complete, or requires further checking.
- Easy to remove this coded data automatically for the final transcript.
- A “one click” automatic process for generating check sheets before each visit to the graveyard.
- An easy way to encode whether the accompanying photograph should be in portrait or landscape orientation. (This last requirement added when the CD project was started).

- An easy way to encode whether there are supplementary photographs available for a particular grave. (This requirement was added in 2005.)

The format chosen is best seen by viewing the example transcript document **parish.doc** in the **source** folder of the skeleton. Making sure you stick exactly to this format will pay dividends in time saved later on. A description of the various elements follows:

1. Each MI entry is a single paragraph with line breaks inserted as required (Use Shift-ENTER to insert line break). The normal paragraph style has been set up to produce a 12pt space after each paragraph, so a single end-of-paragraph is sufficient to get the required gap between entries. The Text Flow property of the normal paragraph style has been set to “Keep Lines Together”, so a single MI should never get spread across two pages.
2. A “Check Sheets” button is provided on the formatting tool bar. Pressing this should generate a second document with just the entries requiring checking. Your original document should be unchanged. (But save it first, just to be sure!). Print the check document to get your check sheets. After printing, it can be deleted.
3. The first line of the paragraph consists of just the grave number, ending with a line break (Shift-ENTER).
4. The second line of the paragraph is the “code line” It must start with one of the seven symbols @, %, £, \$, μ, ¥ or ø followed by the transcriber’s and previous checker’s initials, separated by commas. The code line should end in a line break (Shift-ENTER). The seven special symbols are “reserved” and must not appear anywhere else in the text. When you first type the entry, you should use “@” as the code symbol. (This is what tells the macro to include this entry on the check sheets.) When an entry has been completely checked, you should change the “@” to a “%” and it will not appear on further check sheets. (The use of symbols £ and ø is described below. The symbols μ, ¥ are no longer used, but are reserved for possible future use.)
5. The third line appears in Italics and is a description of the grave. It too should end in a line break (Shift-ENTER). If the description is longer than will fit on one line, just continue typing and allow the processor’s word-wrap to operate. On no account be tempted to add extra line breaks to “adjust” the layout. It is crucial that the first character of this third line is in italics, since this is what tells the macro that it is a description.
6. The next line is the inscription which is in regular font (i.e. not in italics). Again it is crucial that the first character of this line is in regular to indicate to the macro that it is the inscription. When entering the inscription, individual line ends on the memorial are indicated in the transcription by a space, followed by a “/” followed by another space. You should always stick rigidly to this convention even if the line end comes at the end of a line on the paper. Remember line ends on the paper may change if a different printer or page size is used. Again allow the word wrap to operate and do not attempt to add extra line breaks to “adjust” the layout. Get into the habit of always thinking “space-slash-space”. The reason for the spaces, is that you will find some gravestones, which include a “/” as part of the inscription. This is particularly common on CWGC maintained headstones for former servicemen where their service number is included. The spaces are used by the macro to distinguish an inscribed “/” from a line end mark. At the end of the inscription, indicate the final line end by a “//” followed by a line break (Shift-ENTER) if there are further parts to the monument, or a paragraph break (ENTER) if this is the end of this particular grave.

7. Where part of a stone is not decipherable or is in doubt, square brackets [and] should be used to indicate the doubtful or missing letters, thus:

In mem[or]ly of R[_ _ _]rt W[_____]/ who died January 1st 190[3 or 5] / aged 47 years. //

If a letter is likely but not certain place it within the square brackets. If it can only be one of a limited range of possible alternatives indicate this with **or** as shown above. If the spacing of the surrounding letters gives a clue to the number of missing letters these should be marked within the square brackets by means of alternating underscores and spaces thus: [_ _ _]. If you cannot tell how many letters are missing, show an approximate length by using a continuous run of underscore characters thus [_____]. (Do not use a run of continuous spaces, since the user's web browser will contract these to a single space when the CD transcript is displayed on screen.) Note that the "underscore" character is usually found on the shifted hyphen key. This is not the same as entering spaces with underlining turned on.

8. If the monument is in several parts, (e.g. headstone and footstone), items 5 and 6 may be repeated as required. Provided descriptions are always in italics and transcriptions in regular, the macros will be able to distinguish these elements. This distinction is made by inspecting the **first** character of each line. Take care that due to a typing error, the first character is not a space and is in the correct italic or regular font. I strongly recommend that you get into the habit of changing from regular to italic and vice versa, by typing Ctrl-I, **before** typing the Shift-ENTER to end the line. This ensures that if you subsequently have to edit the first few characters on the line, Word does not sneakily convert them into the opposite type face without your noticing!
9. An optional last line, may include additional information, such as details from the burial register. This too must be in italics. It is conventional to enclose this information in square brackets but these have no effect on the macros. Since this forms the final line of the inscription, it should end in a paragraph break (ENTER), rather than a line break. If this optional line is not present, then it is the last section of the inscription that should end in the paragraph break, rather than a line break.

2.5 Overview of the Transcription Process

2.5.1 Preliminaries

Before starting work you will need to have decided upon a graveyard to tackle, checked that it has not already been done or is in progress, liaised with the vicar to get the necessary permission, recruited a team of volunteers etc. These are all very important steps but they do not relate to the technicalities described here. So I shall say no more about them.

2.5.2 Set up a Folder Structure on your Computer

During the course of the transcription project, you are going to generate a large number of computer **files** related to the project. To keep these in order, you need to set up a structure of **folders** on the hard disk of your computer. It makes following my description easier if you stick to the exact structure defined in Section 3 below. Indeed some of the automation processes will only work if you follow the structure I specify. (I also define what I mean by **files** and **folders** in Section 3, in case you were wondering.)

2.5.3 Draw a Plan

The first technical step will be to produce your plan of the graveyard, with all the graves marked in and numbered. This may be based on a pre-existing plan, or the result of your own surveying. Either way, you are going to use a CAD (Computer Aided Design) program to draw the final plan. This greatly speeds up drawing the plan itself, and is essential, when you come to incorporate the plan in the CD transcript. In the detailed instructions given below, I will be assuming you are using the program TotalCAD, or the closely related TurboCAD.

2.5.4 Transcribe the Graves

This is of course the hard bit, requiring the efforts of a team of volunteers. The objective of all the automation which follows is to make everything else seem easy by comparison with the transcription itself! The actual processes of transcription, describing monuments and techniques for reading “difficult” old stones, are all important in their own right but are outside the scope of this document and so will not be further discussed here.

2.5.5 Type up the Transcript

After each session you should type up the work that has been transcribed, from the volunteers’ notebooks. It is generally best for one person to do all the typing, since they can then attempt to produce a unified style, from the different individuals notes. Even more important, they can ensure that the transcript sticks rigidly to **the Master Transcript Document Format** described above. Care at this stage will be more than repaid by a trouble-free conversion of the final transcript to its final form later.

2.5.6 Checking

The start of each transcribing session should begin with checking the work previously done. By doing this from the typed up transcript, you pick up errors in both transcription and typing. The **Check Sheets** button and its macro, makes it a doddle to print off a set of Check Sheets after a session has been typed up. These are then taken to the next session and used to note down any errors. The typist can then correct the errors in the original and if no further checks are thought necessary on any given grave, can switch the @ code to a % and declare this grave to be complete.

2.5.7 Photography

You may choose to photograph the graves as you transcribe them or may prefer to have one or more separate photography sessions. There are arguments in favour of both routes. Photography is quite quick, once you are organised and you can easily take 100 photographs in a single session. Also photographs are always better if taken on a sunny day, preferably with fairly oblique sunlight. You cannot guarantee this for every transcribing session (more’s the pity!). However some stones are deeply buried and need digging to be read. It is preferable to photograph these before they are re-filled. Also if vegetation has to be cut back in order to read a stone, it is preferable to photograph it before the vegetation re-grows. If you do photograph as you go along, make sure you are consistent about naming and storing the image files, so you know which is which later. Details of file names and the folder structures required are given below. It is generally safest to do this renaming after each photo session.

2.5.8 Conversion of the Transcript to CD Format

This is where the bulk of the technicalities come in. There are many steps involved in getting from the “raw data” to the final CD but these can be split into a series of stages and these are all described in step-by-step detail in the sections which follow.

3. Installing the Software

3.1 Installing the Commercial Programs

If you have not already done so you need to install **Word**, **Excel**, **Paint Shop Pro**, and **TotalCAD**, or whatever alternative equivalents you intend to use, on your computer. For this you should follow the instructions provided with the programs.

3.2 Installing the Word Document Template

Many of the automation routines used are written as macros for Word. They are all contained within the document template, **mirecord.dot** which will be found in the **builder\macros** folder of the skeleton. You need to copy this to the folder where Word stores your user templates. You can discover this from within Word, by the menu item **Tools, Options, File Locations**.

After copying **mirecord.dot** from the CD to this folder, you should check its properties and make sure it is not set to be **Read-Only**. (Because a CD is a read-only medium, files copied from CD to hard disk are frequently left with their Read-Only attribute set).

If you have a more recent version of Word, than version 6, the macros will need converting from the supplied format to a newer one. This will happen automatically the first time you use the template, and before you leave Word, you will be prompted whether you wish to save the changes to the document template. Provided you reply yes, you should not get asked the question again.

3.3 Hints for Word Users

3.3.1 The Office Assistant

Love it or loath it, you can hardly have failed to notice that MS Word now includes an animated gizmo known as the “Office Assistant”. By default this appears as a paper clip but a variety of other forms can be chosen. (With enough persistence you can even get rid of the wretched thing altogether!) Even if you normally use it, it is best to hide it when running the macros (particularly the PrePro macro). The reason for this is that when it is active, all the dialogues offered by the macro appear as its little “speech bubbles” rather than in normal dialogue boxes. This would not matter in itself but when they are displayed, the cursor and any highlighting of selected text in the main window disappears. PrePro in particular frequently asks for your input concerning parts of the transcript it has highlighted for you. This is not very meaningful if your friendly office assistant has just hidden the highlighting! Hide the office assistant and all is well. The easiest way to temporarily hide it is to double-right-click it and select **Hide** from the pop-up menu.

3.3.2 Speeding up the Macros

The Macros can take many minutes to process the complete transcript for a large churchyard. The exact times depend on the speed of your computer. However quite a lot of the time is involved in frequent re-drawing of the screen as the macro switches between different active document windows. It you reduce the size of the Word

window on your screen, so that just the title bar and menu bar show, there is far less screen updating to do and you will gain a big time saving. The changing text in the title bar is sufficient for you to tell when the macros has finished and you need enough of the menu bar to reach the **Tools** menu in order to start the macro. Clicking the **Maximise / Restore** button on the title bar lets you switch quickly between this reduced window and a full screen view, to position the cursor before starting the macro.

4. Folder Structure

First a brief aside about nomenclature. Prior to Windows 95, things on computer disks were called “**files**” and these were kept in “**directories**”. With Windows 95, the name “**directory**” was replaced by “**folder**” which is probably more meaningful to the layman. Unfortunately the word “**file**” too was dropped, in favour of “**document**”. This makes far less sense since many files are not in fact documents but are programs or databases or other such like (and indeed the word “**File**” was retained as the heading for the left-hand most menu in most Windows programs!). For the rest of this document I will use the word “**file**” for an individual entity, whether it be a text document or a drawing or a program and the word “**folder**” for the place where it is stored.

Folders may be placed within other folders to form a complete hierarchy and this is what I mean by the phrase “**folder structure**”.

You need to set up a **folder structure** on the hard drive of your computer to keep all the files you are going to use or generate. You will find it makes things much easier if you stick to the exact structure which I use. Indeed some of the automation processes will only work if you follow this structure. However I have made this very easy for you by providing a **skeleton** for you to copy onto your hard drive. This not only generates the folder structure, it also places some of the “tools” you require, and some specimen data into the folders for you. In the rest of Section 4, I first describe how to install the skeleton folder structure, then describe the purpose behind it.

A copy of the **skeleton** is available on each CD I produce or may be downloaded from my web site at the address given at the start of Section 2. Because a CD is a read-only medium, files copied from CD to hard disk are frequently left with their **Read-Only** attribute set. So after copying the **skeleton** structure from a CD you will probably find that both the folders and their contents are set to **Read-Only**. You will be using some of the example files as the basis for your transcript, so you need to clear this attribute. You can either do it for all the files, immediately after copying the skeleton structure, or you can wait and do it on individual files as needed.

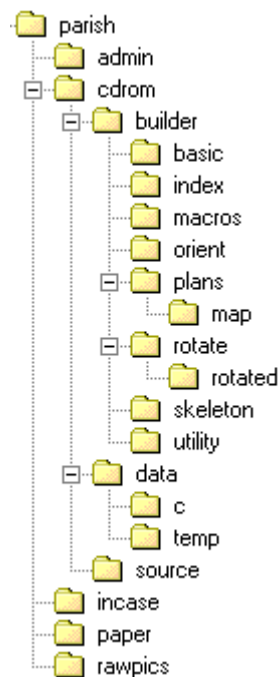
4.1 Set up the Skeleton Folder Structure

1. The folders we are going to set up all relate to the MI transcription for a specific parish. You should decide first where in your existing hard drive folder structure you want to put these. I personally place mine in **c:\alan\ofhs\mi** but you may place yours wherever suits you best. This might be in **c:** or even if you wished, in the **c:\My Documents** folder.
2. If working from a CD, use Windows Explorer, open the **builder** folder on the CD. In it you will find a folder called **skeleton**. Click on this to highlight it and select **Edit, Copy** (or press **ctrl-C**) to copy it and its entire contents to the windows clipboard.
3. Move to the folder you decided to use in step 1 above and select **Edit, Paste** (or press **ctrl-V**). You will find you now have a folder called **skeleton** on your hard disk.
4. Rename this folder from **skeleton** to the name of the parish you are working on. (I will use the word **parish** here. You should understand by this that I always mean the actual name of the parish). For reasons explained above, you will probably need to clear the **Read-Only** attribute for this folder first.

5. Now open this **parish** folder on your hard drive and you will find amongst other things it contains a folder called **cdrom**. Open this and you will find it contains a folder called **builder**. This will look just like the **builder** folder you started with on the CD in step 2 above, except that it will not yet contain a folder called **skeleton**.
6. If you have followed the above steps exactly, the copy of **skeleton** you made in step 2 will still be on the clipboard. (If not, repeat step 2 to pick up another copy.) So use **Edit, Paste** (or **ctrl-V**) again to paste it into your hard disk **builder** folder. Do not rename this copy. It is not intended for your use at all. It is there so that someone getting a copy of the CD you are going to create can do the same as you and use it as a basis for their own transcript.

4.2 Details of the Folder Structure

The diagram below shows the complete folder structure. It all stems from the folder which I have called **parish** but which you will have named for your particular parish.



I would strongly advise sticking with names of 8 letters or less for all folders throughout your folder structure. Similarly I advise that all file names should consist of no more than 8 characters before the dot and no more than 3 characters after it. (so called **8.3** format). This is crucial for all the folders and files in the part of the structure starting with **cdrom** which are an image of what will finally appear on the CDROM. It is not so important elsewhere but it is easier to stick to the same convention throughout.

There follows a brief description and purpose of each of the folders. Unless there is any risk of ambiguity, I shall just refer to folders by their name, rather than their full path.

4.2.1 The parish folder

The **parish** folder in addition to its sub-folders shown above, will contain the three most crucial files of the whole transcript. These are:

- **parish.doc** the text of the transcript as you record it from the actual monuments
- **parish.tcw** the plan of the graveyard in CAD form

- **parish.xls** the index of names in the form of a spreadsheet

As above, you should use the actual name of your parish (abbreviated to 8 letters or less), where I have used the word “**parish**”. These three files will contain the fruits of many hours of hard work by you and the transcribing team. You **MUST** ensure they are safely backed up. I recommend that after you have entered the results of each transcribing session, you save a copy of each of these files onto a floppy disk. At any time you should keep at least two generations of this disk, one for this session and one for the previous. A good policy is to give the most recent copy to another member of your transcribing team to look after. He or she then gives you back the older copy which you use for the next back up.

Because you will be working with these files so often, it is not a bad idea to create a short cut to them on your desktop.

The skeleton you copied from the CD will contain example copies of each of these three files, which you can use as the basis of your own transcript should you so wish. (Don’t forget to clear the **Read-Only** attribute first.) They are taken from a small fraction of the transcript for St Mary’s, Cholsey.

4.2.2 The admin folder

This is used for storing administrative documents for the transcript. Names and contact addresses for your team, letters to the vicar etc. You don’t have to have this, but it helps to keep the main **parish** folder uncluttered.

4.2.3 The cdrom folder

This will eventually contain an exact image of what will appear on the final CDRom. Its three main sub-folders are **builder**, **data** and **source**. The **builder** sub-folder is described in detail below. It contains the “tools and scaffolding” used to build the transcript. These will automatically have been installed for you when you set up the folders as described above. The **source** sub-folder is provided as a place for you to save a copy of the key transcript files **parish.doc**, **parish.tew** and **parish.xls**. This is intended to ensure that the crucial transcribed data is distributed as widely as possible so there is more chance of it surviving for future generations. (Would that our ancestors had had the benefits of CDRoms and easy data duplication!). The **data** sub-folder is where all the actual data required to display the transcript is done and it too is described in detail below.

In addition to these three sub-folders, the **cdrom** folder contains 4 small “standard” files. These are:

- **autorun.inf** A file to run the CD automatically when it is inserted.
- **browsercall.exe** A file to launch the user’s browser program.
- **ofhs.ico** The OFHS icon. You may want to change this to your own FHS icon.
- **index.htm** The first file the user sees. This includes the parish name, so will need editing.

4.2.4 The incase folder

This folder is entirely optional. I use it to save a copy of important documents like **parish.doc** etc. before I make major changes to them. Then I know I have a back-up in case I do something silly. Hence the name of the folder. When I know all is well I can delete this backup. Maybe I’m just over-cautious!

4.2.5 The paper folder

In its CD form the transcript exists as separate files for the text, plans and index, together with other smaller documents describing the church and its history etc. I do all my checking on screen, using the CD version. (I find it much easier to spot errors this way.) Then the final step is to combine these elements together as a single Word

document representing the paper and microfiche version. The **paper** folder is the place where I store this version, and any files used to help create it.

4.2.6 The rawpics folder

The pictures used on the final CD are all stored under their grave names, in sub-folders of the **cdrom\data** folder. However I find it useful to keep additional copies of all the Raw Pictures, just as they come from the camera. Then if I find at a late stage that there is a problem with a picture, or it is associated with the wrong grave, I can always go back to the originals and sort out the mess. So after each photography session, I create a new sub-folder within **rawpics** and download all the pictures from the camera straight into this. I then work on copies of these files for subsequent processing, leaving the originals untouched. The sub-folder names are simply the date the pictures were taken, encoded as **yyyymmdd**. Thus pictures taken on 3rd August 2003 would be in a folder named **20030803** (This form ensures the folders always appear in date order when listed). Using a **rawpics** folder in this way is wasteful of hard disk space. In effect it means you keep two copies of every picture. However it is a good insurance policy and you can safely delete the complete **rawpics** folder and so recover your disk space, once the transcript is finished.

Although photography does not represent nearly as much effort as the transcription, you would still not wish to have to do it all again, so like the transcript itself, you should keep a safety backup copy somewhere other than on your hard disk. A floppy disk is clearly much too small, so I recommend from time to time backing up all your pictures onto CD. You could just back up what is in **rawpics** but I find it easier to simply make a copy of everything that is in **parish** and all its sub-folders, so you get another copy of all the transcript as well as the pictures.

4.3 Contents of the data folder

The **data** folder is a sub-folder of **cdrom**. It holds the bulk of the files making up the CD version of the transcript. In its final form, it will hold a set of sub-folders, one for each separate area of the graveyard and named with a single letter designating the area. These contain the pictures and **.htm** text pages for each grave within the area. (The latter are generated automatically as described below). In the specimen data supplied as part of the skeleton, there is just a single sub-folder **c** containing files for monuments within the church from the specimen data (taken from St Mary's, Cholsey).

In addition to the area sub-folders, the **data** folder contains a most important sub-folder named **temp**. This is used as a working folder for a number of purposes in relation to building up the CD. These are described below. Many of these rely on this folder being placed as it is within **data** and at the same level as the area sub-folders.

As well as its sub-folders, the **data** folder contains the files for the menus, descriptive text and pictures covering the church and graveyard as a whole, together with the plans and index of names. The specimen data supplied contains a typical set of such files, but with just one active area (the interior of the church), and just the seven monuments within the chancel. This data is a small fraction of the CD transcript for St Mary's, Cholsey. The files are

- **menu.htm** The initial menu page including a picture of the church
- **menu_.htm** A page containing the magnified picture of the church
- **church.jpg** The picture of the church used for both the above pages
- **preface.htm** A page of text introducing the transcript
- **history.htm** A page describing the history of the parish and church, includes a specimen picture
- **history_.htm** A page containing a magnified version of this picture
- **chur1794.jpg** The picture used for the previous two pages (note the truncation to 8 characters).

- **help.htm** A page designed to help the viewer when using the transcript
- **copy.htm** A page listing the copyright conditions
- **ofhs.htm** A page describing the Oxfordshire Family History Society
- **logo.gif** The OFHS logo image used for the above page.
- **index1.htm** A page containing the index of names (generated automatically)
- **plan.htm** A page containing the overall plan of the churchyard
- **plan.gif** The overall plan image
- **planc.htm** A page containing a magnified plan of area “C”
- **c.gif** The plan image for area “C”
- **zoom.htm** A page containing code used to zoom in on a specific area
- **template.htm** A minimal template that might be used when generating the other **.htm** pages.
- **paper.jpg** The background “paper” for the pages in this folder.

The **template.htm** page just contains page header and footer information and was useful when generating the other pages for the first churchyard recorded. In creating pages for new churchyards now, I find it much easier to ignore the **template.htm** file and instead simply copy the full set of **.htm** files from a previous churchyard (such as the ones included here), then edit them to change those details which are specific to the churchyard. You can do the same with the specimen data I have supplied. (Don’t forget to clear the **Read-Only** attributes first.)

The file names in the individual area folders will look like:

- **c001.htm** The transcription page for grave No.1 in area C, including a small picture
- **c001.jpg** The picture for grave No. 1
- **c001_.htm** The page for a magnified version of the picture for grave No. 1
- etc.
- **c005.htm** The transcription page for grave No.5 in area C, including a small picture
- **c005.jpg** The picture for grave No. 5
- **c005_.htm** The page for a magnified version of the picture for grave No. 5
- **c005m.htm** The page for a first supplementary (magnified) picture for grave No. 5
- **c005m.jpg** The first supplementary picture for grave No. 5
- etc.
- **paper.jpg**. The background “paper” for the pages in this sub-folder.

The vast majority of the pictures included in the transcript can be displayed in two sizes. In every case, the actual picture file is stored in its large size. The small image is obtained by instructing the browser to scale the image down for display. For a few graves, it is desirable to include one or more supplementary magnified images showing a different aspect of the monument. This is achieved by including additional pictures with filenames such as **c006m.jpg**, **c006n.jpg** etc. There may be up to 9 such supplementary images in addition to the original image. The suffixes must run from “**m**” up to a maximum of “**u**”, with no gaps in the sequence. In the transcript a digit in the range 0 to 9 is added to the code line, to show how many such supplementary images are present.

4.4 Contents of the builder folder

The **builder** folder contains all the tools used in building the CD transcript, together with working folders where some of the temporary results are stored. Creating the folder structure from **skeleton** as previously described, will ensure that the tools folders come with their tools preloaded. The full list of folders is:

- **basic** contains source and compiled code for the QuickBasic programs used
- **macros** contains template **mirecord.dot** and source code in text format for the Word macros used.
- **orient** contains utilities used for determining picture orientation

- **utility** contains source for some utilities used.
- **index** a working folder used when compiling the index of names.
- **plans** a working folder used with **map** when preparing automated plans
- **rotate** a working folder used with **rotated** when rotating pictures
- **skeleton** a copy of all this structure used to help others build their own CD

5. Drawing the Plan

These notes assume you will be using TotalCAD. If you are using a different CAD program, the same general ideas apply but the details will be different. In the notes which follow, I will usually give instructions in terms of sequences from the Menu Bar. Most of the common actions have buttons associated with them, and you will probably use these instead for preference. I have just described the actions in terms of menus, because I don't know what buttons you will have chosen to display, nor where you will have parked them!

I start with a few general principles, then give a detailed recipe for starting a new drawing.

5.1 Basic Principles

It is often easiest to start with an existing plan which will have units etc. ready set up. I have provided such a plan in the file parish.tcw in the skeleton on this CD. (Don't forget to clear Read-Only after copying it to your hard disk). If you intend using a different CAD program rather than TotalCAD or TurboCAD you will probably have to start from scratch (though it will be worth trying to import the TotalCAD file, you never know your luck!). If so, I suggest using the following as your basis.

5.1.1 Suggested Settings

Units and Scale	Work in "World Units" rather than "Paper Space Units". Use Absolute Units Use Metric Units with a basic unit of 1 metre and a precision 2 decimal place.
Grid	Use a grid spacing of 1metre
Layers	A good way of separating different bits of the drawing as you draw. Make sure all layers are set to be both Visible and Editable when you start.
Text	I use 0.7m height and Regular Style, by default. Positioning the text is much easier if you specify the Justification as Center. Always use "Arial Rounded MT Bold" font. This gives the best size-match between the CAD drawing and the final on-screen plan.
Entities	Use lines, polylines, polygons, circles, bezier curves as required.
Points	Don't use these in your drawing at all. <u>This is important.</u> (We need them later).
Line Widths	I suggest the following: 0.10m for Boundary Walls and Buildings 0.05m for Grave Outlines 0.02m for Trees and Paths 0.01m for Area Boundaries not formed by walls or paths.
Dashed Lines	Do not use for paths etc. if they divide one area from another. (We are going to fill areas with colour later and it will "leak" through the gaps)

Line Junctions	Use the CAD program's "snap" aids to make sure lines really meet at junctions. (Small gaps where lines "nearly meet" can "leak" during colour fills)
Single Graves	These occupy about 2m x 1m. So I represent each grave by a rectangle 1.8m x 0.9m. This allows adjacent grave symbols to be placed side by side without overlapping.

5.1.2 General Hints

- To get the drawing started, it can often be helpful to start with an existing paper plan or large scale map, to get the basis of where the main features such as the boundary wall, church and paths are on the ground. Then you just have to survey your grave positions relative to these. (But do a few check measurements. Even OS mapping can show a church out of position within the churchyard for example!).
- On all but the smallest graveyards, you will probably want to divide the area up into separate sections.

5.1.3 Some Hints Specific to TotalCAD

- Spend time getting used to TotalCAD's aids for selecting multiple objects. You will be using these a lot. The simplest select tool is activated by the **Selection Arrow** Button on the top tool bar, or by the **Edit, Select** menu item. This lets you select individual objects by clicking them. Holding the **Shift Key** down when you click lets you add objects to an existing selection or subtract them from it. **Click and Drag** with the same tool creates a **Selection Rectangle**. When using this note the use of **Open Window Mode** which can be switched on and off at most times from the **Right-Click** menu. This name is not perhaps very intuitive but the availability of the two different modes is very helpful. It determines whether the whole of an object must be included in the rectangle to be selected (Open Window Mode Off) or whether it is only necessary for part of the object to be in the rectangle (Open Window Mode On). Another useful mode for selecting complex groups of objects is **Edit, Select By, Fence**. This lets you draw a polygon of any shape around a group of objects you want to select. This behaves like the rectangle tool in respect of the Open Window Mode option. Finally **Edit, Select By, Entity Type** can be useful for selecting all objects of a certain type (e.g. all text). If you want to select all objects in a particular **layer** or protect them whilst you select around them, use **Tools, Layer** to mark only the layers you want to select as **Editable**.
- Also get familiar with the various **Snap** modes available. These can make it much easier to ensure that lines really do join when they are intended to. There are toolbar buttons for these, but when working it is often easier to switch these modes temporarily from the Right-Click menu.
- Be warned of leaving a **Snap** mode active when you don't need it. You can find for example you cannot select a specific object when you expect to, because the pointer is snapping to something else. Using the Right-Click menu for a Snap, can avoid this, since its action only stays in force for the next point entered.
- TotalCAD permits you to **group** objects together so they always move as a whole. However there is a snag when you come to change layers later. Objects forming part of a group do not move to a different layer and so can get "left behind" without you noticing. For this reason I advise not using groups other than as a temporary measure.
- Be warned of another nasty snag when moving objects from one layer to another. Both layers concerned must be **visible** and **editable** before attempting the move. If you try to move a selected collection of objects to a non-visible layer, TCW will accept the command, but it will then put up a sequence of warning dialogue boxes for each individual object in the selection as it tries to move it. If you have a lot of objects selected, this gets very

tedious! If this happens to you, just leave your finger on the **Esc** key till it gives up. Then make the destination layer visible and try again.

- When you have added a lot of objects to a drawing at one session, particularly if you still have a picture object of the original plan in place, you may find things start disappearing when you zoom and new lines do not show when you draw them. Don't panic, this is a Windows resources problem. Save the drawing, exit TotalCAD and shut down Windows completely. Start everything up again, re-open the drawing and all will be well.

5.2 Starting a New Plan

1. Open an existing plan drawing from another graveyard, or the **parish.tcw** drawing supplied on this CD. Immediately use **File, Save As** to save it under a new name (avoids any risk of modifying the original by mistake.) You will probably be prompted for Summary information. If not, use **File, Summary Info** to get this dialogue box and enter appropriate details.
2. Use **Tools, Layer** and ensure all layers are set to visible and editable. Then **Edit, Clear, All** will give you a clean sheet of paper, with the various options correctly set up.
3. If using a scanned original plan or OS map, set this up in Paint Shop Pro as a monochrome image, in red for example. Crop to some exact physical dimensions in terms of metres on the ground, (e.g. 120m x 80m).
4. Save this image as a **.bmp** file in PSP
5. In TotalCAD, **Insert, Picture** to bring in this file. **View, Zoom, Extents** to include it all on screen. Then Select it as an object, if it is not already selected. In the View menu, ensure that the **Edit Bar** and **Status Bar**, are both ticked. (I normally leave them on display all the time).
6. **Modes, Coord system, Relative coords** then **Modes, Coord system, Relocate Origin** and use mouse to position the origin over the exact bottom-left corner of the imported picture. (Zoom in on this corner to place it more accurately). Now position the mouse pointer over the top-right corner (again zooming in to place it accurately). Read off the present size of the imported picture in metres, from the **X** and **Y** boxes in the **status bar** at the lower right corner of the screen. Calculate the ratio between these dimensions and the true size of the picture as cropped in step 3 above. This will tell you the factor by which you want to reduce (or magnify) the picture.
7. Now select the handle at the top-right corner of the picture with the mouse, hold down the shift key (this ensures the object scales by the same ratio in x and y directions) and drag it until the **XScale** and **YScale** boxes in the **edit bar** at the upper left corner of the screen show the correct ratio calculated in step 6 above. (Alternatively just enter these numbers in the **XScale** and **YScale** boxes). You have now scaled the imported picture to the correct size on the plan. Save the drawing at this point.
8. Go back to **Modes, Coord system, Absolute coords**
9. Use the line, multiline, polygon circle and curve drawing tools as appropriate to trace over the outlines of the graveyard, paths and church etc. from the imported plan. Use the suggested line widths given in Section 5.1.1 above.
10. When you have copied everything from the scanned plan, you have finished with this. Save a copy of the drawing at this point in case of accidents. Now select the scanned bitmap as an object and delete this, then save the drawing again with a different file name. (This is important. TotalCAD does not release the file space occupied by the bitmap until the drawing is saved under a different name.)

11. This drawing becomes your final plan. I normally name it **parish.tcw** (where “parish” is the name of your parish, reduced to a maximum of 8 characters, as usual).
12. It can be useful to do a print of the graveyard at this stage, with the 1 metre grid included. This makes a good working sheet to record details on as you survey the graveyard. From the **File, Page Setup** menu TotalCAD permits you to select printing of the whole or any part of the drawing on to a single sheet by manipulating the **Scale** and **Origin** entries. You can then use **Print Preview** to print the working drawings for the survey.

5.3 Surveying the Graveyard

You now need to visit the graveyard, armed with these outline plans in order to pencil in the position of each of the graves. I find a tape measure pretty well essential. Judging positions by eye can be very confusing, unless the graves are laid out on a very rigid grid structure. It is a good precaution to first check that the position of the church and paths within the boundary walls are correct on your plans and correct these if necessary.

5.4 Completing the Plan

When the survey is complete, you need to add all the graves to the plan, and assign them numbers within their area.

5.4.1 Add the Graves

A rectangle 1.8m x 0.9m is ideal for a single plot. I usually find it easiest to start with a rectangle lined up with the edges of the drawing. Of course the graves will probably not line up exactly East-West and indeed you will probably have groups lined at slightly different angles. I make a copy of my E-W rectangle, rotate it as needed, then use the **Rubber Stamp** facility to place all the graves within a group.

5.4.2 Add the Grave Numbers

I suggest using a text height of 0.7m for the numbers. It is important to stick to the font style “Arial Rounded MT Bold” used in the template, since gives a good match to the size the text will appear when exported to the final plan. (Exporting via a DXF file does not “know about” specific fonts. If you are tempted to use a narrower font on the original drawing, you will find the exported text gets wider and will not fit in the intended space.)

When adding the numbers, just use the numeric part. Your individual plans will each represent a single area letter, so there is no need to add this to every grave.

Also there is no need to add leading zeros to grave numbers on the plan. This makes the numbers more readable and saves space.

For small objects such as cremation tablets, you may not be able to fit in a 0.7m high number. Use 0.6m here if necessary. You may safely go down to 0.5m but no lower, or the number will not be readable on the final plan.

I find it is a good idea to make cremation tablets the lowest numbers in an area, since these will only need one or two digits, and so take less space.

5.4.3 Add Area Boundaries

Where areas are not defined by features already on the plan, such as walls and paths, you will need to add dividing lines to separate the areas. Single straight lines look best but if you have to “dodge” around graves or other obstacles, that is OK.

This is a good point to check that all your lines that are going to define area boundaries really do meet, rather than leaving small gaps.

I find it is not worth putting on Area Labels at this stage. It is easier to add them to the finished drawing where you have more control over their appearance and positioning.

Your plan is now complete.

6. The Transcript

6.1 Typing up your Transcript

This should follow the Master Transcript Document Format described in Section 2.4. In particular avoid all temptation to add headings, notes, section descriptions and the like. If you want somewhere to keep such reminders, create a separate **notes.doc** document to put them in. The real transcript should have exactly one paragraph per grave and nothing else. (I know I sound bossy but you will thank me later!). I will refer to this document as **parish.doc** throughout, but you will probably replace the word **parish** with the name of your parish.

When the first transcript of a grave is typed up, start the code line with an @ followed by the transcriber's initials. This code tells the **PrintCheckSheets** macro to include this grave in the check sheets. On the next visit to the grave, check the typescript against the stone and note any corrections. When typing up this visit, add the checker's initials to the list. If more work on the stone is required, leave the @, otherwise change it to a %. (Earlier versions of these instructions suggested changing the @ to one of several special codes, based on the orientation of the photograph for this grave. The process of inserting these codes has now been fully automated by the **Orienter** macro so it is easiest just to use % for all graves after they are checked, then let **Orienter** change this to the correct code at a final stage when everything has been checked and all the photos taken.

When you start transcribing you will find your volunteers each have their own idiosyncrasies, particularly when describing the shapes of stones. It is a good idea to attempt to "sub-edit" these to a standard form as you go along. It is your revised words that will appear on the checking sheets your volunteers work from at the next session, so eventually they will start to fall into your "house-style". Of course the descriptions may still be idiosyncratic, but at least they will be your idiosyncrasies!

6.2 Converting a Non-Standard Transcript

So far I have assumed that you will be typing up a transcript in the Master Transcript Document Format defined in Section 2.4. However there will be times when this has not happened for one reason or another. You be producing a CD based on an existing transcript prepared by someone else, you may have started to type up before deciding to produce a CDROM, or you may simply find an alternative format is more convenient for you. Whatever the reason, you are going to have to convert the transcript to the standard format before any of the macros will work.

6.2.1 Importing the Text

If the transcript is non-standard, it may well have been written using a word processor other than MS Word, or may have been written in Word, but not using the **mirecord** template. Either way your first step is to get it into a Word document based on the **mirecord** template. I am assuming you will have already installed the template on your PC as described in Section 3.2. So do the following:

1. Open your original transcript. **Edit Select All** (or use **ctrl-A**) to copy the contents to the clipboard.

2. Create a new Word document based on the **mirecord** template. Use **Edit Select All**, and **Delete** to remove the instructions and specimen data included with the template.
3. Use **Edit Paste** to import the transcript. Then save the result (under a new filename).

6.2.2 Format Conversion

With the transcript in a document based on the mirecord template, you are now ready to convert it to the Master Transcript Document Format. The most crucial aspects of this are:

- One paragraph per grave
- Lines within each grave separated by **Manual Line Break** not **Paragraph Mark**
- The grave number in the correct format on the first line
- Description lines in Italics
- Transcribed Text in Non-Italic
- “/” with a space on at least one side, used for Line Ends in the Transcribed Text.

Provided the original typist has been consistent it is usually not too difficult to convert the transcript to the required format. The big problems arise where the format used is not consistent between graves. The worst of these are caused by attempts to make the original text “look pretty” on the page, so that tabs and extra line breaks or paragraph marks get added or attempts are made to place sections of the inscription in columns matching the appearance on the stone. Such attempts are always problematic, even for a paper transcript. As soon as a different printer or paper size is used, Word is apt to mess up this “pretty layout”.

Before starting work to “sort out” the transcript, it goes without saying that you should always work on a copy of the original, in case something goes badly wrong. Only when you are completely happy with the result should you replace the original with the re-formatted copy.

With a consistent transcript it is usually possible to use Word’s **Find** and **Replace** facilities to correct the format automatically. In this, you will find searching on **Format** and use of **Pattern Matching** can be helpful. It is worth trying the **PrePro** macro first to see how much can be achieved at a single click. This macro was written to convert some of the more common differences fully automatically. (Examine the text of the macro to see what it does). It is unlikely this will do everything for you since it is impossible to guess what particular anomalies are in the original. In some cases it will give a good start, reducing the amount of manual changes you need to do. In others it may be of little help and is best ignored. Try it and see.

With an inconsistent transcript life is much harder. In the worst case you may have to treat each grave separately. More often you will be able to spot the type of anomalies that have been introduced. Then it is often best to use Find and Replace first to pick up and correct these anomalies, so converting the transcript into a consistent though non-standard format. You can then proceed as described above, to get it into the standard format.

6.3 Checks and Common Errors in the Transcript

Check that you have entered a **Title** for the document in the **Summary Information** (accessed from the **File** menu), in your transcript document **parish.doc**. This will be used for the title that appears as part of the copyright line at the foot of every page. Also check that no extraneous blank lines have crept into the transcript. It should start immediately with the grave number for the first grave, with no blank line before this. Check though that there is a paragraph end after the final grave in the transcript. (If this is missing, the final grave will pick up the document footer as a spurious extra line at the bottom of the page!).

Experience has shown that some errors can happen easily and are often not spotted. It can be worth using Word’s **Find** to, with **Format** and **Pattern Matching** where appropriate to spot these and correct them.

Blank Lines	Search for ^\^ or ^p^p or ^l^p or ^p^l	None should be present.
Tabs	Search for ^t	None should be present

Finally check that there is no blank line before the first grave number, but that there is an end of paragraph after the final grave in the transcript.

7. The Photographs

7.1 Taking the Photographs

1. Use a digital camera and aim that every photograph should be used directly as it comes from the camera. The photographs are intended to illustrate the description and transcript, not be a substitute for it. So you do not need to include the whole grave, nor does the text need to be readable. Choose a shot that gives the most interesting picture.
2. Close-ups generally work best. So it is often better for example allow the headstone to nearly fill the frame, rather than standing further back so headstone, kerbs and footstone are all in shot, but the headstone appears to be in the distance.
3. It generally looks best to photograph a headstone square on, or looking slightly down on it, rather than diagonally from one side.
4. Take the majority of your photographs in portrait orientation. For most headstones, a portrait orientation looks better than a landscape orientation. It also gives a more balanced appearance to the final displayed page, where the photograph occupies the right hand half of the page, with the transcript to its left.
5. If a grave is damaged or badly overgrown, a shot of the whole grave shows up the mess. Instead go for a close up of the headstone, or a short length of kerb, showing the person's name. This will probably have been cleaned off a bit for transcription, so will look less neglected than the rest.
6. For the main picture you should stick to an aspect ratio of 3:4 or 4:3, and for preference should keep to a picture size of 480 x 640 pixels or 640 x 480 pixels. For supplementary images, there is no restriction on the aspect ratio or size of the picture, however I would advise keeping the width less than or equal to 750 pixels so it will fit on an 800 x 600 pixel display without needing to be scrolled sideways. If you need a bigger picture than this to show detail, it is preferable to use two or more supplementary image of this size, rather than one very large image.
7. Choose a sunny day and photograph with the sun striking the stone at an oblique angle if possible. This gives the best shadows for highlighting faint details. With the conventional alignment of headstones, the best light is normally around 2 hours either side of mid-day.
8. Do not use flash if at all avoidable. The flash gun on most cameras is close to the lens, so you are getting the worst possible lighting direction and will get a very "flat" picture. Take a tripod and allow a long exposure if necessary to compensate for poor lighting. (Using a camera's self-timer can be a good way to avoid wobble caused by pressing the shutter.) If the worst comes to the worst on a deeply shadowed stone, accept an under-exposed shot and "fix it" afterwards.
9. For monuments inside a church, flash is often unavoidable, but here detail is often painted on, rather than relying on shadows from faint incising, so the lighting direction is less important. Remember the average flash on a camera is pretty puny and will not penetrate very far, so keep fairly close to your subject.

10. With highly polished stones, beware of seeing your own reflection in the stone surface. If necessary shoot at an angle up or down, so the reflection is of a uniform colour such as grass or the sky. When photographing tablets etc. on the ground, try to keep your feet out of the frame!
11. Normally a single photograph is used for each grave. It is shown at its full size (usually 640 x 480) in the “Magnified View” and at a scaled down size (320 x 240) alongside the grave, in the “Normal View”. If a monument has interesting detail or an interesting footstone for example, you may include a supplementary image. This picture is saved with an “**m**” suffix to its file name, as described in Section 7.2.2 and will automatically be incorporated in the transcript. There may be up to nine such supplementary images for each grave and there is no restriction on the aspect ratio or size of these. However I would advise keeping the width less than or equal to 750 pixels so it will fit on an 800 x 600 pixel display without needing to be scrolled sideways. If you need a bigger picture than this to show detail, it is preferable to use two or more supplementary image of this size, rather than one very large image.
12. If it is not possible to photograph a grave for any reason, the special code letter “**ø**” (enter as **ctrl-/** followed by **o**) may be used in the transcript code line. This causes a special picture file named **nopic.jpg** to be inserted. This can be a default image saying “No Picture Available” for example, and should be sized as 320 pixels high by 240 pixels wide.

7.2 Processing the Photographs

After each photography session, do the following:

7.2.1 Saving and Rotating the Pictures

1. Save the raw pictures from the camera in the **rawpics** folder, in a “dated” sub-folder as described in Section 4.2.6 above.
2. Copy all pictures from the session into the **rotate** folder. (I am assuming that the majority of your pictures will need rotating, from the landscape format of the camera to portrait.)
3. Now double click on the **090.bat** or **270.bat** icon in the **rotate** folder. (Which of these you use depends upon which way up you normally hold your camera to take portrait shots.) This will produce a complete set of rotated pictures in the **rotate\rotated** sub-folder.
4. Browse this folder, using **Paint Shop Pro**. Most of the pictures should now be the right way up. The ones you originally intended to be landscape will now of course be wrong. Make a note of the filenames for these pictures, then move the originals from the **rotate** folder into the **rotated** sub-folder. (You will be warned that you are going to overwrite files). You should now find all the photographs in the **rotated** folder are the right way up.
5. Ideally at this stage you will find all the pictures are ready to use. If there are a few that are badly exposed, or look “dull” due to bad lighting, you can use **Paint Shop Pro** to fix these at this stage. For dark pictures, an initial increase of “gamma”, followed by increasing the “contrast” and adjusting the “brightness”, is often a good strategy. If you find you are needing to tweak many of the pictures, you are either being too fussy, or you need to improve your camera technique.
6. When saving any pictures you have tweaked, remember to save as a **.jpg** file and make sure from the Options menu that the **compression** is set to a very modest value (I suggest a value of 5). This gives good picture quality with only modest compression, which is fine for use on a CD. (For web site pages, a compression of 25 is better. This gives reasonable picture quality and a smaller file size, for faster downloading.)

7.2.2 Renaming the Pictures

The filenames for the pictures at this stage will be whatever your camera uses by default. You now need to rename them to the correct names for each grave. The required filename has the following format:

apddd.jpg

Where:

- a** Is a single letter defining the area of the churchyard. (Must be present).
- p** Is an optional prefix letter, which you might use for example to define a row. (Need not be present).
- ddd** Is the 3 digit number of the grave within the area or row. (Must have leading zeros if necessary).
A 4 digit number is permitted as an alternative, but in this case, the transcript too will need to have leading zeros in its grave number.
- s** One or more optional suffix letters. (need not be present).

The suffix letter is most often used when an extra grave is discovered after the surrounding names have been given numbers. By convention suffixes a, b, c etc. are used for this purpose as required. Any letters in the range “a” to “l” may be used for this purpose. Suffix letters in the range “m” to “u” are reserved to indicate up to a maximum of nine supplementary images for a grave, as described above. The first of these must be “m”, the second “n” etc., with no gaps. If these are supplementary images for a grave which already has a “discovered later” suffix, the “m” follows it, thus: **c072am.jpg** would be a magnified image of grave **C72A** discovered between **C72** and **C73**, whilst **c072a.jpg** would be the normal view of the same grave. The letters “v” to “z” are unallocated. By convention I use these for photographs, that are not part of the transcript, but I might require to re-instate at some stage. For example if I retake the photo for grave **B68** because the stone has been changed, I would save the new photograph as **b068.jpg** after renaming the old one to **b068x.jpg** just in case I need to use it again.

There are two ways to carry out the renaming. If your graves in an area are in a nice tidy numerical sequence with no gaps and no “extras” added, and if you have been really systematic and taken your photos in strict numerical order, then you can use a utility such as **Rename** to carry out the whole operation at a single mouse click. At the other extreme if you have dotted around taking photographs in a random sequence, you will have to rename each file by hand. In practice you will probably be able to rename a sequence of graves automatically but will have to intervene by hand from time to time to sort out the anomalies.

At the end of the renaming, it only remains to move the picture files from **rotated** to their correct area sub-folder. You should then be left with just a single file, **pspbrowse.jbf** in the **rotated** folder. This is saved by PSP when browsing and you may now safely delete it. You should also delete all the **jpg** files from the **rotate** folder at this stage (and the **pspbrowse.jbf** file if you have browsed this folder). The folder should then just contain its original utilities: **090.bat**, **180.bat**, **270.bat**, **rotate.bat**, **jpgtran.exe**, and **readme.txt** which remain in place.

7.3 Adding Orientation Codes to the Transcript

By now you have a complete set of photographs for each of the graves, correctly named and in their correct sub-folders for each area. (At least you hope you do!). You should also have a complete transcript where all the checking has been done, and so the “code line” for each grave in the transcript will probably start with a % or maybe a £ if you have put in any “landscape codes” as you went along. (You needn’t have bothered since we are now going to do it automatically!). Use the **Edit, Find** function in Word to check that there are no @ codes left in the transcript, indicating graves still needing checking. Now carry out the following steps:

1. Make a copy of the **parish.doc** file in the **parish\cdrom\data\temp** folder (which I shall just refer to as the **temp** folder from now on).
2. Also copy the following files from the **parish\cdrom\builder\orient** folder to the same **temp** folder:

orienter.bat
orisub1.bat
orisub2.exe
orimag.exe
rdjpgcom.exe

Make sure you actually copy the files. Windows is apt to just copy shortcuts to programs, rather than copying the program itself. The safest way (using Windows Explorer) is to select the five files in the **orient** folder and use **Edit, Copy** then to move to the **temp** folder and use **Edit, Paste** (not **Edit, Paste Shortcut**).

3. Start the program **orienter.bat** by double clicking the copy in the **temp** folder. A DOS window will open and the program ORIENTER will be run in this. It will first attempt to collect picture orientation from any picture files it finds in the 26 possible sub-folders **data**a to **data\z** . This will take a while for folders that exist and contain pictures. (N.B. ORIENTER must be run in the **data\temp** sub-folder since that is how it knows where to find the image sub-folders.). It will then compact the data it has collected and detect the presence of any supplementary images. Its results are saved in the file **orient.txt** in the same **temp** folder. When it has finished, you may close the DOS window.
4. Confirm that the **temp** folder now contains your copy of the transcript **parish.doc** and this new file **orient.txt**. (Don't worry about whether the filenames appear in upper or lower case in Windows Explorer.) Double click **parish.doc** to open this copy of the transcript in Word. Then from within Word use **File, Open** to open the **orient.txt** file in a second window. When prompted, tell Word that you want to import it as **Text Only**. You will see that this file simply consists of pairs of lines containing alternately a file name and an orientation code.
5. Use the **Window** menu to ensure that the transcript file **parish.doc** is the active window, then use **Tools, Macro, Orienter, Run** to start the macro. This will run for a while, modifying or adding a picture orientation code to the transcript, based on the information it has found in **orient.txt**.
6. Use the **Edit, Find** to search for any @ which have been added to the transcript. These codes are added to any grave for which no picture could be found. It probably means you either forgot to take that photograph, or you have renamed the file to the wrong grave number. You will need to resolve these problems eventually. (You may find it useful to use the **Check Sheets** facility at this stage to print out a standard check document for all the graves which need pictures. That is why we chose to mark them with an @ code.)
7. If you have one or more graves with no picture, you should at this stage replace the @ with the special code **ø** (enter as **ctrl-/** followed by **o**) and should ensure that the folder for this area contains a default file **nopic.jpg** bearing a "No Picture Available" message. (A suitable file is provided in the **c** folder in the skeleton.)
8. Now save this updated copy of **parish.doc** using **File, Save** menu. (Remember we are working on a copy of the transcript at present, so it will be saved in **temp**.)
9. If you examine the **temp** folder, you will find that the macro has generated a new text document **unused.txt** this contains the filenames and orientation codes for all those pictures that were found, that are not referenced in the transcript. This is purely provided to help you to locate photographs that may have been misnamed, or maybe even graves you photographed but forgot to transcribe! You can delete it once you have resolved any problems it has shown up. If you have used any supplementary images, these will show up as unused. The **unused.txt** file will also show as unused, the copies of **paper.jpg**, and **nopic.jpg** (if present) for each folder. Ignore this.

10. You should not need either the **orient.txt** or **unused.txt** files now. However you may find it is a good idea to keep them for future reference, particularly if there are still some outstanding photographs to be taken. If so, I suggest you move them to the **builder\orient** sub-folder for safe keeping.
11. Check that you still have the originals of **orienter.bat**, **orisub1.bat**, **orisub2.exe**, **orimag.exe** and **rdjpgcom.exe** in the **builder\orient** sub-folder, then delete the copies of these you made in the **temp** folder. This folder should now only contain the updated copy of **parish.doc**.

8. Converting the Transcript to HTML

1. Now you have all your pictures in place and the transcript has the correct picture codes installed, you are ready to produce the final copy of the transcript as a series of pages. The sequence which follows describes how to do this. Note that you can do this at any time, to “see how things are going”, you don’t have to wait till all the pictures are done. The program will do the best it can with whatever is available. However you will have to repeat the task for the final version.
2. Check that the **parish\cdrom\data\temp** folder (which I shall just refer to as the **temp** folder from now on) just has the copy of the **parish.doc** file with added orientation codes, from the previous stage.
3. It is now time to do the conversion to HTML. Open this copy of the transcript in Word. It is important that it is the **only** document open in word at this time. Make sure the cursor is at the very start of the document at the left hand end of the grave number line for the first grave.
4. Now use **Tools, Macro, MitoHTML, Run**. The macro will start by displaying a dialogue asking you the **Number of Entries to Convert**. The macro will take quite a while to convert all the graves in the transcript, so it is a good idea to do just a small number first, as a test. Try with just 3 or 4 to start with. After a few seconds these will be complete and activity will stop.
5. Take a look in the **temp** folder and you should see that some new files have appeared, with the file type **.htm**. There should be two (or more) for each grave you asked it to convert. For example grave **A1** will have produced files **c001.htm** and **c001_.htm**. The first is the main transcription page for the grave and the second is the page for the magnified picture of the grave. Double click one of the former and your browser should open to display the page. At this stage there will be no pictures and the background will be plain white. You should be able to move forward and backward for as many graves as you converted. Close the browser and congratulate yourself!
6. Move the **.htm** files you have generated from the **temp** sub-folder to the correct folder for their area. So in the case of the above example, you would move them to the **cdrom\data\c** folder. This should already contain the picture files for this area and should contain a copy of the **paper.jpg** file. Double click on the **.htm** file again in its new home and this time it should open in the browser complete with picture and the correct background “paper”.
7. If all is well you may return to the transcript in Word, move the cursor back again to the beginning of the document and this time tell the macro to convert all the entries. You do not need to specify an exact number, just something larger than the maximum number of graves in your transcript. I usually use **9999**. This will take a fair while to convert. If all is well it will eventually stop, with the cursor positioned at the end of the document.

8. If there is a problem, the macro may stop with an error message, or simply stop before reaching the end of the transcript. This is likely to be caused by a problem in the transcript. This will generally be in the grave entry where it stopped or an entry immediately before or after this one. Examine them closely and check that they comply with the Master Transcript Document Format. The most common error is in the grave number, such that it cannot be formed into a valid filename. Look particularly for spurious spaces on the line before the number, gaps between the letter(s) and digits or other “odd” characters in the number. Check that it ends with an end-of-line character, not an end-of-paragraph etc. When the problem is found, try again. If you find several instances of a similar problem, try using Word’s **Find and Replace** facility to locate and correct all further instances of this. This will be much quicker than waiting for the macro to find them all. Eventually you will have sorted all the problems and the macro will run to completion. Don’t forget to save the transcript at this point. You do not want to have to do this debugging again.
9. With the transcript completely processed, you will find the **temp** contains a huge number of **htm** files. Ensure Windows Explorer is set to sort files by filename. This will group all the files for one area together. This makes it easy to move them all to their correct area sub-folders, which you should now do.
10. Fire up the browser and go through the pages for each grave looking for errors. You will probably find some. I find typos and spelling mistakes are much easier to spot in the open layout of web pages than in the original transcript. A common error to watch for is when a section of transcribed inscription appears as description, or vice versa. The macro decides on the basis of whether the first letter of the line is in italics or not.
11. If you find errors and correct these in the transcript, you may want to just regenerate the **htm** files for those graves, rather than doing the lot. To do this, just position the cursor in the transcript at the start of the grave number for the preceding grave. Then run MltoHTML for **3** entries. The middle of these is the one you want to change. Just copy its **htm** files to the appropriate area and discard the first and last. The reason for converting the extra entries, is so the **Next** and **Previous** links on the page you are replacing, will work correctly. If you are adding an extra grave, you will also need to update the graves either side of it, so their **Next** and **Previous** links respectively point to the new grave. So in this case you should regenerate **5** entries, starting 2 above the new one. Then copy the **htm** files for the middle 3 entries to the area folder and discard the outer ones.

9. Conversion of the Plan to HTML

A number of tasks are involved in converting the plan to HTML. In outline these are:

- Splitting the CAD drawing into an overall plan and separate area plans
- Saving each of these as a DXF file
- Conversion of these to suitable GIF files
- Preparation of map files for the individual graves in each area
- Production of the **plan.htm** page, giving an outline view
- Production of the detailed plan pages **a.htm** etc. for each area.

We now look at each step in detail.

9.1 Preparation of Overview and Area Plans

9.1.1 General Principles

Except for the smallest of churchyards, it is impractical to have a single plan on the CD, with sufficient detail to show every grave. You therefore need to split your master CAD drawing into a series of drawings, one for each

area, together with an overview drawing at a smaller scale, just showing the relative positions of the areas. This is done by making a copy of the complete plan **parish.tcw** for each area, and deleting everything that is not part of that area. This is saved under the area name, so that for example, **a.tcw** is the area plan for area A.

The same procedure is used to create the overview plan, **plan.tcw** but in this case the detailed items such as graves, numbers and trees, are deleted for all areas, leaving just the boundary walls, buildings, paths and area dividing lines.

I now describe in more detail the production of an area plan and an overall plan, based on the example drawing **parish.tcw** provided as part of the skeleton. I suggest you attempt to repeat this process using this example drawing, before embarking on the real plans for your parish.

9.1.2 Preparation of the Area Plans

We will use Area C, the interior of the church, in the example drawing.

1. Make a copy of **parish.tcw** in the **temp** folder. (We work with a copy in case of accidents!)
2. Open this copy with TotalCAD. You will note that it has been saved with the paper set up to include just the church, so this is the only part of the drawing with white paper behind it. It is probably less confusing if you change the scale so the whole drawing fits on a page. Use **File, Page Setup** and click the **Fit** button, then **OK** to close this dialogue.
3. Use **Tools, Layer** and ensure all layers are visible. Assess what you have got. There may be some layers with guide lines or temporary features that you don't need. If so make these the only visible layers. (Easiest to use **Tools, Layer** and set the layer you are interested in to **Not Visible**, then click the **Toggle All** button.). Now **Edit, Select All** (use **ctrl-A**) and press the **Delete** key. Everything on the layer should vanish.
4. When you have deleted everything that is not going to be wanted on any of your plans, you can use **File, Save** so the copy of **parish.tcw** contains this tidied up version of the drawing.
5. Now select and delete everything that is not part of the church outline and the graves within the church. (Refer back to Section 5.1.3 for hints about selecting objects.) For this area plan you will also want to delete the large Area Label, within the church.
6. When you think you have only the wanted objects remaining, make sure all layers are visible and editable, then use **Edit Select All**. The selection rectangle should just include the church and its contents. This is a good way of spotting some small object(s) in the far corner of the graveyard, that you may have forgotten to delete
7. Now use **Edit, Select By, Entity Type, Point** and check that nothing is selected. This is just a check to make sure that the drawing has no Point Objects at this stage. We are now going to add exactly two such objects for use as fiducials. If there are any other points that have "crept in", delete them now.
8. Use **View, Zoom, Extents** to show just the church with a narrow border around it on the screen. Now use the **Point** tool, to place a **Dot** at the top left corner and the bottom right corner of the area you want to show on your final plan. These want to be about 0.5m clear of the extreme corners of the church. (It is a good idea to have the grid visible at this stage, so you can judge where the wall corners are going to come at the edges of the drawing).
9. Use **Edit, Select All**, check that you are working in absolute co-ordinates, rather than relative co-ordinates, then move the entire selection, to co-ordinates of 0,0. (The easiest way is to click the central yellow handle of the selection, then enter 0 in both the **X** and **Y** boxes at the bottom right of the screen, and hit the Enter key.) The purpose of this is to ensure that the **origin** (point 0,0) is somewhere within the selected area. This is

necessary, because when the drawing is saved it will always include the origin. If this were not inside your area, it would make the saved drawing larger than required.

10. Depending upon where the origin was to start with, this may well have taken the drawing off the edge of the paper, as set in step 2 above. So use **File, Page Setup** and click **Fit** and **OK** again to produce a paper size that includes the drawing.
11. Use **Edit, Select By, Entity Type, Point** again and the selection rectangle should now just encompass the area of your final area plan drawing. You must now measure the size of this area (in metres). The easiest way is to place your mouse pointer accurately over the lines making up the selection rectangle and read off the horizontal or vertical position from the X and Y boxes on the bottom right of the window. Because the origin is now at the middle of the drawing, you will find the right hand edge and top edge will give positive values for X and Y respectively, whilst the left hand and bottom edges will give corresponding negative values. So the width of the drawing will be the sum of the left edge and right edge values, ignoring the minus sign, whilst the height will be the sum of the top and bottom edge values in the same way. You should aim to measure the height and width to an accuracy of 0.1m. (You will find it easier to magnify the view in order to position the mouse pointer on the edges of the selection rectangle with sufficient accuracy.) Make a note of the width and height values, you will need it later. (I keep a little text file, called **plannote.txt** and enter the values for each area in this. It is less easily lost than a piece of paper.).
12. Now use **File Save As** to save the drawing as **c.tcw** (since we are working with area C).
13. Then use **File Save As** again, this time to save it in DXF format as **c.dxf**
14. If you are using **GIMP** as your image editor, as a final step you should "print" the drawing to a pdf file, using the **CutePDF** printer driver, and save the result as **c.pdf**

That completes the steps needed to produce the area drawing for Area C. You should repeat this process for each of the areas on your drawing.

9.1.3 Preparation of the Overview Plan

Production of the overview plan starts with the same sequence of steps 1 to 8 used for the area plans. However in this case it is the individual graves and their numbers that are deleted. I normally also delete trees from the overview drawing, but this is a personal preference. If your churchyard has a particularly prominent tree that acts as a landmark, it is probably a good idea to include it on the overview plan.

In the case of the overview plan, there is no need to insert fiducial points, nor to measure the overall dimensions of the drawing in metres, as described in steps 7 to 11 above.

When the outline drawing is complete, save it as **plan.tcw** and again as **plan.dxf** just as you did for the area plans. If you are using **GIMP** as your image editor you should again produce **plan.pdf** with the aid of **CutePDF**. The **temp** folder should now contain **.tcw** and **.dxf** files, and possibly **.pdf** files, for the overall plan and for each area plan.

The **plans** folder in the skeleton I have provided contains the versions of these I prepared, for the example church. See how they compare with the ones you have created.

9.2 Preparation of GIF Image Files

9.2.1 Preparation of the Area GIF files.

I will again describe the process for the Area C files for the example data. As before, we will work in the **temp** folder.

1. Open the saved **c.dxf** file in Paint Shop Pro (PSP). (If you are using GIMP as your image editor, rather than Paint Shop Pro, you should open **c.pdf** rather than **c.dxf**). When opening the file the image editor will report some arbitrary pixel size from the original and ask you what pixel size you would like to map this too. You have some freedom here. If the image is too small, the grave numbers will not be readable. If it is too large, the image will be big and the user will see less of it on screen at any one time and will have to do a lot of scrolling. The end result looks best if all your areas are set to the same scale, so I suggest you decide upon a scaling factor, expressed in terms of pixels per metre and stick to it. If you have used my recommended text size of 0.7m minimum for all letters, a scaling factor of 22 pixels per metre, will give easily readable text and is best. If you have had to use a smaller text size to get all your lettering in, you may need a proportionately larger number of pixels per metre. So with 0.6m text, a scaling factor of 26 pixels per metre may be better. Try some different factors and see what you like best. What PSP is asking for is the pixel size of your image. You know the width of your image in metres (you made a note of it above). So multiply that by your chosen scaling factor and enter the result in the **Import Size, Width in Pixels** box. Then just click in the **Height in Pixels** box and the scaled value will be entered for you.
2. Examine the image at a 1:1 zoom factor (which is how it will appear on the screen) and see if you are happy with your pixels per metre figure. If not, try again with a different value. In the example data, I have used a figure of 20 pixels per metre, giving an imported image size for Area C of 906 pixels x 498 pixels.
3. If you zoom in on the top left or bottom right corners of the image, you should see the fiducal points you entered as single black pixels. Use the PSP crop tool to crop the images to these. (Make the crop point just inside the black fiducals, so that the fiducals themselves are cropped off.)
4. Make a note of the new pixel size of the cropped image (from the PSP status display in the bottom right of the screen). It will be slightly smaller than the image size you imported in step 2 above. You will need this number later. I enter it into the **plannote.txt** file.
5. Check the image colour depth, from the same status display. If it is not 16M colours or greater, change it to this by means of the **Colors, Increase Color Depth** menu. (This makes specifying the best colours for filling rather easier).
6. Now decide upon the set of colours you want to use to identify your areas. You should stick to fairly light pastel shades, so that the black lettering is easy to read. You specify a colour by entering the intensity of the Red, Green and Blue components. Each of these may have a value in the range 0 to 255 in decimal, or 00 to FF in hexadecimal. (PSP may be set up to enter numbers in either format). To get predictable results on everyone's web browser it is best to stick to what are known as "Browser Safe" colours. These are colours in which the intensity of each of the R, G and B components take only 6 possible values. These are 00, 51, 102, 153, 204 and 255 in decimal or 00, 33, 66, 99, CC and FF in hexadecimal. Since you want light colours, you should stick to 204 and 255 where possible (which will give you 7 colours excluding white), or if you need more options, allow just one of the colours to drop to 153. Keep a note somewhere of the colour you intend using for each layer.
7. Having decided your colour, select it as a foreground colour and use the PSP **Flood Fill** tool to fill the area with it. If it leaks out and fills the whole page, you obviously did not take the advice about using snaps which

I gave in Sections 5.1.1 and 5.1.3 above. Rather than going all the way back, it is probably easier to set the foreground colour to black then use the PSP **Paint Brush** tool, with a 1 pixel brush size, to block up the leaks. Then try again.

8. Where there are some grave numbers, that are within the coloured areas rather than inside a white rectangle, you will find that numbers like 0, 4, 6, 8 and 9 end up with unfilled white areas. It looks neater if you fill these by hand. You will find the PSP **Color Replace** tool makes this very easy. When set to replace white with your chosen colour, and a brush size of around 8 pixels, it is easy to fill in the holes without touching the black numbers.
9. When the drawing is complete, use **Color, Decrease Color Depth** to reduce to a maximum of 256 colours. This is because we are going to save as a simple GIF file and this format only supports 256 colours maximum. In the dialogue that follows set **Palette** to **Optimized Octree**, set **Reduction Method** to **Nearest Color**, and check the **Options** box for **Include Windows' colors**. This should avoid the risk of changing your carefully chosen colours.
10. Now use **File, Save As** to save the image as a **Compuserve Graphics Interchange (*.gif)** file, with the name **c.gif**.

That completes the production of the Area C plan file. Repeat this for each of the areas.

9.2.2 Preparation of the Overview Plan GIF File

1. Open the saved **plan.dxf** file in Paint Shop Pro (PSP). When opening the file PSP will report some arbitrary pixel size from the original and ask you what pixel size you would like to map this too. This time you do not need to worry about any scaling, you simply want to select a size that will fit neatly on screen on the **plan.htm** page, whilst keeping the original ratio of height to width. I suggest limiting the height to a maximum of 300 pixels or the width to a maximum of 600 pixels, whichever limits first.
2. For the overview plan there is no need to crop to fiducials. You should still make a note of the pixel size from the status display, for use later. Again, I enter it into the **plannote.txt** file.
3. Check the image colour depth, from the same status display. If it is not 16M colours or greater, change it to this by means of the **Colors, Increase Color Depth** menu. (This makes specifying the best colours for filling rather easier).
4. Using the colours you selected previously, fill each of the areas with its correct colour.
5. If the imported plan did not already have area labels on each area, you should add them now as text in PSP. (Don't forget to set the foreground colour back to black, after filling the area with colour, or the text won't show!)
6. When the drawing is complete, use **Color, Reduce Color Depth** to reduce to a maximum of 256 colours. This is because we are going to save as a simple GIF file and this format only supports 256 colours maximum. In the dialogue that follows set **Palette** to **Optimized Octree**, set **Reduction Method** to **Nearest Color**, and check the **Options** box for **Include Windows' colors**. This should avoid the risk of changing your carefully chosen colours.
7. Now use **File, Save As** to save the image as a **Compuserve Graphics Interchange (*.gif)** file, with the name **plan.gif**.
8. Whilst you still have the plan image open in PSP, you need to make a note of the boundary points for each of the areas. For this you use the normal PSP arrow tool. As you move it over the drawing, notice that the co-

ordinates shown on the bottom left hand corner on the status line continually update. Move it over say the NE most point of the area and note down the pixel co-ordinates (in **plannote.txt**) just as a pair of numbers separated by a comma. Move to the next point around the area in a clockwise direction, and note the next pair of points. Just add them to the previous pair, separating them by another comma. Carry on round, until you reach the last point, that would join up to the point where you started. Then if you needed 10 points, you should now have a list of 20 numbers, each separated by commas. (See the example **plannote.txt**). You do not need to be very accurate in noting the points and do not need to put lots of points in to follow a curved path for example. The idea is just to create a polygon that encloses the area you are working on, without including any other areas. It doesn't matter if it also includes some paths or buildings that are not part of any areas.

9. Repeat this process for each of the areas on the overview plan.

9.3 Preparation of the Image Map Files

Your **temp** folder should by now have **.dxf** and **.gif** files for each or the areas and for the overview plan. We now want a "map" for each area file which indicates where on the **.gif** file, each grave number is. This information is encoded in the **.dxf** file and the utility program **makemap3** has been written to extract the information. Here are the steps to use:

1. Make a copy of **makemap3.exe** from the **builder/basic** folder and paste it into the **temp** folder. (Remember the warning I gave in Section 7.3 Item 2, about Windows habit of creating a Shortcut to a program, rather than copying the program.).
2. Double click this copy of **makemap3.exe** in the **temp** folder in order to run it.
3. It will prompt for the **Path for Data Files** to which you can just press **Enter** since we are working with everything in the same **temp** folder to make life easy.
4. It will than want to know which area you want to work with. If you are following my example, just enter **c** followed by **Enter** since this is the only area with any graves.
5. It will then check that your area **.dxf** file has the required two fiducal points.
6. It will now want to know the maximum number of digits in a grave number for this area. Normally this will be 3 or 4.
7. Finally it will want to know the Width and Height of the image file in pixels. These are the pixel sizes after cropping for the area, which you noted down above.
8. After you have supplied this data, production of the map file will be almost instantaneous. When complete, the Title Bar for the DOS box in which the program is running will say **Finished - makemap3**. You can then close the DOS box. You will find there is a new file **mapc.txt** in the **temp** folder.
9. Repeat this process for each of the areas in your graveyard to produce files **mapa.txt**, **mapb.txt**, etc.

9.4 Production of the HTML Pages for the Plans

There are 3 types of HTML page associated with the plans. Each area has its own Area Plan Page, there is an Overall Plan Page, which displays the overall plan and finally there is a Zoom Page, which is involved in moving from the Overall Plan to the correct place on the selected area plan. All these pages involve the use of Javascript code which is used by browsers with this capability. There is also an ability to operate with reduced capability on browsers that do not support Javascript. Details of how this works are contained in Appendix 1, but there is no

need to understand this, provided you base your pages on the examples provided with the skeleton and stick to the instructions which follow.

9.4.1 Production of the HTML Area Plan Pages

This one is relatively easy. All your area plan pages are going to be based on **planc.htm** which you will find in the **data** folder in the skeleton. (This is the plan for Area C at The Parish Church of St. Mary, Cholsey, Oxfordshire which is used for the example data in the skeleton.) Proceed as follows:

1. Make a copy of **planc.htm** in the **temp** folder then open this copy with Windows Notepad.
2. Note the following features:
 - The title “**Area C**” in the header, between the **<title>** and **</title>** tags.
 - The lines of Java Script in the header between the **<script>** and **</script>** tags.
 - A group of lines at the top of the body, starting **<th** that make up the navigation bar for the page.
 - The first of these that contains “**Area C**” which is the Page Title in the navigation bar.
 - The line **** which inserts the area plan image.
 - The lines below making up the page footer including the church name and copyright details.
 - A large block of lines starting **<area** between the **<map name="planmap">** and **</map>** tags.
3. First change the church name and copyright details to suit your needs.
4. Delete all the lines starting **<area** etc. between the **<map name="planmap">** and **</map>** tags.
5. Open the **mapc.txt** file you produced in Section 9.3 above, in another Notepad window. Notice how its contents look similar to the **<area** lines you just deleted. Copy and paste these lines from **mapc.txt** in place of the deleted lines between the **<map name="planmap">** and **</map>** tags. Then close the **mapc.txt** window.
6. Save the modified **planc.htm** file you have just created. This should be correct for your church. (Don't close it in Notepad yet.)
7. Repeat steps 4 to 6 using the **mapa.txt** file. (I am assuming you will have an Area A). This time also change the two references to “Area C” in the title and navigation bar to read “Area A”. Also change the **src="c.gif"** in the **** tag to become **src="a.gif"**.
8. You have now produced the **plana.htm** page, so save it with this filename.
9. Repeat steps 7 and 8 for each of your areas, and the job is done.
10. Move the **plana.htm**, **planb.htm** etc. pages from your **temp** folder to your **data** folder.

9.4.2 Production of the HTML Overview Plan Page

Your overall plan page is going to be based on **plan.htm** which you will find in the **data** folder in the skeleton. Proceed as follows:

1. Make a copy of **plan.htm** in the **temp** folder then open this copy with Windows Notepad.
2. Note the following features:
 - Much of the file is taken up with various Javascript elements which do not need changing.
 - A block of **<area** tags, between the **<map name="planmap">** and **</map>** tags.
 - Each of these **<area** tags takes up two lines.
 - The first specifies an Area Name and the file reference to the area plan, e.g. **planc.htm**

The second lists a set of **coords** values.

The lines below make up the page footer including the church name and copyright details.

3. First change the church name and copyright details to suit your needs.
4. Do you remember the pairs of pixel co-ordinate values you noted down for each of the areas, when preparing the overall plan as **plan.gif** described in Section 9.2.2 ? Well now is the time to use them! These are the set of values used as the **coords** values for each area in the **<area** tags. Copy them in place of the values that are there, and modify the area names and file references as required, for each of the areas on your plan.
5. That is all there is to it. Save the resulting **plan.htm** file.
6. These **<area** tags are only used by browsers that cannot support Javascript. So ideally you should test your pages on an elderly browser, to make sure you have this bit correct.

9.4.3 Production of the HTML Zoom Page

Again your zoom page is going to be based on **zoom.htm** which you will find in the **data** folder in the skeleton.

Proceed as follows:

1. Make a copy of **zoom.htm** in the **temp** folder then open this copy with Windows Notepad.
2. Note the following features:
 - This page contains only Javascript, with no displayable text. So there is less to change.
 - Near the top of the file some pairs of lines starting **AreaURL[0] =** and **AreaPoly[0] =**
 - There is a pair for each area (the order is not important)
3. For each pair, change the value of the **AreaURL** line to point to the area plan, **plana.htm** etc.
4. Change the set of values in brackets on the **AreaPoly** line to be the same set of pixel co-ordinates used in step 4 for the Overall Plan page.
5. Add extra pairs of **AreaURL[0] =** and **AreaPoly[0] =** lines as required, at the bottom of the list if you have more areas than the example. Increase the number in the square brackets by one for each new pair added. Conversely if your plan has less areas than the example, remove the unwanted pairs of lines from the bottom of the list.
6. Save the resulting **zoom.htm** file.

This ends the work of creating the HTML plans. You have created these in the **temp** folder and should be able to test the movement between the plans in place there. However you will not be able to jump to individual graves with the files in this location.

So to complete the process, move the **plan.htm**, **plana.htm** etc. and **zoom.htm** files to the **data** folder. Also move all the **gif** files to the same place. Now try testing everything there, starting from the **plan.htm** file. With luck everything should work.

You should be left with all the **.tcw** and **.dxf** files and the **mapa.txt** etc. files, in the **temp** folder, together with the **plannote.txt** file you wrote and the **makemap3.exe** file you copied there. The latter may be deleted, since you still have the original in the **basic** folder. Strictly none of the other files are needed but I find it is helpful to move them to the **builder/plans** folder, with the **map** files in its **map** sub folder. Then if you need to make minor changes to a plan, you do not need to go right back to the beginning.

The **temp** folder should now be empty again.

10. *Converting the Index of Names to HTML*

I am assuming you will have carried out the basic task of preparing an index of names for the transcript in the form of an Excel spreadsheet, or similar. (I have looked at methods of attempting to automate this by seeking out words in capitals from the transcript and creating an index from these. However it is still necessary to abstract the forenames and year of death information and the format of this is so variable between different stones that it is very difficult to automate.) The steps which follow describe how to convert this to the Name Index for the CD.

1. Make a copy of **parish.doc** and **parish.xls** in the **temp** folder.
2. Open this copy of **parish.xls** in Excel. Delete Heading Rows, Unwanted Columns and rearrange as necessary, so you are just left with the following columns, in this order:
Grave Number, Surname, Forenames, Year of Death, Age at Death
Use **File, Save As** to save this as a tab-separated **.txt** file, called **index.txt**.
3. Open **parish.doc** in Word, then do **Edit, Select All** and **Delete**, so you are left with an empty document, based on the MIRRecord template. Use **File, Summary Info** and ensure that the title is correct for the Church. This is used for the HTML page footer. Since you started with the **parish.doc** file it should be correct. Amend the Subject and Comments boxes as you wish, to indicate this is the index. Now use **File, Save As** to save this in the **temp** folder, as **index.doc**.
4. Use **File, Open** to open the **index.txt** file created in step 2 above, as a second document in Word. Use **Edit, Select All** then **Edit, Copy** to place all this text on the clip board.
5. Use **Window, INDEX.DOC** to switch to the empty **index.doc** created in step 3 above. Now use **Edit, Paste** to copy the index text (still in tab-separated form at this stage) into this document. Use **File, Save** to keep this stage in case of accidents. You can now use **Window, INDEX.TXT** followed by **File, Close** to close the original **index.txt** window. Word may ask if you want to save the changes to this, but you have finished with it now, so you can safely say No.
6. You should now be left with a single document window open in Word, containing **index.doc** in a pretty untidy form as this stage. The following steps tidy it up a bit so it fits on screen better, but are not strictly necessary. Use **Edit, Select All** then **Format Font** and select **8pt Arial Narrow** then **Format Paragraph** and set both **Spacing Before** and **Spacing After**, to zero.
7. Now check for and if necessary, remove any blank lines at the start or end of the data. Use **Edit, Select All** then **Table, Convert Text to Table**. Word will spot that your text has tab separators and ask you to confirm that this is what you want to use for deciding which column is which. If you have just exported the columns suggested in step 1, Word will suggest it is going to use 5 columns for your table. Confirm all this. If all goes well, you should be left with a table of 5 columns containing your index. By default the columns are equal width, so for tidiness, place the cursor somewhere in the table, with nothing highlighted, then use **Table, Table AutoFormat** and set **Format to (none)**. This should set the column widths to the minimum needed and the table should then fit within the screen width. If any blank columns have crept in, you can delete them at this stage. (Click just above the top of the first of the columns you want to delete, to highlight a complete column. Then use shift and left-arrow or right-arrow to extend the selection to all the columns you want to delete. Then **Table, Delete Columns** will delete them.)
8. Now is the time to sort the data by surname. (You could have sorted it in Excel before exporting it, but Excel can allow you to sort one column on its own if you are not careful, whereas Word always sorts all the columns together, which I find safer!). Use **Table, Sort** and set to sort by **Column 2** then by **Column 3** then by **Column 4**. Inspect the data and check that it is correctly sorted. You will probably have some entries where

columns 2, 3 and 4 are all empty, so you just have a grave number. Depending on your version of word these may be at either the start or the end of the table. There is no point in including these in the final index, so delete these rows now. (Click just to the left of the table to highlight a complete row, then use shift and up-arrow or down-arrow to extend the selection to all the rows you want to delete. Then **Table, Delete Rows** will delete them.) You will undoubtedly be left with some graves with a blank in the Surname column, which are nevertheless worth including in the index. Depending upon what version of Word you have, these may have sorted to the top or the bottom of the list. Aesthetically it is better that they be at the bottom, so if they have come to the top, enter **ZZ** temporarily for each of these surnames, then repeat the sort, forcing them to the bottom. Now erase the **ZZ** entries and you have the order you want. Save the **index.doc** file again at this point, for future use.

9. Finally use **Tools, Macro, IndexToHTML** macro to generate the final index in HTML form. This should beaver away for some minutes, depending on the speed of you computer and the size of your index. Finally when it has stopped, you should find that the **temp** folder now contains a new file **index1.htm** which is the end product you were wanting. You can now close Word, and copy **index1.htm** into the **data** folder, where it will finally run, and check that all is working. Then move **index.txt**, **index.doc** and **index1.htm** into the **builder\index** folder for future reference.

11. The Final Steps

11.1 The Remaining HTML Pages & Pictures

All the complicated work is now complete. The remainder of the pages in the **data** folder are standard HTML pages (created by hand using **notepad**.) It will be easiest to take the ones from the skeleton provided and change the words and pictures as appropriate for the graveyard being transcribed. If you need additional pages you can modify an existing page or base it on **template.htm** whichever you find easiest. You will need to make changes to the **menu.htm** page to include the additional pages in the menu. Also don't forget to change the single HTML page **index.htm** that resides directly in the root folder of the CD, **cdrom** rather than in the **data** folder. This is the page the viewer sees first.

11.2 Catching Missed Changes

With any project of this scale there are likely to be cases where some changes from the original example have got missed. Use the **Find, File** facility in Windows Explorer to spot any files **Containing Text** "Cholsey" in your **parish** folder and its sub folders. These are likely to be lines from the template that you forgot to change. (I deliberately left "Cholsey" in the template, rather than changing it to "Example" since it is a word you are unlikely to have anywhere in your own transcript).

11.3 Creating an Autostart CD

If you have based your transcript on the skeleton provided, the other files in the **cdrom** folder (As listed in section 4.2.3) will already be included. You may wish to edit the **autorun.inf** file, which makes the CD autostart (it is a standard text file and may be edited in **notepad**), to change the **ICON** and **LABEL** properties. If you are not creating the CD for Oxfordshire Family History Society, you will probably also want to change the **ofhs.ico** file to an icon of your own creation. (If you do not want to create your own icon, just omit the **ICON** property altogether in the **autorun.inf** file. You will then see the default CD icon.).

11.4 Conversion of Filenames to Lower Case

Windows is not case sensitive in its filenames but other operating systems such as Unix are. If your CD is to be usable under these, you need to ensure that all the filenames are in lower case, since this is what is used in all the links within the HTML pages. I use the **Change Case** utility described in Section 2.2 to do this job for the entire contents of the folder **cdrom** and all its sub-folders.

11.5 Locating Missing Links

If you have made no mistakes in transcribing your graveyard, typing up the transcript, preparing the plans and creating the index, every grave number in the index and on the plan will correspond to a grave in the transcript. But this is the real world, so the chances are that the odd grave will have been included with a different number on the plan or in the index. So when the user clicks on this index entry or plan number, he or she will be faced with a dreaded Page Not Found screen. The easiest way to spot these is to use some link checking software intended for checking web sites. I use the **Xenu's Link Sleuth** utility described in Section 2.2 to do this job. Just instruct it to check all on-site links from the **index.htm** page in the **cdrom** folder and it will locate any problems for you. You can then find out what has gone wrong and correct this.

11.6 Burning the CD

You will use your standard software that came with your CD writer to do this job. Everything contained within the **cdrom** folder should be transferred to the CD ROM. Note that you do not place the **cdrom** folder itself on the CDROM, just its contents. So the root folder of the final CDROM should contain **autorun.inf**, **index.htm** etc. together with the **builder**, **data** and **source** folders.

There is nothing particularly clever about the CDROM label and Jewel Case inserts used. I leave you to create those using whatever labelling software you prefer. You are welcome to copy my OFHS style if you wish.

12. Preparing the Paper / Microfiche Document

To keep consistency between the CD and more traditional versions of the transcript, it is desirable that the paper copy should be derived from the same master document as the CD version. I have personally found it much easier to spot typing errors by viewing the pages in CD format than by viewing the typescript, so I prepare the paper copy last, after preparing and checking the CD.

All that is needed for the bulk of the transcript is to remove the code line with the transcriber's initials. No special macro has been provided for this, since it is easy to do with Word's own Search & Replace dialogue, provided you are familiar with its advanced features for pattern matching. All that is needed in the dialogue is to check the **Use Pattern Matching** box, then enter the search pattern

[£\$%µ¥@ø]*^I

into the **Find What** box and leave the **Replace With** box empty. This finds any line which starts with one of the six special code symbols and deletes it up to and including the line-break. (Use **alt-0165** to insert **¥** and **ctrl-/** followed by **o** to insert **ø**)

The "preamble" paragraphs for the history of the church etc. can be added as modified versions of the text used for the CD version.

The Word document **index.doc** prepared as described in Section 10 and saved in the **builder/index** folder can be used as the basis for the index of names.

There are 3 possible ways of importing the plans into the paper document. The limiting factor is ensuring that the grave numbers are still readable on the microfiche version. The starting point is the overall plan and the individual area plans, whose preparation was described in Section 9 and which you saved in the **builder\plans** folder. You may well have to produce slightly modified versions of the plans to keep them readable. In extreme cases you may need to split an area plan into two or more pieces to get numbers big enough to read.

1. The simplest way is to import the **.dxf** file into PSP, convert it to a **.wmf** windows metafile and paste that into the Word document. This gives rather jagged edges but is usually OK.
2. Slightly better is to import from the **.tcw** file directly. This can be done by **selecting** and **copying** the corresponding plan in the TurboCAD program, then **pastng** this into the Word document. This gives a slightly cleaner printed image than the **.dxf** route. There is one snag though. With text **justification** property set to **center** which is normally easiest when preparing the plans, the text imported into Word is displaced to the right. The easiest way round this is to use **Edit, Select by, Entity type, Text**, then change text properties to **Justification, Left**. You will need to re-enter the text height (normally 0.7m) in this dialogue. (If you have used more than one text height, you will need to treat each separately).
3. Originally the best result was obtained by printing the plan directly from TotalCAD. This gives very clean lines and clear text. The snag here was that the drawing is not a part of the Word document, so every time you print, you have to print the drawings separately and combine them. I found the easiest was to create pages for each drawing within the Word document, with the drawing heading followed by a **Page Break**. These pages were then fed back into the printer and overprinted with the actual drawing from TotalCAD. In TotalCAD, use **File, Page Setup** menu and ensure both **Printer Paper** and **Drawing Sheet Size** are set to **A4, Portrait**. Then set the **Margins** to **10mm** for **Left** and **Right**, **42mm** for **Top** and **15 mm** for **Bottom**. (This ensures that the drawing does not overprint the heading.) Then click the **Fit** button to fully use this page area.
4. There is now an easier approach, that gives just as good results. Print the plan from TotalCAD, using the **CutePDF** printer driver described in section 2.2. This can then be read into the **GIMP** image editor at any chosen resolution, cropped as required, then saved as a **gif** or **bpm** file to import directly into Word.

13. Appendix 1, The Javascript Code

From the user's viewpoint, the plans work best if a click on the overall plan takes you to the appropriate area plan, with the page already scrolled so the place clicked appears on screen and as near the centre as possible. To do this requires the use of some Javascript. Writing code to do this with a single make and version of browser is not difficult. However the philosophy has been to produce a CD that will perform with any browser. This is much more challenging! Netscape and Microsoft have taken rather different approaches about how Javascript should interact with existing HTML tags, with other manufacturers tending to follow one or other model. In addition earlier versions of the same make of browser have less Javascript capability, or in some cases, none at all.

The code used broadly recognises three options. These are Microsoft-like Javascript, Netscape-like Javascript and no Javascript. In the case of the first two, full functionality is achieved. For browsers with no Javascript, the code falls back "elegantly" to a version which works but does not provide the automatic scrolling to the correct place. A notice is displayed to the user indicating why only reduced performance is possible.

As a final twist, there is what appears to be a bug in some versions of Internet Explorer. This permits passing **location.search** strings within URL's when operating on external web sites, but loses them when accessing pages off a local disk. A work around for this is built in, which gives no loss of functionality.

The Javascript should have sufficient comments to allow someone who knows the language to work out what is going on, with minimal additional notes here.

The **plan.htm** page assesses which browser is in use, when first loaded, and establishes which methods to use on the basis of this. Where a browser has no Javascript capability, or only the limited capability included in Version 3 browsers, the map information included within the page is used to select the correct area page directly with no attempt to scroll to the correct place on the area plan. With a later browser, **plan.htm** transfers control to **zoom.htm** which in turn dispatches to the area page, using the map data loaded into the AreaPoly arrays. The Javascript which uses these arrays is deliberately written to expect its data in exactly the same format as used by the **<area>** tag in standard HTML, so when building the pages, the same pixel co-ordinates can be pasted into both places.

The method of transferring control between the **plan.htm**, **zoom.htm** and **plana.htm** etc. is arranged so that the users **back** button appears to work normally, without the user being aware of the intervening zoom page.

The code to determine which polygonal area contains the clicked point, is worthy of comment. It is based on the concept that if a point is within a bounded area, a line projected from the point to infinity in any direction must cut the boundary an odd number of times. Whereas if the point is outside the area, it will cut the boundary an even number of times (including zero times). The code projects a line vertically upward from the clicked point, then tests each of the line segments making up the boundary of an area. Segments wholly to the left or right of the line are discarded, as are segments where both ends are below the clicked point. Those remaining have the intersection point calculated and if it is above the clicked point, the line has cut the boundary and so an odd/even intersection count is toggled. When all segments have been checked for an area the state of this toggle determines whether the point was within the area or not. The process is repeated for each of the areas until an area containing the point is found, or the point is discovered not to be in any area (in which case a warning dialogue is issued).

14. Revisions

14.1 Revision 2.0 - 2005-11-13

Original version.

14.2 Release 2.1 - 2009-03-03

In Section 2.2

Addition of **GIMP** as an alternative image editor to **Paint Shop Pro** and **CutePDF Writer** to create **.pdf** files needed to support this change.

In Section 5.2

Easier method of re-scaling an imported picture when starting a new plan.

In Sections 9.1 and 9.2

Alternative use of **.pdf** files rather than **.dxf** files for transferring CAD images to **.gif** files, when using **GIMP** rather than **PSP** as your image editor.

In Section 9.1.2.9

Error correction: "**Edit, Select All**" replaces "**Edit Select By, Entity Type, Point**"

Plus minor spelling corrections.