

Glisterings

Peter Wilson

If our understanding have a film of
ignorance over it, or be blear with gazing
on other false glisterings, what is that to
truth?

Of reformation in England, JOHN MILTON

The aim of this column is to provide odd hints or small pieces of code that might help in solving a problem or two while hopefully not making things worse through any errors of mine.

Corrections, suggestions, and contributions will always be welcome.

When true simplicity is gained,
To bow and bend, we will not be ashamed.
To turn, turn, will be our delight
'Til by turning, turning, we come 'round
right.

Simple Gifts, a Shaker hymn

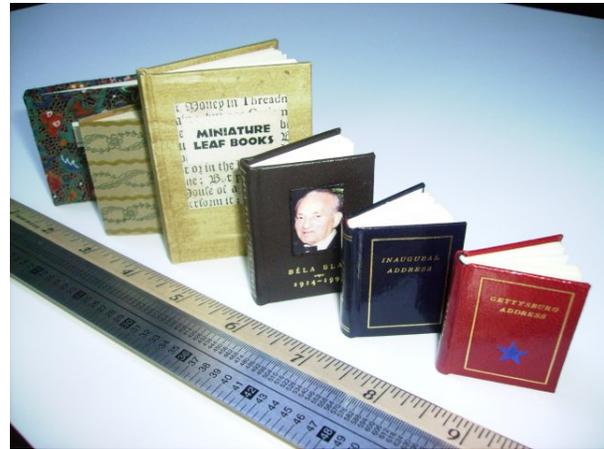
Meandering miniature books

Some years ago William Adams produced an eight-page booklet called *One Typeface, Many Fonts* [1], which I encourage you to get if you do not already have it. Apart from the content and the various typefaces an interesting aspect was that it was printed on one side of a single sheet of letterpaper, which could then be cut and folded to make the final booklet. I found this the other month when I was clearing out old papers getting ready to move house.

A little earlier I had come across a class of books called *miniatures* [2], which are defined as books not more than 3 in, or 76 mm, in height.¹ Some are shown in Figure 1. The largest is 3 by 2 1/8 inches and is a miniature book about miniature books. The two smallest in the group are 1 5/8 by 1 1/4 inches. One is John Kennedy's Inaugural Address in January 1961 and the other is Abraham Lincoln's speech at Gettysburg in November 1863. The type in these appears to be just a little smaller than that in the footnotes here.

These two events got me to wondering whether there were other methods like William's of creating a (miniature) booklet. I tried cutting and folding scrap paper in many ways with not much success until I remembered that I had a book by Cherryl Moote [6] which had been advertised with:

¹ In 2000 the record for the smallest miniature was held by *The Twelve Horary Signs — Chinese Zodiac* published in an edition of 100 by the Topan Printing Company, Tokyo, Japan. It measured just 0.95 mm square!



Herries Collection

Figure 1: Some miniature books; the scales are marked in inches, points, and picas

<u>1</u>	2	3	4	etc
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Figure 2: Accordion layout

This book features book forms perfect for creating small editions of art books with your photocopier or computer printer. . . Standard size papers are used for most projects . . .

There are several ways in which you can print on one side of a single sheet and by folding and cutting make acceptable small works. The simplest is an accordion book where the pages on the sheet are laid out as in Figure 2. In this and later diagrams the numbers correspond to the page ordering and text orientation, with potentially ambiguously oriented numbers underlined, such as 1, 6, and 8. Thin lines are where the paper is to be folded, and thick lines where it is to be cut. In the accordion form the folds are alternately up and down (or down and up). Many Japanese and Chinese books use this basic form. One example is illustrated in Figure 3 which shows one quarter of a book whose English title is *Biographies of Twelve Chinese Great Scholars*; the text is in both Chinese and a form of English.

Another simple form is one called *French Folds* where the paper is folded in half one way then folded in half again the other way. This is often used for greetings cards, and is illustrated in Figure 4.

William Adams refers to his booklet form as a *Stroke Book* and it is called a *Two-Minute Book* by Cherryl Moote. The general layout for such a



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Figure 3: A Chinese book in the accordion style, showing one quarter of the overall work which measures 8 1/4 inches by 14 feet

ε	ζ
4	<u>1</u>

Figure 4: French Folds layout

work is shown in Figure 5. William’s instructions for ‘binding’ the booklet are:

After printing fold in half (top to bottom), unfold, fold in half lengthwise, then fold in half and open, and fold each resulting panel in half, unfold and restore to the original fold, then cut along the inner half of the lengthwise fold, open and fold lengthwise. Then all the pages should be folded within the front and back covers and *voilà!* a single signature booklet.

Another way of describing the procedure is:

Fold in half, short side to short side (1/2 to 6/5) with text exposed; this is called a *mountain fold*. Fold each half in half again (6/5 to 7/4 and 1/2 to 8/3) with text hidden; these are both *valley folds*. Unfold to original flat sheet. Fold in half lengthwise (1/8/7/6 to 2/3/4/5) with text exposed (i.e., a mountain fold). Cut along the inner half of the lengthwise fold (the thick line in the diagram). Refold lengthwise, push the two pairs of end pages (1/2 and 6/5) towards each other and the center pages should fold outwards. Finally, fold the result so that the pages are in the prescribed order.

I didn’t know how William imposed his eight pages onto the one sheet but I suspected that he typeset each page on separate sheets then used some imposition software like `psnup` to arrange these on a single sheet. I have since learnt from him² that:

² Personal email, 2008/06/25.

1̄	8̄	2	9̄
2	3	4	5

Figure 5: Layout for a Two-Minute book

I composed *One Typeface Many Fonts* in Altsys Virtuoso (a drawing program) on my NeXT Cube—I saved out .eps files (a nifty facility of a pdf viewing program I was using in NeXTstep) and then arranged and rotated the bits by hand working up from a folded “dummy” (you’re a dummy if you don’t make a dummy).

I know of some pure \LaTeX methods for imposition. There is the `booklet` package [9] for creating a booklet of half-size pages from full size originals, and Nicola Talbot’s `flowfram` package [8] which lets you define ‘frames’ on a page and the text will automatically flow from one frame to the next; Andreas Matthias’ `pdfpages` package [5] provides imposition facilities if you are using pdf\LaTeX . As separate processes Angus Duggans’ `PSUtools` suite [3] has several programs, such as `psnup`, for imposition of `ps` files, while Tom Phelps’ `Multivalent` suite of tools [7] provides similar programs for dealing with `pdf` files. I was, though, particularly interested using \LaTeX to create miniature books from a single sheet of paper, printed on one side only, of short poems or epigrams without using any packages. For this kind of work it seemed reasonable to do ‘page breaking’ by hand rather than automatically, as the `flowfram` package would provide.³

Cheryl presented several layouts that, applied to the most common size⁴ of paper, result in a miniature book. These are illustrated in Figures 6–9. To create a book from one of these, cut along the thick lines and then start folding starting with pages 1 and 2, where 1 will be the first one in the book, and proceeding along until page 16 is reached. The folds should be alternately mountain and valley. The diagrams show the initial orientation of the text ‘pages’ to give a reasonable orientation after the folding. The pages may be hinged at the left or right or top or bottom. The orientation sequence does depend

³ Also, I couldn’t work out how to automatically put a ‘page number’ in the frames.

⁴ Either letter or A4 size.

<u>1</u>	2	3	4
12	13	14	5
<u>11</u>	9I	15	<u>6</u>
0I	<u>6</u>	<u>8</u>	7

Figure 6: Spiral layout (mountain)

<u>1</u>	2	3	4
<u>8</u>	2	<u>9</u>	9
<u>9</u>	10	<u>11</u>	12
9I	9I	7I	13

Figure 8: Snake layout (mountain)

<u>1</u>	2	3	4
7I	13	14	5
<u>11</u>	9I	9I	<u>6</u>
0I	<u>6</u>	<u>8</u>	7

Figure 7: Spiral layout (valley)

4	5	<u>6</u>	7
8	7	<u>1</u>	<u>8</u>
14	15	16	<u>9</u>
8I	7I	<u>11</u>	10

Figure 9: T layout (mountain)

on whether the first fold is a mountain or a valley. When unfolding most of these layouts to read the contents it may be necessary to twist and turn the book in unexpected ways.

I don't know if there are any commonly accepted names for these layouts so I have used my own.

You can design your own layout if you prefer. For instance Figure 10 is one that I made up; I make no claim regarding either its usefulness or its aesthetics, nor how the folds or page numbering should be configured. The shape of the cuts vaguely reminds me of stoking a wood burning stove, hence the name.

Perhaps you have been wondering how I produced these diagrams? But even if you haven't, I did it by using the `graphicx` package and the `picture` environment. For example, here is the essence of the code for Figure 6; it does get tedious after a while.

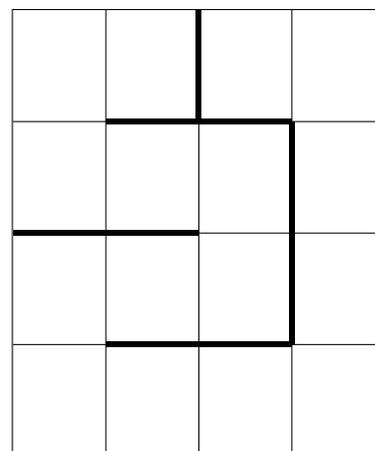


Figure 10: Stove layout

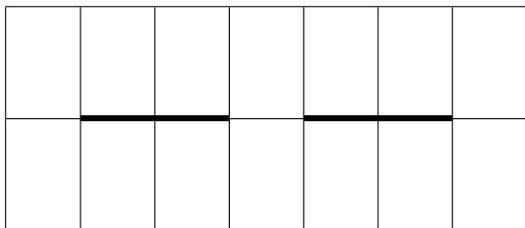


Figure 11: Interleaved or Dos-a-Dos layout

```
%% turn its argument upside down
\newcommand*\rupd}[1]{%
  \rotatebox[origin=c]{180}{#1}}
%% save some typing
\let\ul\underline
%% the diagram
\begin{figure}
\centering
\setlength{\unitlength}{0.003\textwidth}
\begin{picture}(100,120)
  %% draw the boxes
  \thinlines
  \put(0,0){\framebox(100,120){}}
  \put(25,0){\line(0,1){120}}
  \put(50,0){\line(0,1){120}}
  ...
  \put(0,90){\line(1,0){100}}
  %% draw the cutting lines
  \linethickness{2pt}
  \put(0,90){\line(1,0){75}}
  \put(75,90){\line(0,-1){60}}
  \put(75,30){\line(-1,0){50}}
  \put(25,30){\line(0,1){30}}
  \put(25,60){\line(1,0){25}}
  %% insert the page numbers
  \linethickness{0pt}
  \put(0,90){\framebox(25,30){\ul{1}}}
  \put(25,90){\framebox(25,30){2}}
  ...
  \put(0,0){\framebox(25,30){\rupd{10}}}
  \put(25,0){\framebox(25,30){\rupd{\ul{9}}}}
  \put(50,0){\framebox(25,30){\rupd{\ul{8}}}}
  \put(75,0){\framebox(25,30){7}}
\end{picture}
\caption{Spiral layout (mountain)}
\label{fig:lay1M}
\end{figure}
```

Cherryl Moote described other layouts that led to more complex results after cutting and folding, one of which is illustrated in Figure 11. Essentially this consists of two Two-Minute layouts (see Figure 5) joined together. By folding this in one way you can produce a Dos-a-Dos book which is two Two-Minute books conjoined back to back, and in folding another way you can interleave pages from the left and right halves.

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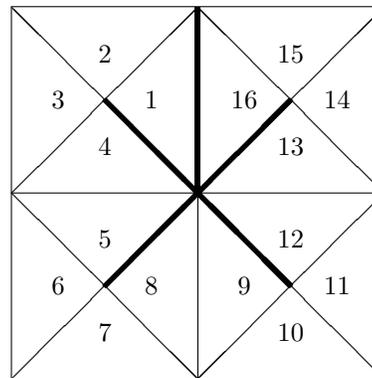


Figure 12: A triangular meander

A rather different one is illustrated in Figure 12, being a kind of twisty triangular accordion book. The numbers show the sequence of the triangular pages but not the orientation of any text that might be on them.

With all these layouts you have to experiment to see what is best for the particular project you have in mind.

As an aid to seeing how miniature books can be based on one or other of the presented layouts I offer Figure 13 and Figure 14. You can photocopy these and cut and fold the copies to see what the result(s) look like. Both of the offerings are based on the Serpent layout, with the first following Figure 8 which starts off with a mountain fold. In this case the title is on the very first page and the colophon is on the last.

The second is meant to start off with a valley fold, and the first and last pages after folding are both blank. This is so you can use these pages as endpapers and attach cover boards to them to give a more finished look to the booklet.

If you would like to try something similar, here is the code for the layout in Figure 14.

```
%% The miniature page sizes
\newlength{\across}
\newlength{\down}
\setlength{\across}{0.2\textwidth}
\setlength{\down}{0.2\textheight}
%% no space between an \fbx and contents
\setlength{\fbxsep}{0pt}
\let\fbx\fbx
%% vplace environment is in memoir class
%% vertical placement of contents,
%% centered by default
\providecommand{\vplace}[1][1]{%
  \par\vspace{\stretch{#1}}}
\def\endvplace{\vspace*{\stretch{1}}\par}
%% Put one minipage centered inside another
\newcommand{\portion}[1]{\fbx{%
```

<p><i>Vitae Summa Brevis</i></p> <p>Ernest Dowson</p>		<p>They are not long,</p> <p>3</p>	<p>The weeping and the laughter,</p> <p>4</p>
<p>We pass the gate.</p> <p>8</p>	<p>2</p> <p>in us after</p>	<p>9</p> <p>I think they have no portion</p>	<p>Love and desire and hate:</p> <p>5</p>
<p>They are not long,</p> <p>6</p>	<p>the days of wine and roses:</p> <p>10</p>	<p>Out of a misty dream</p> <p>11</p>	<p>Our path emerges for a while,</p> <p>12</p>
<p>2008</p> <p>The Herries Press</p>		<p>14</p> <p>Within a dream.</p>	<p>then closes</p> <p>13</p>

Figure 13: Layout of a miniature book based on that shown in Figure 8, starting with a mountain fold

	<p><i>Vitae Summa Brevis</i></p> <p>Ernest Dowson</p>	<p>They are not long,</p> <p>3</p>	<p>The weeping and the laughter,</p> <p>4</p>
<p>8</p> <p>We pass the gate.</p>	<p>7</p> <p>in us after</p>	<p>6</p> <p>I think they have no portion</p>	<p>5</p> <p>Love and desire and hate:</p>
<p>They are not long,</p> <p>9</p>	<p>the days of wine and roses:</p> <p>10</p>	<p>Out of a misty dream</p> <p>11</p>	<p>Our path emerges for a while,</p> <p>12</p>
	<p>2008</p> <p>The Herries Press</p>	<p>14</p> <p>Within a dream.</p>	<p>13</p> <p>then closes</p>

Figure 14: Layout of a miniature book based on that shown in Figure 8, starting with a valley fold

```

\begin{minipage}[c][\down][t]{\across}
#1
\end{minipage}}
\renewcommand{\portion}[1]{\fbx{%
  \begin{minipage}[c][\down][t]{0.8\across}
  #1
  \end{minipage}
\end{minipage}}}
%%% Vertically center contents of a portion
\newcommand{\vcp}[3][1]{%
\portion{\centering%
  \begin{vplace}[#1]#2\end{vplace}#3%
  \vspace*{\onelineskip}}
%%% turn contents of a \vcp upside down
\newcommand{\rvcp}[3][1]{%
  \rotatebox[origin=c]{180}{%
    \vcp[#1]{#2}{#3}}
%%% for typesetting page numbers
\newcommand*{\pgn}[1]{\tiny #1}
%%%% Typeset
\noindent
%%% top row
\vcp{\mbox{}}{}
\vcp{%
  \Large \textit{Vitae Summa Brevis} \\\[5mm]
  \large Ernest Dowson}{
\vcp{They are not long,}{\pgn{3}}
\vcp{The weeping and the laughter,}{\pgn{4}}
%%% second row
\noindent
\rvcp{We pass the gate.}{\pgn{8}}
\rvcp{in us after}{\pgn{7}}
\rvcp{I think they have no portion}{\pgn{6}}
\rvcp{Love and desire and hate:}{\pgn{5}}
%%% third row
\noindent
\vcp{They are not long,}{\pgn{9}}
\vcp{the days of wine and roses:}{\pgn{10}}
\vcp{Out of a misty dream}{\pgn{11}}
\vcp{Our path emerges for a while,}{\pgn{12}}
%%% bottom row
\noindent
\vcp{\mbox{}}{}
\rvcp{\footnotesize The Herries Press\\[1cm]
2008}}{}
\rvcp{Within a dream.}{\pgn{14}}
\rvcp{then closes}{\pgn{13}}

```

I have not used the whole of the printed sheet in producing the miniatures, but rather the extent of the typeblock (see the definitions of `\across` and `\down` which I used in the specification of the size of the final pages). If you are using the memoir class you can easily change the size of the typeblock,

otherwise you can use the geometry package. I also boxed, using `\fbox` (via `\fbx`), each final page. If you do not want to do that then change `\fbx`, for example:

```
\renewcommand*{\fbx}[1]{#1}
```

May you have much pleasure in creating your own unique miniature books.

Acknowledgements

William Adams was kind enough to review the column and I have incorporated many of his suggestions. One that I didn't, but will now, is to say that he felt that another possible source for folding techniques would be the literature on origami. Though perhaps not directly related, he said that *The Folding Universe* [4] is a fascinating book regardless and well worth looking at.

References

- [1] William Adams. *One Typeface, Many Fonts*. William Adams, http://mysite.verizon.net/william_franklin_adams/portfolio/typography/onetype-sheet.pdf, 1997.
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- [3] Angus Duggan. PSUtils, 2008. (<http://www.tardis.ed.ac.uk/~ajcd/psutils>).
- [4] Peter Engel. *The Folding Universe*. Vintage, 1989. ISBN 0394757513.
- [5] Andreas Matthias. The pdfpages package, 2010. <http://mirror.ctan.org/macros/latex/contrib/pdfpages>.
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- [8] Nicola L. C. Talbot. Creating flow frames for posters, brochures or magazines using flowfram.sty, 2010. <http://mirror.ctan.org/macros/latex/contrib/flowfram>.
- [9] Peter Wilson. Printing booklets with L^AT_EX, 2009. <http://mirror.ctan.org/macros/latex/contrib/booklet>.

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