

Typesetting a Magazine the Easy Way

Peter Abbott

Information Systems

Aston University

Aston Triangle

Birmingham B4 7ET

United Kingdom

Phone: +44 (0)21 359 5492;

FAX: +44 (0)21 359 6158

Internet: p.abbott@aston.ac.uk

Abstract

‘THE CORNISHMAN’ is a quarterly publication in A5 format of some 56 pages per issue. Text is mostly set in two columns with photographs and adverts which may be column width or span two columns (at the top or bottom of a page). During makeup it may be necessary to move photographs from the top to the bottom of a page or vice versa. Changes have been made to the basic style file to obtain the required text size and baseline spacing. Modifications to footnotes coupled with multicolumn style achieves photographs at the bottom and the use of the figure* environment at the top. Single column photographs are more difficult to place. A number of macros have been written to automate the process as much as possible.

Introduction

I edit and typeset a quarterly magazine, the contents of which is text, display-adverts and photographs (images). Currently the print run is 1750 copies of between 52 and 64 A5 pages. The copydate is normally one calendar month before publication.

I became the editor in the summer of 1989 when the magazine was approximately 12–16 weeks late with each issue, was only 44 pages and naturally only tolerated by its readers. The editor submitted handwritten or typed manuscripts to the typesetter/printer and had very little control over the layout and presentation.

I agreed to take the editorship provided that:

- I could print the magazine in house,
and
- control the style and presentation.

In return I agreed with the GWR Ltd Board (who publish ‘The Cornishman’) to:

- eliminate the delays and **PUBLISH ON TIME** (To date I have not missed a single deadline and the March issue was 64 pages.);
- increase the content and quality;
- increase the photographic coverage and quality;

- encourage the volunteers; and
- make the publication more attractive to the reader, and generally promote our Railway.

I have been using L^AT_EX for some time and this seemed suitable for my needs. In 1989 I had a Mac IIfx (since then I have acquired a Mac IIfx). One of the major problems I have encountered is storage of data (especially images) and have found an optical (multiple write) disc with 500mb cartridges a slow but essential storage medium. Of course PostScript output has made my life easier (from my point of view) in that proof copies can be printed on a 300 dpi laserwriter with camera ready copy on the Linotronic at 1270 dpi via a RIP.

I use L^AT_EX for convenience and I am currently using OzTeX version 1.41.

Basic Format

The magazine (called ‘The Cornishman’) is A5 sided two column format.

I normally require photographs to be either single column or full width with captions and acknowledgments. I dislike (continued on page ...) and therefore once an article is started it must be contiguous. This sometimes creates real problems in making up the final copy. All the examples used are

from issue No. 40 which was published on 1st March 1992.

Processing Text

The magazine was produced in two column format when under the control of the previous editor and I therefore decided to continue with this format. The options available are `\twocolumn` or the `multicols` style. I selected `multicols` and my standard processing file is

```
\documentstyle[multicol,cornish,shadow%
,array,ifthen]{article}
\newcommand{\status}{%
\setcounter{omitpic}{1}}
\begin{document}
\status\clearpage\input{:atext:class28}
\end{document}
```

I tried using `\include` but occasionally ran out of space. It is a trivial matter to create a file in the subdirectory `atext` called `aaorder` containing all the input lines for an issue in the order in which they should be processed. I can then process part of the magazine or the whole issue (page references do not cause problems with this method). A value for `omitpic` of 0 draws a box where an image will appear so that I can judge the overall effect before including an image.

Changes to standard macros/styles

The normal 10pt size is too large for an A5 magazine so I selected part of `article.sty` and included it in `cornish.sty`

```
\def\@normalsize{\@setsize\normalsize{12pt}%
\xpt\xpt
\abovedisplayskip 10pt plus2pt minus5pt%
\belowdisplayskip \abovedisplayskip
\abovedisplayshortskip \z@ plus3pt%
\belowdisplayshortskip 6pt plus3pt
minus3pt\let\@listi\@listI}
\def\small{\@setsize\small{11pt}\ixpt\@ixpt
\abovedisplayskip 8.5pt plus 3pt minus 4pt%
\belowdisplayskip \abovedisplayskip
\abovedisplayshortskip \z@ plus2pt%
\belowdisplayshortskip 4pt plus2pt minus 2pt
\def\@listi{\leftmargin\leftmarginI %
\topsep 4pt plus 2pt minus 2pt\parsep 2pt
plus 1pt minus 1pt
\itemsep \parsep}}
\def\footnotesize{\@setsize%
\footnotesize{9.5pt}\viipt\@viipt
\abovedisplayskip 6pt plus 2pt minus 4pt%
\belowdisplayskip \abovedisplayskip
\abovedisplayshortskip \z@ plus 1pt%
\belowdisplayshortskip 3pt plus 1pt minus 2pt
\def\@listi{\leftmargin\leftmarginI %
```

```
\topsep 3pt plus 1pt minus 1pt\parsep 2pt
plus 1pt minus 1pt
\itemsep \parsep}}
\def\scriptsize{\@setsize%
\scriptsize{8pt}\viipt\@viipt}
\def\tiny{\@setsize\tiny{6pt}\vpt\@vpt}
\def\large<{\@setsize\large{14pt}\xiipt\@xiipt}
\def\Large{\@setsize\Large{18pt}\xivpt\@xivpt}
\def\LARGE{\@setsize\LARGE{22pt}%
\xviipt\@xviipt}
\def\huge{\@setsize\huge{25pt}\xxpt\@xxpt}
\def\Huge{\@setsize\Huge{30pt}\xxvpt\@xxvpt}
and modified some of the code (only the modified
lines are shown)
\def\@normalsize{\@setsize%
\normalsize{9.68pt}\ixpt\@ixpt
\def\small{\@setsize\small{9pt}\viipt\@viipt
\def\tiny{\@setsize\tiny{7pt}\vpt\@vpt}
\def\large{\@setsize\large{11pt}\xpt\@xpt}
\def\Large{\@setsize\Large{14pt}\xiipt\@xiipt}
```

With an A5 format some of the spacing provided by environment changes in L^AT_EX are unacceptable and therefore I have found it necessary to modify a number of parameters. This gives me greater control over page layout but for larger page sizes the default values are acceptable. I have not included these parameters here as they are my preferences and were arrived at by trial and error. I worked on the principle that although white space can be used to improve output, in small formats such as A5, the parameter values are too big. There are two parameters which must be mentioned, `columnwidth` and `textwidth` and they are 59mm and 122.5mm. The reason for quoting these two values becomes obvious when you see examples quoted.

My Additions

I decided to adopt a house style for the name of the magazine ‘The Cornishman’ and currently have the following macro defined.

```
\newcommand{\magazine}%
{\bf\sf\mbox{‘The Cornishman’}}
```

Originally I did not have the `mbox` but after a number of issues where the word ‘Cornishman’ was split over two lines of output text I added the `\mbox`.

Note that the use of the new font selection scheme makes life much simpler. Before the arrival of NFSS, inserting `\sf` meant that the type size in use was lost. I found this most frustrating and consequently how useful NFSS has proved.

Perhaps I should say at this point that the macros have been in a state of development since 1989 and are not yet finalised, and I often make minor adjustments to make my life easier. In fact,

since publishing issue 40, I have made a number of changes to the macros and installed a new version of `multicol`s which Frank Mittelbach asked me to beta test. As a result of comments received from issue No. 41, the inter-paragraph space has been removed and `parindent` changed from zero to 5mm.

The previous editor (or printer) selected a variety of styles for identifying articles. There was no consistency in that sometimes the writer was credited and sometimes not. Some were reversed white on black. Some titles were UPPER CASE but most were mixed.

I selected a style of a greybox with a black line top and bottom, either full width or column width and the macros are therefore

```
\newcommand{\bstitle}[5]{\Large%
\addcontentsline{toc}{subsection}{#1}}%
\nocont{#1}{#2}{#3}{#4}{#5}}%

\newcommand{\nocont}[5]{%
\setlength{\unitlength}{1mm}%
\begin{picture}(#4,11)%
\put(0,0){\special{#5.ps}}%
\put(0,0){\framebox(#4,0){\ }}%
\put(0,11){\framebox(#4,0){\ }}%
\put(0,0){\makebox(#4,11)[l]{%
\sfbf\hspace*{1mm} #1}}%
\put(0,0){\makebox(#4,11)[r]{%
\sfbf {\rm\it #2 \ / \sf%
\bf\ #3\hspace*{1mm} }}}%
\end{picture}}%

\newcommand{\dttitle}[2]{\bstitle{#1}{by}%
#2}{122.5}{grey1box}}%
\newcommand{\stitle}[2]{\bstitle{#1}{by}%
#2}{59}{greybox}}%
\newcommand{\dblck}[1]{\bstitle{#1}{\ }}
{\ }{122.5}{grey1box}}%
\newcommand{\sblk}[1]{\bstitle{#1}{\ }}
{\ }{59}{greybox}}%
```

where `greybox` and `greybox1` are column width and `textwidth` respectively and `greybox` is

```
72 2.54 div 72 2.54 div scale
% units are now cm instead of big points
```

```
newpath 0 -.0 moveto 5.9 0 rlineto
          0 1.1 rlineto
          -5.9 0 rlineto

closepath      % complete rectangle
gsave         % save current path
.75 setgray   % use very light shading
              % on LaserWriter
              % A(0=black, 1=white)

fill          % paint interior of rectangle
grestore      % restore current path
```

The macros give titles either column or text width, with or without credit as appropriate.

Using Macros which Exist

The magazine contains a table of contents and I decided that I could use `\tableofcontents` provided that I removed the heading ‘Contents’ which is automatically output. After using this for several issues I decided that the white space to the left of the title produced when using `tableofcontents` was spoiling the appearance of the column and I never numbered articles.

I preferred the contents to neatly fill the column widthwise. I therefore extracted the relevant code from `article.sty` and inserted into `cornish.sty`

```
\def\tableofcontents{%\section*{CONTENTS%
%\mkboth{CONTENTS}{CONTENTS}}
% NOTE THE % IN THE PREVIOUS TWO LINES
\starttoc{toc}}
\def\contentsline#1{\csname l@#1\endcsname}

\def\@dottedtocline#1#2#3#4#5{%
\ifnum #1>\c@tocdepth \else
  \vskip \z@ plus .2pt
  {\leftskip #2\relax
  % NOTE THE % IN THE PREVIOUS LINE
  \rightskip \@tocrmarg \parfillskip -\rightskip
  % \parindent #2\relax
  % NOTE THE % IN THE PREVIOUS LINE
  \@afterindenttrue
  \interlinepenalty\@M
  \leavevmode
  \@tempdima #3\relax \advance\leftskip
  \@tempdima \hbox{} \hskip
  -\leftskip
  #4\nobreak\leaders\hbox{$\m@th \mkern %
  \@dotsep mu.\mkern \@dotsep
  mu$}\hfill \nobreak \hbox to \@pnumwidth{%
  \hfil\rm #5\par}\fi}
```

The major problem revolves around dealing with images (most, but not all, are photographs). In fact, a display advert or other material can be treated as an image.

A photograph will be either full width or column width with a caption in *italics* and the credit to the photographer right justified.

I therefore wrote a macro using the one quoted on page 106 of *The T_EXbook*.

```
% see page 106 of TeXbook
\def\photo#1{{\parskip=0pt\unskip\nobreak%
\hfil\penalty50\hskip1em\hbox{}\nobreak\hfil
#1\parfillskip=0pt\finalhyphendemerits=0\par}}

\newcommand{\pict}[5]{\only{#1}{#2}{#3}%
\newline {\it #4\photo{Photo: #5}}}%

```

```
\newcommand{\ponly}[3]{%
\setlength{\unitlength}{1mm}%
\begin{picture}(#2,#3)%
\put(0,0){\ifthenelse{\value{omitpic}=0}{%
\framebox(#2,#3){\large #3mm
#1}}{\makebox(#2,0)[lb]{%
\special{epsf=epsfiles:#1}}}}%
\end{picture}}%
```

There is one vital ingredient in the above code, the assumption that the .eps file is stored such that the bottom left corner of the image is represented by the coordinates (0,0). To be able to put two single column pictures side by side is easy.

```
\dtitle{The 1991 Sponsored Trackbed Walk}%
{Garry Owen}
\parbox[b]{59mm}{%
\pict{t1.eps}{59}{45}{The walkers assemble
on Race Course Platform.}%
{Steve Standbridge}}\hfill%
\parbox[b]{59mm}{
\pict{t4.eps}{59}{45}{Gotherington Signal
Box.}{Steve Standbridge}}\begin{multicols}{2}
The sponsored Trackbed Walk took \ldots
```

Following presentation of a similar paper to the DANTE meeting in Hamburg in March 1992, I experimented with Frank Mittelbach's beta test version of multicols. The code above then becomes (and in fact at the start of a section could always have been

```
\dtitle{The 1991 Sponsored Trackbed Walk}%
{Garry Owen}
\begin{multicols}{2}
\pict{t1.eps}{59}{45}{The walkers assemble
on Race Course Platform.}%
{Steve Standbridge}
```

```
\pict{t4.eps}{59}{45}{Gotherington Signal
Box.}{Steve Standbridge}
\end{multicols}
```

```
\begin{multicols}{2}
The sponsored Trackbed Walk took \ldots
```

If the text for the two photographs does not occupy the same amount of vertical space, then an adjustment to the height of the photograph is required. This is when the ability to draw a box to represent the image is really useful.

I then needed to be able to put a picture at the bottom of a page and decided to use the facilities of footnotes. I extracted the following from latex.tex

```
\long\def\@footnotetext#1{\insert\footins{%
\footnotesize
\interlinepenalty\interfootnotelinepenalty
\splittopskip\footnotesep
\splitmaxdepth \dp\strutbox
\floatingpenalty \@MM
```

```
\hsize\columnwidth \@parboxrestore
\edef\@currentlabel{%
\csname p@footnote\endcsname%
\@thefnmark}\@makefnctext
{\rule{\z@}{\footnotesep}\ignorespaces
#1\strut}}}
```

I then modified the code and produced my own macro \footpict as follows:

```
\def\footpict{\@footpict}
\long\def\@footpict#1{\insert\footins{%
\hsize\columnwidth \@parboxrestore
{#1}}
\let\footnoterule\@empty
```

This means that in the source code
The train continued to run along our line
until 7th September 1962 when it was
transferred to the Bromsgrove line
(see \magazine\ No.\ 38).

```
\footpict{\pict{eddieb.eps}{122.5}{78}%
{GWR \locono{5080} 'Defiant' storming up
the bank towards Greet Tunnel.}{Dennis Bryan}}
```

When the Gloucestershire Warwickshire Railway
was formed and \ldots

\footpict{} is inserted at the first convenient paragraph break on the page where it is desired to have a photo at the bottom. This works in both single column and multicols mode.

Placing two photos at the bottom of the page is a trivial problem; simply insert the double parbox code inside footpict. The beta test version of multicols again provides for the use of multicols within the footpict macro. Again, if the text demands different height values, the use of omitpic with a value of 0 makes life easy. It is also worth noting that the width value within \pict is only required when images are omitted. It would be possible to use a fixed value, but although I have tried it, I do not find it a problem to specify the width of an image and on occasions it is helpful.

Likewise, photos at the top of a page (as long as they cross both columns) are a simple matter. They can be either one image across both columns or two images, each being a single column width and using the parbox method. Again, variable heights will work.

When the following code:

```
\begin{figure*}
% image code inserted here
\end{figure*}
```

is inserted in the text at a suitable paragraph break on page n , then the image will appear at the top of page $n+1$.

An image at the top or bottom of a column is slightly more difficult and involves setting the item somewhere in the column, noting where the column break occurs and then moving it to the correct place. It will probably need the following code as well

```
{\parfillskip=0pt\par}
```

to ensure that the preceding column to the image does not have a false paragraph break when none is intended. Therefore, I have a wish list for an improvement to `multicol`. I would like to be able to float a single column image to the top or bottom of a column. Frank Mittelbach is aware of my wish so all I can say is wait for future developments.

I must reiterate that images need not be photographs and, in fact, all of the display adverts used in my magazine are created using the same code as `ponly`.

Conclusions

I will admit to one failing, the cover(s) and center page are **NOT** produced in \LaTeX . This is one case where page layout software on the Mac has a distinct advantage. Frank Mittelbach has admitted that it is unlikely that `multicol`s will be able to replace my `footpict`. I know how to manipulate single column floats, the only penalty being an increase in the processing time.

Is this method successful? We (my Assistant Editor, Audie Baker, and I) spend around 100 to 120 hours of time to produce an issue of 60–64 A5 pages.

The answer must be yes as now the magazine is always on time and is enjoyed by **ALL** the readers. We usually have to hold material over for the next issue and there are always more than enough photographs for each issue. I see magazines produced by other DTP methods, and (I know I am biased) \TeX and \LaTeX are still far and away the best for typesetting beautiful text which in fact, apart from fractions (I naturally have written a macro for fractions which appear pleasing to the eye at `normalsize`), has no mathematics included.

I have learned a lot in the past three years on image processing and how to include images in printed material. The basic lesson is that large amounts of storage are required but even more important is **FAST** processing. I have just invested in a SUN IPX workstation with an additional 1.2 gigabyte disc to reduce the overall processing time.

Postscript

A number of changes have occurred since issue 40. For issue 42 (Autumn 1992), photographs were stored in compress TIFF format and converted to PostScript on the fly by DVIPS. This method reduces the disk space requirements for each photograph by more than 60%. The PostScript file used to create the film for plate making for issue 42 was almost 150 megabytes.

Developments continue and it is hoped that for issue 43 the width parameter in `\ponly` will be made redundant. Page imposition will, I hope, be changed to A3 format with each A3 page made up of 4 A5 pages with heads set to the centre. Linotronic output then be suitable for plate making without manual make-up.

My style file, `cornish.sty` will shortly be available in the archives. They will, of course, require modification dependent upon the `dvi` to output device program that the user employs. The file also includes my parameter settings; these are

I will always be happy to answer queries about `CORNISH.STY` but would prefer them to be sent to the `uktex@tex.ac.uk`, as I am one of the reviewers of that list.

Acknowledgements

I must acknowledge the help given by members of the Aston Archive Group. They have made numerous suggestions for improving the magazine and unravelled the complexities of some of the existing `parameters` and `macros`. Finally, I would like to thank my Assistant Editor, Audie Baker, whose speciality is photo composition and arrangement.