A Medical Journey and New Technology

Jenny Gretton

I felt tempted to give this article a title that did not sound too stuffy, "My Romance with Arthur" perhaps, after all we are said to "embrace" new technology, and we certainly become dependent on its underlying loyalty and support. Like all relationships that are destined to last it is important to know what it is we are to embrace - what is new technology? In the context of publishing a medical journal it means wordprocessors, scanners, modems, computers to run databases, and telefax machines.

In the context of our journal it meant taking a well-established system for running the editorial office, and adapting it to run on personal computers. Before going in to the details of what we did, and how we did it, I think it will help if I give you an outline of the Journal itself.

The British Volume of the Journal of Bone & Joint Surgery was first published in 1948, to fulfil the needs of orthopaedic surgeons at a time when orthopaedic and trauma surgery was expanding. Most of the contributors, and subscribers, came from Britain and the Commonwealth. Over the years, but especially during the last ten years, more papers have come from countries where English is not the first language, and our subscribers have also followed this pattern, so that now we have subscribers in virtually every country of the World.

The number of papers submitted and the number of pages published has increased, the former doubling in the period from 1983 to 1989 to 934. The number of issues per year has increased from four to six, with additional pages in each issue. We expect to publish 1168 pages in 1990, compared with 540 in 1980.

The print run is 33,000 with a subscription list of 32,000. The subscription list is maintained in the journal office. All papers are submitted direct to the Journal; books for review, orders for reprints, and invoicing for reprints and advertising are all dealt with in-house.

The text of the Journal is heavily illustrated with halftones, tables and graphs. Many of our authors are from non-English speaking countries so the papers for publication are edited fairly heavily,

bearing in mind that about 12,000 of the subscribers are also non-English speaking. All papers submitted to the Journal are read by two or three members of the Editorial Board, which consists of 25 orthopaedic surgeons in England and abroad.

So why buy computers? The heavily illustrated pages, together with an established house style do not readily lend themselves to in-house typesetting; the fact that we check every reference at source before publication seems labour-intensive rather than suitable for computerisation. However, we did buy computers, and made them do the work we wanted them to do.

In 1985 we bought stand-alone (but all compatible) personal computers, and chose off-the-shelf packages of wordprocessing and database software. The wordprocessing software (Samna III) gave a good clear screen to work on, with help only if it was asked for. To do all the databases jobs we chose DBase III from Ashton Tate. Not user-friendly, but experience has shown us that user-adaptable is more important, user-friendly is only useful in the first month or so, when almost any software seems user-hostile to say the least! User-adaptable means that you can do the work in the format you choose, holding records in the way you want. We have new versions of all the software, and DBase has moved towards easier creation of files, reports and searches, but we still rate adaptability as more important than apparent ease of use.

Decisions about suitable software were not the only items on the agenda in 1985, before any of the hardware or software was chosen we had been in close collaboration with our printers about the possibility of coding our text so that when it left the editorial office there would be no more hands-on intervention before galleys are produced. We agreed at an early stage that any discs we produced would be in ASCII (American Standard Code for Information Interchange) - incidentally it was the need to use ASCII that led to the naming of my first computer, Arthur, and hence my suggestion that this might be entitled "My Romance with Arthur", but I digress. Because of the large number of illustrations and tables, (tables being set as

illustrations), it was agreed that we would continue to paste-up in-house from galleys and scatters supplied by the printer.

Coding the text became the most important development for a time, and we ended up with a simple system, easy to remember without constant reference to lists, and incorporating our existing key-to-type so that some of the codes were already familiar to editorial staff. All codes were enclosed by dollar signs - not used often in orthopaedic articles, but if a dollar did appear it merely became $$$, yes, we tried to think of everything!

The codes work at three levels, the old key-to-type to govern the size and typeface, so that the previously marked up "7" became 7, and so on, simple codes to distinguish italic (IT), bold roman (BRO), and roman (RO), and the last group for the accents and special symbols, where the code operated on the next character only. Accent codes began with "A", an umlaut became AU and therefore "U" with an umlaut became AUU. All straightforward stuff, and with approximately 100 codes we covered all our requirements including accents from many languages.

By working closely with your printer you can have more than a simple typeface instruction built into one code, so that our 16 has various additions to produce footnotes, captions and references. In the case of captions - which set to the width of the illustration - we include the pica width as part of the code, for example $16CP20$ would produce a caption 20 picas wide, set in our "16" key-to-type.

Special spacing requirements, for instance around a centred heading, can be locked into the code for a centred heading; the possibilities are enormous if you have a house style that requires most of the material published to appear in the same format, but with as many variations in type size and appearance as the Editor chooses.

Having agreed our code list, and decided on our software and hardware, time was devoted to the database and how this could best serve the Journal's needs. For the uninitiated a "database" is like a filing cabinet with an almost infinite number of drawers, and a memory that allows it to rapidly find data put into one of its "drawers". For the two years before we installed our system I had added columns to the hand-written log of all papers submitted for publication. If a paper went missing I was anxious to do the tracing of it myself, to see whether the extra columns of information in the log would give me a short route to finding the missing article. I

found that they did, and from the log we had a ready-made file design, with all the columns in the book becoming fields in the computer log. With a database it is possible to look at one field, say the country of origin of a manuscript; keywords give clues about the nature of the article, so that "Switzerland" with "knee" would almost certainly be the article that "X" was asking about - needless to say when you look at the full file on that submission you find that "X" was only one of several authors, and "Y" was the corresponding author; the article would have been hard to find under "X" alone. Since we bought our first database many improvements in the search facilities mean that we could find "X" quite quickly, but again, is that the paper "X" wrote with "Y" or the one about ankles that he wrote with "Z"?, typesetting codes embedded in them.

The same database carries logs of books for review, and runs an excellent subscription listing with all the label producing and reporting that that entails. Our printers' computer wizards put together the subscription database, we told them what we wanted to be able to do, and what we definitely did not want to do, and the result works very well. One of the best features is that the system eats cash listed for a subscriber in issue-size bites; once the cash is eaten up the system will not produce a label for that subscriber until he feeds it more cash. If this is three-issues into a subscription year the system will produce labels back to the beginning of the year, so that is not too hard-hearted!

Since we started using computers in 1985 we have added Lotus 123, a spread sheet for management reports and statistics. In January of this year we installed a local area network, still based on personal computers, but linked through a file-server that stores all the data (software files and all the work created on them). Backing-up data is obviously important, but I find few people take it seriously, until the inevitable happens and the system goes down, taking all your work and data stored with it. Without a back-up this is a major disaster, and quite frankly heads should roll for letting it happen! When we started we had tape-streamers for each computer, with a set of tapes in the safe and another off site, the theory being that one could be up and running again within a couple of hours, even if the office was a heap of smouldering rubble. Now the back-up is done from the file server, saving individuals' time.

In summary, we use computers to typeset, maintain our subscription list, hold a database of our references, keep a log of all papers submitted, and

to produce standard letters and management reports.

Because it is flexible it does what we ask; because it is a highly complex system it can do what we ask. In implementing a new system work methods have to change, computers are not silent - they hum all the time - and this, in a small office, can drive the non-user mad. Fortunately this can be cured by sound-absorbing panels in the right places.

Before embarking on this type of project pick the brains of all your friends and acquaintances; I certainly did, and it helped me to avoid what I call "square wheels" - pieces of technology that are perfect in every way bar one, often the one item that makes or breaks it as a useful tool. Remember that you will want to add on to your new system, make sure that what you buy is compatible with a wide range of other products. Talk to those who are use to computer output, either as labels or for typesetting, and above all do not sign an order until you are certain you are going to get what you actually want. ❑