# How Times Changed

## Observations on technological change in the printing and publishing industry, 1955–2008

This little book is designed for those for whom editing is and has always been something which happens on a computer screen. It tells you about the joys and perils you have missed.

Why does this matter? Firstly, because all professionals should have some understanding of the history of their profession. Secondly, because some knowledge of past practices may help to clarify and even solve some of today's problems. But thirdly, because if you don't know what you have missed you don't know how lucky – or unlucky – you are.

BY THE SAME AUTHOR

*Modern Australian Usage*
Oxford University Press, 1993, 2nd ed, 1997

(with Prof C. Below)
*The Vedgymight History of Australia*
Heinemann 1983, 2nd ed. Hudson 1988
*The Complete Evaporated History of the World since the Dawn of Time*
Heinemann 1984

# How Times Changed

## Observations on technological change in the printing and publishing industry, 1955–2008

Nicholas Hudson

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# Contents

## Acknowledgements

This book contains a number of illustrations, some of which are downloaded from the Internet. For the purposes of the current very limited and exploratory publication, I have relied on the 'fair dealing' sections of the Copyright Act. In the event that any copyright owner feels that this is not appropriate, I will not argue the point. Permissions will be sought in the unlikely event that the work is published commercially

In the meantime, the sources are in every case identified and my debt to them is hereby acknowledged.

I must also thank all those who have helped with proof-reading. However, I would draw your attention to Hudson's Laws of the Exponential Decay of Typographical Error:

First Law: *the half life of a typo is one reading.*

The first reader detects half the surviving typos. The second reader detects half of the other half. And so on, almost indefinitely.

Second Law: *for every five typos corrected, one new typo is generated.*

This is particularly true if the corrections are implemented by the author. So the presence of typos in this booklet does not prove oversight by the proofreaders.

Third Law: *if only one typo survives, it will be on the cover or the title page.*

If you find a typo on the cover or title page, all is well.



# Introduction

This little book is designed for those for whom editing is and has always been something which happens on a computer screen. It tells you about the joys and perils you have missed.

Why does this matter? Firstly, because all professionals should have some understanding of the history of their profession. Secondly, because some knowledge of past practices may help to clarify and even solve some of today's problems. But thirdly because if you don't know what you have missed you don't know how lucky – or unlucky – you are.

The past fifty years have seen two revolutions in printing, each of them more profound than any that had occurred in the previous five hundred years.

The first occurred around 1965, with the sudden death of letterpress and hot metal type. This was followed by the brief flowering of Monophoto and other 'cold' typesetting systems.

The second revolution happened around 1985, with the arrival of what was termed 'desktop publishing'. The term was of course totally misleading: it had nothing to do with publishing, something to do with printing, and everything to do with digital typesetting, editing and layout.

Those of us who worked with all three technologies are extraordinarily fortunate.

I hope to communicate something of the surprise, delight, disbelief and fear with which we greeted the arrival of these new technologies. I have neither the wit nor the wisdom to explain them in any detail, but I can say something of the way in which they altered our working lives. To do this requires an

anecdotal narrative rather than a technological treatise, but I have tried to make the technology the leading character.

Journeys down other people's memory lanes are, like other people's family histories, notoriously boring: accounts of people you have never met engaged in peculiarly trivial activities. In the present case however, we are talking about people like you doing things that you do, so I hope that the journey is relatively painless.

Nick Hudson
Newstead
August 2008

### *Version 2, completed September 2008*

One of the joys of electronic publishing is that you can make corrections at any stage, and the present version may well be different from the one you saw yesterday and from the one you might see tomorrow.

For the first round of changes I owe an enormous debt of gratitude to Janet Mackenzie, who provided dozens of perceptive suggestions, almost all of which have been taken on board.

### *Version 3, March 2009*

Thanks for this version go to Tony Geeves, who noticed (amongst many other things) that I had my bits and bytes confused, and gave me a string of really useful leads and suggestions.



# Chapter 1
# The Indian Summer of Letterpress

*Every story has to start somewhere. As this is the story of the technological change I have seen in half a century in publishing, it might as well start where I did.*

My first brush with editing was in student journalism, where 'editor' had a different meaning, but the associated technology was roughly the same. Newspaper editors, like book editors, are involved in preparing copy for press.

The editor of a university newspaper had to be good at mental arithmetic. Imagine the scene: a desk with a scruffy pile of badly typed copy, and a layout sheet ruled up in 11-em columns. No proofs, no typographical print-outs, just very raw material. How do you turn these into layouts?

If we were not to find that the copy we had generated grossly overran the allotted space or, worse, failed to fill it, we had to do a 'cast-off' (aka 'cast-up') of the copy. This meant estimating the number of words in a text and translating this into column inches in 8 pt or 10 pt Times, the two fonts our typesetter possessed: easy enough with a clean typescript but diabolical with even a single page of heavily edited manuscript. We had slide rules to help us but no pocket calculators, still less the instant accurate word count facility of today's computers.

Casting off was a competitive sport with clear winners and


*I don't have my original slide rule any more, but among my junk I recently found a circular pocket version, sent to me as a freebie by Time-Life around 1965.*
*Here it is, actual size, set up to convert the number of words in a text to its length in column inches of 8/8pt Times set 11 ems.*

losers. The results of the competition became evident the moment the copy was set and its actual length in column inches was there for everybody to see. I was not the worst at it, but I was certainly not the best.

*Cherwell* was a weekly newspaper of eight tabloid pages which came out every Tuesday morning. The inside 4-page folio was for feature articles, reviews and other material which could be prepared in advance, and the deadline was Thursday evening. Using our cast-off of the length of the copy and the

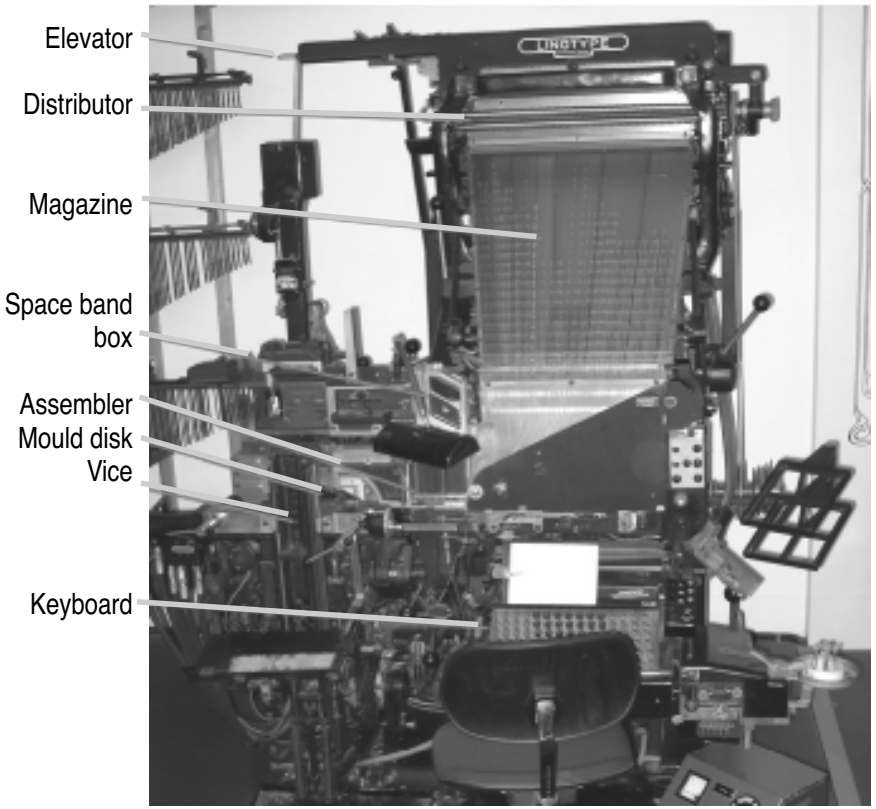


by-then fixed dimensions of the line and halftone blocks (of which more anon), we produced a rough layout. The marked-up copy caught a late-night bus from Oxford to Aylesbury, where our printer was located.

'Marked-up'? I haven't marked up copy in nearly thirty years, and unless you are over fifty the term either means nothing to you or means something different. For us it meant taking the copy, already covered with authorial and editorial changes and corrections, and inserting instructions about what font, size, measure, leading, indentation, etc., were required. Nowadays, we just do all this on screen as a trivial part of the editorial process. Then, it was critical and irreversible. If a text was set to the wrong size or measure, you had to live with it – or incur the cost of resetting from scratch.

On Friday, a small team would head off to Aylesbury to oversee the layout of the inner pages. It was a small letterpress printery with a single flatbed press which Caxton would have understood. He would have been delighted by some of the innovations which had occurred in the four-and-a-half centuries since he hung up his tweezers, but not bewildered by them. The basic principles were still the same: compose the text in metal type, put the composed type in a chase to hold it together, put the chase on the bed of the press, smear ink over the top of the type, lay a sheet of paper on it, and press down. Presto! A printed copy of the text.

Of all the items in that printery which would have fascinated him, the best was probably the Linotype machine. I still reckon that the Linotype machine and the pianola were the most loveable products of the mechanical age. It was not just that they were both clever, it was that they both made wonderful music. But the Linotype wins because the pianola could only make music, whereas the Linotype could set type as well.



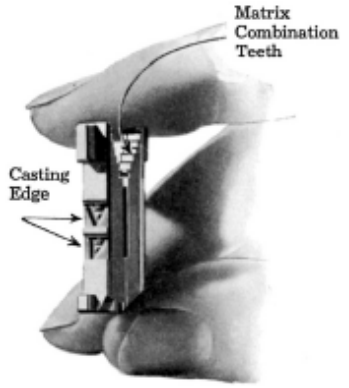

*A Linotype machine. The sorter, which generates the characteristic music of the machine, is right up at the top. This is quite an elaborate model; the one I knew best was more basic.*
*The pictures in this section are lifted from Wikipedia, which has a brilliant entry on this astonishing machine.*

To understand the music of the Linotype, you have to understand a bit about how it worked. Instead of assembling a line of individual letters and spaces, as a hand composer did, the Linotype machine assembled a series of matrices, effectively moulds carrying the shapes of the letters. As the



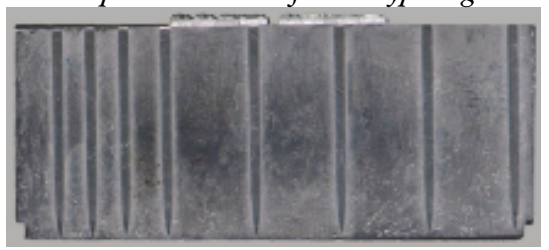
operator pressed the keys on the keyboard, these rattled down from the magazine into the assembler, and the whole line was cast as a 'slug'.

The matrices were then available for re-use. They were carried up in the elevator, jingling merrily, and then jingled to a subtly different tune as they were sorted back into their correct places in the magazine, each one having a different set of teeth, like a range of Yale keys. The subtle counterpoint of these two jingles created the unique music of the Linotye machine.




*Linotype matrix for roman and italic A*

*Top and side view of a Linotype slug.*



In Caxton's day, distributing type (that is, sorting the 'printer's pie' of thousands of assorted characters back into the cases) had been a hideously boring but demanding job, given to the junior apprentices. Caxton would have been overjoyed at the idea of self-sorting type.

To round off this sketchy account of the Linotype machine, we must consider the question of justification. Justification was achieved by having wedge-shaped 'space bands' for the spaces. When the line contained all the letters it would accom-

modate, the operator pressed a pedal and the wedges were rammed in to justify the line. Then the line was cast as a slug, the caster with its pot of molten metal being just beside the operator's keyboard.

*A set of matrices assembled ready for casting, showing the wedge-shaped 'space bands' in place*

We tend to think that the main merit of machine typesetting was productivity: that it enabled compositors to set more lines in a day than they could with founders' type. It did. But Caxton would immediately have seen that the biggest advantage was cutting down the investment in type.

There are around 2,000 characters on an average page, and Caxton's sheet might print eight pages each side, sixteen in all. So such a sheet would tie up 32,000 bits of type.

Now multiply this by the number of such sheets that might be in preparation at any given time, and you can see that a printer would need a million or so pieces of type.

This is just one font. Now we need also the related bold and the italic. Not as many, perhaps, but enough to be sure that we don't run out. Say half a million of each, two million in all.

And perhaps we need more than one size. Two million more for each size.



Small wonder, then, that most printers offered only one typeface in perhaps two sizes. They would also have much smaller quantities of larger type for titling – display fonts.

You can also see why a large book would be printed in stages, with the type for the early pages being distributed and re-used for the later ones. There was no question of holding the type for a reprint: it was reset from scratch. The last section to be set and printed was always the prelims pages, which gave rise to the convention of assigning arabic page numbers to the text proper and numbering the prelims separately in l/c roman numerals, a convention not followed in this little book.

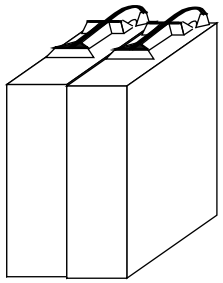
With the arrival of Linotype, the number of copies of each character was radically reduced. You needed only enough matrices of each character to complete one line.

Even so, buying a new font was still very expensive. Every printery produced a type book, showing the range of fonts they offered. A big printery might offer ten different faces in perhaps five sizes, a total of fifty fonts. Many, like ours in Aylesbury, offered only one face, Times, in two sizes, 8 pt and 10 pt. And we could only have normal or bold, no italic.

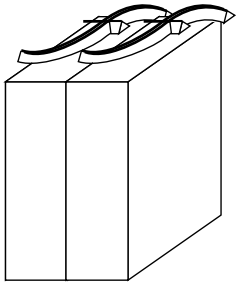
Caxton would have felt totally at home with the display type we had available. The Linotype machine could only produce the body text. Everything else was handset, with metal type for the smaller sizes and wooden type for anything over 48 pt. And it lived in cases, which always came in pairs, the upper case for the capitals and the lower case for the small letters.

Wooden type presented occasional special problems. "You can't 'ave that 'eadline in lower case Falstaff italic," Horace, the compositor, would bawl. "We've only got one eff that 'asn't lost its kerns."

Now, just in case the problem is not clear to you, handset type consisted of a brick-shaped 'body' with the raised shape of the letter on one end, and normally the whole letter was contained within the width of the body. This meant that letters would not overlap. Thus instead of *offer* a handset version would have been more like *o f f er*. To avoid this, the ends of the italic effs hung out beyond the side of the body – kerns. The adjacent type would then be able to fit snugly under the kern. But the kerns were fragile.



*non-kerning characters*



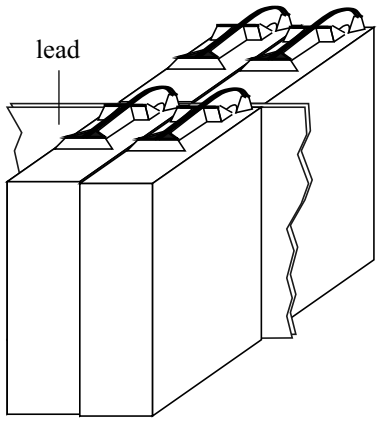
*kerning characters*

The kerning facility we have on our computers does the same job, but 'kerning' has come to mean 'individually adjustable letter spacing'. Typography fanatics can now spend happy hours messing about with the kerning of a single line.

Incidentally, there was no way in which Linotype could be made to kern. Aesthetically this was its principal disadvantage – a Linotype setting always looked slightly loose and ragged, and typographers despised it. The quick way to tell a Linotype setting is to find an italic f. If it is squashed in so as not to overhang the adjacent characters, you are looking at Linotype.

Then there was the question of leading. Horace might call out "That piece about that young Bob 'Awke's running a bit short. Shall I lead it out a point?" We can do that on our computers, too. We can lead out the whole of a 500-page book and make it a 520-page book simply by one little change of the leading specification. If we had specified 8/9 pt and now needed 8/10pt, Horace did it manually, cutting the thin strips of lead, 1 or 2 pt thick, to length and putting one under each slug.






*'Leading' a strip of lead between the lines of type.*

Meanwhile Frank, the Linotype operator, would be continuing to set more of our copy. He would have had a page-worth of it done by the time we arrived at about noon, so we had plenty to work on, but every twenty minutes or so a fresh long galley of type would arrive.

A newcomer might then commit the ultimate sin.

"Can I pull that galley for you, Horace?"

Pulling a galley was a simple job, rather like taking an impression off a credit card. You put the galley in the proofing press, inked it with a small inking roller, laid a strip of paper over it and pulled a pressure roller down the strip.

The offer to pull a galley was always well meant, but the response was always the same. Horace would stand there, a look of thunder on his face, his tweezers ready to be downed.

"Not if you want a newspaper this week."

Yes, the absolute sin was to touch the type. We were not members of the Chapel, as the typesetters' and compositors' union was always called. Even in this tiny printery with two friendly blokes doing all the work, the rules about non-members touching type were rigorously maintained. Of course we did pull galleys if one got messed up, and I'm pretty sure Horace knew it, but we only did it when he was out of the room.

So the day would progress and the four pages would slowly come together. Our contribution was to proofread the galleys and then do a paste-up, using as a reference the rough layout we had produced the day before. It was then that the accuracy of our cast-off would become apparent. If it was badly out, we would have to redesign the page or delete some of the copy.

Saturday was the day most of the reporting was done, gathering the material for the outer four pages, two at the front for general news, two at the back for sport. I came up through the sports staff, not because I had any engagement with sport, but the exact opposite. I was available to report sport because I was never taking part in it.

On Sundays we all foregathered at the office, which was in a disused potting shed in the grounds of the University Union, and planned the layout of the outer pages. We liked to have a photograph or two to accompany the main stories, and the layout would be built round these. So the photos had to be selected and blocks made.

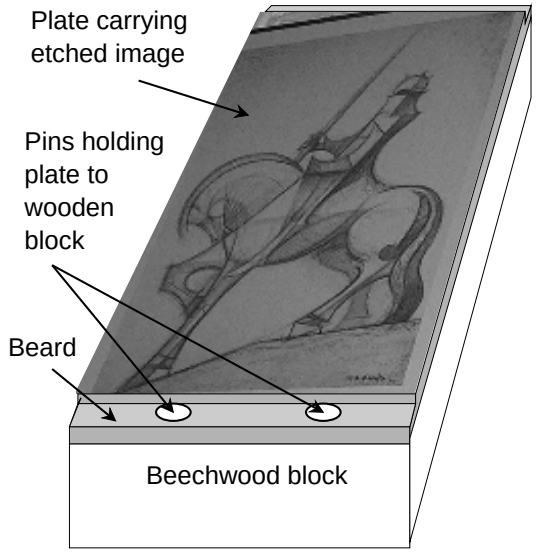
First, each original photograph was marked on the back to show how it was to be cropped and how large the rest was to be, either as a percentage or (better) as a finished width (better, because the critical datum was the column width). Once the finished width was determined, the finished height could be calculated on the back of an envelope or with a slide rule.

We took the marked-up photos round the corner to the local evening newspaper, the *Oxford Mail*. In their studio, the photo was pinned to a board in front of a huge bellows camera, big enough to produce a negative more than a metre square. This was then adjusted until the image appeared on the camera's viewing screen at exactly the size we were wanting, which was achieved by moving the lens end of the bellows in or out on wheels running on a railway track.



Meanwhile in the darkroom a sheet of glass was made light-sensitive by pouring an emulsion over it, and this was placed in the camera. The appropriate screen, in our case 120 dpi, was inserted, and the plate was exposed. Then back into the darkroom to take out the glass plate and put it in the developing bath, where the screened negative image appeared. Still wet, the glass plate was then placed in the photo engraver, where the image was transferred to a light-sensitised copper plate. The parts that were to appear black now became acid-resistant, so that when the copper plate was placed in an acid bath the white parts were etched away. Presto! A halftone plate, in less than half an hour!

Fast foward to today. I decided I needed an illustration of the next stage – mounting the plate – and for this it would be good to have something that looked vaguely like a halftone image on a copper plate. So I took an angle view of a print on the wall, downloaded it into the computer, imported it into a graphics program, drew in the lines and imported the completed drawing into this text. Here it is. The whole process took less time than making a single block in those not-so-distant days.

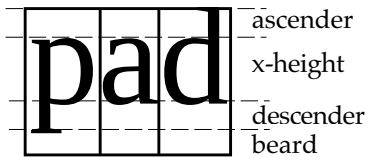



*Block mounted 'flush l/r'*

But back to those days. The thin copper plate then had to

be mounted so that it would sit at the same height as the type when assembled in the chase. Our plates were generally pinned to wooden blocks. If the plate was more than about ten centimetres wide (though of course we worked in inches and pica ems) it had to be pinned on all four edges.

Pinning the plate involved creating a flange below type height, known as a beard, by grinding away the face of the plate. A smaller plate could be specified as 'flush l/r', meaning that the beards would only be at top and bottom (as in the picture on the previous page) and the image would extend to the edge left and right. If we wanted the block to be flush all round, it could be done by 'steam mounting', effectively sticking it to the block, but this was expensive.




*The term 'beard' was also applied to the minimum line spacing at the foot of the characters*

Again, mistakes were impossible to rectify. If a block was made to the wrong size, you lived with it or had to start from scratch. The biggest disaster of my early years in publishing was when one of us made an identical error in the specifications for all the hundreds of line and halftone blocks for a new biology text, and the whole lot had to be discarded. I was glad it wasn't me – and it could so easily have been.

For the record, I would add that the technology in the *Oxford Mail*'s photo engraving department was antique even for its time. Most photo engravers used pre-sensitised dry film rather than wet plates, so many of my contemporaries never saw a wet plate in use. But the principles were the same.

Now, why do I go into such detail about all this? Simply because it was this experience, and others like it, that make me really appreciate how far we have come. No reading about it can ever match the experience, but I hope that next time you casually scan a photo, crop it and resize it within your layout assembly program, with the text neatly realigning itself to wrap round it, you will realise what a miracle you have just been empowered to perform.

But back to the *Cherwell* office, where the layout sheets are filling up, not with a paste-up but with a jigsaw puzzle of rectilinear shapes, each identified with an as yet not typeset story. Will this one actually run to 30 lines, as we have allowed, or 29 or (God forbid!) 32? We will know tomorrow night. Meanwhile major stories are written with expendable last paragraphs and optional cross-headings.

At seven o'clock, the whole lot is parcelled up and put on the bus to Aylesbury. That was the last we would see of it – Frank and Horace would have to make sense of it all without our help.

And, of course, they always did. I have a horrible feeling that our Friday visits were not really much help to them, but they sure were a help to us.

# Chapter 2
# The Publisher's Apprentice

With weeks to go before my University Finals, and with a wedding all planned but no job, it seemed a good idea to try to get one. It never occurred to me to worry that I would not get one, but my first attempts were not encouraging. I believe I am the only person in the world to be knocked back by the British Council.

It came as some relief, therefore, when I got a letter from the secretary to the Manager of the Educational Department of the publisher William Heinemann Ltd, saying that they were proposing to extend their operations into Australia and were looking for somebody to start it up. I instantly recognised that educational publishing was the career for which destiny had prepared me.

A few weeks later, I started a six-month apprenticeship in the London office, learning the ropes. Actually, there were not many ropes to learn, at least on the technology side. The telephone, the typewriter, carbon paper and ballpoint pens were the only office innovations to have arrived in the previous hundred years, and *Cherwell* had all of these.

However, there were things I had to learn about printing technology, and of these the most fascinating was Monotype. The Monotype system cast each character as a separate piece of metal. As the width of the word space could not be known until the line was effectively complete, the keyboard generated a punched tape with all the characters, spaces and line breaks



on it. This tape was then fed into the caster, a totally separate machine, which adjusted the width of the spaces to justify the line. It then cast the characters and spaces as separate pieces of type.

Monotype casters made a hideous din, a rapid sequence of heavy bangs like a rock band from hell. They were generally housed in a soundproofed room well away from the keyboarding room.

One advantage of Monotype was said to be that transposition errors could be corrected without resetting the whole line, but the real advantage was aesthetic, and stemmed from its ability to kern. Linotype matrices had to have flush sides, so kerning was impossible. Monotype could kern, so its letter spacing was much more sophisticated and elegant. Almost all Heinemann books were set in Monotype.

Now for a short game of 'Spot who's missing'. The staff of the Educational Department comprised the Manager (shortly to become the Managing Director when the Department was separately incorporated as Heinemann Educational Books Limited) and his secretary; the Assistant Manager and his secretary; a Publicity Manager (without secretary, being herself the previous secretary to the Manager and hence capable of typing); and a Sales Manager with secretary, two inspection copy clerks and four reps. Accountancy, order fulfilment and warehousing were supplied by the parent company.

So, who was missing? Answer: editors.

Now, I am not saying that there were no publishers who employed people as what we would now call 'book editors' and 'copy editors', but the Heinemann Group was not alone in having *none*.

The Heinemann trade house, with its stunning list of best-selling authors, had two people called editors, but they were bright young literary gentlemen whose job was more or less that of today's commissioning editors: to find talent and, once found, to nurture it.

In the Educational Department, even these creatures didn't exist. The four senior staff shared the job between them. The sales manager, Edward Thompson, was a drama buff, a personal friend of Gielgud and Redgrave, and he ran the Drama Library. The rest of the English list and much of the Science was looked after by Alan Hill, the Manager. Modern Languages were the preserve of Heather Karolyi, the Publicity Manager, and History and Geography belonged to Tony Beal, the Assistant Manager. Tony also did all the cost estimates. Between the four of them, they published about sixty books a year.

The critical point is that Edward Thompson was not a sales manager who was moonlighting as a literary gentleman, but a literary gentleman who was daylighting as a sales manager. John Gielgud was seen by us not as 'a Heinemann author', but as 'one of Edward's authors'. It was said that J.B. Priestley stayed with Heinemann because of his editor, Roland Gant, and Roland Gant stayed with Heinemann because of J.B. Priestley. The firm merely provided the corporate culture within which this network of highly personalised relationships could flourish. But, of course, no senior person ever thought seriously of moving from one firm to another. It was as absurd a notion as deciding to change one's family.

None of these people were, however, book editors as we understand the term. As they read the manuscripts, they certainly made marks on them, correcting spelling and punctuation, rewriting clumsy sentences and often making major structural proposals which would then be discussed with



the authors. But the Heinemann Group employed no people whose prime function was to detect and correct errors and infelicities in manuscripts.

How was it, then, that the books were so free from typographical errors? Answer: the professional skill of typesetters and printers' readers. You could give them a totally unmarked text and they would hand you back a completely literate version. Correctness in spelling, punctuation and grammar, as defined in their bible, *Hart's Rules for Compositors and Readers at the University Press, Oxford*, was mother's milk to them. But the publishers in those days sincerely believed that they were just dumb animals who simply followed copy.[1]

This led to one of the most spectacular strikes I have ever witnessed. The typesetters and readers felt that they were highly skilled and deserved more respect, and of course more pay, than they got. They didn't stop work, they simply did what their clients said they did: they followed copy. The result was hilarious. Proofs came back riddled with crass errors which had not been picked up by earlier readers, and instructions were followed to the letter. Thus one Heinemann novel appeared with the words 'Colophon as before' at the bottom of the title page, the 'editor' having failed to ring it round to indicate that it was an instruction, not copy to be typeset.

The strike ended with victory to the strikers and smiles all round. But the victory was short-lived. With the arrival of the

[1] The specialist book printers I knew employed 'readers' who did copy editing, mark-up and proofreading, However, David Cunningham tells me that the Clarendon Press, the printery of Oxford University Press, had one team doing the copy editing and mark-up and a separate team dedicated to proofreading.

Significantly, the current manifestation of *Hart's Rules for Compositors and Readers* says it is *... for Writers and Editors*.

Mac, we all became instant compositors, and the professionals were powerless to stop it. The last generation of printing apprentices with a full training in *Hart's Rules* is now nearing retirement age. We will not see their like again.

If copy editing was left to printers, so was typography. As it happens Heinemann did employ a typographer, the redoubtable Hugh Williamson, whose *Methods of Book Design* remains a classic on its subject. But most publishers operated on the same principle as the whizz-kid publisher Anthony Blond. When asked who designed his books, Blond said "I just give the manuscript to a printer and tell him to make it look like a Jonathan Cape book."

In short, in-house editing was not seen as a set of skills, but rather as a set of aptitudes and attitudes. Of these, the principal one was curiosity about every aspect of human life and achievement: the belief that the world was a vast library of as yet unpublished books.

However, we didn't live entirely in the clouds. I had not been working long in the London office when the Manager, Alan Hill, put down his cigar for a moment and looked at me earnestly.

"You do realise that publishing is just another business, like soap."

I assured him that I did.

"Well, why don't you go into a proper business, like soap, instead of a cock-eyed business like publishing?"

I had no answer for him.

Equipped, then, with all the appropriate qualifications, my new wife and I set sail on the splendid P&O liner, the SS *Iberia*, bound for the Australian colonies.



# Chapter 3
# The Litho Revolution

On 9 April 1958, two days before my 25th birthday, the *Iberia* docked at Station Pier, Melbourne, and my real education in publishing began.

The Heinemann office was on the ground floor of 317 Collins Street, just up from Elizabeth Street. It could not have been a greater contrast to the Bloomsbury office of William Heinemann at 99 Great Russell Street. Whereas Great Russell Street gave no evidence of commercial activity, Collins Street gave little evidence of anything except commercial activity. So I guess I might say a little about the technology of the commercial side of publishing.

The task is not arduous, as there was no technology to talk about. Orders were edited by a clerk who carried the retail and trade prices, the stock figures and the arrival dates of O/S (out of stock) and NYP (not yet published) titles in his head. The edited orders were then passed to an invoice typist who hammered them out on an old upright typewriter. They then went out to the stockroom at the back of the office for picking, packing and dispatch, a copy being returned showing that delivery had been made.

It is not difficult to identify a crucial weakness in this procedure. The stock clerk involved, Les MacDonald, had an astonishing memory, occasionally aided by reference to a price list and the last stocktake figures, which were not more than six months out of date. But his knowledge of availability of

stock depended on his remembering how many copies had come and gone since the last stocktake, and his knowledge of arrival dates of O/S and NYP titles depended on his keeping abreast with the latest shipping documents. Small wonder, then, that roughly one in every three invoices had to be followed up with a credit note, and the O/S reports were, to put it mildly, unreliable.

That this did not bring the business to a standstill was due to one simple point: that as a trade house William Heinemann sold most of the books on subscription – a term, incidentally, which derived from the 18th-century practice of booksellers banding together to finance a new book by subscription: they placed orders, and paid in advance, for each proposed title. It then became the trade jargon word for booksellers' pre-publication orders.

There was no problem with getting facts right on a batch of orders for the month's new releases. And many of them would never be asked for again. So for trade books it worked – just.

All this changed with the development of the educational business, with its total dependence on backlist sales. Maintaining an accurate, easily accessible stock record and reliable information on the availability of O/S titles became vital. The first stock control system we installed was all done by hand, using systems cards on which every inward and outward order was recorded. So it was not surprising that when Heinemann Educational Australia broke loose from the trade firm, William Heinemann Australia, we were one of the first firms to put its stock control on computer. Of this more in Chapter 4.

The Melbourne office had devices I had seen in England but not used, the Roneo-Gestetner and the Addressograph.



The London firm had both, but not in its editorial headquarters. Circular letters were occasionally drafted in the office, but cutting the stencils and printing them on the Roneo machine, addressing the envelopes with the wax stencils of the Addressograph and stuffing the one into the other was something which happened by magic somewhere else.

In Melbourne there was no such magic. If I wanted to send a circular to the schools, I could often get help with cutting the stencils, but still had to be very much involved in turning the handles of these diabolical machines. I don't think anyone regretted their passing. But it did get me familiar with the names of the schools, including two misprints which I never got around to correcting: the Start of the Sea Convent, Gardenvale, and the Marxist Brothers College, Toowoomba.

But enough of commerce. Let us return to the more elevated topic of book production technology.

My first brush with Melbourne printing was in old Bill Anderson's office at Brown Prior Anderson, a firm which survives, at least in name, to this day. We got talking about old times and new times, and Bill, then nearing retirement, pulled from his desk drawer a business card with the words 'Brown Prior Anderson' set on a sweeping curve between two rules whose ends terminated in spiral coils.

"Made that myself when I was an apprentice," Bill said. "Awful, isn't it. But it taught me a thing or two. I had to roll the rule round a match to make a coil, and then make three more coils exactly the same, and then set all the words in hand type, and chew up newspaper and stuff it in to hold the rules and the type in place. Nowadays, they'd not know how to do it. They'd just say 'Make a block' ".

As in London, Melbourne publishers regarded letterpress as the normal process for book production. Unlike London,

Melbourne offered publishers no real alternative to Linotype. Monotype was available at a price, but the printers hated it. I once saw a pile of type on a bench in the Specialty Press composing room, with a sign on it in large red capitals 'DANGER! MONOTYPE!'

As far as I was concerned, Linotype was much more dangerous. I was in the composing room at Wilke's printery in Jeffcott Street, checking progress on a school poetry anthology, and realised that the alignment of some of the poems was not the best. I had asked for optical centring, which is admittedly not a precise instruction. Anyway, several of the poems had been set virtually left flush on the type area. leaving a wide empty space at the right ends of the slugs.

The comp. room foreman, an admirable Dutchman called Jan Spruit, was telling me that at this stage they could do nothing about it short of stopping the whole job and resetting.

"What about this," I said, and flicked on the bench saw, grabbed the offending poem and sliced off the right-hand ends of the slugs. "Just saw off the ends, shove 'em round at the beginning, and it's done."

A sudden icy silence descended on the busy, noisy composing room. Some forty comps in their green baize aprons stood motionless, staring at me with total disbelief.

Jan Spruit rose to the occasion. "Cool it, fellas," he said. "This one's a Pom and doesn't know any better. I'll make sure he never touches metal again."

What's more, he later had an apprentice chop the ends off a lot more lines, and produced a totally acceptable work. And I never touched metal again.

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There was one problem with letterpress printing which caused us more anguish than any of the problems it posed with integrated illustrations. This was the agony of making the irrevocable decision to 'distribute the type'.

In the days of hand setting with founders' type there had been no agony: founders' type was so expensive that you distributed it routinely as soon as the print run was complete, resetting from scratch if a reprint was needed. In the mid-19th century a partial solution was found in the process of stereotyping, which involved making a papier mâché mould of each page of type, and casting a replica of it in solid metal when the time came to reprint. But this was only economical if a reprint was virtually guaranteed.[2]

The move to machine setting altered the equations substantially. The value of a typeset page was now just the value of the metal, a fraction that of founders' type, and publishers started requiring printers to keep the type standing unless there seemed to be no hope of a reprint. So all the book printers had to find warehouse space for tons and tons of lead, and they started charging publishers 'type rental' for use of this facility.

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[2] It is interesting that English offers only two metaphors from publishing, 'stereotype' and 'cliché', and they have related meanings. 'Cliché' is the normal French word for a letterpress printing block, and hence came to mean a screened negative and, later, the digital scan of a picture. Meanwhile in the days of hand setting, it had also meant a commonly used string of letters or even a phrase preset as a single block of type. Hence our usage.

The two got mixed in the following, which I overheard at the Frankfurt Book Fair. Most international deals go on in English, and a Czech and a Brazilian were discussing a rights deal on an art book. It ended thus: "So, eet ees agreed. Ve vill haf our own text, but use your clichés."

And this is where the agony started. So long as keeping the type standing had been unthinkable, distributing it was painless. Now, the decision to distribute (a term which was still used, though it had come to mean 'melt it down') had to be taken in respect of every book.

There was an alternative, and this was offset photo-lithography. Litho had been around for two centuries, the advantages of transferring the image via an 'offset blanket' for a century and a half, and the photographic procedures for putting the image on the plate, photo-litho, for a century. However, the prevailing wisdom at Heinemann in London was that it was good enough for doing cheap reprints of books if the type had worn out, but that it was not good enough for first editions, since it tended to be a bit fuzzy, lacking the crisp clarity of the best letterpress.

Furthermore, a glance at 'litho reprints' (as they were called, with a note of contempt) showed this to be the case. What they failed to realise was that the reason its products were fuzzy was that the plates were made by photographing the image on one of the last sheets to be printed before the type was deemed unuseable. All you had to do was use clean repro proofs and the product would be clean, too.

All this is so obvious now that it is hard to understand the prejudice against litho. But it was real. Right into the early 1960s most specialist book printers fought tooth and nail to preserve the sovereignty of letterpress, if only because they all had huge investments in letterpress plant. Some major book printers, like Butler and Tanner, promoted 'dicryl plates', a modern plastic equivalent of the old stereotype block, which could be used on their existing letterpress machinery.

However, some publishers had long since realised that the quality of photo-litho was fully up to letterpress standards if



the repro was good, and that litho offered a total revolution in the cost and complexity of integrating illustrations and text. Whereas with letterpress the cost of a one-page block was more than a page of straight text, to a litho platemaker the two were just alternative images to be photographed. Complex layouts no longer involved headaches for composing rooms; they were simply assembled on layout sheets which then became 'camera art'.

I had become aware of this in 1957, but not at Heinemann, which had the misfortune to own a printery, the Windmill Press, an all-letterpress business strongly resisting change. However, one of my jobs in Australia was going to be to promote the educational lists of John Murray and A.& C.Black, and visiting them was an eye-opener. A.& C.Black had recently published the first of R.J.Unstead's brilliant 'Looking at History' series in 1953. The books were printed by offset photo-lithography, and were dramatic demonstrations of its potential.

Shortly afterwards I was working on a vertebrate dissection guide. The core of the book was page after page of full-page line drawings, and the author had indicated that the text should wrap round them. Making blocks (inevitably rectangular) and then chopping out blank areas for the type to be inserted would have been costly, and it struck me that the whole job would be infinitely simpler if done litho. *Three Vertebrates* by T.A.G.Wells became the first book from Heinemann Educational whose first edition was printed by photo-litho.

When I got to Melbourne, letterpress was still the norm, and nobody expressed any surprise that my first major illustrated textbook, *A Modern Approach to Chemistry* by Jack Stove and Keith Phillips (1963), was printed letterpress. It won us our first Transfield Book Design award.

It was printed in Adelaide, following a visit I made to The

Advertiser Printing Office, one of very few book printeries offering Monotype setting. And they were doing superb work. Their manager, Doug Dunstan, showed me with pride a book they had just produced (letterpress, of course) at the invitation of the Limited Editions Society of New York, a rare accolade.

He then showed me into the next room, which was full of a large-scale model of the interior of the new printery they were building in the suburb of Netley. The models of the machines were colour coded to show the main production lines. There was a full letterpress line, but the dominant feature of the new factory was a huge area devoted to offset photo-lithography. The Advertiser Printing Office was about to become the Griffin Press.

Two years later I published *In Search of Science Book 1,* by Lester Russell, John Cusack and John Mayfield, again printing in Adelaide, and nobody was surprised that it was printed litho. In just two years, the norm had shifted.

Litho made all sorts of special effects possible. Writing in *Australian Book Review*, Max Harris described the book as 'an all-Australian spectacular'. It doesn't look like a spectacular today, but I think it opened some eyes to the merits of offset photo-litho.

I have never heard a serious explanation of the rapidity and uniformity of the litho revolution. I would happily *assert* that in 1960, 90% of new English-language books, worldwide, were letterpress and by 1970, 90% were litho. What I *know* is that in 1964 our new books were 100% letterpress and from 1967 they were 100% litho. Such was the astonishing speed of the most dramatic revolution in printing in five hundred years.

Although it was to be printed litho, all the initial work for *In Search of Science Book 1* was done exactly as if we were preparing it for letterpress: the text was set in hot metal – Monotype Times – and the prints of the photographs, taken from screened negatives, might as well have been block proofs. We just pasted up the galley proofs and blueprints taken from the screened negatives to produce rough layouts, which were turned into the equivalent of page proofs by the printer.

However, this procedure was shortlived: within a few years hot metal would disappear altogether from the publisher's world, to be replaced briefly by Monophoto and then by computer typesetting. That will be the subject of the next chapter.

From the start, however, more and more of the pre-press work shifted from the printer to the publisher, and editors had to learn a lot of new tricks. We all became paste-up artists.

I loved doing rough paste-ups. Before your eyes, the text, photos and line drawings you had been collecting sat down together on the sheet and turned into a page of a book.

I therefore cannot leave the topic of the litho revolution without mentioning a few of the related innovations which came, affected all our lives and then disappeared like snow upon the desert's dusty face, all in a little over a decade. Most readers born before 1965 will be familiar with all of them. Few readers born after 1965 will have the faintest clue what I am talking about.

The first innovation was pressure-sensitive wax. One of the problems of assembling complex pages on layout sheets was that it was rarely possible to get it totally right first time. If you ever did, Murphy's law decreed that some problem would be found on an earlier page which necessitated remaking the perfect one. So it was vital that the repro should be fixed to the sheet firmly enough to stop it falling off, but not so firmly that it got damaged if you needed to move it. Milliners' solution, a sort of rubber cement, had been used for years, but

in the sixties we discovered the delights of hot wax.

The equipment consisted of a flat rectangular tray with a heating element in its base and a set of rollers on top. You put cakes of wax in the tray, turned on the heat and waited for it to melt. Then you fed the strips of galley proof though the rollers, and they came out with the underside evenly coated with wax.

The wax was slightly tacky to the touch, but not enough to interfere with trimming and cutting the blocks of text. You positioned the text on the layout sheet and gave it a light pat with the palm of you hand, whereupon the wax became just adhesive enough to resist accidental movement, but not sticky enough to resist deliberate removal. When the job was complete, you rolled it with a domed 'goat's foot' roller, and it became so adhesive that separating the repro from the layout sheet became almost impossible.

The second piece of equipment we all acquired was a light box – a 50 x 50 cm box with two or three fluorescent tubes inside and a translucent glass top. You put the layout sheet on it, and the light enabled you so see grid lines and register marks through the repro or other artwork you were pasting down. Some large publishers had huge light boxes at which several people could work simultaneously.

The third thing we all had was a drawer full of part-used sheets of Letraset. It is still made, but I haven't used it in twenty years – ever since 1985, in fact, when I got my first Macintosh and laser printer. Letraset was (or is) plastic sheets carrying 'dry transfer lettering', which could be transferred character by character on to the artwork by rubbing the top surface with a blunt pencil. Instead of having to order diagram labels from a typesetter, we could now compose them ourselves, adjusting them exactly to the space in which they had to fit. Many of us composed whole title pages from Letraset, particularly if we wanted special spacing effects like overlapping characters, which were totally impossible in hot metal.

Finally, there was Monophoto. People of my age find it hard to believe that you have to go to a museum now to see a Monophoto machine, as we were already working in the industry when they were invented in the late 1950s. Monophoto was keyboarded on a composer effectively identical to the one for Monotype, but the tape output was then fed into a machine which generated justified lines on film rather than as metal type. It had a brief moment of glory in the early years of the litho revolution, but by 1968 was already obsolete, overtaken by the new miracle: computer typesetting.

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Photo composition made some impact on us, but nothing compared to its impact on Chinese typesetting. The Chinese (or to be precise the Koreans) had invented moveable type centuries before Gutenberg, and the job of picking the right character from thousands, and later sorting them back into their correct homes, was mind boggling. Until the advent of photo typesetting, all Chinese books had to be handset, as no practical Chinese equivalent to the Linotype or Monotype was ever devised.

If you google 'Chinese photo typesetting' you get plenty about the computer-controlled system devised by Wang Xuan, but I can find no reference to the hand-operated machine I saw in Hong Kong in the early 1980s. I therefore have to rely on memory to describe it, but it was so simple and effective that it is worth describing.

Its key component was a large horizontal tray, nearly a metre square. The tray was divided into some fifty columns and fifty rows, making 2500 small squares. In each square there was a photo matrix of a character, and above the tray was a fixed light source, pointing down.

The tray had a handle on it, and could be moved left and right and forward and back, and as it moved it gave a click as it went from one row or column to the next. The operator memorised the position of each character relative to the centre point, and could then find any character from any other by counting the clicks.

When the selected character had been positioned under the light source, the operator pressed a pedal and a beam of light passed though the matrix on to the film below. Then the film moved on automatically to the next position.

The characters were arranged by frequency of use, with the most frequently-used characters in the middle. I watched fascinated as the operator moved the tray from character to character with lightning speed, generating characters at 15–20 per minute, only occasionally being delayed by a suspected miscount or the more lengthy process of finding a rare character out on the fringe of the tray.

I don't know exactly how many characters it offered, but, as I said earlier, my memory suggests 50 x 50 = 2500. As this is close to the total number known to a reasonably literate person, it was probably enough for most texts. However, a part of the tray was assigned to specialist vocabulary related to the job, and the operator left a blank for any character he didn't have. He was then backed up by a team of proofreaders who would write in any missing characters by hand.

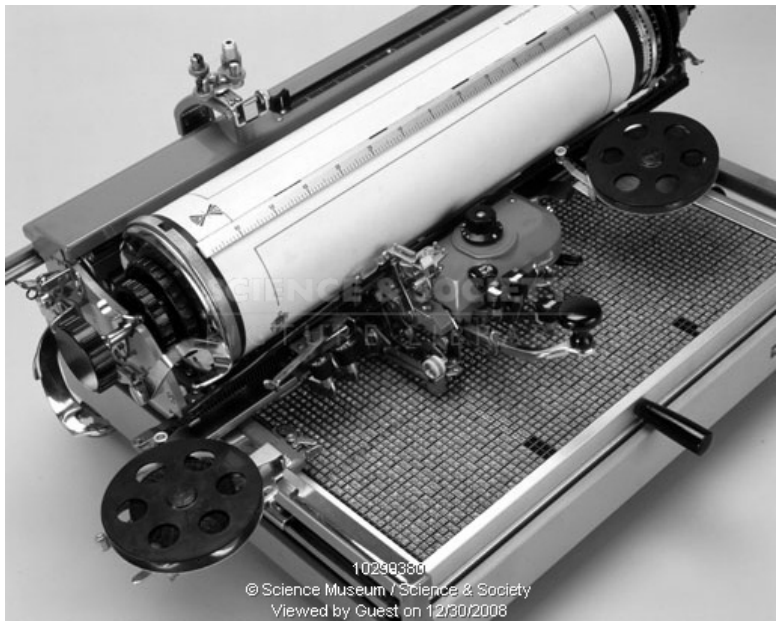
I tell this story partly to point out how extraordinarily lucky we are that our writing system is phonetic, and partly to show



## Addendum: A Chinese typewriter

*An insertion wih the unwitting help of the Science Museum, London, and some unknown ingenious Chinese inventors.*

I have never seen a Chinese typewriter, and found it hard to imagine how one would work, but this was just ignorance. Tony Geeves gave me an Internet reference, complete with picture, and it seems that it worked very like the photo composition device I saw and have tried to describe. The only difference is that the tray contained metal matrices rather than film ones, and was moved under a paper roller. The selected character was punched up onto the paper.




The device I saw was larger, but the tray contained about the same number of matrices. It was able to generate an image of any size, which the typewriter could not.

that dramatic though the litho revolution was to us, it was even more dramatic for Chinese publishers and editors. Photosetting made it possible for the first time for Chinese typesetters to set a book nearly as fast as their Western counterparts.

Meanwhile there was one further innovation which was not strictly technological, but which certainly affected editors deeply, and this was metrication. For the most part, the effect was to make things much easier. What is the unit price if the bill for 25 is £12 14s 2d? We had multibase adding machines, but I never saw a machine which could divide multibase quantities. Tony Geeves tells me that they did exist, but we used the backs of envelopes. Preparing cost estimates in £sd was, to put it simply, nightmarish, and the advent of dollars and cents was a great relief.

However, there was one area, peculiarly important for editors, in which metrication caused new problems, and this was linear measurement. Type measures were always quoted in pica ems and type depths in points, but type areas and page sizes tended to be in inches.[3] This was no problem because they were rationally related: 1 inch = 6 ems = 72 points.

[3] The word *pica* was originally the name of a type size, other sizes being known as Cicero, Ruby, Long Primer, etc. The length of an em varied according to the size of type. However, the pica was later adopted as a standard, all other type sizes being redefined in pica points and type measures in pica ems. Some elderly gentlemen can be heard talking about type measure in picas: pica, pica em and em all mean the same thing: one-sixth of an inch, 3.76 mm. (The earlier usage survives in the fact that an em-rule is not a pica em wide, but is as wide as the 'm' of the type in which it occurs.)



Metrication abolished the inch, but not the pica em or the point. We had to learn new back-of-the-envelope tricks for (say) calculating the depth in centimetres of 30 lines of 11/14 pt type.

Interestingly, neither of these is a problem today – we can set the rulers on our computer screens to picas or metric and switch from one to the other in a flash – and the only multibase units are those of time, where calculations are usually in only one unit at a time. The only need I have for multibase division is in working out improved timetables for the Bendigo railway line. If only there were 100 minutes in an hour, life would be mathematically perfect.

I have left the most important till last. If you asked me what technological innovation of the 1960s made the most immediate and fundamental difference to our lives, I would have to say "the photocopier". Until it arrived, we lived in a world of unique documents, documents of which no copies existed or could be made, short of taking a photograph of each page. OK, we could keep carbon copies of our outward letters – the invention of typewriters and carbon paper had eliminated the regiments of clerks who "copied all the letters in a big round hand". And we could encourage our authors to keep carbon copies, too. But nine times out of ten the 'manuscript' that the editor worked on was unique.

Many manuscripts were what that happy word originally meant, handwritings. The first major book I published, *A Modern Approach to Chemistry*, arrived on my desk hand-written on a stack of Education Department foolscap 30 centimetres high. It was the product of more than a year's work for its two authors, and no copy of any sort existed.

There were horror stories about lost manuscripts – of the manuscript of *Animal Farm* being left in a taxi, for example.

But problems could arise without actually losing the MS. If we needed an expert opinion, everything had to stop while the precious document was couriered or mailed to the expert, and everything remained at a standstill until it came back. Corrections and changes had to be made very neatly, and had to allow for further corrections to be added and for the original text to be restored if an editorial change proved inappropriate. Moving bodies of text within a manuscript was nightmarish, with balloons and arrows saying 'Copy A. Take over to ZZ on page 183' and 'ZZ. Take in Copy A from page 144'.

There were, of course, blueprints – primitive forerunners of photocopies. These were in effect just photographic contact prints, and were developed to make copies of engineering drawings. The main difference between a blueprint and a photographic contact print was cost – large sheets of photographic paper required would have been prohibitively expensive, whereas blueprint paper cost almost nothing. We didn't produce our own blueprints, but the printers made blueprints of the screened negatives for us to paste on our rough layouts. My most abiding memory of them is that they stank of ammonia.

Out first in-house copier was only a whisker better than a blueprinter – a Dalcopy wet copier. Whereas the blueprinter required a transparent original – a tracing or a photographic negative – the Dalcopy could produce a copy by reflection off a positive original. But it, too, produced copies which stank. We were all overjoyed when we got our first dry, plain paper photocopier – a Xerox.

How many photocopies have you made today? And what would you have done if you couldn't make a photocopy? I find it hard to believe that we survived without them. But funnily enough I can survive easily without any of next year's



inventions, of whose capabilities I am not yet aware.

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There is one topic which is technology related, but not strictly technological. Maybe it is outside the scope of this book but it is interesting and important enough to be worth including: the position of women in all this.

To say that there were no women at the top is a slight exaggeration. One of the five companies in the Heinemann Group had a woman as CEO, Phyllis Alexander at The World's Work. How this had come about is a fascinating story which is, however, clearly outside the scope of this book. In Melbourne we had Val Arnott as publicity manager. But in general all the women were on a separate hierarchy which stopped short of management level. Also, unlike the male hierarchy, it was skill-based, and the key skill was typing. Every woman in the office had a typewriter on her desk except Val Arnott and the switchboard girl. By contrast, I was the only male who had a typewriter on his desk, and I was the worst typist in the place.

At the bottom of the female hierarchy were the typists, those who were expected to do nothing else but type fast; next up were the stenographers – shorthand-typists; and at the top were the secretaries, who could do everything.

Many of the secretaries were the products of secretarial colleges which had a syllabus as rich as any apprenticeship. They did not need to be told how to spell a word, or how to punctuate a sentence, or how to get the grammar right: the secretarial course at RMIT, under the grim tutelage of Miss Birmingham, (or some equivalent institution under some other grim tutor) had taught them all of that.

When, therefore, I decided that I needed some help with

a growing workload, I asked for a secretary. The accountant, who looked after all recruitment matters, placed an advertisement which read 'A vacancy has arisen for a competent typiste...' He was genuinely nonplussed when I stormed into his office and said I did not want a 'competent typiste'.

"Oh, it is most important that she should be competent," was his next line. But I got a brilliant one in the end, who went on to become a director of the firm.

So it was that when the impact of the litho revolution really started to bite, and we needed in-house copy editors and proofreaders, it was the products of the secretarial colleges who provided the first generation of talent.



# Chapter 4
# First Steps in Computing

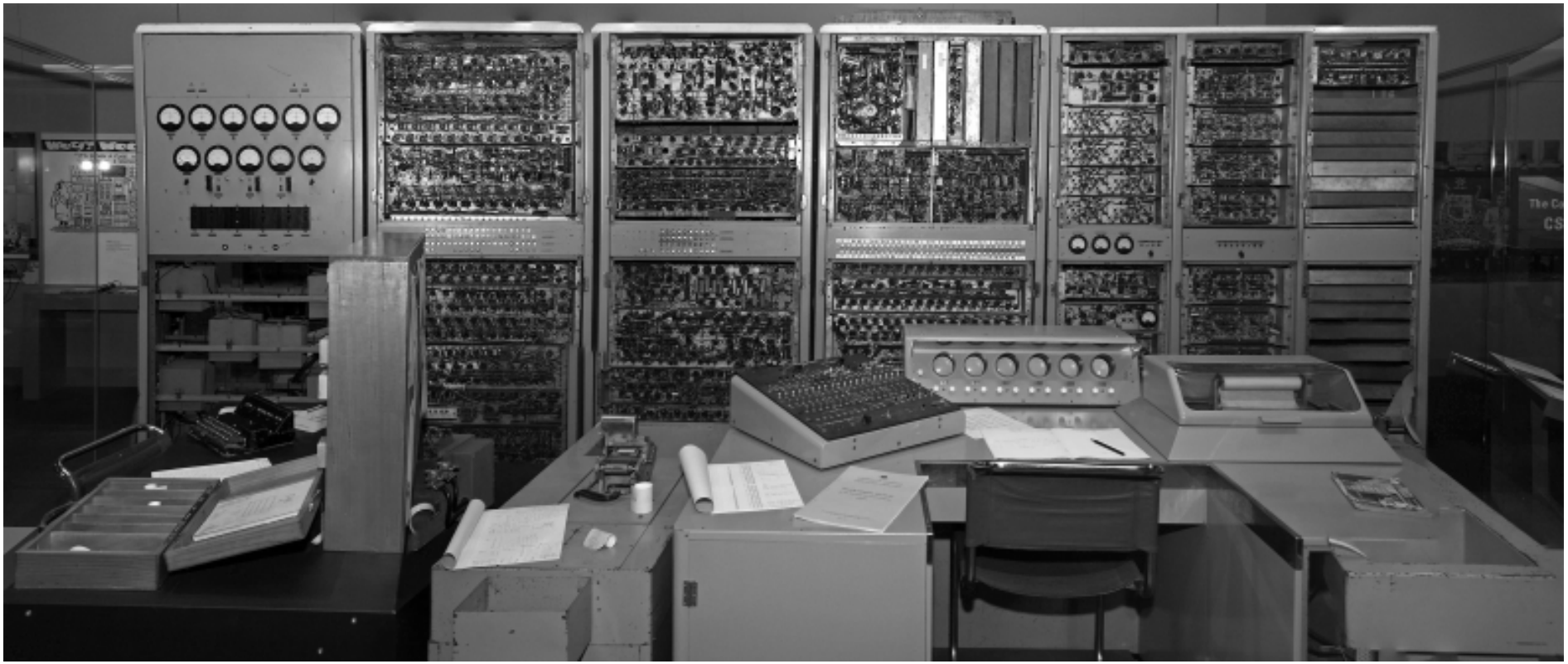
When I first heard the word 'computer', I remember wondering what was particularly new or special about them. We had desk calculators which could add and subtract and, up to a point, multiply and divide, so what else did computers do?

When I hit Melbourne in 1958, it was home to one of the world's first four computers, CSIRAC, still new enough to have six years of operational life before it. It was hugely expensive to build and run, and the idea that I might ever own such a beast was ludicrous. Why would I ever want to? Perhaps even more absurd was that I would one day buy, for a week's wages, and then put in my briefcase, a computer a million times more powerful than CSIRAC.

However, the initial development of the computer was rapid. Just nine years later, when Heinemann Educational detached itself from William Heinemann and set up on its own in River Street, South Yarra, we were able to have our whole invoicing and stock control on computer from day one.

We didn't have our own computer, of course. Computers still cost millions of dollars – tens of millions in today's dollars. Instead, we had a data capture machine, a Friden Flexowriter. To raise an invoice, the operator fed in a sequence of edge-punched cards, one for the customer and one for each title on the order, keying in the quantity of each title. The machine itself could not calculate, but the quantity and price were fed

# Commonwealth Scientific and Industrial Research Automatic Computer



How times changed! When I first set up house in Australia, all the high-tech devices – radio, television, telephone, fridge – were designed and manufactured in Australia.

Then, we were told Australia was a dumb country with a cultural cringe, unable to do anything for itself. However, CSIRO scientists had designed and built this state-of-the-art computer, CSIRAC, then one of just four in the world. It can be seen in the Melbourne Scence Museum, from whose website this photo was downloaded..

Nowadays, we are told we are a clever country. However successive governments have enthusiastically ripped the guts out of CSIRO, our universities and manufacturing industry, and we get all our high technology second hand. It seems that we are only clever at digging up the country and shipping it off to the Northern Hemisphere. Progress?

OK, it's not as simple as that, but it bears thinking about.

into a large electronic calculator which showed the total on a screen. The operator keyboarded this figure, and the calculator deducted what had been typed from what was showing. If the result was not zero it refused to go on. If all was OK it printed out the invoice and stored the information from it on punched tape. The tape was sent weekly to a 'computer bureau', a firm whose stock in trade was a computer and whose business was processing other people's data.

In discussion with the bureau it quickly became apparent that our specific needs were not met by any of the existing business programs. For example, we wanted royalty reports and warnings when stock reached danger levels, which none of them seemed to do. So we commissioned our own. This meant deciding exactly what constituted a danger level, etc., and then producing a specification in the form of a flow chart, showing where the data were to come from and what was to be done with them. And we hired a gifted programmer, Peter Burr, to translate it all into a program.

Ah, flow charts. For a few years in the late sixties and early seventies, flow charting was all the rage. A completed flow chart consisted of an array of boxes connected by arrows, and showed precisely where each bit of information came from and what was then to be done with it. They survive in debased form in the 'Graphic Models' beloved of behavioural scientists, except that these are generally random arrays of boxes and double-headed arrows, which make sense (if at all) only if you already know what they are supposed to show.[4]

Anyway, our programs worked well. The only problems we had were similar to those with the Florida voting machines in

[4] My friend Jean Cunningham points out that they are also used very effectively by website editors.



the 2000 US Presidential election. They called it 'hanging chads', and we called it 'furry holes', but the disease was the same: a hole punched less than perfectly, so that the reader couldn't decide whether there was a hole there or not.

None of this had much impact on our editorial work, where the most important innovation was the electric typewriter, and in particular the IBM golf ball typewriter. This enabled us to type italics and change fonts, which in turn meant that we could produce reasonably clean, good-looking camera art in-house at a fraction of the cost of trade typesetting. Producng camera art this way was known as cold typesetting.

With an IBM golf ball typewriter, endless sheets of Letraset and a light box, we produced all our publicity material, but we could produce whole books, too. The books said they were 'Set by Heacold Typesetting', but really it was just Paulene Raphael and her IBM golf ball. One of her efforts nearly won a book design award.

If you made a mistake when typing, there were three ways to correct it. The most antique (early 1950s) was 'White Out' – white correction fluid. The second, which arrived from Germany in the early sixties, was 'Tipp-Ex', little sheets of paper with whitener on the back, which you positioned over the offending letter and activated by retyping it, creating a white letter which exactly obliterated the original. The third was an IBM scheme called 'Lift-Off', which arrived in 1985. It only worked with typewriters using carbon ribbons, and consisted of a sticky correction tape which actually removed the offending letter from the paper.

We provided a grateful market for these products.

One thing that no typewriter could do was justify lines, but there was a device which did just that, the Varityper. We never had one, but I saw one at work at CSIRO. It was immensely

laborious, involving typing every line twice, and for my money produced a mediocre product.

By the end of the sixties the first computer typesetting systems were available. They were hugely expensive and most of the typesetters who invested in them went broke. They were fine with straight text, but mathematical setting, which ought to have been their strength, was their weakness. I watched bemused as a keyboard operator entered a long string of code numbers to generate a superior figure, and was not surprised to find that when our proofs were delivered, all the superiors and inferiors had been inserted by hand – literally: cut out and stuck on with milliners' solution.

However, there was one firm that seemed to know what they were doing, a Griffin Press affiliate calledComputer Graphics Corporation, and when we started the *Heinemann Australian Dictionary* project it struck me that a computer might help solve all sorts of editorial problems. The outcome was I believe a world first, a dictionary generated without a single systems card.

[Warning: the next four pages are all about compiling a dictionary, and will be exceedingly boring to most readers.]

The first job was to write the program specification, covering all aspects of the job from the first list of headwords to the final production of film for the printer. There was no program in existence which was of any real use at all, so effectively the program was written from scratch. Fortunately, CGC had a brilliant young programmer, Peter Saint, who did it for us. We told him exactly what we wanted the program to do, and he made it all happen.

Meanwhile our edtorial team was generating an initial headword list. The dictionary was supposed to cover all words likely to be encountered in a secondary school course, and the



list was based on existing dictionaries supplemented by curriculum documents and the indexes of textbooks. Against each headword we wrote two-letter codes indicating the subject areas in which they were used. Thus SC meant Science/Chemistry and SP meant Science/Physics. Many words had several codes after them: for example, plasma had physics, biology and medicine.

This list went went off to CGC, and came back sorted into separate lists for each two-letter code. This had at least two purposes: firstly, it was a check on the completeness of our coverage of the topic; secondly, it helped to ensure that definitions of related words really distinguished them. (For example, the 'Chemical elements' list enabled us both to ensure that we hadn't missed any and to ensure that our definitions of them included the defining difference between them – their atomic numbers.)

We drafted definitions ourselves and had them checked by outside specialists.

The corrected and augmented lists then went back to CGC where they were keyboarded and merged back into the master file, generating a printout showing the headwords with all their specialist definitions.

At this stage the general definitions were written. With many words a specialist definition would say everything that could be said; in other cases two or more specialist definitions would be found to be effectively identical, and would be merged; but a large number had no specialist definitions at all.

Stepping for a moment from technology into the editorial theory behind the book, I sometimes find it helpful to remember that the content of a book is not what the author has put in, but what the reader can get out. We therefore gave

children a variety of dictionaries and asked questions which tested whether they had been able to recognise and understand the answers given.

This process disclosed (for example) that the pronunciation guides in most dictionaries were useless. Few teachers, and virtually no children, ever got around to mastering IPA,[5] which some school dictionaries used, while the diacritical marks used in the most popular dictionary for juniors, the *Pocket Oxford*, were not even recognised as pronunciation guides. One boy said "That's just the silly way words are written in dictionaries."

We tested a number of schemes, and by far the most successful was to preface the guide with the word 'say', and then give a guide which concentrated on the problem involved: sometimes vowel value, sometimes consonant value, but most often stress. We found that the use of bold for stress was recognised and absorbed much more quickly than any other convention. Finally, we found we could build on a basic understanding of English phonetics for the basic consonant and vowel values. Thus /ie/ was ambiguous (*die*, *siege*), but /igh/ although irregular, was invariably read as in *high*.

So the pronunciation guides were added to the text, prefaced with the code PR. This indicated that what followed was to be printed in brackets and prefaced by the word 'say' in italics. The printout was from a line printer with no italic or bold, so capitals in the guides themselves indicated lower case

[5] 'International Phonetic Alphabet' strikes me as an arrogant name for the system. Next time you have two IPA experts in the room, get each of them to give you the IPA version of a phrase in a foreign language that the other does not know, and then swap versions and get each to read what the other has written. The shortcomings of the system in dealing with other than a narrow band of European languages will immediately become apparent.



bold. Thus 'PR AV-rij' in the printout generated '(*say* **av**-rij)' in the finished book.

We thought our pronunciation guides would work only with anglophone students, and I was amazed a year or so after publication to hear that they were proving particularly helpful to Chinese postgraduate students at Sydney University. The lady in charge even sent us a tape recording of her students mouthing our guides with great success.

But back to the technology.

The master file now consisted of series of headwords, each followed by a series of fragments of text, each starting with a two-letter code. The two-letter codes now served a second purpose, as instructions for typesetting. I have explained how it worked with the pronunciation guides. All the other codes had similar rules: new line or run on, subject area in brackets. Where there was more than one definition, they were to be numbered sequentially in bold followed by a point.

One thing which really distinguishes the operation as it was done then (between 1972 and 1974), and what is possible today, is that we never saw a typographical proof. All our progressive 'proofs' were printed on a line printer, with nothing but our codes to indicate how it was going to look. Making a typographical image from the data was a tricky job, and once it had been done corrections or changes became infinitely more difficult and costly. So in fact we never saw a complete typographical proof at all. A few sample pages were composed to check that the program was working, including the rules for generating the catch words at the tops of the pages, but no complete one.

It sounds pretty straightforward, but it took a dedicated 4-person team four years to complete. By the end we had, I was told by the Group MD, more money invested in it before

publication than any other single title the Heinemann Group had ever produced. And we were about to add to this by running a first edition of 100,000 copies. The project manager, Rina Harber, went over to Adelaide to press the button. I ought to have gone, but I don't think I would have had the nerve to press it. That's what project managers are for.

The rest is history. The Heinemann Australian Dictionary was launched by Don Dunstan, the Premier of South Australia, and was a considerable commercial success. One bonus was that we had started from plain paper, rather than adapting an overseas original as other allegedly Australian dictionary projects had. As a result, we could sell overseas adaptation rights. So it was that it became *The Heinemann New Zealand Dictionary*, *The Heinemann English Dictionary*, *The Pan English Dictionary* and a string of others.

Using the computer in the way we did now seems so obvious that it is hard to believe that it was in any way odd. However, only a few months before the book went to ress, the team had been visited by Robert Burchfield, editor of *The Oxford English Dictionary*, who had heard about the project. Over lunch, he explained to them why computers had no useful contribution to make to the compilation of dictionaries. They listened with polite attention but were unimpressed by the argument.

I don't know how much of the original is left in the current Australian edition. But it, or a linear descendant of it, is still in print thirty years later, and apparently sells some 20,000 copies a year. And our Project Manager Rina Harber married CGC's programmer, Peter Saint. That's a nice thought to end on.

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Meanwhile back at the office in South Yarra the technology



was advancing. We had long since upgraded our data capture equipment, replacing the Friden Flexowriter with a Siemag, which did roughly the same thing (producing hard copy invoices and capturing the data on punched tape for processing), but instead of requiring punched card input it had all the key information about titles stored within it. The operator keyed in a customer number plus a quantity and code for each title, and it generated a complete addressed invoice.

However, the word of the month was 'mini'. We had mini-skirts, Mini-Minor cars, and ... mini-computers. Instead of occupying a floor or at least a large room, it could be as small as an office desk. And instead of costing millions we could get one for less than a hundred thousand dollars. And we did, an IBM System 32. With 64 kB of RAM, it was more powerful than the computers which had taken man to the moon just a few years earlier.

A time traveller from today looking round our office might well have remarked that we did not have a computer, because the IBM 32 did not have a peripheral device which had just been invented called a VDU, or Visual Display Unit, later called a monitor, and now generally called a screen. The 32 consisted of a two-pedestal office desk with a flat top which was empty apart from a keyboard and a very small (less than 15 x 5 cm) 'desktop register' in which appeared the last 30 or so characters the operator had keyed in. The IBM experts were emphatic: operators rarely looked at the register, so what was the point of a VDU?

Astonishingly, it was true. All the operator was doing was invoices and credit notes, and the only details entered manually were customer codes, title codes and quantities. The codes all had check digits, so the only thing which could be keyed in wrongly was the quantity. The 32 served us well for five years.

However, growth in the business soon demanded a second invoice clerk, and IBM had the answer: the IBM System 34, which, like the 32, was classed as a mini-computer, though it filled a largish air-conditioned room. But the clerks sat not at the computer itself but at 'work stations', aka 'semi-intelligent terminals', connected to the computer by cables through the ceiling. Best of all, the 34 with its massive 256 kB of RAM and multiple work stations cost less than the 32 had done, roughly $80,000 if I remember rightly. This was only $20,000 more than my annual salary as MD. How cheap could computers get?

Within a few years computers were available costing as little as $10,000, and we bought two of them, but they were called 'word processors' and were not thought of as computers. We saw them as glorified 'memory typewriters', and in many respects we were right. They were like electronic secretarial nuns, totally dedicated to word processing, having renounced the capacity to learn any other tricks.

I remember being quite surprised to learn that we could run a word processing program on our IBM 34, the only problem being that if we tried to do so, the whole system would grind to a halt with the overload. So word processors and accounts computers kept their distance.

But hark! From the schools comes the cry, "Apple, Beeb or Commodore". The micro-computer has arrived. And that means a new chapter in our story.



# Chapter 5
# Enter the Micro

The prehistory of desktop publishing occurred, at least as far as I was concerned, in the schools. The first manifestation was in Physics classes, where there was a new topic, Solid State Physics, which was all about the behaviour of some peculiar elements, the semi-conductors germanium and silicon.

The first book we published on this topic, *The Solid State* (1973), was all about theory, apart from a small foray into the use of transistors to replace thermionic valves in radio sets. But it did talk about 'bistable flip-flops', and on the last page it had a photograph of the latest wonder, an 'integrated circuit chip'.

The importance of the bistable flip-flop was explained clearly enough. They were transistors which had two stable states, off or on, 0 or 1, and would change from one to the other whenever hit by an electrical impulse. They were therefore able to store and manipulate binary data, the core operation of all computers. And the IC chip was a single small strip of plastic carrying dozens, hundreds or even thousands of flip-flops. Even this theoretical book did not dare suggest that in a short time we would be talking about millions and trillions, MB and GB.

It was at a school materials exhibition that I saw my first mouse. However, it wasn't a mouse, it was a turtle, more or less life size, but it did what a mouse does: if moved a cursor on a computer screen. It was beng promoted as an aid to

computer awareness in primary school children.

In addition, some teachers were becoming enthusiastic about teaching programming. Programming was clearly an up-and-coming skill, and BASIC was a sensible choice of first language, being much more intuitive than Fortran, etc. The question was, how would the student programmers test their programs to see whether they worked? Did it mean that every school would have to have a computer? In South Australia, which was probably the most go-ahead State at the time, they installed a computer in Angle Park Tech, and the individual schools were allowed time on it to test their programs. Meanwhile the children elsewhere learnt the precise grammatical rules of BASIC by rote, without ever writing a program, still less seeing it run. It made Latin seem like very practical study.

So it was that, in the late 1970s, the first shots in the coming Desktop Revolution were fired, not in publisher's offices, but in the schools. The buzzwords of the day were 'computer awareness' and 'computer literacy', and help was on its way.

There was nothing miraculous about the first micro-computers, as they were called. It was all down to the IC chip. Thanks to the IC chip, circuitry which would have filled a two-door fridge in CSIRAC, an Esky in a mainframe and a six-pack in a mini could now be accommodated in a crown seal, with comparable miniaturisation of power supplies and everything else.

One issue that I have mentioned in passing but never explored, and which was vital to the practicality of the micro-computer, was the change in the way users could communicate with the computer and the computer could deliver its answers.

In the early computers, the normal inward path was edge-punched cards and punched tape, and the normal output was



by line printer. That was how we operated from 1967 until the mid 70s.

The first alternative to punched tape was magnetic tape. The popular image of a computer, in (say) movies depicting cutting-edge technology, was of a large box with two spools rotating jerkily on the outside. These were tape readers. However, the problem with both was that they could only be read sequentially.

This problem was solved with the invention of the magnetic disk, which gave almost instant access to data stored anywhere on it by a system of location addresses. However, early magnetic disks, and their less practical cousins magnetic drums, were huge and had limited capacity, 1 to 5 MB, and the preference was still for magnetic tape, whose capacity was in theory infinite.

Direct inward communications via a keyboard arrived with the first busness computers. But the real breakthrough came with the invention of 'floppy disks' (1971), which though of even more limited capacity (around 64 kB) were removable, so that an indefinite amount of input and storage could be made available simply by switching disks.

The second breakthrough came in 1973 with the invention of the Winchester drive, the forerunner of all our hard drives. It had a 30 MB disk inside and another 30 MB removable one on top. At least, that is what *Wikipedia* tells me. When I first met one, visiting CGC in 1974, I was told that the capacity was 3.2 MB. Either way, it was sufficient to store the whole text of the dictionary on one removable disk. And it must have been one of the first, if not the first, to be installed in Australia.

The third breakthrough was at the output end. Instead of all results being in the form of tapes or printouts, the computer

could display them on a screen. The screen was to replace the tape reader as the popular image of a computer, to the point that many people would find it hard to recognise a device without a screen (the computer in a car, for example) as a computer.

By the early 1980s (which was when the late 1970s happened in Australia) the market for micro-computers suddenly blossomed, led by the schools. The Apple (1976) competed with the Commodore (1977), and the Beeb (1980). All of these had a screen as the main output device, with a printer as an optional peripheral. All of them also had keyboards for capturing data, including the compilation of BASIC programs.

The Beeb was the outcome of a rare foray into consumer goods production by the BBC, and although the most recent to appear, and a phenomenal success in its native England (a million were sold there) it was not popular in Australia. It had 16 kB of RAM and a cassette tape drive, and it cost under $1000.

The Commodore had only 4 kB of RAM, but had 14 kB of Microsoft BASIC installed in ROM, making it attractive as a tool for learning BASIC programming.

The Rolls Royce was Apple, by then offering the Apple IIc, with 48 kB of RAM, a 4 MHz processor and a double disk drive. I, of course, had to have the best. In 1981 I bought an Apple IIc. It cost about $3000.

So, what did I do with this marvellous new toy? There were few programs for it, and most of the time I was writing them, in BASIC. I still use some of them, translated over the years to suit new systems. There is one which calculates check digits for ISBNs, one which calculates the weight and thickness of a proposed book given the dimensions, the number of pages, and the weight and caliper of the paper and binding material.



It is useful if you are going to be mailing out a lot of single copies and want to be sure they will be large letters rather than small parcels.

But my biggest use of it was as a word processor. There was a splendid WP program called Zardax, which fitted happily on one 64 kB floppy with room for the system (DOS 3.4) as well. In 1983 I wrote my first book on it, *The Vedgymight History of Australia*, and my text, on floppy disk, was handed to Meredith Trade Lino. Despite the firm's name, Merediths were no longer hot metal typesetters; they keyboarded their clients' MSS on word processors and put the output through an 'imagesetter' to generate typographical proofs. Mine was apparently one of the first manuscripts they received on disk.

Later that year I ran into John Meredith, the eponymous MD of Meredith Trade Lino, at a seminar on Computers in Publishing at Melbourne University. The seminar was mostly about applications in accountancy and stock control, and John and I were commiserating with one another for having had a wasted morning. But he then made a remark which hit me like a bolt of lightning.

"There's nothing much new here, Nick, but what has me worried is the Macintosh."

In that moment, the direction of my life changed. If the Macintosh had John Meredith worried, I had to have one.

# Chapter 6
# The MacRevolution

It is hard now to recreate the impact of the Mac on the publishing industry, partly because it was so complete and sudden, partly because it was so slow and trivial. At the one end of the spectrum was John Meredith, convinced that it spelt the end of the trade typesetting house. At the other end of the spectrum were the majority of typesetters and publishers who saw it as a toy which threatened no one.

With wisdom of hindsight, John Meredith was right, and that makes me right, too. But it was to be many years before the last publisher climbed aboard the desktop bandwagon, and the last ones did it reluctantly, finding that it was no longer possible to produce books economically any other way.

So, what was it that was so special about the Mac?

Firstly, it was all so intuitive that no instruction was needed. The source of this simplicity was something they called a GUI, Graphic User Interface: in short, a screen which was a replication of a desk top, menus of commands and folders full of documents – in short, like all screens are today.

The second innovation was the use of a mouse to direct operations. Operations which previously had required the typing in of lengthy coded messages could now be performed with a click of the mouse.

Mac salesmen were told that all they had to do was to get customers to accept an offer of a loan of the Macintosh for a weekend, and they would make a sale. The customers were then told just two things: to double click to open things and click in the corner to shut them. Everything else was self-evident or intuitive.

Once you got going, the third innovation left you gobsmacked: this was called WYSIWYG, 'what-you-see-is-what-you-get', which meant that you could specify a typographical font and layout for your document, and it would appear in that font (or a close approximation to it) on screen and on the printout. And it could centre, justify and force justify. And you could draw pictures on the screen.

All these things are true of all desktop systems now, so it is hard to recapture the wonder of it all when it first arrived.

Funnily enough, the 'intuitive' point is now less true. I find it hard to imagine what it would be like today to be opening MacOS or Windows for the first time, but it would be a lot less intuitive than the first Mac system. I feel sure I would want somebody to show me how to work it.

For me, the arrival of the Mac in 1985 was singularly well timed. My wife was getting fed up with her job, and was keen to go out on her own. The Mac gave us the opportunity she was looking for: to offer a typesetting service to small businesses, politicians (of whom she knew a large number) and others who wanted good-looking newsletters and leaflets at sensible prices. So we placed an order for a Mac and a laser printer, the Apple LaserWriter. The Mac cost $3000 and the LaserWriter $11,000.[6]

As it happened, a couple of days later a newly-appointed Group CEO, a humourless and slow-witted man called Nicolas Thompson, arrived from England, walked into my office and

[6] Nearly 25 years later, my latest Mac and my latest laser printer each cost less than $1000.

told me I was dismissed. So I joined my wife's company on its second day – as Publishing Director. She earned the money by doing typesetting jobs while I spent it getting a list together. Two days later we issued our first invoice.[7]

For the next ten years we never advertised our services in any way, but were busy all the time. What surprised me was that most of our typesetting and layout work came from publishers – we did jobs of one sort or another for almost every publisher in Melbourne, as well as a lot of Government departments and firms. We specialised in maths setting, but also dabbled at one stage in music. The most surprising job was a submission from a major computer company to a major bank, tendering for the contract to handle their EFTPOS business. Their own computers were unable to do it.

Then in the 90s publishers started getting their own in-house typesetting, and our third-party work became increasingly for self-publishing authors. By then, however, our publishing had become established.

You may well ask (as I did) how it was that so many publishers were so slow to make the switch. It is a question that is worth asking, if only to know what to watch out for when the next world-shattering innovation arrives.

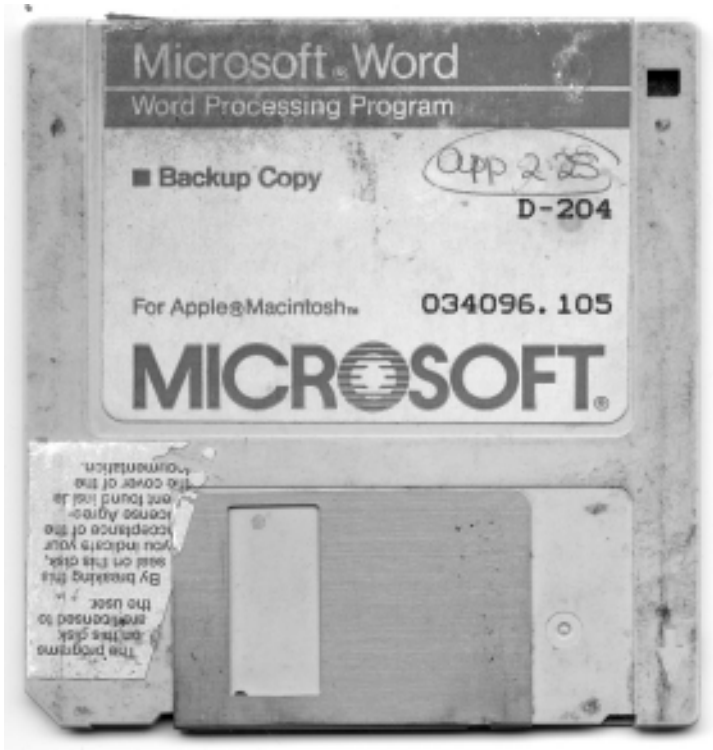
[7] Leaving Heinemann after 28 years was pretty traumatic. Having started my part of it from scratch, I suffered from the delusion that it was mine, and being booted out was like being disowned by one's family, a cause more of grief than anger. The new management achieved in twelve short years something the old management couldn't have done in a century: they destroyed the firm. The educational side was sold to Harcourt Brace as a going concern, but they dealt with the trade side so effectively that nothing was left to sell except a pile of books and some filing cabinets full of contracts, which went to Random House.



## Microsft Word, Version 1 (1985)

Here, battered but still workable, is the diskette which (with help from similar ones for PageMaker, MacDraft and Mathtype) produced camera art for virtually any book.

The capacity of the disk was 440 kB. It carried the operating system for the computer, the Word program and storage space for the document you were working on.




My current version of Word occupies 5.8 MB, rather over five thousand times more than version 1. But although it has some useful bells and whistles, it is essentially unchanged. But the current one is cheaper.

The first answer lies perhaps in the absurd title given to the new process: 'desktop publishing'. The idea that a document could be said to be 'published' merely because it had been given a typographical facelift was simply ludicrous.

The second is illustrated by what one publisher told me: that as typesetting represented only 0.3% of his costs, it was not an issue worth worrying about.

The third answer is that some people felt threatened by the new technology and went into a sort of denial. This was in some cases totally understandable: those who had served an apprenticeship in typesetting found their skills downvalued or even unsaleable, and those who had invested in expensive pre-Mac computer typesetting systems did not want to see those investments written off.

Then there were the publishers who had invested heavily in the IBM PCs, which had hit the market in 1981, just four years before the Mac. Their staff had spent endless hours mastering DOS in order to drive them, and found it hard to believe that a machine which was so much simpler to drive could at the same time be so much more clever. Their DOS machines were fine for number crunching and workable as non-typographical word processors, but lacked the two crucial graphics features of the Mac, GUI and WYSIWYG, and were thus unable to compete in the world of graphics and layouts. So many major publishers went on coming to us for their typesetting and layout.

The DOS problem disappeared in 1990 when Microsoft Windows, which had started as a distinctly rickety screen display program running on top of DOS, was enhanced by licensing key features of the Mac, and, perhaps most important, Aldus produced a Windows version of their front-running layout program, PageMaker.



At that point Windows became a serious competitor to the Mac, and within a couple of years, say by 1996, virtually all publishers were doing their own typesetting.

In short, we were bloody lucky to have got in when we did.

It must also be recognised that the early hardware and software were both fairly primitive, not in operation (which remains essentially unchanged to this day) but in quality of output. The word and letter spacing, particularly of italics, were loose and ragged, and the justification was hairy, so that right margins were rarely perfectly straight.

In addition, the original LaserWriter had a glitch in its paper feed, so that every thirtieth line or so was stretched vertically, as if the type size had gone up a point. You can see this in some of our earliest books, in which our laser printouts were used as camera art.

I was not worried, as some were, by the resolution of the first LaserWriter, which was 300 dpi. I found it a welcome relief after the clinical perfection of photosetting. It produced an image with plenty of oomph, like letterpress after it had had time to bed down. But maybe this was wishful thinking.

In any case, if you wanted a cleaner look, more expensive but very impressive results could be achieved by processing the PageMaker files through an imagesetter (as we do routinely and cheaply these days). In 1988 we did this with Patricia Fullerton's *Hugh Ramsay*, a large-format art book, and you really have to know what you are looking for to see any shortcomings in the text setting. (Hint: check the letter spacing of the italics.)

One unquestioned improvement on the first versions of the programs was the arrival of 'smart quotes'. On the early version, either you had to put up with opening and closing inverted commas that were identical vertical strokes or you had to key the correct one every time. And it was quite hard

to check that you had got it right on the first Mac screens, particularly with Palatino, my favourite among the eight fonts which came with the first Macs, and which I still like. It came nearest to my favourite Monotype font, Bembo, and had a particularly good italic.

This paragraph is set in Palatino, and you can see *both the Bembo-like neat, tight italic* and the 'problematic inverted commas', with 'opening' and 'closing' differing only in the distribution of weight in the stroke.

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If we had moved fast on digital typesetting and layout, we were slow off the mark with digital scanning. Why? Because I made exactly the same false assumption that others had done about the Mac. I simply could not believe that a cheap desktop scanner could produce images which were indistinguishable from those produced by large and expensive equipment.

And of course they can't. If you have a 35 mm transparency and want to blow it up to poster size, you need to start with a high-resolution scan. But there is no point in having an output resolution much finer than that of the printer. This means that provided your scan is around 10 kB/cm² finished size, the resolution is as good as it can be. Of course, colour control is also an issue, but this seems to depend on software rather than the quality of the hardware.

I am not sure when the first desktop scanners hit the market, but a bit of googling revealed the following: "Photoshop's developers, Thomas and John Knoll, began development on Photoshop in 1987. Version 1 was released by Adobe in 1990. The program was intended from the start as a tool for manipulating images that were digitised by a scanner, which was a rare and expensive device in those days."



Anyway, we did not get a scanner until 1997. The next year, we were able to send a disk with all the material for a full colour book called *How to Build a Bark Hut,* by Theo Lantzakis, to a printer in Indonesia. It remains, I believe, the only book on this important subject, and is certainly the only one by a Cretan author. But for postwar immigration, he might be sitting on Crete writing *How to Build a Minotaur's Palace.*

The advent of scanners had a powerful side-effect, and that was a quantum leap in the amount of RAM and storage we all needed to have on our computers, to say nothing of faster processors to deal with the hugely larger files without long delays. A single scan could occupy as much disk space as a 300-page novel. The computer hardware companies obliged by selling us computers which could handle them.

This is a good peg on which to hang some mention of the development of storage systems. I have already mentioned punched tape, cassette tape and 'floppy' disks. The first Macs used 'diskettes', in plastic cases each about 90 mm square. They held 440 kB, and this had to accommodate the system and the application program, and have space for the document you were working on.

The surprising thing is that it ever worked, but the early systems and programs were written with incredible skill and economy. I have an original copy of MS Word 1, and the system and application occupy less than half of a 440 kB diskette. You could keyboard around 30,000 words before it ran out of space.

The real problem arose when a finished document of any length was to be archived. The document was open on the desktop, but in fact only part of it was in RAM, the rest being on the system disk. But you had to remove the system disk to insert the archive disk. When you then clicked on 'Save as',

the part which was in RAM was copied across to the archive disk, but you then got a message to reinsert the system disk to retrieve the next part of the document. Copying a long document across involved a seemingly endless sequence of disk swappings.

The problem was alleviated with the arrival of the Mac Plus (RAM increased to 1000 kB), which allowed the creation of a 'RAM disk'. This made part of the RAM behave like an internal disk. You copied the system and application on to the RAM disk, removed the system disk, and inserted a blank disk in the drive for the document itself.

Life became easier still with an increase in the diskette capacity: DD = double density (800 kB) and HD = high density (1440 kB). But the first real breakthrough occurred with the arrival of Macs with double disk drives, so that you could have the system disk in one drive and the document disk in the other.

I could never understand why double disk drives were not standard issue from the start. I had had a double disk drive on my Apple IIc, so in this respect the first Mac was a step back. Perhaps somebody can tell me why this happened.

All the problems with diskettes vanished in the early 1990s with the arrival of the first Macs with internal hard drives. I still have one of these, a Mac IIci, with an 80 MB hard disk, which I keep because many of my more ancient documents cannot be read on current versions of the programs, and earlier versions of the programs will not run on current systems. I'll have a bit more to say about this in the last chapter of this diatribe.

An 80 MB hard disk sounded like the ultimate answer, but at that moment we started handling digital scans, and of course it was soon full. We used a succession of ever larger external



storage devices, including a PLR drive, a Zip drive and several external hard disks.

The first time I saw the magic letters GB was in 1997, when we got a Mac 7600 with a 1.1 GB hard disk, soon to be supplemented with a second 4 GB internal hard disk. And so it went on.

At this moment I am sitting at an Emac with an 800 MHz processor, 38 GB internal hard disk and two external hard disks, one of 74 GB and one of 232 GB. They are rapidly filling. So I must soon dash out to Officeworks, where I can buy, for a trivial sum, a disk with capacity quoted in terabytes

The Emac is not only by far the fastest and most powerful computer I have ever owned. It is also the cheapest, the first one which cost less than $1000 – $750, to be precise.

Where will it all end?

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In 1990 Xerox released the DocuTech, effectively a high-speed laser printer. It was not the first time this astonishing company had led the field. In 1959 they produced the first plain-paper photocopier, dominating the market to such an extent that 'xerox' became for a time a generic term for 'photocopy'. In 1977 they released the first laser printer.

In the meantime they had produced a computer with a graphic user interface and a mouse to drive it, like the Macintosh a few years later, but they failed to see its potential, and made it so expensive that few were bought.

However, when Apple brought a legal action against Microsoft for copying the key points in the Macintosh, Bill Gates was able to argue with good reason that the systems were similar because they had both pinched the idea off Xerox.

Anyway, this was the firm which now produced the

DocuTech, possibly the start of a revolution as profound as the litho revolution just thirty years earlier. Possibly as profound, but certainly not as rapid. Seventeen years later the technology has improved, but litho still enjoys a clear price advantage on any print run above around 350 copies.

The first firm in Australia to base its business on the new technology was Pat Woolley's Fastbooks. It has been a phenomenal success with self-publishing authors. I had a momentary thought of doing something similar, but realised that it would mean a total change in the nature of our business, and not one I would really enjoy. I print a lot of books this way, but on other people's machines.

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Needless to say, these technological changes had a profound effect on editorial practices. In effect, editors became responsible for doing all sorts of things they had previously either not done at all, or merely instructed others to do.

On-screen editing required editors to acquire new skills. It also meant that there were new ways of getting it wrong, notably because editorial changes, instead of being clear for all to see on hard copy, were seamlessly stitched into the garment. That will be the topic of Chapter 7. But first, we must have a look at the next great technological innovation, email and the Internet.



# Chapter 7
# Going On-line

If the full impact of the DocuTech and its descendants have yet to be felt, the other innovation of the 1990s changed our lives. This was the arrival of the Internet.

Strangely, however, I find it hard to identify precisely when I first became aware of it. Thinking about this made me aware that I had not talked about a whole area of technological development which had major significance for publishers and editors: telecommunications.

All the really dramatic changes in telecommunications seemed to be already in the past when I started work in publishing. We had telephones, radio and television. Nothing much could happen anywhere in the world without the rest of the world knowing about it in seconds. In short, the radical shrinking of the world which occurred with the first telegraph lines was history, and we could only wonder at the way in which the British Empire held itself together when a reply to a letter from Australia to Britain could not be expected for some six months.

In Heinemann's London office, the world came in via a switchboard, where a diligent lady spent the day connecting incoming calls with the required internal line by plugging the one into the other. They were called spaghetti switchboards, for reasons which were obvious the moment you saw one.

In Melbourne, we got away without a switchboard. Everybody had a huge black phone with two small buttons at

the top for the two outward lines and twelve buttons in two rows down the length of the device representing the twelve extensions within the office. To make a call you pressed the relevant button, getting either the internal extension or an outside line. Incoming calls could be answered and passed on by anybody, though during office hours most of them were intercepted by the receptionist. It was a simple and effective system, the only problem being that it allowed a maximum of two incoming lines and 12 extensions.

If we wanted to phone Sydney (or Bendigo, for that matter) it was a trunk call, booked with an operator. A call to Britain was worse. Two days after we landed in Australia, it was my 25th birthday, so I decided to call home. The call had to be booked 24 hours in advance, so that the people at the other end could be contacted and told it was coming. I then had three minutes bellowing over the static, which cost a quarter of my first weekly pay.

The first person I saw on Melbourne TV was Bert Newton, selling 'Motoramarised Used Cars' on *Sunnyside Up* in an unconvincing attempt at an American accent. Some things haven't changed.

We could hear a live radio broadcast on relay from Sydney without much interference, but a live broadcast from Britain was always shrouded in static. And there was no live television from Sydney, still less overseas.

The arrival of STD (Subscriber Trunk Dialling) in 1962 and IDD (International Direct Dialling) made long-distance telephone calls more or less routine, though they were still pretty expensive. The best news I ever received from London – the news of the Group Board's approval of our scheme to quit the William Heinemann office and set up on our own – came not by phone but in a one-word cable in Swahili: "Uhuru".



The difficulty of communication with the London office had one excellent effect: we rarely heard from them. In my first 27 years with Heinemann I received only one direct instruction from them, which was to close down the Dictionary project. I explained that it made no sense, as it would cost more to shut it down than it would to keep it going, and we heard no more about it.

Then in 1985 we got the telex, and suddenly the London management started to deliver daily instructions. Every morning I would arrive at the office to find the paper billowing out of the telex machine. I find it hard to imagine what it is like running the Australian subsidiary of a multinational these days, with instant cheap phone calls and faxes and free email and Skype. It must take all the joy out of it.

Happily, by the time all these happened I was safely out of harm's way, self-employed, so the worst I ever get in the way of international messages is endless emails from Nigerian ladies offering to share their late husbands' wealth with me. These I can put up with.

Yes, despite the spam, email must be the best medium of communication ever invented. If somebody said, "If you could only have one, which would you want, phone or email?" I would choose email.

But I have left the best to the end. The year 1993 saw the birth of the World Wide Web. It was not new. Email and the World Wide Web had their origins in technologies which had been developing for thirty years. But with the birth of the World Wide Web, and the dot-com boom and bust which followed, the communications available to people without special expertise and equipment suddenly burgeoned. Email was of course part of it, the private end. But it was the public end, the access to vast quantities of information and opinion,

that changed my life as a publisher, editor and writer.

I add 'writer' not because I would ever label myself as a writer, but because it is what I am doing at this moment. In the last paragraph, I wrote that the WWW was born in 1993, and I know this because I googled it. It took less than half a minute.

No writer, researcher or editor ever had a research tool remotely as powerful as this one, which every writer, researcher and editor now has. I hope we all realise how lucky we are.

Of course, there is also a lot of misinformation on the Internet. However, this is also true of books, and the beauty of the Internet is that you are immediately offered a range of sources, making it far easier to cross-check. More important still, websites can be corrected after publication, whereas an error in a printed book stays there for ever,

I am inclined to believe something I heard the other day: it seems that someone was laying down the law about the unreliability of Internet information, so they did a test, comparing some *Wikipedia* entries with equivalent entries in the *Encyclopedia Britannica*. And (you've guessed it) the *Wikipedia* version contained slightly more typos but fewer factual errors than the *EB*.

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Well, there it is, a story which started with a technology which still carried clear traces of a five-hundred-year-old tradition to one which carries little which is more than 25 years old. There are not too many of us who saw both, and I count myself as extraordinarily lucky to be one of them.



# Chapter 8
# Technogenic Disorders

You can't make an omelette without breaking eggs, they say. The new technology unquestionably gave editors better tools for our job, but also gave us added responsibilities and posed new problems whose significance has, I suspect, not been fully recognised.

There is no single word for this sort of problem, so I will coin one: 'technogenic'. Just as iatrogenic disorders are those which arise out of medical practice, so technogenic diseases are those which arise out of technology. And just as iatrogenic disorders like golden staph are the down-side of modern surgery, so are the technogenic diseases the down-side of modern information technology.

It is a risky chapter to write, as some of the problems may have been solved in ways I haven't thought of. However, here goes.

## *1. New responsibilities*

I have already spoken of one of these technogenic perils: we used to have skilled tradesmen between us and our end product, tradesmen whose contribution was as important as it was unrecognised. Today, technology has given us the tools to do everything these tradesmen did, but not all the skills and training.

The compositors and proofreaders were products of a rigorous apprenticeship. They had no literary pretensions, any more than bricklayers have pretensions to be architects, but

they knew all about spelling, punctuation and formal grammar. At worst, their knowledge was about form but not style, like people who know all about law but nothing about justice. At best, they knew more about style than many aspiring writers. And they protected entry into their profession by the most effective closed shop ever operated outside the learned professions.

In the end, this closed shop was broken by technology. So long as type composition meant hot metal type, the closed shop could be defended. As soon as computers arrived, nothing could prevent unqualified people from doing the job. We all saw this as progress – and it was. But it was a disaster for the last generation of apprentices, who found that they had hitched their stars to a wagon which was going nowhere. Meanwhile, the responsibilities of editors were broadened and deepened to cover all the expertise the tradesmen had possessed.

It is worthwhile to catalogue the current responsibilities of editors. They will vary from book to book, and I am sure I have left some out, but they will include some or all of the following:

(1) Structural editing – to check whether the architecture of the work is such as to communicate the author's intentions. A telephone directory arranged in numerical order of telephone numbers might be interesting, but would be less useful than one in alphabetical order of subscribers. Similarly, the architecture of a whodunnit must dole out the clues skilfully, keeping the reader alert and still guessing until the last page.

(2) Content editing – to ensure that the book contains all the information that the reader will expect, and not too much that the reader will not expect, and that the information is accurate (or to advise the publisher if an expert fact checker is needed).

(3) Impropriety editing – to decide whether the text should be referred to legal experts for an opinion on breaches of the law of copyright, defamation, privacy, etc., and whether it needs any special attention with respect to both law and political correctness in such matters as racism, ageism, sexism and so on.

(4) Copy editing – to ensure that spelling, punctuation and grammar conform to appropriate conventions, which may vary according to the intended readership and publisher's house style.

(5) Proofreading.

When I first worked in publishing, editors concentrated on (1), (2) and (3). Of course, we thought we did (4) as well, and played at (5), but we were protected against gross oversights in the last two areas by the refiner's fire of the professional typesetters and proofreaders.

Today's editors are expected to do the lot.

Some brilliant editors are good proofreaders, but I suspect that more of them are not. Certainly the converse is true – I have known some brilliant proofreaders, people who can pick the proverbial italic comma, but I can only think of one (John Bangsund) who is also a brilliant editor. The mindsets are simply different.[8]

However, when people say that the standards of editing are slipping, they generally mean that there are more typos than there used to be. In short, editorial performance is judged almost entirely on a count of typos. No one is going to notice your brilliant structural changes, or happily pay for the time it took you to assure yourself that the work *didn't* need to be

[8] See footnote 1 on page 24.

vetted by a lawyer or expert reader.

The outcome is a paradox: editors, whose key skills are in structural and content editing, are judged for their performance in activities which until recently were only a minor part of their brief: copy editing and proofreading.

I'll give just one example of the outcome of this attitude. I mentioned earlier that a telephone directory has a natural structure, alphabetical by subscriber, and the implication was that the editor of a telephone directory had no structural editing to do. Once upon a time this was almost true. Apart from the alphabetical list of subscribers, there were just two or three pages of emergency numbers and customer service numbers at the front and a list of postcodes at the back.

Now, even a simple telephone directory like our one-volume directory for the Bendigo area starts with 35 pages of largely unreadable wanking, amongst which some important information is concealed. As a skilled user of reference books, I often have difficulty finding the information I want, and I hesitate to think what it must be like for a person of average or below-average reading skill.

These pages were never subject to structural or content editing. If they had been, the editor would have deleted most of it, and arranged the rest in a user-friendly order, with the important information clearly distinguished from the rubbish – the disclaimers, the photos of executives and the long paeans of self-congratulation. But if I suggested that it was badly edited, I would almost certainly be told that I was wrong: that it contained no misprints at all.

So: the secret of worldly success as an editor is to forget all about editing and just proofread for typos. You will never be called to account. But it won't do much for your self-esteem or professional pride.



## *2. Problems with multi-tasking*

Editors are often expected not only to do all the processes of structural and content editing, copy editing and proofreading, but to do them all simultaneously. This is like reading a book when riding a bicycle: the tasks are separately manageable, but the combination is inevitably disastrous. One or more of these mutually incompatible tasks is going to be badly done.

Generally, it is the fundamental tasks, the structural and content editing, which suffer. It is bad enough when working on hard copy, but far worse when working on screen. It takes extraordinary discipline *not* to copy edit during the first reading of a text. Indeed, it seems pointless *not* to correct errors as we notice them. But the result is that the reading is slowed, and the mindset moves into copy editing mode.

Our chances of noticing structural problems in the grand design are then diminished. Why? Because it is only on a first rapid reading that we can get a full sense of the pace and engagement of the book, notice subtle problems in the sequence of presentation of the information, realise that some vital information is missing or that some detailed information given early on proves to be of little importance or relevance. The second time around, our whole perspective on the text will have been changed by the experience of the first reading: to put it in its simplest terms, we will know what happens next. This is so whether it is a whodunnit, a book on gardening or a physics text.

In short, the first reading of a book is the only occasion on which we will ever get a preview of the experience of the people whose interests we are looking after – its intended readers. They will notice a logical glitch because they read page 90 only five minutes after they read page 80. We may *not* notice

it if we get stuck into some major grammatical issue on page 85, and by the time we reached page 90, an hour later, the logical significance of page 80 has been wiped from our short-term memory.

Senior editors will rarely experience this problem, because they will long since have evolved their own way of solving it, and will have the confidence to dictate their own terms. They can for example, specifically insist that proofreading is a separate specialist task. This is not to say that they will not correct typos when they notice them, but unless they happen to be good at it, they will not take responsibility for the removal of the last italic comma.

Junior editors, faced with a job handed out by somebody who has never edited a book but has an unassailable belief that it is a mechanical process which takes 8.6 minutes per page, are in a much weaker position.

### *3. Auditing and archiving*

The next technogenic problem is related to maintaining an audit trail of changes and a manageable, accessible archive.

In the old days it was easy. The manuscript was passed from hand to hand, becoming ever more dog-eared, and finally went to the typesetter. It was then returned with the proofs, giving us an instant record of what the author had originally written, what had been changed and by whom. The galleys then likewise did the rounds, and manuscript and galleys were finally locked away in the archive with all the relevant correspondence, waiting for some patient scholar a hundred years later to dig them out and earn a PhD by showing that the key quotation for which the author was famous was in fact written by the editor.

Could this happen with your last stroke of genius?



When computers first arrived, we were told of the wonders of a paperless office. We were told that everything would be done electronically and we would never need to print anything out. The reality proved very different. The consumption of A4 paper shot up. Everything was printed out over and over again, and multipage documents were fed into high-speed collating photocopiers so that we could all have our own copies at the meeting...

And what happens to all this paper? Do you go through all those huge piles of printouts to ensure that at least one copy of all important documents is kept? Or do you do it the modern way? We were told that we wouldn't need all those cardboard boxes of archived material, as it would all be stored electronically. So, do you keep a series of versions of the original electronic documents and emails from which the historical record can be reconstructed?

If so, have you tried retrieving some material which was archived (say) twenty years ago? We can read books, diaries and letters going back for centuries with equipment no more complicated than a pair of specs and a good light. But to read my 1985 electronic archive, I have to recreate the 1985 environment, hardware and software, and this is not easy.

I consulted some computer experts on this subject, and their first response was disbelief. Why, they asked, would anyone *want* to resurrect a 1985 document? Now, I am not saying that all computer experts are as dumb as this. Suffice to say that the experts who every year produce new versions of the operating systems and applications do not have the interests of archive users in mind. As fast as new capacities are added, old capacities drop off. Most computer programmers live only for the present. For them, the future is short and uncertain and the past non-existent.

Now, you may say that all these problems are soluble, and I am sure they are. However, a lot of people who know a great deal more about computers than I do have similar troubles. I am told that the Meteorological Bureau in Melbourne has full records from 1852 to 1963 and from 1972 on, but for the period 1963-1972 they have a whole lot of punched tape but no longer have the software to make sense of it. For these ten years, they rely on the archived copies of the Melbourne *Age*.

### *4. New ways of getting it wrong*

A characteristic of technogenic diseases is that they are often specific to the technology used. Old ways of getting it wrong have disappeared, but new ones have arrived to replace them. To cheer you up, here are two problems we no longer experience.

The first occurred with *A Modern Approach to Chemistry*. I was looking at a copy of the first reprint, and noticed that a photograph was upside down. Panic. I went straight down to the warehouse and started checking copies, but could not find another with this error. So I sent the misprint copy to Graham Nancarrow, the Griffin Press rep with whom I dealt, asking for an explanation.

A week later I got his reply. It seems that the section was printed on the night shift, and they found later that they could not account for four reams of paper. It was probable that the machine operator, who was of course no longer with them, stopped the machine to check the underlay, removed the block, and when replacing it did so upside down. He then ran 2000 copies, noticed the error, shoved the misprinted sheets into the shredder and then restarted the run. What he forgot was the sheet in the delivery chute at that moment. In short, this could be the only misprint copy in existence. It had been placed in their museum of freak disasters.

Another problem we no longer have to endure was more common. In the days of Linotype, a line requiring correction was reset and the corrected slug inserted at the appropriate point in place of the original slug. The error was to replace the wrong slug, resulting in a text with two almost identical versions of one line. Knowing the procedure, you knew to search the earlier proofs for the line that had dropped out.

Digital technology, too, has its characteristic mistakes – errors which could not have happened, or at least were unlikely to happen, with hand-written or typed scripts. Let us look at a few.

(a) The author decides to move a sentence or paragraph, but accidentally chooses copy/paste instead of cut/paste, and fails to notice that the passage now appears twice. This type of error is easy enough to pick if the two appearances are close, but if the source and destination are at opposite ends of the work, it can be pure luck if we notice the duplication.

(b) An author may have had second thoughts about the structure of a sentence, and at the last minute changed it (say) from a passive to an active construction, but left behind some fossilised relics of the original construction. This can of course happen with a typescript, but the problem would have been immediately noticed and dealt with by the printer's reader or the typesetter. Nowadays, the author's text *is* the typesetting. (Tony Geeves calls this 'roadkill', a very appropriate word for it.)

(c) A logical or narrative sequence suddenly breaks off, only to resume two or three paragraphs lower down. The author has realised that something needed to be added to the

text at this point, and inserted (or pasted) a new paragraph, but has failed to notice that consequential changes were needed to the surrounding text if the original logical or narrative sequence was to survive.

Problems like these will often occur in texts keyboarded by authors, but they can also be generated by editors. Maybe you never do anything so stupid, but I do every day. And I see so many examples in books, magazines and newspapers that I cannot believe I am alone in this.

None of these errors is likely to be made in a hand-written or typed text, as rearrangement of sentences and paragraphs is a highly visible business, involving a lot of circles and arrows on the script. They arise from one of the best things about digital typesetting, which is that the cut-and-paste routines are so easy and the resultant text is so seamless.

Next, there are three which do not arise from cutting and pasting:

(d) Unexpected hyphens appear in the middle of words, because the author inserted an ordinary hyphen instead of a soft (optional) one when trying to avoid a windy line. The alignment was then changed, and the word now appears complete with hyphen in the middle of a line. (This one is perhaps more likely to be generated by an editor than an author, as most authors will use automatic hyphenation, whereas many editors tend to prefer the greater control of manual hyphenation.)

(e) Bad line breaks occur, particularly with the separation of arabic numerals from units, so that 88 mm becomes 88 mm. It is of course a problem that is easily solved: many editors have macros which search for such things and insert the required hard thin spaces and non-breaking slashes. The problem is that without a pretty sophisticated macro it is more or less impossible to do it automatically, and it is generally impossible to tell on screen whether a given space is hard or soft. If you miss one, Murphy's Law states that a last-minute minor editorial change will generate just such a bad break.

(f) There is a tedious problem with apostrophes. Most authors switch on 'smart quotes' and give no more thought to the matter. However, if they then want to represent a dropped aspirate, they key an apostrophe, not remembering that this will generate an opening single quote mark: "Take me to 'ospital" where it should be "Take me to 'ospital". The problem is tedious because I have never worked out a way of finding the ones which need attention short of checking every opening single quote mark.

The answer to these problems is not to turn off or avoid using the computer's smart routines. The merits of these routines overwhelmingly outweigh the associated problems. But they demand special vigilance.

Significantly, examples of every one of these problems were present in the first version of this text, and some probably survive.

### *5. Problems with OCR and VR software*

Somebody asked me report my experience of optical character and voice recognition software.

The answer with the latter is simple: I have never been sent a text as an audio tape, and have not educated my computer to turn my own incoherent babbling into a text, so I have no experience of the joys or the perils of Voice Recognition. But if anyone has, I would be delighted to hear

from them.

By contrast, I have had quite a lot of experience with OCR, and it has lately been very happy. I say 'lately' because the early software was pretty useless. It claimed 97% accuracy, which sounded good until you worked out that it meant roughly two typos per line. As this is less than I would make, I used it quite extensively, but it was not the best.

Currently, I use the software which came with my latest Canon scannner, and it is remarkably good. I have had transcripts of whole pages of straight text with no typos at all.

Needless to say, proofreading an OCR-scanned text requires us to watch for errors that would not be likely to arise with a keyboarded text. '101 Nights' is liable to turn up as 'IOI nights', for example. (I have never had alpha characters turn up as numerics, but the converse seems to be common.)

Mine has some difficulty in identifying spaced and unspaced hyphens, en-dashes and em-dashes, and of course cannot label the output text with style tags. But sorting all this out takes only a fraction of the time it would take me to keyboard from scratch, so I am not complaining; and future versions will doubtless be even more reliable.

### *5. Possible problems with Mr Microsoft*

There is one class of technogenic disorder which may not be a disorder at all, but is certainly worthy of attention. It concerns Mr Microsoft, as I will call the grammar and spelling experts whose views are enshrined in Microsoft Word and other WP programs.

(a) Spelling

I have no worries about the spelling. Mr Microsoft bases his spelling guidance on the content of identifiable dictionaries, and I cannot remember ever disagreeing with the advice. He



is also brilliantly intuitive at guessing what word I had in mind when I have typed garbage.

I would add, in case it is not patently obvious, that large parts of this text were written on a layout program, without the benefit of Mr Microsoft's skill at identifying typos, and were never printed out. Given my very amateur keyboarding and the problems of proofreading on screen, this is a recipe for disaster. But I still like working this way.

(b) Grammar

I wish I could be positive about Mr Microsoft's advice on grammar. He does not say where he gets it from, but it is a short list of items which are largely stylistic rather than grammatical, apparently selected because they can be identified by some simple triggers.

For example, he accepts "It's him" but not "It is him", which sounds a peculiarly subtle distinction, but occurs not because of any understanding of formal and informal registers but because the trigger is the word "is" followed by a pronoun in the objective case: so he also objects to "Woe is me".

Similarly, he keeps telling me to write "which" instead of "that", the trigger apparently being the word "which" other than after a comma or preposition.

Neither of these is a rule of English grammar: they are at best inkhorn[9] rules, that is, rules invented by prescriptive gram-

[9] I know of no better expression to use for this phenomenon. The phrase 'Inkhorn words' was first used in the 18th century to describe words which were coined by the writers of the dictionaries in which they appeared. So it seems reasonable to use the phrase 'inkhorn grammar' to describe alleged rules of grammar which never existed until some grammarians or writers of style manuals thought them up.

marians or style manual writers. I am always suspicious of such rules, particularly when, as H.W. Fowler said of the 'that/which' distinction when he proposed it, "...it would be idle to pretend that it is the practice either of most or of the best writers." And he went on to say that writers of style manuals would never be able to change the language.

Nobody seriously suggests that our great writers use 'that' for defining relative clauses and 'which' for predicative ones, and so long as this remains true, we must not take Mr Microsoft's advice too seriously. But Mr Microsoft has much more power to change the language than Fowler had, and many editors believe that it is a rule of correct Englsh.

Despite my scepticism, however, I generally have the grammar checker turned on when working in Word. I like the green line which appears when one of my sentences has gone on long enough; I have occasionally changed a passive to an active on Mr Microsoft's advice; and I write 'in fact' slightly less frequently because he objects every time I do so.

It is dangerous to say that any intellectual task is too difficult for a computer, but I suspect that the analysis of English grammar is one. A computer can be taught the rules of chess, but a sense of grammar is more akin to a sense of humour. On the day a computer laughs when I tell it a joke I will be surprised. On the day that it groans because it has heard the joke before I will be alarmed. And on the day that it laughs and says, "Thank you. I've heard that joke before, but I'd forgotten the punch line," I will believe that our days of dominion over the Earth are numbered.

(c) Mr Microsoft and spelling reform.

One problem (if it is a problem) arises from the fact that, unless you tell him not to, Mr Microsoft defaults to American spelling. This inevitably means that, other things being equal, these spellings will prevail.

Personally, I have no intrinsic objection to this: if I had been brought up on American spelling, I would unquestionably regard it as more sensible than ours.[10]

Until recently changing one's spelling was virtually impossible, as the spelling conventions learned in childhood become wired into our brains, and our brains resist rewiring.

Noah Webster rewired the brains of a nation, but significantly did it not by his dictionary but by publishing a spectacularly successful primary speller. By the time he came to write his dictionary, he could truthfully claim that this was how Americans spelt the critical words.

We can't be sent back to primary school, but there is no need to. All we have to do is to switch to a new spelling in our computers and we will soon learn.

Incidentally, if you do this you will realise how brilliant spellcheckers are for teaching spelling. With their instant iden-

[10] As it happens, I was glad to see the end of the old rule on *-ise* and *-ize*, which demanded *-ize* in words derived from classical Greek verbs ending in *-izo*. like *realize*, and *-ise* for the newly-coined ones like *materialise*. However, I prefer to standardise on *-ise* rather than (as the Americans and OUP do) *-ize*. And (illogically, given my rejection of the old etymological argument) I object on etymological grounds to *analyze*, this time having the OUP on my side.

Similarly, I applaud the American use of the same spelling for the verb, *to practise*, and the noun, *a practice*, though I would standardise on *-ice* rather than *-ise*.

However, on *color*, *center* and *traveling*, the Americans (or Noah Webster, since he personally invented 'American' spelling) have both etymology and common sense on their side. But that doesn't mean I can bring myself to adopting them – yet.

tification and correction of error, they are the best spelling tutors anyone is likely to invent.

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It is risky to talk about the present. Things move so fast that much of what I have written in this chapter will already be out of date by the time you read it. Also, it is hard to keep up with developments when one lives in a goldfields ghost town. So it you have any comments or news, let me know:

travturf@bigpond.com.

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If it is risky to talk about the present, if is diabolical to talk about the future. But that is the topic of the next and final chapter.



# Chapter 9
# Editing into the Future

We can only be sure of one thing about the future, and this is that it will be different. People whose business is all about the future – economists, town planners, actuaries and evangelists – always seem to get it wrong, so I am in dubious company. But I will try.

We have to ignore, of course, all the various catastrophes with which the Earth is threatened. We can consider only the future of editing in a world which is essentially intact.

## *1. The future of printing*

It seems likely that within twenty years lithography will join letterpress in the museums, all printing being done on high-speed digital presses. The core technology is already in place – DocuTech showed the way.

A feature of the new presses will be their capacity to change jobs without any down-time to change plates. The operator will simply nominate the identification codes for the titles and the quantities required of each, and the correct number of finished books will emerge from the machine.

Something very like this is already happening with digital 'just-in-time' printing, including machines in bookshops offering one-off copies of out-of-print books. At present the run-on price of digital printing is around six times that of litho, offsetting its lower initiation costs only on a run of 350 copies or less, so it is not economic for commercial print runs.

However, there is no reason in principle why future digital printers cannot have run-on costs comparable to litho, and then litho printing will be dead.

### *2. The future of the book*

It seems to me that the printed book is with us for some time yet.

However, new mediums of transmission will arise – and please note the careful use of the word 'mediums', not because I am talking about ladies with crystal balls, but because the word 'media' has become a collective singular with all the wrong connotations.

Not e-books, I suspect: the e-book replicates many of the shortcomings of the printed book, while losing some of its unique charms. But the poets, storytellers and gurus of the future will find some way of communicating their messages, and maybe the bext generation of e-books will be charming as well as efficient.

### *3. The future of the programs*

I am sure that the programs and operating systems will get more clever, with new bells and whistles. At the same time, I have a possibly misplaced confidence that the creators of the programs will recognise their responsibility to the past and to the future, and ensure that old documents can continue to be read.

In the meantime, Mr Microsoft could offer us a new set of spelling and grammar options, which he might call 'International usage'. This would not be designed as an international standard, but rather to identify all words whose spelling, meaning or connotation varied from region to region. It would warn, for example, that 'liberal' can mean 'left', 'right' or 'centre', depending on whether the reader is American, Australian or British. It would also tell us the way the author's intended meaning would be expressed in a given target market.

### *4. The future of our language*

When I was in China not so long ago, the French department in a university I was visiting was packing its bags to return to France in protest against a demand by the university authorities that they should stop delivering their lectures in French and deliver them instead in *English*.

It was the ultimate insult, but it reflected a reality: English already has an unquestionable status as the dominant language for diplomacy, for international trade and commerce and for academic communication.

Despite this dominance, it is also unquestionable that, at grass roots level, further divergences from 'standard' English will occur. So far, we talk mainly about regional variations rather than new derived languages, but every regional variation is potentially a new language in the making.

The best way of telling a new language from a dialect is to ask people what language their children speak at home. If they say 'English' you have to believe them, however outlandish it is. This immediately distinguishes (say) Indian or Singaporean English (two regional dialects which are the first languages of their speakers) from versions spoken by Indians or Singaporeans as their second languages.

A more profound change is happening in Jamaica. Almost all Jamaican children speak Jamaica Patois as their first language. As in India and Singapore, a more or less standard English remains the language of Jamaican education and of almost all written communication, but there is a nascent literature in Patois, and it is only a matter of time before Patois

becomes recognised as a language in its own right, with its own grammar and vocabulary.[11]

The interesting point, however, is that from Kingston, Jamaica to Singapore, English-language newspapers, official documents and almost all literary works are in standard English, albeit with a good sprinkling of non-standard words. It is as if a centrifugal force generating divergence is in competition with the centrifugal force of international communication in standard English.

Standard English is the language whose core common features enable Australians to share books and communicate with other readers and writers of standard English all round the world. The question is, could it become a truly international *lingua franca* in the same way that Latin was, outliving the Roman Empire by more than a thousand years?

To answer this, it is worth looking at the circumstances under which Latin achieved this enviable status.

The essential first step is to establish a verion of the language which will remain essentally unaltered over time and space: a dead version. In the case of Latin, the dead version was generated in the third and fourth centuries by grammarians, who produced an elaborate description not of current Latin, but of the Latin of the Golden Age, three hundred years earlier.

The second step is to persuade literate folk to write in this dead language rather than in the current spoken versions. And this is what happened. Latin poets of the 4th and 5th centuries wrote in this archaic, dead language.

The long-term result was that this petrified language, insulated against evolutionary change, became everybody's second language. It was a dead language, but it continued to be the language of scholarship, science, diplomacy, religion, trade and commerce well into the 18th century – precisely *because* it was dead.

What, then, has to happen for English to command such a position? Firstly, like Latin, it is widely spoken over a vast area, promoting regional variation; secondly, like Latin, its literati tend to adopt a standard form which is more or less understood everywhere. What is missing is the authority that can stop this standard version in its tracks, kill it, and keep the corpse in a refrigerator for all times.

Until the arrival of the computer, it seemed improbable

[11] The promoters of Jamaica Patois decided to spell the words phonetically, (they call it 'Jumeika Patwa') partly to reflect the realities of its pronunciation, but partly, I fear, from an ideological desire to distance it from standard English. As a result, a Patois text is difficult for us to read even when the words are essentially standard.

| | |
|---|---|
| Lingwis dem aidentifai "pior" Jumiekan, fain muosli a konchri, wid riijanal difrans, laka wahn mixcho a sebntiint sentri Inglish ahn Wes Afrikan, muosli Shwi, kanschrokshan ahn vokiabileri, wid som Panish ahn Puotigiis iin de tu fi a gud mixop. | Linguists have identified "pure" Jamaican, now spoken mostly in rural areas, with regional differences, as an amalgam of seventeenth century English and West African, mostly Twi, constructions and vocabulary, with some Spanish and Portuguese thrown in for good measure. |

However, this has had a curious side-effect. Almost all Jamaicans have learnt to decode standard English spelling at school,but have almost as much difficulty as we do in decoding Patois. As a result, although most Jamaicans are happier *speaking* Patois than standard English, they find standard English easier to read.

This problem may disappear once Patois spelling is taught in the schools, but at this moment the new spelling looks to me like a tactical mistake.

that this could occur in English. Unlike Latin, with its small, highly communicative literate elite and the overwhelming central authority of the Church of Rome, English had too many arbiters, each of them fiercely contemptuous of the others. There was no single authority which could make decisions which would direct change, still less stop it. Indeed, the idea of such an authority was deemed futile: the *Academie Française*, set up to protect French from contamination, was not listened to even by those who had set it up.

Now, however, there is such an authority for English: Mr Microsoft. He has neither political nor academic authority, but he has control of computer programs on which around 90% of new English writing is being composed. They all have the option to turn his advice off or ignore it, but if enough people follow it, computer spelling and grammar checkers could wield more influence than the greybeards of the *Academie* dreamt of.

With spelling the influence of Mr Microsoft is already apparent. Janet Mackenzie reckons that Mr Microsoft has singlehandedly reinstated the diaeresis in *naïve* and eliminated the anglicised spelling *naivety*.

But what of grammar? We can watch the future of 'which' and 'that' with great interest. It could go down in history as the first evidence that literary English had moved from coherence with its spoken forms into a dead language operating under the unchanging rules of a prescriptive grammar. And, of course, if Mr Microsoft's rules become accepted by all the best writers, they will cease to be inkhorn grammar and become an accurate description of good usage.

Once a rule is enshrined in Microsoft, it will tend to stay there. There will be no reason to change it, because it will be followed in new writing, so the proposition that it is 'correct' will be self-proving.

Only two questions remain: will Mr Microsoft show the lead, and will we follow?

## *5. The future of editing*

So long as there are people with messages to deliver, authorship will continue, and so long as authorship continues, there will be a need for editors.

Unquestionably a lot more of the work editors are offered will involve preparing material for electronic transmission, and if I were starting out as an editor today I would be making sure that I understood JavaScript and all the technology of website construction.

In short, the editor's job will involve the same aptitudes and attitudes as it does today, but a different (and even wider) range of skils.

Whether the need for editors is widely perceived by the people who will pay the bills is not quite so certain. I quoted earlier the sad case of the telephone directory, a work whose publishers should have had a clear understanding of the need for editorial discipline, but which is presented with all the raw exuberance of a municipal tip.

However, there are also some good signs. The Plain English movement has scored notable successes with our major public and private institutions, and I see more and more government and company publications which are models of their kind. This is not just happy chance. The first drafts of these documents were probably just as impenetrable as they had ever been. The difference was that the people in charge knew that editorial attention was needed, and editors had risen to the occasion.

Another positive development in Australia is the establishment of the Institute of Professional Editors, which recently

held its first accreditation examination – to find out what happened, visit http://www.iped-editors.org.

The initial syllabus for the examination appeared to be pretty traditional (though I have not yet seen the exam papers, so I may be quite wrong). However, if the syllabus moves with the times, it is likely that membership of the Institute will be recognised by clients as a relevant and reliable qualification over the whole range of publications, print and non-print – which is as it should be.

Meanwhile the old aptitudes, attitudes and skills will still be needed. I once defined the job of editors as *to help authors turn what they have written into what they think they have written: the perfect communication with their future readers*. I stand by this definition.

The point becomes particularly clear when applied to simple cases: road signs, for example. It was either an editor or an author with editorial awareness who wrote the sign

WRONG WAY
GO BACK

And it was a non-editor – or perhaps an editor with a warped sense of humour – who wrote the sign that has appeared recently all over town:

WHEN FLASHING GIVE WAY TO PEDESTRIANS

This is the best example I have ever seen of the dangers of a hanging participle.

And that is a good thought on which to end.



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