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NATTERING ON THE NET

Women, Power and Cyberspace

Dale Spender

Garamond Press

For Cheris Kramarae

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Dale Spender
July 1995

Introduction

This is not a book about computers. It is a book about people. It's about the impact that computers are having on human society. The reason for this focus is that who we are, what we know, and how we think, are all being changed as we move from a print-based society to a computer-based world. We are becoming different people; we are creating a new community.

So far, there has been little discussion about this cyber-community and how it affects us. Most of the talk has been in relation to the technology; the marvels of the "chip", the power of computers, and the vast potential of cyberspace. But, given the consequences of technology in the past, we can't just assume that all will be well.

In describing the possibilities of cyberspace, use is often made of a highway meta-phor. Just as highways opened up the country to everyone in Australia and the United States, for example, so too, by implication, the information superhighway will open up the electronic world of communication, education, entertainment and services. But, as William Howell points out in *The Chronicle of Education*, the promise of access, mobility, and a better way of life has not always been delivered, and we should be wary of the hype. In the USA, he says, citizens paid a lot for the so-called benefits:

> by promoting the interests of petroleum producers and automobile manufacturers ahead of public transportation, we saddled ourselves with side effects such as traffic deaths, air pollution and urban gridlock.[1]

Not to mention urban sprawl, isolated suburbs, and the downtown slums. And, he adds, with a sense of foreboding:

> Without some major changes now in our approach to the information revolution, we'll pay heavily again and on a much grander scale.[2]

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1. William Howell, 1994, "Point of View", *Chronicle of Higher Education*, 8 June, p. A40.
2. Howell, "Point of View", p. A40.

It's easy to be carried away by all the good news about the superhighway and what it will mean for the wealthier and developed societies, but a little bit of doubt won't go astray. Already some of the pioneers are suggesting that there should be increased reflection and responsibility.

Clifford Stoll, a computer geek from the earliest days (the man who caught the German spies hacking through the system), is having second thoughts, for example. Not that he is against the technology – he just wants to see a little more caution exercised when it comes to putting the information infrastructure in place. In *Silicon Snake Oil* he introduces his argument with the statement: "Computers themselves don't bother me, it's the culture in which they're enshrined."[3]

Computers don't bother me either. In fact, I have to acknowledge that I am a complete convert. My computer means as much to me now as a library of books once did – it represents a key to another universe, to a realm of information, creativity, and international ideas. But, like Clifford Stoll, I am concerned about the culture and the effects that the electronic revolution is having on society. I want to see computers, culture and communities as a major topic on the public agenda.

I am sure that all the discussion on broadband versus narrowcasting, rams, bytes and fibre optics deals with important issues, and is of immense fascination to some members of the population. But these are no more the substance of the electronic revolution than the emergence of the factory was the industrial revolution; in both cases it is the change in society – the shifts in power, wealth, influence, organisation, and the environmental consequences – that matters to us all as individuals, and as communities.

Our priority now should be to put human beings at the centre of computer culture; we must start thinking, planning, and managing the information revolution. Because every social issue that we are familiar with in the real world will now have its counterpart in the virtual one.

Everything from sexual harassment to questions of the distribution of wealth and power, from concepts of privacy to provision for access and equity, will all be up for policy discussion and decision-making. As Professor Ian O'Connor has perceptively stated, "What we now need is a Department of Social Policy for Cyberspace."[4]

The emergence of cyberspace challenges the horizons and the habits of print-based culture. It is now more than five hundred years since the printing press was introduced, and with it came a social revolution in the Western world and the foundations of contemporary society. In its own way, print helped to construct the particular Western notions of individual and community (a conceptualisation not always shared by the Chinese, for example). So engrained is this print-world view that we aren't necessarily conscious of the hold it has had on our minds. As Neil Postman says,

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3. Clifford Stoll, 1995, *Silicon Snake Oil: Second Thoughts on the Information Superhighway*, Bantam Doubleday, New York, p. 3.
4. Ian O'Connor, Professor of Social Work and Social Policy, University of Queensland, private communication.

> A person who reads a book or who watches television or who glances at his [*sic*] watch is not usually interested in how his mind is organized or controlled by these events, still less in what idea of the world is suggested by a book, television, or a watch.[5]

Just as a watch and a book have influenced who we are and how we explain our world, so now are the new technologies "reprogramming" the human condition.

For we are probably the last of the purely print-proficient.

We are the last generation to be reared within a culture in which print is the primary information medium. Because we have grown up and become skilled in a print-based community, we have developed certain ways of making sense of the world. We are, to some extent, what print has made us. And now we have to change.

Not surprisingly, we are a generation prone to suffer from acute information anxiety.

There have been earlier information revolutions, of course. The shift from an oral culture to a written culture was just as decisive and dramatic as is the shift we are experiencing today. But it took much longer for the storytellers of oral times to make way for the scribes; it was a change that could be measured in terms of centuries. The current shift is taking place within the space of one lifetime. And we are not a society which has been well prepared for such a pressured pace of change.

Certain values have served us well while we have used print to make our world. They are not as useful – and can actually be an obstacle – now that we are obliged to work with the new technologies. This increasingly places many of us in the uncomfortable position of being deskilled.

All the expertise that we have acquired with print no longer commands the respect that it did when we started our working lives. So much of our living and working experience is already computer-based that many of us are on a constant steep learning curve as we keep adjusting to technological innovations.

"I have just learnt to do e-mail," one of my friends who runs a bookshop said with pride – and tension. "Can I stop now?" she asked, "Am I there yet? Can this be it?" While I know she speaks for many, the answer has to be no; there is no end in sight. For those of us who were reared with print, the continual effort to learn the new technologies will be an ongoing fact of life.

Whether it is the academic men in the university who have had to learn to do their own typing, or the older person who has had to come to grips with money machines, voice mail or microwave ovens, the shift to the computer has to be made. Not only will the trend persist: the pace is likely to increase. As Nicholas Negroponte says: "Computing is not about computers anymore. It is about living." He goes on:

> computers are moving into our daily lives: 35% of American families and 50% of American teenagers have a personal computer at home; 30 million people are estimated to be on the Internet; 65% of new computers sold worldwide in 1994 were for the home; and 90% of those to be sold this year are expected to have modems and CD-ROM drives. These numbers

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5. Neil Postman, 1986, *Amusing Ourselves to Death: Public Discourse in the Age of Show Business*, Penguin, New York, p. 11.

do not even include the fifty microprocessors in the average 1995 automobile, or the micro-processors in your toaster, thermostat, answering machine, CD player and greeting cards. And if I am wrong about any of the numbers above, just wait a minute.[6]

There are problems and difficulties in all the personal, intellectual and work changes that we are being required to make, but this is only one side of the story. There are opportunities as well. What we have to see is that we are the only generation which will know both mediums, the print and the electronic. We are the ones who will be able to make comparisons, who will be able to assess, evaluate and transfer our experience, expertise – and wisdom – from the old forms to the new.

We have a great deal to offer. The only condition is that we become computer-proficient. We must get to know our way around the computer world in the same way that we have been at home with print. At one level – assuming the availability of resources – this goal isn't difficult to achieve.

Computer-competency is not an option any more. It is a condition of citizenship in the electronic world. This is why particular emphasis is paid to women and computers in this book. For many reasons – which have less to do with women and more to do with computers – women are not making the shift to the new medium at the same rate as men: the most recent reliable figures indicate that 94 per cent of Internet users are male.[7]

Despite the belief of some individuals, the computer is not a toy; it is the site of wealth, power and influence, now and in the future. Women – and Indigenous people, and those with few resources – cannot afford to be marginalised or excluded from this new medium. To do so will be to risk becoming the information-poor. It will be to not count; to be locked out of full participation in society in the same way that illiterate people have been disenfranchised in a print world.

There are people who say they cannot cope with all this change. Some think the computer is alien and evil ("I'd rather be dead than use one of those things," an estab-lished author snarled at me), and some firmly believe that the skills they have will see them out. But, unfortunate and unjust as it is, they are making a monumental mistake if they hang on to such attitudes. Anyone planning to be around in the next few years cannot cling to the ideas that print skills will be enough, and that being computer-incompetent will be no great loss.

None of us can choose to stay outside the computer culture. (Some of us will be forced outside, and that is a very different matter.) Indeed, it will be much harder and more distressing to stay out than it will be to get in to the new ways of doing and being.

Becoming computer-competent is not all that difficult. Learning to read (in print culture) is probably more complex, and learning to drive a car is undeniably more dan-gerous. As we know full well, three-year-olds can manage the new technologies, often with much more facility than can their parents. This is not because the three-year-olds

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6. Nicholas Negroponte, 1995, *Being Digital*, Knopf, New York, pp. 5–6.
7. James Pitkow and Mimi Recker, Georgia Institute of Technology: see Donald Carli, 1994, "A Designer's Guide to the Internet", *Step-by-Step Graphics*, Peoria, Ill., November–December, p. 27.

are brighter or more technologically gifted. Computers are not technology to them; they are just the way their world works. Computers just happened to be there when they were born; for the rest of us, *technology is what wasn't invented when we came into the world.*

For those of us who have to adjust to the new technology, the message should be loud and clear. We can start with the recognition that a computer is, to some extent, nothing other than an enhanced telephone, and it need be no more difficult to use. It's just that some of us need a lot of counselling before we can appreciate this. With a little bit of help from our friends (most women who are computer-competent were introduced to the new technology by a friend), we can get over our reticence and take to nattering on the net with the same comfort and ease – and sense of satisfaction – as we took up the telephone not so long ago. For many of us who are print-proficient, it is not technological information we need to make the move – it is confidence.

I don't see the tap in the bathroom – or even the book on the shelf – as technology, although they could both be mystifying objects to any adult who had never seen them before. The technological elements of the computer will also be increasingly invisible in the future to those who grow up with computers and who are computer-competent.

This is not just because computers will be so much part of the atmosphere; it is also because the technology itself will be more sophisticated and more subtle. There is no better example of this infiltration of our daily lives than that of the intelligent agent. This is where we are heading, and it is an indication of how we are going to change our thinking and our activities.

Almost everyone who has logged into cyberspace has become aware of the vast amount of undifferentiated information that is available now that so many millions of computers are connected, and so many people can put out the information, or "publish", whatever they please. As there are no teachers, librarians, or sages to help you make your way around on the information superhighway, the most common complaint is that it is too hard to find what you need.

This is why we have to take computers one step further. In the words of Nicholas Negroponte, the founding director of the famous MultiMedia Lab at MIT, we have to create computers which will "filter, sort, prioritize and manage multimedia on our behalf – computers that read newspapers and look at television for us, and act as editors when we ask them to do so".[8] These new computers are called *intelligent agents.* Not surprisingly, "interest in intelligent agents has become the most fashionable topic of research in human interface design".[9] Here is the signpost to cyberspace.

These intelligent agents can live in two places. They can live – and sift and sort – at the point of origin, or they can live and work at the point of reception. I am not all that fussed about whether the agent lives at someone else's place, or mine. Either way, I can hardly wait to have one working for me.

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8. Negroponte, *Being Digital*, p. 20.
9. Negroponte, *Being Digital*, p. 151.

Take newspapers, for example. An agent will let me read exactly what I want. It will mean an end to all those football grunts and jerks: an end to any violent sport (such as boxing); indeed, an end to any game that I might find offensive. I could even request my intelligent agent to transmit to me only women's sport, or any good news of the day.

If the agent resides at the *Courier Mail* office, this will be like having my own staff reporters. I will get on my screen each morning (and I can download if I wish), a newspaper that has been custom-made for me. This is one of the ironies of the so-called new *mass* media: the audience may often be just *one* person!

If, however, the agent lives at my place, it could be that during the night a number of different newspapers send out their information, and my agent samples all of them, looking for anything I might like. Then it provides me with a personalised coverage from this wide range of sources. Oh what joy to be able to manage my own news. And what implications it will have for newspapers. Not only could women's newspapers be constructed for the first time, but newspaper editors might start to see the potential of such a niche market, and set about making news which is of greater concern to women. Good news for all.

Roll on the next stage of computer interfaces.

There is no reason that I cannot have an agent working for me at such places as the *Courier Mail*, the movie transmission centre, and Radio National. Each source could be routinely filtered for my preferences. Not only will I be able to see just what I choose: I will be able to do it at whatever time suits me:

> The six o'clock news not only can be delivered when you want it, but it can also be edited for you and randomly accessed by you. If you want an old Humphrey Bogart movie at 8.17 p.m., the telephone company can provide it . . . Eventually when you watch a baseball game, you will be able to do so from any seat in the stadium, or for that matter from the perspective of the baseball.[10]

Of course these are Mr Negroponte's choices; my own agent would be given very different instructions to follow. As would everyone else's.

Intelligent agents will be searching global information and presenting it in a way that makes sense to each person who has the resources to be connected (let's not lose sight of this throughout)! Some people have likened an agent to a press-clipping service, where the particular brief is to clip items of interest to each individual from the masses of data that are floating around. Others have suggested that an intelligent agent is more like an English butler.

To Nicholas Negroponte, the expert on matching computers with human needs, it is the well-trained English butler that provides the model for the next stage in interfaces. An agent will do a great deal more than set you up with a newspaper service and sort your e-mail messages.

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10. Negroponte, *Being Digital*, p. 49.

The "agent" answers the phone, recognizes the callers, disturbs you when appropriate, and may even tell a white lie on your behalf. The same agent is well trained in timing, versed in finding the opportune moments, and respectful of idiosyncrasies.[11]

To the monks of the Middle Ages who read but a few manuscripts in their lifetime, the avid book reader probably looked like a superhuman creature; that one person could have access to so much information from so many books was beyond their comprehension. The cyber-person looks much the same to those of us who have been used to the slower and more cumbersome process of print; how could one person cope with so much data – and what could they do with it? What sort of life will you have in this high-tech cyberworld, being served by so many British-butler intelligent agents?

One significant change in the daily scenery that the intelligent agent will bring is the shift away from the television to the computer screen. When it comes to multimedia, a screen is a screen is a screen . . . As Nicholas Negroponte points out, the consensus in the industry is that the distinction between the two types of screen will soon disappear; the one that is the gateway to cable, telephone or satellite will be the one that we use.

This will be more like what we think of now as the PC than the television. "In other words," says Nicholas Negroponte, "there is no TV-set industry in the future. It is nothing more or less than a computer industry."[12] We won't be buying TV sets from the shops. If we do continue to call one of the screens a television, it will be because of where we place it in the house. And perhaps how far away we sit from it.

The point is that televisions are not very "intelligent" machines. You can't *interact* with televisions as we know them at the moment. While you can zap around the channels (and record with a VCR), you are still the one who has to do the choosing, and you still have to take what you can get. Even with pay or cable TV. For those reared within computer culture, this form of passivity (or absence of an intelligent interface) will not be good enough. They are not going to wait for the weather report for example; with the help of their agent and their computer-television screen, they are going to "do" their own information.

Instead of broadcasting the weatherman and his proverbial maps and charts, think of sending a computer model of the weather. These bits arrive in your computer-TV and then you, at the receiving end, implicitly or explicitly use local computing intelligence to transform them into a voice report, a printed map, or an animated cartoon with your favorite Disney character. The smart TV set will do all this in whatever way you want, maybe even depending on your disposition and mood at the moment. In this example the broadcaster does not even know what the bits will turn into: video, audio or print. You decide that.[13]

To those of us who have been educated and entertained with books, the medium of print may seem far from passive. But to the products of the new computer culture,

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11. Negroponte, *Being Digital*, p. 150.
12. Negroponte, *Being Digital*, p. 47.
13. Negroponte, *Being Digital*, p. 55.

print will appear as fixed, unwieldy, nonactive; even dull and boring. (Such charges are already being levelled at print in our education system.) The next generation will not be content to sit and read or watch someone else's information all the time; they will want to construct their own version.

That we are moving from being "readers" to "users" is one of the themes that flows through this book. The starting point for the discussion is print culture itself, with all its characteristics of stability, order and standardisation.

Even a quick survey suggests that many aspects of print culture that many people have held to be sacred are nothing other than conventions, and open to change. Supposedly proper grammar, dictionary definitions and correct spelling have all been a result of printing press uniformity. The standardised forms did not exist before the advent of the printing press, and they probably won't exert the same hold over our minds as the influence of the printing press declines.

It is interesting to note just how upset some people are by the very idea of a return to multiple spellings, for example. Such responses say more about our fear of change than about the role of spelling in creating the social fabric, or the meaning of life: I am sure we will all readily survive spelling diversity.

Chapter 1 not only outlines the set characteristics of print culture which we have come to take for granted, but points to the similarities between the print information revolution of the fifteenth century and the present information revolution. The medieval monks who created and valued those precious manuscripts were very much against the introduction of books. Many of the objections they raised then to the spread of print are the very same ones being used again now to discredit electronic communication.

The protests against print included everything from accusations that books were mindless, that they appealed to the lowest common denominator, that they were only produced to make a profit, right through to arguments that the book would ruin conversation in the family, and would lower the standards of civilisation.

These historical details are useful to us. Once we are aware of the parallels between then and now, we are in a better position to determine how far our current reservations are related to the medium itself, and how far they are the negative reactions of a community where the culture is undergoing rapid change.

Chapter 2 takes up the issue of literature. Is it the end of the novel? The end of the great masters? Will we lose the words of the great white men who have formed our literary tradition since the printing press was invented? Who will win the struggle for the word – as portrayed by David Williamson in his excellent play, *Dead White Males*?

Some high-culture parts of the print tradition won't carry over to the twenty-first century. (Some have already been thrown out, if you believe the more conservative academics, like Allan Bloom, for example.)[14] For the people who have held these writers to be centrally important to their own development and that of society, this will be a great loss.

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14. Allan Bloom, 1987, *The Closing of the American Mind*, Penguin, New York.

There is no denying this. It will be as it was for the monks when the rise of the book meant the loss of those beautiful, illuminated manuscripts that were the repository of human wisdom. In retrospect, few of us would believe that society lost out, that humanity was worse off once the book made its appearance. It's a matter of weighing the gains against the losses.

No doubt, future generations will do much the same thing; they will think that the disappearance of some texts is not such a high price to pay for the wealth of the information revolution. Besides, the literary canon has always been based on selection, with the works of many writers systematically being lost from one generation to the next. This is why women have disappeared, and why it has been such a white male canon. Some of the men will now go the same way as the many brilliant women and black literary figures have gone in the past; this could be regarded as no great tragedy in some intellectual circles.

Chapter 3 is about the habit of reading; about when it started, how it is done, and where it is going. It can be a shock to learn that only five hundred years ago, reading was held to be such a special skill that only the very talented few could ever hope to be able to do it. Reading then was a very different activity from what it has been for the last hundred years, and from what it is now.

Print led to the democratisation of reading; it enabled the many to read, rather than just the few. The masses were empowered in a way that had not been possible during the manuscript period. In fact, so important has print been for the last five hundred years, that literacy has come to be regarded as a human right.

Books have been highly valued; they have come to represent more than the sum of their parts. Countless numbers of readers have seen them as the gateway to ideas, information and imagination – to another realm of existence. In the eighteenth and nineteenth centuries, when women were barred from educational institutions, books were the lifeline for many. Florence Nightingale was just one who declared that without the book, women would be in danger of dying of intellectual starvation.

In the past few decades when women's books – and women's presses and bookshops – have appeared on the scene, books have once more assumed great importance among women. Again and again, women have testified that a particular book "changed my life"; and because they have found it so inspirational, they have bought multiple copies of it to give to (and change the lives of) their friends.

As the influence of the book starts to wane, what effects will this have on society? And on communication? How will it affect the position of women – and women's information, which is still in its infancy in some ways?

Along with the changes in the purchase of books, and the role that they play in individual lives, there has been a marked change in reading practices. It's not just that the next generation is decoding fewer lines of print; it's that they are decoding a great deal more visual imagery. They are reading screens. This is a different activity – physiologically, imaginatively and psychologically – from reading the symbols of the alphabet.

To sum it up: we are moving *from motto to logo!*

There's more to books than readers, of course, and authors are the subject of Chapter 4. Here too it can come as a surprise to find that authors as we have known them are a product of the printing press, and have only been around for a few hundred years. It's really only during the print period that we have developed the notion of the individual creative author as one who produces original material which is the intellectual property of the writer and represents work which must be paid for.

With the increasing importance of the Internet and the electronic media, the significance and the sales of books are threatened to the point where the death of the author is being widely proclaimed by certain members of the literary-theory community. Yet even as the print authors find the environment less hospitable, the multimedia creator (in which print is but one of the many media) is enjoying greater artistic opportunities.[15] Perhaps we are seeing just another stage in the evolution of authorship; perhaps this is another example of the creative use of new media, as happened in the past when we went from storytellers and minstrels to essayists and novelists.

What we do know is that more people today can publish their work to a bigger audience than ever before, and they can do it without the aid of middlemen. Assuming their connections to the Internet (a big assumption), authors now, with a stroke of a key, can reach millions, without having to go through the intermediaries of publishers, distributors, booksellers, etc.

This is why some people have described the new technologies as leading to the democratisation of authorship. With the aid of the new technologies, the masses can not only read: they can now write as well!

And as the book – and increased access to information and power – led to a social revolution, we can now begin to appreciate the extraordinary impact that the new technologies are having on our society. We are in the middle of a revolution, and because multimedia publication is now available to the masses we have to rethink the nature of creative authorship, along with the nature of the creative goods that authors produce. And how they will be paid for their work.

Will there be a special group of professional writers in cyberspace? What will their creative products look like? Will they be more like scriptwriters, games-makers, film producers, or code writers than novelists? Is this a gain or a loss?

Will we have, in the future, novel games as a major source of enlightenment and entertainment? A package of story-lines, scenes and characters, (provided by a professional) which we can then use or "play" with? Will we bring together the old skills of the creative writer with the new trend of doing and interacting, of designing our own combinations, of choosing our own endings?

Or will the creative writer be replaced by an intelligent agent?

We look back on the manuscript era as a period where intellectual curiosity and creativity was stifled. We describe that period as the Dark Ages: it would be fascinating

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15. Government arts policy in Australia reflects this, with increasing amounts of money being made available to multimedia producers; and of course as the print-based publishing tapers off, multimedia and CD-ROM publishing is expanding.

to know how future generations will look back on print culture and its achievements.

Will the print author – and the novel, which emerged two centuries after the intro-duction of the printing press, be viewed as a limited, linear, inflexible and deterministic form that in its rigidity was more frustrating than satisfying for "users".

What will all this mean for our educational institutions? Chapter 5 on education is one of the key chapters. This is partly because education plays such a major role in our lives and our society, and partly because every facet of education must also undergo dramatic revolution.

What we have at the moment is an education system based on print. It has changed very little over the past few hundred years. Anyone from the eighteenth century would instantly recognise a classroom, a blackboard, a school, a teacher.

Yet what we will have in the next few years is an education system that is part of computer culture. It is not just the physical environment that will be transformed.

Whereas books have encouraged us to think in terms of a stable body of knowledge, a form of content that we can read, digest, learn, and know, computers dispose us to think differently – to be engaged in a constantly changing process where information is not stable or fixed. It might be quite sensible, for example, to ask, "what's in that book?" But it would be absurd to ask, "what's in that computer?" In a computer-based education system it will no longer be a matter of *knowing* information; it will be a matter of *doing* it. The essence will be making it as you go and changing it as you want to. And you will have intelligent agents to help you – and your teachers!

Every classroom will be transformed. Every student will be doing different things. Almost all teachers will need retraining to teach new and different competencies. Some schools are already well on the way to being computer-based, and·they help to suggest how fundamental and far-reaching the information revolution will be in education.

Universities will also have to change their purposes and their practices. Scholarship, knowledge, research and teaching are significantly different when done electronically. As more and more instruction and "knowledge-making" are done with the computer and on-line, the demands made of academics will bear little resemblance to the traditional requirements. If video and screen appearances are the rule, it could be that screen tests will be more important to the new breed of academics than PhDs have been.

Chapter 6 deals with libraries, for they too are experiencing enormous change. Established to provide access to information for those who could not afford books, public libraries performed a public service and promoted a more equal society. Whether they should continue in this tradition, and make available computer services to those who could not otherwise afford them, or whether they should become "user-pay" units, and join the information business are questions worth consideration.

Already libraries have moved from being the quiet havens of print to noisier and busier centres of technological activity. Older people for whom libraries have been something of a refuge are coming to terms with the fact that they can no longer go to the familiar catalogue, but have to use a terminal to find what they are looking for. They can be overwhelmed by the range of new on-line services.

Libraries are crucial agents in the information revolution, and they continue to play a part in shaping what we think and how we look for it. This is why their classification systems are so important. Leave out some individuals or some areas and they might never again exist in the electronic record; and for this reason we should be scrutinising the data systems that are being set up to form the mindset of the twenty-first century.

Within print culture, it has been more the exception than the rule to include women's contributions. Chapter 7, "Women, Power and Cyberspace", starts with the fact that women were left worse off after the invention of the printing press. Given the current "figures on men" in the new technologies, the issue is – will women once again be worse off after the latest information revolution ?

The evidence is not encouraging.

When it comes to cyberspace, men have the power. But it doesn't have to stay this way. And it won't. Not if women are convinced of the necessity – and the desirability – of becoming involved.

The fact is that the new technologies are the source of wealth and influence, and those who are in there will be the information-rich. Not that economic rationalist arguments and the profit motive should be the only incentives to take up the mouse.

Books, of course, did make individuals part of the information-rich, and it was the case that those who didn't have them (or couldn't read them) were among the information-poor; but one of the best reasons for reading a book has been that it is enjoyable: stimulating, entertaining and pleasurable!

The same goes for the new media. This is why women have to get in there. For the wealth, the power – and the pleasure of it all.

Nattering on the net is a satisfying, affirming and delightful pastime. Or it will be when women are full participants in shaping the system and the rules.

The glass ceiling may be preventing women from getting into the top levels of general management, but it is also preventing them from getting into cyberspace in appreciable numbers. Yet this is where the new communities are being formed; this is where the new human values are being forged. And 6 per cent of the space is just not enough for half the population. This is how marginalisation and oppression are too readily constructed.

Women are needed even at this stage to rewrite the road rules on the superhighway. Computer-competent women are needed to "suss out" this new public place and pass on advice to the next generation.

The last few decades have seen an explosion in women's knowledge, as women's studies have appeared on every campus and women's issues have become part of the public agenda. But if the present generation of women cannot hand on this knowledge that they have created, then the entire tradition is at risk – and it could be lost. This is the pattern of the past; it should not be the prediction for the next century.

That women have not been engaged in the new technologies to the same degree as men says more about the nature of the technologies than it does about women. Where women have made the technology accommodate their needs, their success knows no limitations.

Chapter 7, "Women, Power and Cyberspace", concludes with discussion of some of the women who natter so well on the net. They are models for the future. While cyberspace is a very different world from the one we know now, it will be even further transformed once women are full members of the cyber-community.

And this could be closer than you might think.

It is imperative that women become involved in the cyber-community in the same numbers and on the same terms as men. (It is just as important that Aboriginal and Torres Strait Islanders, and other marginalised groups, be fairly represented in the new medium.) There is no other way of ensuring that wisdom or knowledge can emerge from all the masses of information and data that are currently being produced.

In Western society, we now refer to the the manuscript culture of the Middle Ages as the "Dark Ages". We think of the people of that time as closed-minded and prejudiced, believing the most extraordinary and bigoted things about the meaning of life and the nature of the universe. There was plenty of information around at the time (including such things as the number of angels who can dance on the head of a pin), but because it was controlled by the powerful elite of the Church (who were interested in staying in power), we look back on the era as unenlightened; as a period without much knowledge or wisdom.

Then came the printing press. The history of the past five hundred years has been the extension of information-access and power to more and more members of the community. The Church gave way to the university as an information-producer; the priests of the Church were displaced by the priests of science, and scientific method helped to expand our understandings and our horizons.

The aristocracy made way for democracy, and more and more working people became literate and obtained access to education, information, and participation in the business of society.

The Western world called this progress. The more people who could be involved in information production and access, the greater the sum of human experience that could be included, and the more comprehensive the understandings that could be arrived at.

The last few decades have seen the extension of information production to women. In the 1960s and 1970s the women's protest was not just that women had been left out of society's database, but that in excluding half the population from information, the society ended up with only half-truths. Without the inclusion of women, the only information that could be produced was highly distorted.

The establishment of women's presses, the explosion in women's books and the introduction of women's studies courses in most universities around the world during the 1980s have helped to remedy the glaring omission of half the experiences of humanity from the repository of human information. The more women have put in over the past decades as information-makers, the more knowledgeable and wise the society is able to become. And this is why we simply cannot afford to permit white male dominance of the new communication technologies.

Not just because it's not good for the males. But because it's not good for society. A very distorted view of the world is created when only one social group, with one set of

social experiences, pronounces on how it will be for all. This is Dark Age behaviour, rather than enlightenment.

In talking about the revolution that we are now experiencing, I am often confronted by people who insist that all we get from computers is information, in comparison to the great value-added dimension of wisdom which evidently flows from the book. While I have no difficulty in making a distinction between data and information on the one hand and the human component of interpretation and wisdom on the other, I cannot understand why the charge is levelled specifically at the computer. Print contains no more knowledge or wisdom than does the digitised image.

"It will be the end of knowledge and wisdom when we are all reduced to computers," I was told recently in no uncertain terms. My only response was that knowledge and wisdom lie not in the medium. I am sure I am not the only one to know many people who have read a helluva lot of books without any appreciable increase in terms of perspicacity, discernment, judgement or intellectuality. Whether it is oral, manuscript, print or electronic media, the issues are *access and equity* if we want the full story. We need to democratise information-production if we want the best possible basis for making up our minds and arranging our community.

Which is why this book is about people rather than computers. The discussion is about our intellectual growth and options, and the way we organise society in cyberspace – and in real life. The challenge for us is to transform information into wisdom in the new medium. It is to learn to live with computers – and to make a better world.

1

PRINT

Monks and Manuscripts

The printing press changed the course of human history. It produced an information revolution. It changed what human beings know, and how we think. This is why print is such a valuable starting point for understanding the views and values of our contemporary community. And in examining some of the changes that took place with the introduction of print, we can also see the parallels with the changes that are taking place with the current information revolution: it too is altering the course of human history.

Church Rules

Before print, there were manuscripts. They were the information medium of the Middle Ages. And it was no less of an *information revolution* when manuscripts were replaced by books, than it is today as books are being replaced by electronic media.

The high point of scribal (or manuscript) culture was the fifteenth century, just before the printing press made its appearance. This was a time when the Catholic Church ruled almost every aspect of existence in much of the European world.

The Church was not just in charge of life hereafter; it also controlled information on earth. It was in the powerful position of being able to control what was known, of being able to manipulate people's minds. Everything that everyone needed to understand was supposed to be recorded in the sacred manuscripts. These were written by hand[1] and almost always in the Church-controlled scriptoria,[2] the only exceptions being a few royal households where private collections were kept.

It was mainly monks who sat around in the scriptoria copying these ancient texts (although in the nunneries and convents there were also women scholars who were

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1. Manuscript, from *manus*, Latin for hand.
2. *Scriptoria:* "writing rooms, specifically the rooms in a religious house set apart for the copying of manuscripts", *Oxford English Dictionary*.

scribes). The art of being a good copyist was to be able to copy absolutely accurately from the original biblical manuscripts, religious commentaries and sermons which were the knowledge, or information base, for the entire community.

Of course, no one was allowed to disagree with these official records that had been handed down through the ages and which were held by the Church authorities to contain the meaning of life and the secrets of the universe. So any copyist, for example, who changed anything, was not seen as creative – as making an original contribution – but was likely to be charged with *corrupting* the text.

And anyone who criticised the Church's view of the world (in which Church leaders were dominant) was also in for a rough ride.

According to the Church and the sacred manuscripts, God made the world in six days; man had dominion over all; and Adam came before Eve. And there would be no disagreement. What could be known was already known, and it was the role of the Church to guard it, to preserve it, and to keep it "pure" and free from any changes. Anyone who questioned or protested was quickly labelled as a heretic, and faced imprisonment, excommunication, or death at the stake.

Understandably, most people went along with the Church's version of creation and its explanations of world order and the state of things.

In 1450, prior to the advent of the printing press, the Church was able to keep control of information in the hands of a very few. It achieved this partly by conducting the business of the Church in Latin – a language which no one spoke as their native tongue, and which most people could not understand. Latin became a sort of secret code to which the Church held the key. (Until recently, medical doctors did the same thing, demanding Latin as an entry requirement to their education system, and using it for their prescriptions, etc. so that no lay person could know what was written. As it worked for the priests of the Middle Ages, so it worked for doctors of the twentieth century, to create mystique, and to add to their status and influence.)

In order to read the religious manuscripts, you had to know Latin: and in order to learn Latin, you had to enter the Church's education system, which was a training for the religious life. By such means you were initiated into the values and viability of the Church. With such a closed system, it was relatively easy for the Church to have an absolute monopoly on information and education.

There were no independent schools, no public libraries or state universities where anyone could go and develop an alternative view. There was just one official explanation for the way the world worked: just one word and one truth: just one system of authority.

The scholars – the custodians of the religious truths who had worked their way up through the Church's education system – spent their lives studying the sacred texts that had been handed down through the ages. They pored over the biblical stories, the religious commentaries, the sermons and the prayers that were the sum total of knowledge of the period. Scholars would work together, reading out loud, reciting the material. As the most respected authorities were those who could quote manuscripts

from memory, much effort went into learning everything off by heart.

Most of the population – the laity – could neither write nor read. They were dependent upon the Church for information. Instruction was regularly delivered: each week, for example, the lesson was read from the pulpit.[3] There were also other ways that the Church issued its edicts.

There probably never has been a more monolithic system of information control than that of the Church in the Middle Ages. But even this absolute system came to an end once a new information medium made its appearance. The manuscript period, with its particular values about knowledge and power, all ended with the printing press.

Printing Presses

About 1450, printing presses began to appear all over Europe. The printers who started these presses rolling were a particular breed. As the inventors of these new machines, they had more in common with mechanics than they did with clerics; as entrepreneurs who wanted to use their presses to make a living, they were more like merchants than religious scribes.

Of course, these new printers were condemned outright by the priests.

This did not prevent them from churning out a lot of new publications which the Church had no authority over. It was from these various presses in the hands of "ignorant inventors", rather than from the old religious scriptoria, that information began to flow in the latter half of the fifteenth century. In a relatively short space of time, the Church's monopoly on knowledge was broken.

No matter what the Church did to stop this seditious information from spreading, the books kept rolling off the printing presses. Printers could be burned, books could be banned, but the Church continued to lose the battle for the control of the word. People began to know things that the Church did not teach. An alternative way of looking at the world was beginning to emerge. In this new perspective the Church was far from central; science, rather than religion, became the framework for explanations. The Church could be looked on from the outside. And it was found wanting.

This marked the beginning of the end of the Church's control of information. There was another way of explaining the world, apart from the religious version which represented the Church as all-knowing and all-powerful.

Reformation

The Church's loss of control was hastened by the Reformation and the actions of Martin Luther. He was the man who nailed his objections to many religious practices – in Latin – to the church door. He was by no means the first courageous cleric to protest, but he was one of the first whose cause was aided by the printing press.

Within days of his declaration against corrupt Church customs, Martin Luther's notice had been translated into local languages, and was published in thousands of

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3. Reading the lesson is discussed in more detail on pp. 45–6.

copies. Anyone who could read (and you can imagine the increased pressure there was to learn to read when all this was happening) could follow the argument. They could appreciate what the protest was all about; they could even take the side of the Protestants.

The Church was caught in a bind. It could ignore at its peril the leaflets and posters which were circulating so widely and which were so critical of its practices. Or it could descend to the same vulgar level.

It decided to counter-attack. And so began the first poster war in history. The Church's critics leafleted the masses; and the Church tried to defend itself in a medium that it despised and condemned.

The winner was the printing press.

The Church was split into Protestants and Catholics. There were far-reaching consequences. While the Catholic Church survived, it was in a very different form. It lost its monopoly on information, on truth and meaning. It became a competing voice, rather than the only voice, in decreeing how the world works. And it too turned to print as its medium.

Generation Gap

The printing press itself put increased pressure on the population to learn to read. So many new books appeared so quickly, and on so many new topics, that there was a mad scramble among some people to cover everything. After the repetitive and conservative manuscript period, where the same old texts had gone round and round, the excitement of the new that came with the printing press must have been difficult to contain.

The changes which took place were indeed revolutionary. In the manuscript period, questions and speculations had not been allowed. All was known, and the purpose of scholarship and intellectual activity was to memorise it. And then came print and all the new publications which suggested that there was much that was unknown. Suddenly, it became possible to think that the Church did not have all the answers, and that questions, criticisms and speculations were the most stimulating (and not necessarily the most evil) intellectual activities.

In this climate, you can see how individuals and society changed dramatically as more information became available.

But it was the young who changed most, and who changed first. With so many books offering such wonderful opportunities to explore and extend understandings, it was the younger generation who were passionate about learning to read. They wanted to be part of the action and to have access to all these new ideas.

(This urge to be part of the new and powerful discourse has its parallels today with the great need to learn English – or American! As the language of international communication – of computers, broadcasting, air traffic, etc. – American English is necessary for participation; as with reading in the sixteenth century, you have to know the code to know what's going on. Language classes in English or American English are popular everywhere from China to Russia.)

After the relatively small number of manuscripts of the Middle Ages, the flow of books from the printing press must have looked like a knowledge explosion of incomprehensible dimensions. There is some debate about the figures, but the consensus is that by the year 1500, millions of books (perhaps even up to 20 million) had been published.[4]

Elizabeth Eisenstein tries to give some idea of the implications of this when she writes:

> A man [sic] born in 1453, the year of the fall of Constantinople, could look back from his fiftieth year on a lifetime in which about eight million books had been printed, more perhaps than all the scribes of Europe had produced since Constantine founded his city in AD 330.[5]

The sheer volume of books was not the only incentive for learning to read. It must have been enormously exciting during this time when the battle of the word was going on, and the Catholic Church and the Protestants were fighting it out in print. To have been unable to read would have meant being left out of the most important events of the period.

This is one reason that reading got a bad name. It was the way to radicalism. Those who could read were not under the Church's influence. Not only could they keep up with the threats to the authority of the Church, they could also find out things for themselves – from books.

The Church's hold over education, over the minds and manners of young people, was undermined, as the young discovered they no longer needed the religious establishment. They could learn to read, and then be responsible for their own education. They didn't have to become part of the Church to have access to information.

An enormous generation gap developed. The young learnt to decode the new medium; they took to books and went off on an intellectual adventure of their own where their elders did not follow. Instead, the older generation tried to prop up the authority of the manuscripts and the old ways of studying and learning. The gulf between manuscript and print – and the Church and the laity – widened.

As print gives way to the electronic culture at the end of the twentieth century, we can see the similarities. The young are much more at ease with the new medium: the average five-year-old can program the video better than the average fifty-year-old.

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4. The contemporary critic, Alvin Kernan, states: "The print revolution began in the mid-1400s and print began to affect culture at once, producing, in place of the few books that the scriptoria produced . . . between ten and fifteen thousand titles, or at the minimal runs of five hundred copies, up to 7.5 million books in the fifty years after 1450." Alvin Kernan, 1990, *The Death of Literature*, Yale University Press, p. 129. Historians of the book, Lucien Febvre and Henri-Jean Martin, go further: "Assuming an average print run no greater than five hundred, then about twenty million books were printed before 1500." Lucien Febvre & Henri-Jean Martin, 1984, *The Coming of the Book*, Verso, London, p. 248.
5. Elizabeth Eisenstein, 1983, *The Printing Revolution in Early Modern Europe*, Cambridge University Press, pp. 14–16.