# To surf or not to surf: that is the question

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*The Ben Bowen Thomas Lecture*
*Bodelwyddan Castle*

*21 November 1996*

Last month I was in Vienna, attending a symposium celebrating 50 years of the British Council's presence in Austria. The British Council office there is probably the most famous in the world, at least in cinematic form, for it was in its lecture room that Holly Martins, in *The Third Man*, gave his famously inept lecture, and got himself into trouble as he continued his search for Harry Lime. The lectures last month were, by contrast, highly competent, and the nearest I got to Harry Lime was on the Third Man tour, which actually takes film buffs to the locations still standing (including a visit to the sewers). The lecturers were members of the International Association of Teachers of English as a Foreign Language (IATEFL), and they dealt with a wide range of themes; but by far the most popular discussion point, both inside and outside the lecture room, was the role of the Internet, and how it would affect the teaching profession. The mood was positive. Indeed, in the Association's August newsletter, there is an article on why teachers should welcome the Internet with open arms, and the editor highlights as a heading the view of the writer (Anthea Tillyer): 'No-one who surfs the Internet will come away unawed, bored, or claiming that it was not worth the effort'.

Let us cut now to the *International Herald Tribune*, which in September ran a short piece by another writer (Andrew Glass) on the same topic. Here the mood is very different, and the headline reads: 'Please, Will Somebody Make the Internet Work?'. This is what Glass has to say: 'scarcely a day goes by without my having to fight through unexplainable glitches, software mismatches, and crippling stoppages', and he concludes, 'More and more we find the Internet slowing to a crawl or just plain giving out on us. That's because too much data is being pumped into too-narrow pipelines. Today's clogged arteries ... are a sure sign that drastic steps are needed to prevent a cataclysmic Internet collapse'. In fact, it actually did collapse for several hours a few weeks ago, when too many people in the USA tried to use the system at the same time in order to keep up-to-date with the Congressional election results. And there are other mournful voices. Paul Vallely, in *The Tablet* (2 March 1996) heads his article 'To the Devil with the Internet', and quotes Arthur C Clarke, who was the first to dream of telecommunication satellites 50 years ago, as wanting to unplug himself from the network, because 'there's too much information pollution'. Joining the Net is like 'drinking from Niagara Falls. The flow just doesn't stop'.

These voices are typical: they each represent a body of opinion, one wildly enthusiastic and optimistic, the other sober and pessimistic. Who should we believe? And, faced with the option to travel along the superhighway, should we go boldly, reluctantly, or not at all? To surf, or not to surf? That is the favourite metaphor of the moment - though if Andrew Glass is correct, 'to snail' would be a more appropriate one. This is indeed the question, for all of us, in the world of the arts as in any other. Is the expenditure of time and effort (in learning the new technology) and money (in purchasing the necessary equipment, maintaining it, and developing our use of it) worthwhile? Would it not be better, perhaps, to 'bear those ills we have / Than fly to others that we know not of?'

First of all, let us be clear about the nature of the enterprise - which is truly one of 'great pith and moment'. We are, after all, talking about a potential technological revolution of unprecedented scope, the aim of which is to enable people all over the world to communicate with each other in seconds, and to have direct and immediate access to all conceivable kinds of information - aims which have been dramatically identified by the metaphors of the 'electronic global village' and the 'information superhighway'. But it did not start out this way. The origins of the Internet were local and (relatively) modest: they are to be found in the USA in the late 1960s, when a system called ARPANET, the Advanced Research Projects Agency Network, was devised as a decentralized national network. Its aim was to link important American academic and government institutions in a way which would survive local damage in the event of a Third World War. It thus had very limited aims and scope: it was an inward-looking, defence capability. No-one thought of it at the time in terms of overseas use, and its potential for other purposes was unrecognized. But in the 1980s the service was opened up to private and commercial organizations, and it is since then, and especially in the past five years, that the notion has become a popular reality. (For example, the *Encyclopedia Britannica Book of the Year* gives a mention to the Internet in its index only in 1993.) It has been doubling in size every 12 months, and today probably has about 50 million users.

When we talk of 'popular reality', in this context, we need to bear in mind what kind of reality this is. We are not talking about a physical existence, a central body located somewhere in the world with 'Internet' over its front door. The Internet - or 'Net', for short - is no more and no less than a vast group of interconnected computers. It has no central point, or hierarchy. It is simply what its name suggests - an 'international network' of computers. And if you want to be part of this network, in touch with all of these computers, then you need to be in touch with one of them. How is this done?

Your computer gains access to the Internet using a modem, which connects it to your telephone line. You have to use one of the companies which have grown up offering access - an Internet Service Provider (ISP). There are over 100 of these companies in the UK alone, such as Compuserve, Demon, Pipex, and Easynet. They are, in effect, wholesalers, offering you a tiny piece of their huge network of connections, and as they are the only way in which you can get access to the Internet, service provision is therefore a highly competitive business. The ISPs vary in terms of what they offer: for example, do they charge you just a local call rate when you get in touch with them? what is their monthly rate? what range of services do they provide? how much do they charge for space on the Internet if you want to make your own data available to others? do they have a reliable helpline? Once you have selected your service provider, and paid your dues, you receive a software communications package, which you load into your computer, and an electronic address, which is a location within your service provider's computer. You are then part of the Internet yourself. To get in touch with any other Internet computer, all you need to do is dial the number of your service provider, and choose which Internet service you want. You are then 'on-line'.

The notion of 'service', in the singular, is somewhat misleading. In fact, there are three types of service available.

• The one most people are familiar with is electronic-mail (e-mail), which allows you to send a private message to anyone in the world who also has an e-mail address. Delivery is virtually immediate, like a fax; but, unlike a fax, you can send the same message simultaneously to any number of people by simply asking for a copy to be sent to their address.

• Second, there is the newsgroup system, which allows large numbers of people to communicate with each other in real time. There are now over 20,000 discussion groups or chat rooms on the Internet dealing with every conceivable topic, from politics to pornography (to take just two which regularly hit the headlines), and in over 100 languages - though some 80% of Internet communication is currently in English. Every area of the arts is represented. When you join a newsgroup, you access a central computer (called a server), where you can read what everyone else has been saying, and to which you send your own contributions. This is the area which has received a great deal of attention recently, with people debating whether the total freedom of expression on the Internet ought not to be constrained through some degree of censorship. Internet law (dealing with such matters as libel, copyright, and obscenity) is a rapidly developing specialism.

• Third, there is the World Wide Web, the combined information resources of all the computer locations (sites) which have made their data available - and this will be the focus of this lecture. Devised in 1991, Web sites range from the huge (such as the Library of Congress catalogue, or the *Encyclopedia Britannica*) to the minute (such as the single page which any of us might put on the Internet to tell the rest of the world about what we do). Note the phrasing: the electronic world evidently cannot do without the terminology of the book. A Web 'page' is rather like the page of a magazine, in fact. It can contain text and graphics, but unlike a magazine page it can (with appropriate software) use sound, animation, and small video clips. The data on a Web page might be educational (such as an encyclopedia), commercial (such as an advertisement for a product or charity), general reference (such as newspapers), or entertainment (such as a computer game). It may be a large organization, such as the British Council, or a small one, such as the arts organization with which I am myself connected, the Ucheldre Centre in Holyhead. Each has its (sometimes lengthy) electronic address: for example, the Ucheldre Centre's is http://dspace.dial.pipex.com/town/terrace/ aj20/. Such fearsome addresses should not put you off: the various abbreviations identify different steps along the path to the location of the page. The good news is that, once you have typed an address into your electronic address book, it takes only a single keystroke to activate it. Familiarity breeds content.

No-one knows just how large the Web is. There is no single catalogue of everything. If you know the Web address of a particular information source, then you can go to it directly. If you do not, then you have no alternative but to 'browse', using one of the companies which have devised ways of searching through the mass of material, such as Netscape Navigator or Microsoft Explorer. For example, the other day I wanted to find out what was on the Net on orchestras. I called up Netscape, and chose one of the 'search engines' (Lycos), typed in the word *orchestra*, and within a few seconds the system had scanned over 68 million documents and found 12,324 documents which made use of the term.

This example immediately illustrates the strengths and weaknesses of the Web. Let us deal with the weaknesses first. To browse through 12,000 documents sounds like a strength, but I doubt whether anyone has that kind of time. This is the information overload which Arthur C Clarke was talking about. It is almost like entering the section of a well-stocked library which has shelf after shelf on orchestras, with the difference that I cannot see all the books at once, the titles of documents are often much less clear than book titles, and I must call up each item separately from its electronic source. (I cannot take three items 'off the shelf' simultaneously). Calling up an item currently takes a lot of time, for the speed of transmission is relatively slow, and the time it takes to 'download' a document depends on what it contains. If it contains a lot of fancy graphics, colour illustrations, and so on, it will take much longer than if it has only text. The technology of rapid transmission is available in theory. I heard Bill Gates, the head of Microsoft and acknowledged digerati guru, talking in London last week, and referring to fibre optical technology which would allow, for example, the whole of the *Encyclopedia Britannica* to be sent from A to B in less than one second. But in practice, most of us have to deal with relatively slow modems and telephone lines.

Another weakness is that the information you find on the Web, although impressive in its range, is by no means systematic or comprehensive. Putting it in a nutshell: whether you will find information about a particular orchestra depends entirely on whether there is someone in the orchestra's administration who has bothered to set up a home page for that orchestra. There are some orchestras in the world who obviously have a computer buff in their ranks. Thus I was able to find out every member of the BBC Symphony Orchestra; I saw a picture of the whole Cleveland Orchestra; and I was told the entire history of the Newfoundland Symphony Youth Orchestra. On the other hand, I couldn't find a home page for the Halle Orchestra at all.

Then again, is the information up to date? Putting your page on the Web is not a once-and-for-all activity. You have to update it at regular intervals. The page for the Liverpool Philharmonic tells me what their forthcoming concerts are, and obviously that needs to be changed as time goes by. It is a discipline which Web users have to learn. If they do not, their page will become increasingly out-of-date - and there is nothing more frustrating than spending time calling up a Web page to find that it is useless. This happened to me a little while ago, in a different connection, when I wanted to find out who the new ruler of the Comoros Islands was, following a recent military coup. Eventually I found a Comoros page, only to see that it was last updated in the middle of 1994 - probably before the officers had even begun to plot.

Moreover, there is no way in advance of distinguishing between relevant and irrelevant, between quality and rubbish. Because the Web is so democratic, anyone can put information onto it - most service providers offer you a certain amount of free space (mine offers me a megabyte, which is equivalent to a text about 10 times the size of this lecture) - and it is up to the user to sort it all out. Even a word like *orchestra* can generate some irrelevant search results: one of the documents in my search was headed *Indiana Jones and the Last Crusade* - simply because the text refers to the use of an orchestra in the making of the soundtrack. But my best example is the search I carried out some time ago for information on the country of Bermuda. I found several dozen documents, but the first few were all advertisements for - *Bermuda shorts*. Moreover they were ads for a company representing different months of trading - in other words, the first one was, say, for December 1994, the second for January 1995, and so on. You can see what has happened. The trader has not replaced his first page by later pages. He has left the earlier pages on the Net. Some people think that over half the pages on the Net are out-of-date versions of things, which people have forgotten or not bothered to erase - but they all have the same status as the up-to-date material, when you carry out your search. Everything looks equal. If I decide to write an awful poem and call it 'Hamlet', and put it on the Net, it will appear alongside the

rather better-known work by Shakespeare, and maybe even ahead of it. The biggest risk of the Internet is that it buries you in trivia.

Another advertising ploy takes advantage of the way most search engines work. They usually list the items they find in terms of relevance. For instance, if you are looking for *orchestra*, an item about the Toronto Symphony Orchestra is going to be more relevant than a short story about rabbits which just happens to use the word *orchestra* in its opening paragraph. Search engines can handle this kind of thing in various ways, but they are usually statistically based. In other words, they look for the frequency with which a keyword is used in the first few lines of text in a document: the more instances of it they find , the more that document will rank high in the list of 'hits'. Advertisers know this. And just like, in telephone directories, you will find firms using letter repetition so as to be among the first in the book ('AAAAA Taxis'), so I have seen an ad for a particular product in which the name was printed out 30 or 40 times at the head of the document, to ensure it shows up quickly. This is 'advermation'.

Finally, by way of weaknesses, there is the need to phrase the terms of your search as carefully as possible - otherwise you will be flooded with useless information. The problem is, you cannot anticipate all the ambiguities in your question in advance. The other day I wanted to find out the length of the Ambassador Bridge in the USA, so I typed in the two words *ambassador* and *bridge* - a specification which I thought would be as straightforward as it is possible to imagine. But the first documents my search threw up were all to do with *Star Trek*. Why? Because there are many *Star Trek* enthusiasts on the Internet now, and all the scripts are summarized there - and several evidently involve alien ambassadors arriving on the bridge of the starship *Enterprise*. Of course, in principle such problems can be weeded out by good quality content-category indexing - but the level of indexing on the Internet at the moment is very poor indeed. There is no single system - how could there be with so many millions of pages built up over several years - and what there is remains at a very general level. Fortunately, more specific methods of interrogation are now beginning to be available, such as the aptly named *Cyberhound*. Artificial intelligence techniques are being devised to produce 'intelligent agents' - expert systems which will search Network documents for you, while you are off-line, distinguishing different meanings of a word, and disregarding irrelevant items. But all of this is in its infancy.

These are some of the difficulties you encounter in using the Internet. Let's look now at some of the strengths. You can have some marvellous hits. The other day I wanted to find some information about the fantasy writer, Clive Barker (of Candyman and Hellraiser cult fame). There was no mention of him in any of the encyclopedias and reference books I have available - and I have dozens. But a search for him on the Net brought me to his home page within a few seconds, and there was a potted biography with a list of all his major books. It also gave me an electronic address where I could contact him, if I wanted more. Another example: a colleague of mine, writing a reference book, wanted to find out whether a certain media personality was dead. He put the request out in a discussion group, and got a dozen replies stating that the personality was very much alive - including one from the personality himself!

This is where the Net wins, and you bless it. It provides you with an answer to a specific question within seconds - and one which, previously, would have required a visit to a public library or some other lengthy mechanism of search. Also, the more you use the Net, the more you build up experience of avoiding the false trails. When you find a good source of information, you can keep a note of where it is - the procedure is called (once again, following hallowed iterary tradition) 'bookmarking' - so that the next time you can go to it directly. I now know where the most reliable and up-to-date gazetteer information is to be found, and for routine queries, I no longer waste as much time as I originally did.

Navigating the Net is also made easier through the use of links between pages: using your mouse to click on a textual or graphical 'button' will automatically transfer you to related information which someone has previously identified as of potential relevance. Pages can be linked in this way even if they are on different computers in widely different locations. It's up to the page originator to decide what the links are, of course, and the system is by no means being used to its full potential; but it is possible to find sites which send you from one topic to another in intriguing ways - for example, a page on Italy might lead you to Florence and thus to a museum and from there to a school of painting, and from there to an individual artist, and so on. It is this ability to jump about from site to site which led to the metaphor of surfing.

So, how do the arts fare, in relation to this brave new world? Let us begin by asking: how well are arts venues in Wales represented? Recently I called up one of the search engines, Lycos, and typed in *arts* and *Wales*: its first selection was the *History of the Arts Council of New South Wales*, which was not exactly what I was looking for. This was closely followed by *Aberystwyth Arts Centre* - which was not quite going from one extreme to the other, but was certainly not the general perspective I wanted. I tried another search engine, Magellan, and it gave me a promising site in response (the only three-star - i.e. highly relevant - site in its list): Network Wales. Its menu told me it had a section on Arts and Culture: I clicked on it, and found myself with a further 12 promising options: cinema, crafts, cultural events, dance, galleries and museums, history, language, literature, media, music, theatre, and the visual arts. Better and better. However, when I went into each of these categories, the information ranged from the mundane to the sporadic. Under *Cinema*, there were only six items, chiefly relating to Aberystwyth (why is Aberystwyth so aware?!), plus a list of 49 addresses and phone numbers of the cinemas in Wales, and under actors - just one, Anthony Hopkins. *Crafts* gave me only two items, both commercial firms. *Cultural events* told me only about the Urdd Eisteddfod in 1997. Under *Dance*, just one company: Diversions. Under *Galleries and Museums*, a rather better selection - 17 items, but chiefly in the south. Under *History*, five items. Under *Literature*, seven. Under *Visual Arts*, six. Under *Media*, nine - S4C, and a few other big companies. Under *Music*, 19 items, 12 of them, surprisingly (or is it so surprising?), pop bands. Under *Theatre*, a useful seven items, including a list of 30 theatres in Wales, and a separate page for the North Wales Theatre - the only one to look really professional, incidentally, with a What's On, Box Office section, and other details. And under *Language* - I do not think anyone would be able to guess which, of all the events and organizations possibly relating to the Welsh language, would be the one which has found its way onto the *Language* page of Network Wales - it was the St David's Welsh Society of Nebraska.

Now do not misunderstand me: all of this is a brave effort, and it is better than nothing. It is better than what is available at many other sites. But as an account of what is happening in the world of the arts in Wales - the impression it would give to a browser from Naples, New York or, for that matter, Neasden - it is a travesty of the vibrant local world we know so well. I should also add that there may be better accounts elsewhere - some of the Wales Tourist Board pages actually give a more systematic treatment of venues, for example - but I have not been able to find them in a couple of hours of searching, and the

point is that a casual visitor is certainly not going to spend that amount of time. Internet browsers want quick answers. So the message is plain: the world of the arts in Wales needs to address the question of its image on the Net, and do something about it - remembering that it is not a once-and-for-all commitment. Careful maintenance, as we have seen, is as important here as it is in any other area of publicity.

If this is done, all kinds of benefits accrue. For organizations, the obvious gain is an alternative, cheap source of telling the public about programmes of events, explaining policy, giving opening times, and (for the future) providing a means of booking. (This last has only a small use at present, because the method is perceived as unsafe - though it has to be said that unencrypted data over the Net is no more in danger of being stolen than the information you release when you pay over the phone by credit card.) For the larger museums and galleries, you can provide people with floor plans, guided tours, or searchable online access to catalogues. You can arrange virtual exhibitions, just for Net visitors, as the National Museum of American Art (Washington) does (http://www.nmaa.si.edu). That museum, for instance, has a collection of 37,000 items, which it does not have the space to display: so they have opened a 'cyberspace wing' where they show some of these pieces. It is also much cheaper to put part of your collection on the Net than, say, to develop a CD-ROM, and the data becomes much more accessible.

At an international level, considerable attention is now being paid to the question of interoperability - the devising of standards to enable different centres to be mutually accessible. Imagine a situation where all the works of, say, Cezanne, could be brought together in a single virtual exhibition. It's an attractive prospect, even in electronic form. Several organizations are working on this kind of thing - for example, in Europe, the RAMA (Remote Access to Museum Archives) project (http://rama.ing.unifi.it:8081/rama_home.html). Many issues have to be resolved - not least the legal questions of copyright and electronic rights. Bill Gates, for example, has already bought the electronic rights to many of the world's great art collections.

A particular benefit for organizations which are using the Internet is that you don't have to have all your personnel in one place. For example, the booking office for an organization can be anywhere. If you are short of space in your building, people can be working from home or elsewhere. There can be considerable savings in overheads. Large businesses now do this kind of thing all the time. Swissair has moved its book-keeping department to Delhi. One of the US airlines processes all its tickets in Bombay.

There is also the considerable feedback which Net users can provide. Unlike postal questionnaires or person-in-the-street interviews, a Net query can produce instant responses from thousands. Net users are apparently prepared to spend huge amounts of time responding to other Net users. When the Pope sent out his Christmas message on the Internet last year, he received 307,786 replies within just 48 hours - without even asking! When the Finnish Museum of Contemporary Art put its site on the Web in November 1995, it found to its surprise that 60% of all visitors came from outside Finland. On the other hand, you have to be prepared to accept the consequences of successful marketing. Someone has to read all these replies, and decide what to do with them. Do you reply in turn? And remember that not all the replies you receive will be worth reading. The other day I called up my e-mail box, and was told there was a new message waiting. I accessed the message, and it was from someone I had mailed the day before, from whom there was no need for a reply. The message said simply, 'OK'.

While on this point, do be prepared to encounter new kinds of dialogue when you use the Net for the first time. In group discussions, the screen conversations can look quite bizarre, as, if you make a point, you might find several people responding to it at different times, and with different delays, while the rest of the conversation has moved on. Also, although there is an Internet etiquette, remember that most people involved in Net dialogues are anonymous, and their points can be made forcefully. If someone does not like what you are saying, they will tell you so, in no uncertain terms. There are also many eccentrics and crazies out there, who send bizarre and obscene messages for fun. And remember security, for there are an unknown number who take pleasure from hacking into your files or corrupting them by sending a computer virus. For anyone linked to the Net, a procedure of installing virus protection and making a daily backup of one's database is essential. For anyone linked to the Net, a procedure of installing virus protection and making a daily backup of one's database is essential. That is not a typographic error. It needs to be said repeatedly, because so many people do not bother, and then curse the day they didn't, when their computer crashes or their database is corrupted, whether by malign intent or not.

Marketing surveys are also beginning to produce results: who uses the Net? what age range, sex, and occupation? This kind of information can be helpful to organizations wanting to target a campaign. For instance, in the UK, Internet usage is heavily skewed towards professionals, directors, and managers. It seems that most Net users read the quality rather than the tabloid press. There is a strong male bias - various surveys show that female users are only 20–30% of all Net users. And the average age - disturbingly, for most of us - is 28.

Turning away from arts organizations, what is the value of the Internet for artists? The most obvious point is that it provides a cheap way - much cheaper than the press, and more predictable than radio or television - of telling everyone that you are there. If you have an exhibition coming up, you can say so. If you are looking for work, you can advertise the fact. You can put your creative writing on the Net, if you want to. Let us pause on literature, for a moment. There are thousands of undergraduate short stories on the Net. There are poems all over the place. Quality is not the issue: there is no-one there to tell you that your novel is no good. The only censorship is from some service providers, who are beginning to check material for obscenity. Several well-known authors now have all their works on the Net - for example, Shakespeare or Dostoevsky (the latter at present, ironically, only in English). All the Monty Python scripts are on the Net. These are all textual examples. With a bit more difficulty, you can put visual material onto the Net. Sophisticated sound, however, is some way off.

Some artists are also beginning to experiment with the new technology, as a creative medium in its own right. Especially in the visual arts, there is a dynamic potential here, which is in its infancy. The visual quality of a screen, which is lit from behind, is very different from media which reflect light from outside - and, incidentally, is best viewed in the dark. Images can be manipulated in fresh ways. Digital art, as practised for example by William Latham, presents a wild range of esoteric shapes and colours floating past and through each other, and attracts the same kind of mixture of adulation and incomprehension as was found in the early days of abstract art. The old question, 'But is it art?' arises again. Is VDU (visual-display-unit) art any more than the random patterning which can be seen in a screen-saver program? No, say some. Yes, say others. But as this debate continues, we have to acknowledge that digital technology certainly permits us to do things which previous technologies could not do. It is possible to alter images, reverse them, and conflate them in ways not possible before. Do you want to make the Mona Lisa frown? No problem: you digitize the image, alter the values, then resynthesize the image.

Everything else is the same, apart from the eyebrows. The possibilities are endless, and there is surely a new artistic medium here, though as yet it seems to have little self-discipline. As Anouilh said, 'Life is very nice, but it lacks form. It is the aim of art to give it some'. The language of computer art is, to my mind, currently still somewhat formless.

In the verbal arts, the options presented by the nonlinear organization of material (hypertext) allow new creative worlds. Here we have a world of text which produces no texts, in the sense of objects with a determinate and predictable form. Once you insert optional links between chunks of text, the sequences become indefinite, there is no preferred progression, and there is no single point of closure, or ending. Indeed, the order in which something is read is no longer in the hands of the author, but of the reader, who chooses which links to follow. A reader can stop halfway through a text and go somewhere else, and may or may not return to that point. The only control the author has is in the provision of the links in the first place, in providing the options. The reader can choose among multiple outcomes in fiction. There is no privileged author, only textual networks which can be personalized in indefinite ways. There are several novels now which have cyberspace as their theme, but the parameters governing the form of a genuine cybernovel have yet to be established. Here too the state of the art is somewhat formless.

In the meantime, artists who work in minority languages can be much helped by the existence of the Net. If you are a speaker of Galician, Occitan, Gaelic, Welsh, or the many other minority languages in the world, you know how difficult and expensive it can be to find a public presence using your home language. On the Net, though, all languages have an equal chance of finding an electronic presence. There is no longer a difference between a Welsh poet and an English poet, in terms of the number of publishing outlets available. And although the chief language of the Internet is English, I have found at least 100 languages regularly being used on the Net, and the true figure is probably far more. Linguistic balance will slowly establish itself.

For artists, arts administrators, arts researchers, and others, information retrieval is the true strength of the electronic medium. This has always been the weakness of the book. It has been said with considerable truth that the value of a reference book depends on its index. But even the best of indexes displays the limitations of the printed medium, as one works through a list of page references and hunts on the page for the relevant place, with fingers in several pages at once. An electronic search, by contrast, is so much easier, especially when the item being searched for is highlighted. The search can be so much wider than any single book, or set of books, can provide. And it is so much quicker. Remember the days when it took ages to get a number from telephone directory enquiries? And now an enquiry about a number in Vladivostok doesn't take much longer than one about a number in Brynsiencyn. (In fact, it is probably quicker, if you are enquiring after someone called Williams.) Nowadays databases are being compiled in which, for example, every road in the world is identified, or every postcode in the world. Books are not the medium for that kind of message.

It is also possible to ask fresh questions, using the potential of the new medium. For example, some encyclopedias and dictionaries are now accessible on the Net (some free, some through a subscription). The software varies a great deal, in terms of what it permits you to do, but in principle it is now a straightforward matter to find all the people born in, say, Paris, who became artists - and, if you want to refine your search, who lived in the 18th century, and who were women, and whose first name was Marie - all in a few seconds. That kind of research enquiry simply could not have been sensibly progressed using traditional materials. The arts, similarly, can benefit from that kind of questioning, once databases become available. For instance, if you want to know how many times Shakespeare used the word *arts*, and in which plays, you can easily do so (15 times in 12 plays, in fact).

On the other hand, the electronic medium is not good at presenting information. The screen has its physical limitations, allowing only so much to be seen at a time - rarely more than about 80 characters wide and 30 lines deep. To see more you have to scroll sideways or vertically, and this poses immediate problems of perception and recall. It simply is not easy to follow complex layouts on the screen. Also, certain kinds of information - easily reproduced typographically on the page - cannot be well represented on screen. For example, many kinds of accents, needed for foreign languages, are not available in the character sets which most machines rely on. And in the world of the visual arts, there is no comparison between the effect of standing in front of an original work of art and seeing its virtual presence scaled down to the size of the small screen.

Nor is the computer the best kind of machine to handle the sort of procedure we all use when we are working on a project. In preparing this paper, for example, my computer was surrounded with scraps of paper, source articles, personal notes, and the like. I knew where everything was, and rearranged everything to suit the needs of the writing moment. It was a mess, but a professional, creative mess. In principle it would be possible for all these sources of information to be present on screen in a series of adjacent or overlapping windows - but anyone who has used a windows approach to organize information knows how quickly one loses track of where one is after only three or four windows are simultaneously present. The world of paper is best for some activities, and you can't beat the book for flipping backwards and forwards, or for handling data of variable size and density. Nor can you beat it for taking on a long journey (the battery for your laptop will give up after 3 hours or so). And certainly not for taking into the bath, or to bed. Books are comfortingly tactile. Books don't need a power supply, and don't put you at risk of an electro-magnetically-induced headache. The concept of snuggling up with a good computer is one which is still remote. (Though there is a Punch cartoon which shows a little child in bed in front of a computer screen, and the mother at a terminal downstairs, typing in the story of the three little pigs.)

It is interesting, also, to note the way that the new huge databases complement rather than replace the world of the book. AND, a Dutch firm which specializes in database compilation, has a database of the European road and rail network. If you are an international transport firm, and you want to organize your 500 lorries so that they take the best routes across Europe from anywhere to anywhere, the AND software can work it out for you, pointing out where the petrol stations are, where the lay-bys are, and even where the traffic jams are likely to be. They can do the same thing for your family holiday, too. You can buy a route from them, say from Holyhead to Naples, for just three or four pounds, containing all the information you need about the route, and including hotels, tourist attractions, museums, and so on. They will send it to you neatly packaged - but significantly, as a single booklet, not on a disk.

Other media present complementary alternatives too. It will be possible one day to call up any film over the Net, in much the same way as video makes it possible to take a film home now. But, as has often been noted in relation to video, there are losses in this practice. The home video experience does not in any way replace the theatrical experience of finding oneself

part of the large-group response - whether laughter, applause, or the proverbial intake of breath - which can be found in the cinema. I shall never forget the delight which made a whole cinema audience applaud when the stratagem at the end of the film *The Sting* was finally revealed. And all of us here have had similar experiences, as we attend a concert or play, or participate in an exhibition opening. This is something which the one-to-one world of the Internet can never replace - the empathic buzz which comes from inhabiting the real arts world.

Nor can the Net replace the conversational buzz which seems to be such an important part of that world. Earlier this year we began a weekly cinema programme at the Ucheldre Centre. Each week, after the film, it has always struck me how animated and random the conversation in the restaurant is. People are so ready to talk about what they have just seen. And they will talk about it to anyone who cares to listen. A conversation may begin at one table, and a passer-by takes it to another table. All of this is a far remove away from the cocoon world surrounding the lone computer user, or the curiously distancing character of an electronic pseudo-conversation, carried out through the artificial medium of typing, or even the spuriously present world of the videoconference, where you have to take care to keep your face in shot, and where you never quite know who in your largely unseen audience at the other end is producing the intriguing noises.

All the arts cry out for a response that is much fuller and dynamic than anything the virtual world can provide - a response that is immediate, sharable, multi-directional, and multi-dimensional (visual, tactile, and especially verbal). If the aim of the arts is to move us, then we are not usually satisfied to be moved in silence and alone. We find ourselves saying things to everyone around us, like 'What did you think of that, then?' or 'Wasn't that great!'. And in general, if you reflect on your last successful dinner-party, get-together, or pub-crawl, it seems that we cannot do without this kind of lively multi-way interaction, where people interrupt each other, anticipate each other, repeatedly try to make their point, nod or shake their head furiously while someone else is talking, tap each other on the arm, and provide ongoing verbal feedback (*mhm, absolutely, bravo*). What a contrast with the world of the Net, where everyone takes their turn, messages come in obediently one after the other, and people cannot (because the circuitry will not let them) talk at once. What a semiotically sanitized medium it is! There is no rapport through touching, there is no counterpoint of facial expression and gesture - the world of 'body language'. Also missing is the proxemic value of distance (such as when someone stands too close to you for your comfort, or someone doesn't stand near enough) because in an electronic world everyone is at the same virtual distance from everyone else. In short, there is nothing on the Net like the bubbling of a successful, multi-way conversation, where each of the participants comes away having enjoyed the rapport - of being part of the experience. 'Ooh, I did enjoy that chat', someone might say (even though they don't clearly remember anything at all about what was said). It is indeed 'good to talk', to coin a phrase; but BT are talking about person-to-person dialogues there, and not about the larger group 'multilogues' which are such an important part of our discursive world. No electronic interaction will ever be able to replace that notion of what 'talking' is all about.

Every time a new communication technology comes along, people worry about the death of the earlier ones. The printing press was condemned as the machine of the devil by the Vatican in the 15th century. People thought film would displace novels. They thought TV would displace film. And they now think the Internet will displace TV. In a recent survey, 36% of respondents surfed the Web daily in preference to watching TV. Personally, I am doubtful whether any scenario of doom is likely. History shows us that each technology has brought fresh strengths and weaknesses. And I believe the information superhighway will eventually take its place alongside traditional media, and will not replace them. Moreover, remember that we are not at the end of the technological road: there are other technologies still to come. In a couple of generations, for example, the typewriter-bound nature of the present medium will be gone, and we will have speech synthesis and speech recognition available to us. It will be interesting to see what happens then, and whether some of my semiotic problems can be overcome.

In particular, people worry greatly about the possible social isolation which the Internet might bring, but this, I think, is to confuse the medium with the message. The former Archbishop of York, Dr John Habgood, announced he was logging off, and commented: 'My nightmare society is a lot of self-centred individuals concerned only with their own fulfilment, sitting all day in front of their computer or television screens, and soaking their minds in increasingly violent and obscene entertainment'. At a local, social level, the prospect of being able to do all one's shopping via the Net fills some people with horror. Will there be an age, they ask, when people will no longer need to learn how to relate to others, face-to-face, and thus will be unable to do so when opportunity arises? This is to open up today's topic in other directions. Personally, I don't think these dangers are real - but I have to say I was impressed by the recent episode of the TV comedy series *Drop the Dead Donkey* when one character (Gus) develops a relationship via e-mail with a girl-friend, and they arrange to meet for dinner. When they do, they find they cannot communicate at all - until, near the end of the meal, they both pull out their laptop computers, and carry on an animated conversation through their screens.

What would Sir Ben have made of all of this? Is Internet surfing a proper subject for a lecture named after him? He died in 1977, before the power of the Internet became a reality. But I like to think that he would have been truly excited by this new world, and would have approved of this topic. When he was elected president of the Cambrian Society, this is how he described himself:

> You have chosen this year to honour the ordinary man: the fellow who brushes up his Ego by keeping in touch with greatness; the eavesdropper on the insights and discoveries of experts; the listener to lectures and addresses - braving the element of risk involved and the dire consequences - all because of an innocent and sincere respect for the heritage of his people and a humble desire to make as much as possible of it one's own.

The ordinary man, the brusher-up of egos, the eavesdropper, the desire to make knowledge one's own. I don't think I have ever found a better informal characterization of an Internet user! So I take pleasure from the thought that he would indeed have approved of my choice of topic today, and in thanking the Arts Council of Wales for its invitation, conclude this year's lecture in memory of Sir Ben Bowen Thomas.