**Owen Kelly** enters the world of hypertext

# Paper Chase

Word processing does not involve learning to use a computer. It involves learning to manipulate a metaphor. That metaphor disguises the workings of the computer behind the idea of a 'magic typewriter'. Similarly, desktop publishing programmers invite users to consider the computer screen as a drawing board, and then go to great lengths to see that this metaphor is carried through their programs coherently. The creation of these metaphors owes as much to design - to 'art' - as to science.

The development of these metaphors has successfully enabled thousands of people to perform old tasks more efficiently. Letters and articles get written, rearranged, collaged, spell-checked and delivered in a presentable form more quickly and easily than previously. Yet these metaphors have hidden as much as they have revealed. While making some old tasks less tiresome than before, they have obscured the fact that there are entirely new tasks, new ways of thinking, that can be developed when information is stored and manipulated electronically. It is in the development of these new ways of thinking that the future of human creativity and technological development lies.

These tasks have been prefigured by the work of many artists throughout this century who have attempted to move beyond linear narrative and the single perspective. Cubism represented one such attempt to collage visual information so that it made sense only in a non-linear way. The novels of the much undervalued BS Johnson represent a similar effort to break the apparently linear boundaries of a medium. One of his books, *The Unfortunates*, was published in 1969 as a boxed set of 27 chapters. There was an opening and a closing chapter, but the rest were to be shuffled and read in a random order. His intention was that new meanings would be unfolded from the texts each time they were read.

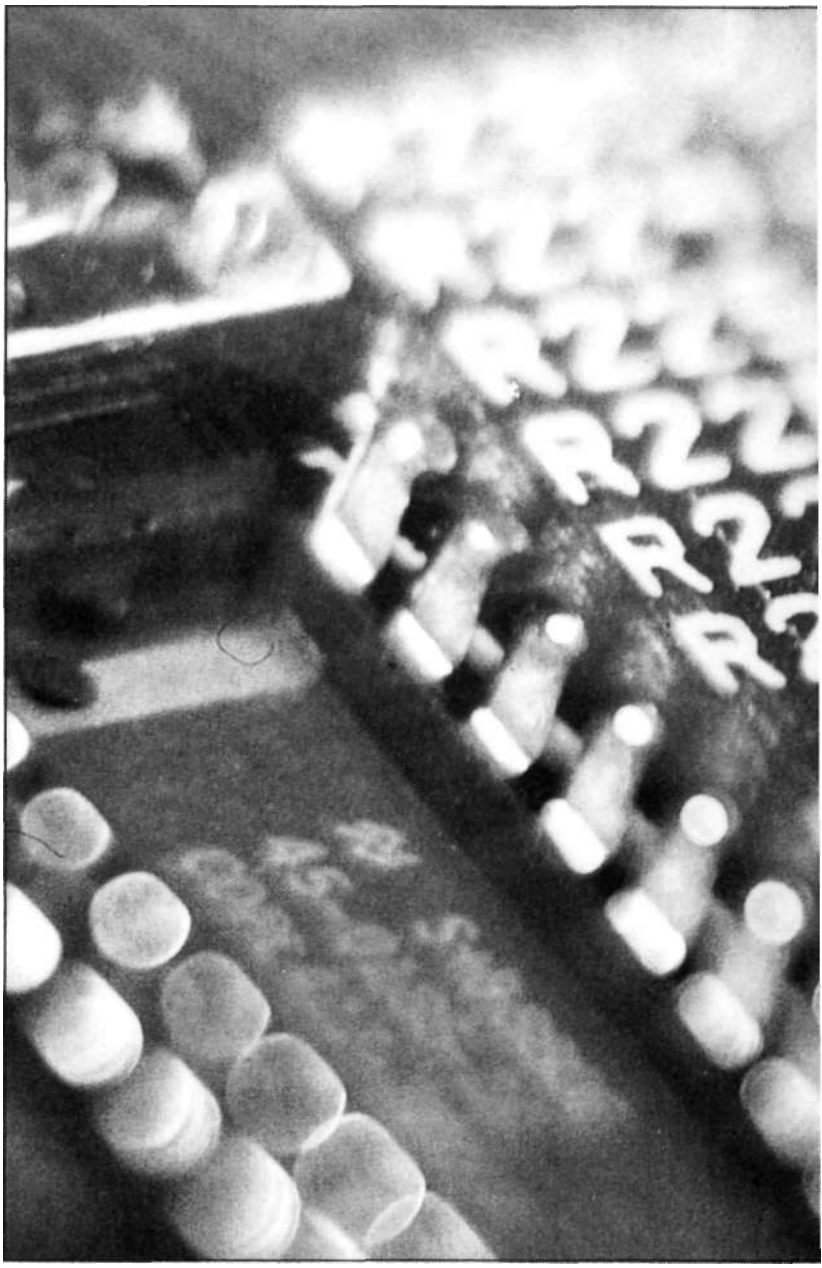
More recently, there has been an explosion of 'games books' by authors such as Steve Jackson. These consist of numbered paragraphs which make little sense when read consecutively. Instead the reader reads the opening paragraph, and then chooses from a number of options presented at its conclusion ('You hit the troll', 'You give the troll some food', 'You run away into the woods', etc). Each option has a paragraph number indicated, and the reader then turns to the chosen paragraph and repeats the process. Eventually she or he reaches one of the half-a-dozen possible endings to the story. The reader may then read the book again, making different choices, to arrive at a different ending.

What these endeavours have in common is an attempt to increase the richness of the information given by making it interactive - by insisting that the viewer or reader involve themselves in the process. They also have in common a desire to present different paths through the information, with different consequences depending on the path chosen.

Delivery of information in complex and infinitely variable ways is precisely what computers can offer, once the 'magic typewriter' and drawing board metaphors have been dropped in favour of a richer metaphor. A number of computer programs have begun to appear which aim to offer this kind of richness. They are all based on the work of Ted Nelson, who conceived what he called 'hypertext' in 1960. Perhaps the most well-known of these, through having being distributed free with Apple Macintoshes, is *HyperCard*.

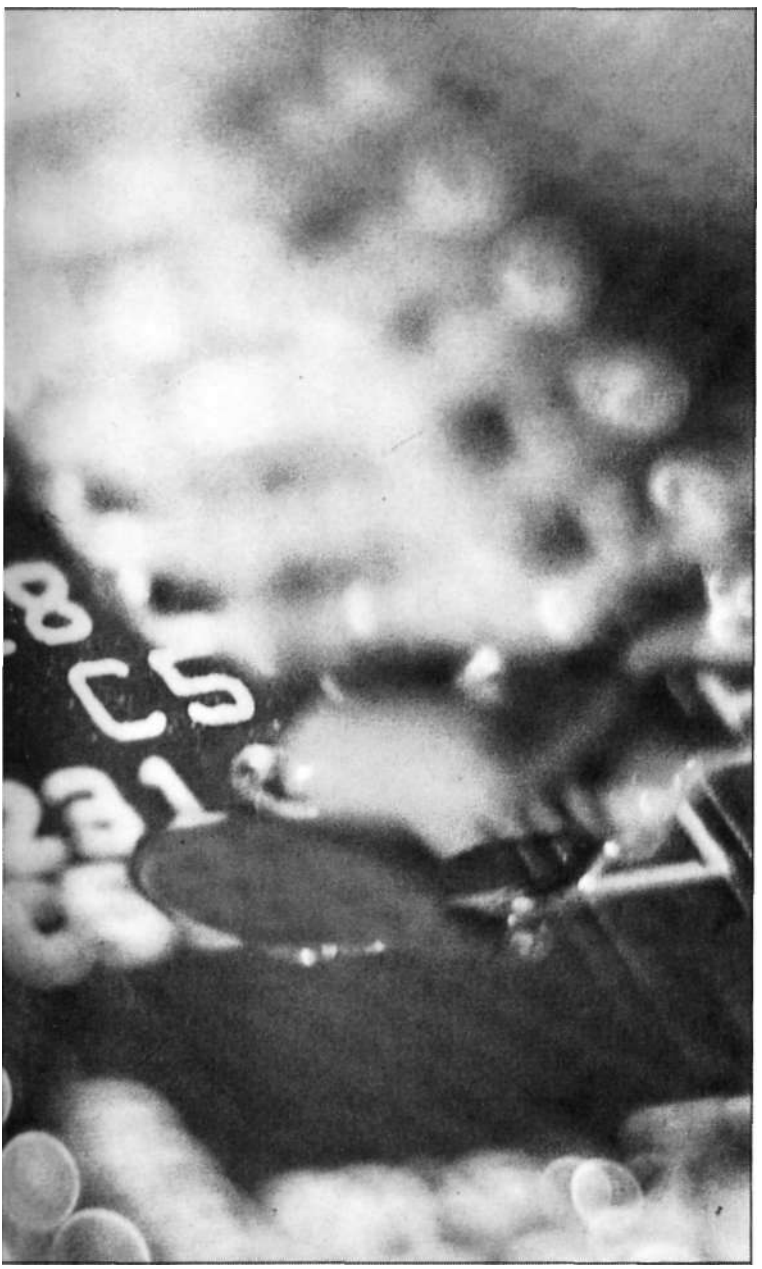
*HyperCard* enables an author to organise words, pictures and sounds into a file (or 'stack'). Each stack consists of screen sized 'cards' of this information. Each card can be linked to any other card, or to another stack, and these stacks can be activated by the user clicking onscreen.

At its simplest level, this mechanism would allow Steve Jackson to produce 'cheat-proof games books, since the user could not peek ahead, and could not undo a choice once made. It would also have enabled BS Johnson to disguise how many sections there were in *The Unfortunates*, and to have made the randomising process more sophisticated.



It also allows the production of books with almost infinite footnotes. If I had produced this article as a stack, I could have included a complete list of BS Johnson's books, which was activated by clicking wherever his name appeared onscreen. Each book in this list could have synopses and reviews attached, which could be accessed by clicking on the book titles. If readers wanted to find out about, say, *House Mother Normal*, they could click on the title and explore that path in the stack. If they didn't, the information would not get in the way. It would remain hidden until they asked for it.

It is also possible to allow users to record their explorations in a stack, and make their own links between cards. There is a stack entitled *Culture*, which presents a synopsis of European culture since the middle ages. This stack offers prec-



isely this facility. It also allows the user to add their own material, and to append notes to the material that is already there.

*Hypertext* is designed to be used onscreen. *Culture,* for example, has no printing facilities. This is not an accident. One of Ted Nelson's primary beliefs is that using computers as sophisticated typewriters to produce material to be printed out on paper is both wasteful and backward-looking. He argues that, no matter how multilinear the working process, no matter how much the user has the ability to cut and paste between different documents on different disks, the end product of the magic typewriter is still a 19th-century linear text.

Nelson thinks of paper as 'just an object that information has been sprayed onto in the past. In today's offices you'll get a printout at the end and then some secretary will go over and put some little white paint on something that's wrong and correct it because getting that paper right is regarded as the objective. That means that the computer files are never correct, they are always an approximation.' Alas, 'as long as the paper-sprayed version of a document is seen as the final destination, no one really cares about keeping the computer versions of the same information canonical or correct.'

Nelson has spent thirty years creating an alternative model, which he has called *Project Xanadu.* This is a 'transclusive fragment writing and publishing system', in which writing, publishing and reading will happen entirely onscreen, on a series of computers linked to a worldwide network.

Transclusion, as Nelson defines it, is a way to include, to quote, parts of a document without losing its current (or any subsequent) contexts, and without it becoming a physical part of the new text (which could be a movie, hyperfiction document, sound recording; in fact anything that could be stored digitally). All new written or recorded texts, data, sounds, pictures placed in *Xanadu* act as future 'boilerplate paragraphs' or fragments, available for viewing, digesting, and transclusion in new works.

He is proposing a networked computer system that will define new paradigms for creative action. It will take the idea of user-defined paths to its limit. In what Nelson has termed the 'dataverse', everything will be linkable to everything else, and everything will be mutatable.

This raises a number of immensely important issues for the 'arts' and for creative political actions. It stands on its head the notion of scarcity - the need to distill ideas and information to meet the demands of physically or economically scarce storage systems.

Electronic storage is infinitely more efficient than storage on paper. The entire *Encyclopaedia Britannica,* for example, can be fitted three times onto a single cd-Rom computer disk, which costs approximately £1 to reproduce. Instead of chopping information out of a piece, for reasons of space, *Xanadu* offers the opportunity to include it in a different layer, where is can be accessed or ignored. Instead of quoting from a document, authors can provide a link directly to the relevant part of the quoted material, allowing the reader to return to their document, carry on exploring the original source material, or explore further links from the source material.

The idea of individual authorship is also brought into question, since the process of linking rather than quoting allows the historical development of ideas to be traced explicitly. Nelson has described literature as 'a system of interconnected ideas, the accumulated record of humanity, pile upon pile of writings, from the earliest of times. A record that each subsequent generation builds upon, indexes, nails on the doors of cathedrals, abstracts, rearranges, burns at the stake, folds, spindles, and mutilates.' *Xanadu* makes this process of accumulation explicit and traceable.

The idea of 'the finished work', the act of the single gifted individual, has no place in a distribution system which insists that everything is mutable, and available to be added to. In the dataverse the romantic ideal of 'the author' finally dies. There should be no more lonely men and women in attics producing 'original work'. We have seen the last of the originals. In their place we can have a community of authors and readers, creators and users, where all the roles are interchangeable, and none of them sacrosanct.

The imaginative use of digital technology will mean that the creation and exchange of ideas will stand revealed explicitly as the social and communal process it has always been, and that (at last) we can hold a proper celebratory wake for the death of the author.

*Project Xanadu* is conceived as a system of franchised information shops, with access also available through personal computers. The first Xanadu stand is currently scheduled to open in January 1993, in El Camino Rd, Palo Alto, California.*