

Word Dance

Electronic Creative Writing and the Digitized Word

Richard M. O'Donnell

It is early in the century and you are on your way to the theater when your best friend pulls you aside.

"You don't want to go there," he tells you. "Come with me and see a moving picture show."

You are puzzled.

"What is a moving picture show?" you ask.

"Well . . ." says your friend, groping for words. "It's like a play only it's not. It's made of pictures that move."

Pictures that move? What an absurd idea.

"Don't try to figure it out now," says your friend, pulling you along. "Just come and see for yourself."

This is the kind of problem I face in trying to introduce electronic writing to most people. If I recommend that they buy bookware instead of a book, I meet with the same blank look.

Electronic writing is a technique for graphically presenting text on a video screen in a cinematic way using a microcomputer. The words themselves may move and change as in television commercials or the opening credits of motion pictures. The text may also be combined with sounds, music, graphics, and other special effects not possible on paper, but common in the electronic media. *Sesame Street* and *The Electric Company*, shows our children watch on PBS, have always tried to present the words of the day's lessons in an exciting manner. On these programs, texts fly across the TV screen. The word "fox" might chase the word "rabbit" until it jumps into the top of the "u" of "bush." Similarly, the opening credits of a horror movie may present blood-dripping titles and names wriggling onto the screen like ghosts until they suddenly come into focus.

Of course, creating cinematic texts for television or a motion picture takes the collective efforts of screenwriters, cameramen, directors, editors, plus thousands of dollars. But creating electronic literature of the sort I am talking about, from conception to the completion of a master program disk, takes only one person, the writer.

Any writer with access to a microcomputer can begin to program stories and poems in a matter of days. There are no



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hidden tricks or mysteries about it. I may consider myself an electronic fictioneer, but I am not by any means a real computer programmer. All my work has been programmed entirely in BASIC, the simplest computer language, which anyone can learn in a few days.

Growing up in the early fifties, I am a charter member of the first television generation. In my reading, I was weaned on Wells, Verne, Burroughs, Asimov, Heinlein, and other science fiction writers. It seemed only natural to me that on *Star Trek* a crew member in sick bay would do all his reading off a book-sized computer terminal. There was never any question in my mind that computer fiction would be in my future; the only question was, when would the technology progress from science fiction to science fact?

The opportunity came in 1981 when I was enrolled in the writer's workshop at Bowling Green State University. We had just finished reading selections of fiction from a book called *Breakthrough Fictioneer*. This is a collection of stories and prose pieces that defy traditional conventions of storytelling. In some pieces, words seem to appear anywhere on the page. There is text on text. There are stories using photographs that have few or no words in them at all. The works seem actually kinetic and ready at any moment to leap off the page.

There was sharp debate as to what value, if any, the collection had as fiction. At this point I noticed that according to the copyright dates most of the stories were written just a few years before the introduction of the microcomputer. I speculated that some of the pieces failed not because of their content or form, but because the words were trapped on paper. By the very nature of the medium, many of these stories could not take full advantage of their kinetic energy. Program them so that they could perform on a video screen and the stories would really be able to leap off the page. These authors, without realizing it, had anticipated computer fiction and poetry.

Since the concept of cinematic creative writing was so foreign to most of the members of the workshop, I decided to bring examples of computer fiction to the next meeting, but I could find none. In 1981, video games like *Space Invaders* and *Asteroids* were the craze. But it was clear that publishers were also aware that computer fiction was coming and that it should be extremely lucrative. Robert Dahlin wrote in the March 20, 1981 edition of *Publisher's Weekly* that "publishers are seeking electronic rights to books whenever possible these days In other cases, an author's literary agent may retain electronic rights to exploit later or to dangle before the publisher for an increased advance."¹ In the same issue, the director of corporate development for Harper & Row was quoted as saying that he was not threatened by the coming of electronic books "because conventional publishers have the 'quality authors' among their assets."² This comment seemed irrelevant to me.

The question in the publishing industry in 1981 was not *whether* electronic books would become a reality, but what form the electronic book would take. The more I read, the more I realized that no one had the answer. There seemed to

be an assumption on the part of many in the publishing industry that you could take an already published book and program it to be read one page at a time off a video screen. This would be akin to the director of a motion picture assuming that a movie was the same as a filmed stage production. Ann Dilworth, editor-in-chief and general manager of Addison-Wesley, recognized this:

It's a trickier business than a lot of people thought . . . The thing we're finding is that no book translates directly into a visual medium, so it's not just a matter of selling the rights to a book. It seems more and more that you require a totally new program. It's almost like you need a whole new way of looking at things. You can put the Scarsdale diet on the computer, but that's not enough. You have to do something creative, something jazzy with it to make it interesting.³

Without ever having touched a computer, I had come to the same conclusion as Ann Dilworth. It was time to move ahead from the fifteenth century, when Gutenberg's press was the latest technology. When I suggested this to members of my writing program, several scoffed at the idea. When I pursued my interest by actually writing original electronic stories and poems as part of my thesis, I became an outcast. It wasn't that I was shunned by the others in the program or openly discouraged by the faculty; it was just that no one seemed to know what I was trying to do.

This was not true of the Computer Science Department. From the head of the department right down to the students, my thesis received enthusiastic support. I was allowed access to an Apple II microcomputer and the ears of Bob Fyfe and other computer programmers, consultants, faculty, staff, and student aides. To them, computers were a way of life and they were on the ground floor of a bold new communications revolution. The expression I heard over and over again was that with a computer nothing was impossible.

Within two days I was able to learn enough BASIC programming to create my first computer poem, "HELP!", which is still one of my most popular pieces. In this poem, three statements of a maniac chase the reader's eyes across the screen or "window," to use the computer term. The words of the poem are simple:

HELP!
I AM GOING TO KILL YOU
BUT I WANT TO LOVE YOU
PLEASE, COME TO ME NOW
HELP! HELP! HELP!

On paper this is unimpressive, but when presented cinematically the words take on a dramatic energy. The word "HELP!" flies out of the upper left corner of the window and races toward the center of the monitor. It is obvious to the reader that someone is in trouble. This is repeated until a diagonal column of "HELP!" is stretched from the top to the bottom of the screen. Next, the entire column is pushed up out of view by a second column of "HELP!" appearing at the bottom and ascending upward. It seems to the reader that the victim is changing directions as if unsure where the attack will come



The word "HELP!" flies out of the upper left hand corner of the window and races towards the center of the monitor representing a victim in trouble. This is repeated until a diagonal column of "Help!" is stretched from the top to the bottom of the screen.

from. As the second column reaches the top, the word "HELP!" enters again from the upper left hand corner and flies downward forming a second descending column, but this time the letter "H" is left trailing after the word as if a victim is screaming. Suddenly a montage of the poem's three central clauses pounces from above. It descends, filling half the window completely, but the words change and intermingle so swiftly that the reader has difficulty determining what is being said. This confusion is intended to mirror that of real victims when they are first attacked. The montage disappears suddenly, and, repeating the same technique of descending columns, each line spoken by the maniac falls on the victim one after the other. This is repeated twice. Although the lines are moving very rapidly across the window, the technique of forming a column allows the reader to clearly see what is being said before it is erased. The poem finishes with a triple cry for help, again using a descending column. The duration of the entire poem is 30 seconds. On film, this would take hundreds of frames to complete, but using a computer, it took only a small BASIC program.

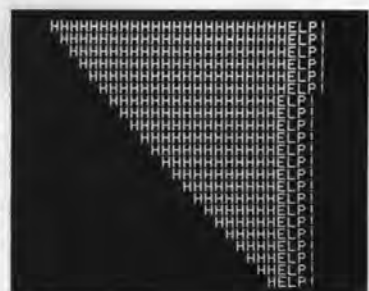
The computer I was using was right next to the front door of the lab. Every day someone would stop and ask me what I was doing. It was not unusual for me to look behind me and find someone staring over my shoulder. Some would even pull up a chair. Most had never thought of the computer as a fine arts medium, and I took advantage of their interest to get feedback on the stories or to discuss programming problems. Before this, all my conventional writing had been done in private; for the first time, I felt as a painter must feel when he paints in a public place.

For a year I was isolated from the creative writing program. Although I was in a building just a short walk across the commons, I was unable to persuade anyone to come over and read the electronic portion of my thesis. Several were honest and told me they hated computers and all they stood for, but others would be vague and put me off. One faculty member read my print stories but refused to read my electronic ones because computers numbed his "artistic sensibilities." Then in 1982 the English Department bought an Apple IIe microcomputer to be used primarily as a word processor and put it in the General Studies office right under the nose of everyone in creative writing. I deliberately divided my computer time between the Computer Science Lab and the English Department just so members of the department could look over my shoulder the way students were doing in the other lab. I received the same reactions from people in the humanities as from those in computer science. Still, several members of the department refused to look; one graduate student even held his hands over his face when he came into the General Studies office so he wouldn't accidentally glance at the computer screen.

As the second column reaches the top, the word "HELP!" enters again from the upper left hand corner and flies downward with the "H" left trailing as if the victim is screaming.



Next, the entire column is pushed up out of view by a second column of "HELP!" appearing at the bottom and ascending upward. It seems like the victim is changing directions as if unsure where the attack will come from.



But these diehards quickly became the minority. I discovered that there were computer enthusiasts in the English Department popping out of the closet, primarily for the introduction of Computer Aid Instruction (CAI). Foremost of these was Jim Karpen, a doctoral student, who was put in charge of introducing and helping the faculty learn how to use computer systems. He was in the middle of writing his doctoral dissertation, *The Digitized Word: Orality, Literacy, and the Computerization*. In it, Karpen describes "a word stored in a computer as a 'digitized word' because it ultimately exists not in the form of alphabetic characters on paper but as electronic binary digits in computers. The digitized word is fundamentally different from the printed word and is having . . . revolutionary consequences for literature, information management, thought processes, and education—just as the printed word had revolutionary consequences in these same areas in an earlier time."⁴

I have described how, in "HELP!" digitized words appear on a screen in a cinematic manner. David Hughes of Chariot Communications and former editor of *Sourcetrek*, an on-line literary magazine electronically based in The Source computer network, describes the way digitized words appear on the screen as a "Word Dance." In a recent letter to me he wrote:

Word Dance springs from my sensitivity to what goes on between the eye, consciousness, and the mind when words appear in the form of light on screens, rather than ink on paper, particularly when there is one or more human intelligences connected in real or "close" time to the system.

The notion is fairly simple . . . Ever since Man first tried to put down marks on a cave wall, representing voice sounds, he was compelled by the characteristics of light on fixed surfaces to place a second mark next to the preceding one and another mark next to that one (else on top of each other they would have merged into unintelligibility) and so on until the utterance was finished. We went left to right, the Arabs went right to left, the Chinese went up and down.⁵

In computer stories using digitized words all variations are possible in the same piece. An author may choose to have the reader read right to left, then left to right, or up and down, or down and up. In some stories, I have presented my text from a center point moving out right to left simultaneously. James Karpen has suggested "that the major reason fiction developed such a rigidly sequential structure is simply that the printed characters necessarily occupied a fixed position in a page, which necessarily occupied a fixed position within a book, which necessarily remained within two covers, physically separated from other books."⁶ In contrast, bookware using the techniques of electronic creative writing is based on the fluid manipulation of "digitized words" instead of the permanent linear placement of words on paper. The number of variations is limitless. In electronic literature, language programmed with digitized words is versatile, instantaneous, and exists in a continuum of time instead of a sequence of pages.

In March of 1983, I learned that a literary journal in Canada called *The Alchemist* was accepting electronic stories and poems for a special issue on floppy disk for the Apple II Microcomputer. I contacted the editor, Marco Fraticelli, and

discovered that he had developed an electronic technique for poetry similar to the one I had developed for the electronic portion of my thesis. He had also published a short electronic chapbook of poems, *Deja Vu*, through Guernica Editions of Canada, 1983. In our correspondence, Fraticelli talked about how he developed his "Poems for the Computer Screen":

I pretty much stumbled into the whole thing. Initially, I bought a secondhand computer because I was fascinated by its possibilities as a word processor and filing system. Like most artistic types I felt an almost instinctive distrust of the computer Once I started playing with the computer, I realized that it provided certain capabilities that the typewriter didn't—namely SOUND, CONTROL OF TIME, AND MOVEMENT. Once I realized how really easy it is to manipulate these, I saw that I could not only take visual poetry one step further, but actually evolve an entirely new form, one that had not been possible previously because the technology had not been available to the public in general until recently.⁷

Instead of publishing a special issue of *The Alchemist*, Fraticelli decided to publish my electronic stories and poems in a single volume titled *Rice Wine, Prose for the Computer Screen, 1983*. To our knowledge, *Deja Vu* and *Rice Wine* were the first two examples of electronic literature bookware ever published.

Finding Marco Fraticelli confirmed a suspicion I had had even before I began developing electronic creative writing in 1981: once writers began using computers, it was inevitable that a certain percentage of them would recognize the medium's unique possibilities and how they could apply them to their fiction and poetry. Thus David Hughes "stumbled into the whole thing" in much the same way that Marco Fraticelli did: "By the time I put my hands on my first microcomputer . . . producing creative electronic literature was furthest from my mind. But from the minute I saw the back-space-and-blot-out of my first word processor . . . I felt this was a revolution in the English language."⁸

Because writers have various approaches to their material, it is understandable that many forms of Electronic Creative Writing should develop. I would divide these forms into four genres: Collaborative Writing, Interactive Fiction, Cinematic Writing, and Computer Assisted Writing. They are being published on software, electronic bulletin boards, and in on-line service networks such as The Source and CompuServe. Before I discuss the different genres, let me comment on these methods of publication.

Methods of Publication

The least effective publication methods for electronic literature are the electronic bulletin boards and on-line service networks. These are essentially large central computers to which users gain access through telephone lines and a modem (telephone hookup). In this medium, stories and poems are presented in much the same fashion as you would read them on paper. David Hughes was the first writer to create an on-line, royalty-paid electronic vanity press, using The Source as its base, thus earning the title "poet laureate of the network nation" from



Atari Hippo Vision digitized photo-graphic in low resolution. Courtesy of Kristy Computers, Elyria, Ohio.

Popular Computing in 1984.⁹ But he quickly realized the limitations of this method of publication. "I was convinced this medium was far from realizing its potential. I could not do more than the most primitive creations in Word Dance."¹⁰

The reasons are twofold: first, these services are primarily information storage and retrieval systems whose purpose is the management of information. For these purposes, it is usually most efficient for them to use the American Standard Code for Information Interchange (ASCII), which unfortunately is very limited for electronic creative writing applications. Second, on-line services can be very expensive. Not only is there usually an initial membership fee anywhere from \$29.95 to several hundred dollars and a monthly service charge, but also a charge for the time you are on the system, plus long-distance phone charges.

To solve the first problem, David Hughes in late 1984 started a regional subscription conferencing system called CHARLOT, which uses a dual NAPLPS-ASCII system much more useful for literary purposes.¹¹ There is little question that in time, network fictioneers and poets like Hughes will create powerful on-line services that will allow for electronic literature of all kinds, but until the second problem, that of cost, is dealt with, this medium will remain primarily a means for passing programs from one computer to another.

The best publication medium for electronic literature today is on software. Software is simply the sets of instructions that make a computer work. These instructions may come in different forms, but the most popular are the 5 1/4-inch floppy disk and the 3 1/2-inch diskette. After *Rice Wine* was published, it occurred to me that a new term was needed to describe software publication of fiction or poetry. Every time I told someone I had had a book published, he assumed I meant a paperbound book. So I coined the term "bookware" to describe literature that is written for the electronic medium and published on software.

Software is more portable, flexible, and adaptable than an on-line service, and costs less. Since many programming languages are available in floppy disk software form, the bookware fictioneer is not limited to any one language or one computer system, as with an on-line service. Interactive Fiction, Cinematic Writing, and Computer Assisted Writing are all bookware publications. Furthermore software, like a book, is very individual. The owner is secure in the knowledge that his bookware is safe on the shelf; he is not dependent on networks which may be down, fearful of costly long distance phone bills, or limited by inconvenient access times.

The real restriction in bookware publishing is the software's limited memory storage. An on-line service can house an entire library of information. A floppy disk can store as much as a novella, and a 3 1/2-inch diskette can hold a standard novel, but this is misleading. In electronic creative writing, the text and the computer program that runs the text must exist side by side in the same storage space. A poem with complicated visual effects may take up as much storage

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space as a short story. Graphics in particular take large segments of memory on a floppy disk. The restricted memory space, more than any other factor, determines the form of a bookware.

Collaborative Literature

Collaborative Literature is the most traditional and least innovative of the four genres of electronic creative writing, partly because it is dependent on on-line services, but primarily because the finished product is traditional in form. While Cinematic Writing like "HELP!" must rely on computer programming (or the lack of it, as with ASCII), Collaborative Literature takes advantage of the computer's information management abilities which are innate to on-line services. In its simplest form, Collaborative Literature is an extension of the campfire story where one person starts the story and everyone takes a turn at adding a new installment. To write this type of fiction through the mail is time-consuming and cumbersome, and there is the expense of postage; but electronic mail is instantaneous and versatile, and since the writing groups are usually local or have immediate access to the same system, the bulletin boards are free. One such collaborative fiction is the EIES Soap Opera. In it, the network participants take turns making up characters and telling their stories. One character, Starv (a starving artist), "tried to hustle a grant, failed, fell in love, fathered a child, cloned himself, left his lover, tried in vain to return to his lover, attempted suicide, and battled a space creature who was trying to populate the earth with humanoid 'disco snakes.'"¹² The emphasis in Collaborative Literature is on creation and the writing process rather than on the finished product. For this reason, I recommend Collaborative Literature as an excellent way to introduce beginning writers to traditional creative writing, word processing, and computer networking, while still offering established writers a new outlet for artistic collaboration.

I believe it is only a matter of time before writing workshops and authors around the world realize they have the potential for instant communication with every other writing workshop or author with access to a microcomputer and a modem. Indeed, following the same line, colleges and universities, most of which already possess powerful on-line services for their own communities, could standardize networking to the point of establishing fully accredited electronic colleges.

Interactive Fiction

The second genre of electronic literature mentioned above, Interactive Fiction, is published on software even though it requires a complicated computer program and large blocks of text and so is hampered by the lack of storage space on floppy disks or diskettes. Still, it is the most popular and commercially successful of all digitized literature. There are over one million Interactive Fiction readers and more than 150 text adventure titles available from a dozen software houses.¹³ There are also hundreds more text adventures circulating in

the electronic underground. One bookware item alone, ZORK, has sold over three quarters of a million disks since it was introduced in 1979.¹⁴

In Interactive Fiction, the reader is the protagonist and controls the linear movement of the fiction. The plot is fluid, and at frequent junctures the reader can decide what happens next. This can be done through a list of control words or phrases such as "take," "fight," "go," "run," etc., by which the reader actually "talks" to the bookware. The following is what happened to me, for example, when I came face to face with a mirror at the end of a long hallway in the underground empire of ZORK III. I was sure there was a way to go around the mirror, or through it, but I wasn't sure how. The following is the way the text appears on the video screen:

```
> > LOOK IN MIRROR
A disheveled adventurer stares back at you.
> > ENTER MIRROR
You hit your head against the mirror as you attempt this feat.
> > TAKE MIRROR
You can't be serious.
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In drama, the notion of direct audience participation is not new; and this is, of course, the formula for television game shows. But for authors used to writing first- or third-person stories in the past tense, audience participation is hard to accept. It means giving up part of the control over the fiction to the reader. At a 1976 Symposium on Fiction, William Gass made it clear that he did not want a creative reader. "I don't want the reader filling in anything behind the language," he told Grace Paley.

Paley disagreed: "I think what you're forgetting, what you're underestimating, are the readers It's perfectly true I can't say everything about my block in the city. I never can, but I can say enough so that anybody . . . can build up enough of the rest of it and recognize that block, maybe even in a better way than a kind of quantification of events and people and paving stones and rubble and pieces of brick. I think that is art"¹⁵ The deconstructionist school of literary criticism, deriving in part from the theories of Jacques Derrida, contends that the text and its reading are primary and not to be subordinated to considerations of the author, history, or other contexts.¹⁶ This trust in the reader's ability to "fill in behind the language" and to "construct the fiction" is central in Interactive Fiction, and since there are numerous beginnings, middles, and ends in text adventures, description, settings, and characterizations take precedence over structure.

Unfortunately text adventures continue to be introduced to the public as games, so they have not been taken seriously as a new form of literature; many educators are reluctant to include them as reading assignments or course material. Nothing could be more misguided than this attitude. Although there is a game element, there is also plenty of opportunity for artistic use of language. The only limitation is the talent of the author.

While teaching junior-high-school English, I introduced non-traditional reading students to interactive fiction. They devoured it. During the week we read ZORK III, I had to drive the class out when the bell rang; they didn't want to stop reading. One of my problem students, who refused to even read instructions off the blackboard, moved from the back of the room to the front. He was so hooked by the stories and poems that he skipped lunch and study halls just to continue reading. Before I was forced to throw him out of the classroom, this "non-reading" student had read two chapbooks of electronic poems, three short stories, and all of *The Alchemist* literary electronic magazine besides getting a head start on ZORK. Many teachers are getting similar results. Dr. Chuck Domba, a director of data processing for seventeen Pittsburgh area school districts, teaches a course on "Fantasy Simulation" for classes comprised mainly of elementary and high school teachers. They have reported "extraordinary results" with adventure games in their classes.¹⁷ "Teachers have told me that once a student succeeds in the adventure game fantasy, he or she also begins succeeding in the other subject areas. Decision-making, deductive-inductive thinking, creativity, enrichment—every side of mainline instruction can benefit from the fantasy simulation in adventure games."¹⁸ As readers discover that they have almost an author's control over the stories, they become intimately engaged with language in a way never possible before the digitized word.

Infocom, which published the ZORK adventure series, is the leading publisher of Interactive Fiction today. From the beginning they committed themselves to a format consisting only of text, defying critics who believe the future of Interactive Fiction is in graphics. They agree with Grace Paley, and have established a multi-million dollar corporation based on a faith in readers' ability to create their own fiction beyond what is simply offered by the author. Infocom productions of ZORK I, II, III, DEADLINE, and HITCHHIKER, A Guide to the Universe, and other text and role-playing adventures are all true electronic novels and should be criticized as literature and not as video games. Unlike pulp novels, even the most poorly written interactive story has at least one complex, interesting character—the reader.

At present, the major drawback to writing a ZORK-style computer novel is that it requires not only an author, but a skilled computer programmer. This situation will change with the coming of self-programming computers, but that is still in the future. Also, most software houses are closed shops and will not accept submissions. Instead, they buy rights to a current best seller and hire a team of programmers to write the computer script, or the bookware is written by in-house experts and consultants; but, as in the motion picture industry, this is not a guarantee of either financial or artistic success.

The major drawback to the readers of electronic novels is their price. The \$20 to \$40 price range for interactive fiction makes it too expensive for most computer users to buy, and out of the question for most schools. To attack both the problems of cost and programming, Donald Brown created the world of EAMON and released it into the public domain free

Sources

Floppy disk publishers

Bookware Publishing
2219 Grafton Rd.
Grafton, Ohio USA 44044

The Alchemist
P.O. Box 123
LaSalle, Quebec
Canada H8R 3T7

UPTIME
The Magazine on a Disk
P.O. Box 299
Newport, RI 02840

Softdisk
3811 St. Vincent
Shreveport, LA 71108

EAMON Adventures

The Big Red Apple Club
1105 S. 13th St., #103
Norfolk, NE 68701
(402) 379-4680
(Membership fee required)

Adventuredisk
7210 N. Mercer Way
Mercer Island, WA 98040

Network

Chariot Communications
2502 W. Colorado Ave.
Colorado Springs, CO 80904
Modem: (303) 632-3391

of charge. He also created tutorials, or disk "utilities," which allow any interactive fiction enthusiast the opportunity to write his own EAMON fiction. And Brown does this all with BASIC programming. There are over 100 free EAMON adventures and more are being written each month. These text adventures are so popular that an electronic disk magazine, called ADVENTUREDISK, was formed that is essentially an EAMON bookware-of-the-month club. The only cost to the reader is the price of a floppy disk and possibly a service charge from the supplier. I buy all my EAMON adventures from The Big Red Apple Club, Norfolk, Nebraska for \$2.50 which includes the floppy disk. EAMON may not be as sophisticated or as long as ZORK, but the reader derives the same basic pleasure in reading.

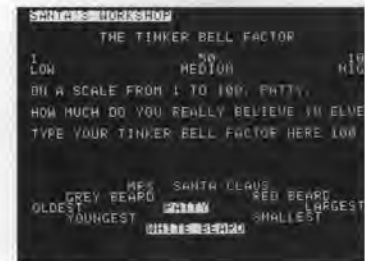
Cinematic Writing

I have already described one of my Cinematic pieces, "HELP!," in which the placement and movement of the words on the screen contributes to the aesthetic effect. In my other bookware publications, I combine the techniques of both Interactive Fiction and Cinematic Writing using BASIC programming even less sophisticated than EAMON. By adding "text-effects" I try to achieve a more dynamic presentation of the material than in other text adventures. I have tried my hand at bookware for children, in which cinematic effects are particularly valuable. They reward the children for making choices and keep their eyes focused on the screen. More important, cinematic text-effects accentuate the ongoing narrative for electronic fiction the same way concrete poetry accentuates the text in printed poetry. In my interactive story "Where's Santa Claus?" for example, the child must respond properly in order to restore the name of a missing elf to the screen. (See illustration.) By means of text-effects the dramatic action is heightened, the visual presentation of the material is more pleasing to the eye, and the story takes better advantage of the medium's intrinsic capabilities.

Computer Assisted Writing

If Interactive Fiction makes traditional authors uneasy, then they will find the notion of computer-generated poetry completely unnerving. The term implies that a computer can compose poems by itself, eliminating the author in the same way robots are displacing workers in the automotive and steel industries. This is wonderful science fiction, but let me say from the start: in 1986 there are no computers composing poetry. For now, the term computer-generated poetry is a misnomer; it should be Computer Assisted Literature (CAL). As Jim Karpen explains:

In this genre the poet writes a computer program and devises certain devices, certain sentence and phrase structures, without specifying the particular words which will fill the slot. Then the writer enters lists of words in data statements and the computer randomly selects words from the list and inserts them into a predetermined structure . . . In other instances, the poet uses his computer program simply to help him juxtapose words



Above: Text effect representing bringing White Beard back to life. A bell goes off and the name White Beard appears in a white ghost at the bottom of the screen.

Below: White Beard's name begins to rise slowly cutting a window up the center of the screen.

Once at the top, the name White Beard expands and multiplies from a center point moving out right and left simultaneously.



in interesting, new ways, juxtapositions that otherwise might not have occurred to him or her. In this case the poet uses the computer-generated product as rough material to be reworked and refined.¹⁹

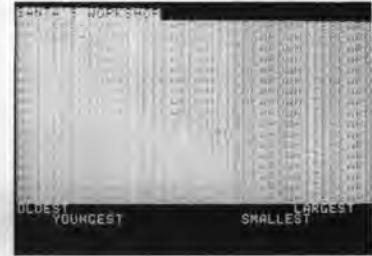
An example of the former technique is "Dated Poems" by C. Orlock published in *The Alchemist* electronic literary magazine, 1984. In this poem the reader supplies his birthday and today's date and the computer program constructs a personalized poem based on the variables given. No two poems are ever alike. In the same issue, "31-It" by Michael Karl Ritchie is a poem based on a series of stanzas read in different orders. In both of these cases the computer does not create the poem; the author is "assisted" by a computer program which then constructs the poem.

One of the earliest programs of Computer Assisted Literature I am aware of is the ERATO program by Professor Louis T. Milic of Cleveland State University, 1971. ERATO is based on the first lines of modern poets databased to be retrieved in certain juxtapositions. Of the almost 1000 "poems" created by ERATO only the best 32 are included in the chapbook. On the issue of who is the poet, Dr. Milic is very clear. In the Foreword he writes,

Although random processes play an important part in the ERATO program, the success or failure of the effort is dependent upon a human agent. Someone has to choose the lines so that they will combine grammatically and so that they will make sense in the whole. Someone must select the alternative words so that they will be consistent with each other in almost any combination. Whoever makes these choices is the poet. The computer and the program merely carry out the decisions he has made. All the poems the computer and the program can produce are possibilities the poet has allowed to occur. In that sense the poems produced by this partnership are mine more than they are the computer's. But without the computer I would not have produced them.²⁰

ERATO, like Collaborative Literature, produces a Gutenberg-based finished product, but it is still electronic creative writing because it would not be possible without the assistance of a computer. This is different from the mere use of a word processor, which only facilitates conventional techniques.²¹

One reason that I wish to encourage writers and educators to become acquainted with the electronic medium is so they can begin preparing themselves for the expert computer systems of the future, or AI, artificial intelligence. In *The Fifth Generation: Artificial Intelligence and Japan's Computer Challenge to the World*, Edward A. Feigenbaum and Pamela McCorduck write, "In the kind of intelligent system envisioned by the designers of the Fifth Generation, speed and processing power will be increased dramatically; but more important, the machines will have reasoning power: they will automatically engineer vast amounts of knowledge to serve whatever purpose humans propose, from medical diagnosis to product design, from management decisions to education."²² One of the purposes I propose to use these reasoning machines for is the creation of fiction.



The expanded name falls quickly "wiping" the old text from the screen.

The expanded name of White Beard disappears instantly leaving White Beard fully restored.

Last Christmas a cuddly little teddy bear named Teddy Ruxpin took the country by storm. What made Teddy so special was that it was animated; its eyes and mouth moved while it told stories from a cassette tape placed in its back. I suspect few authors understand the real significance (or horror) Teddy represents. The Teddy Ruxpins of the future will not simply be an extension of an animated cassette player; they will be storytelling, reasoning robots with the ability to interact verbally and physically with their owners. When this occurs, the art of storytelling will have come full circle from the oral tradition of pre-literate times to a new oral tradition using artificially intelligent robots to deliver digitized literature containing the best of the writing and oral strategies developed over the last three thousand years.

Whether or not a robot, even a cuddly one, can have "intelligence" is not the question. The reality is that expert systems are designed to either assist or replace experts, and writers and educators are by no means sacred cows.

In the meantime, bookware is not going to replace books anytime soon. The cost of buying and maintaining a computer system is still too high. And people have a longstanding attachment to books that is simply not going to vanish overnight. When the motion picture was introduced, people still went to plays, and when television came along in the fifties, viewers still went to movies.

In fact, from my teaching experience, I have discovered that bookware does not compete with books because so many students don't read as a leisure activity; but interactive fiction does directly compete with television viewing. Once a person is hooked on reading in any form, he will be more inclined to read materials in other media, especially fiction and poetry. Bookware, therefore, is not a threat to traditional books, but an alternative form of literature that I recommend highly as a means of introducing the television/video generations to reading.

What I do believe is that Gutenberg-based fiction is exhausted. Experimental stories today are so obscure and so seldom read, or are presented in a manner that is so unmanageable, as to be insignificant. Electronic creative writing offers a whole new range of techniques that in the hands of real literary artists can be at the same time profound and accessible. What is needed now is for more writers to start experimenting with the new medium. They will quickly discover that there are many disk magazines eager to publish good programs.²³ There remain massive problems in the economic structure and practices of software publishers. Too often the present system proves the old adage "Garbage in, garbage out." But serious artists in the new medium must not be deterred either by short-term difficulties in the marketplace or by the hostility of the more conservative members of the writing community. We will care for, study, and appreciate the legacy of traditional fiction, but we will not exhaust our creative energies as caretakers of the old forms. Our responsibility is to the expansion of our craft through the creation of stories that explore and establish the boundaries, if any, of the new electronic medium. ■

NOTES

- ¹Robert Dahlin, "Electronics and Publishing," *Publisher's Weekly*, 20 March 1981, 30.
- ²*Publisher's Weekly*, 20 March 1981, 27.
- ³Dahlin, 30.
- ⁴James L. Karpen, "The Digitized Word: Orality, Literacy, and the Computerization" (diss., Bowling Green State University, 1984), 2.
- ⁵Letter from David R. Hughes, May 30, 1986, p. 2.
- ⁶Karpen, 47-8.
- ⁷Letter from Marco Fraticelli, April 21, 1986.
- ⁸Hughes, p. 1.
- ⁹Steven Levy, "The Rhymes of Dave Hughes," *Popular Computing*, (January 1984).
- ¹⁰Hughes, p. 2.
- ¹¹Hughes, p. 3.
- ¹²The Lunch Group & Guests, *Digital Deli*, 1984, p. 180.
- ¹³Jack Hayes, "Who Plays Adventure Games . . .," *Personal Computing*, (March 1986), 96.
- ¹⁴Hayes, 96.
- ¹⁵"A Symposium on Fiction," *Shenandoah* 27 (1976), pp. 7-8.
- ¹⁶Colin Campbell, "The Tyranny of the Yale Critics," *The New York Times*, 9 February 1986, Section 6, p. 23.
- ¹⁷Hayes, 102.
- ¹⁸Hayes, 102.
- ¹⁹Karpen, 55-7.
- ²⁰Louis T. Milic, *ERATO*, CSU Poetry Booklet, 4 (1971), p. 4.
- ²¹Beverly J. Jones, "Computers in the Arts and Humanities," *The Computing Teacher* (March 1982), pp. 28-31. A good program that bridges the gap between word processing and Computer Assisted Literature is "COMPU-POEM: CAI for Writing and Studying Poetry," written by Dr. Stephen Marcus, Associate Director of the South Coast Writing Project at the Graduate School of Education, University of California, Santa Barbara. This nationally recognized program aids the writer in the creation of the rough drafts. In this type of program the emphasis is on the writing processes and not on the finished poem.
- ²²Edward A. Feigenbaum and Pamela McCorduck, *The Fifth Generation* (Reading, MA: Addison-Wesley, 1983), 56.
- ²³For the Apple II microcomputer, there is THE ALCHEMIST, which I edit, SOFTDISK, UPTIME, ADVENTUREDISK, and many club disk publications with readerships of several thousands like THE DISK NETWORK of The Big Red Apple Club.