Where Is Publishing Headed

Opportunity and apprehension as a mature industry looks at cyberspace

Until last fall, molecular biologist Lester Harris couldn't publish much of his research. Harris studies the interactions of complex molecules, a discipline whose massive data sets cannot be usefully presented in standard journals.

"These files are huge," says Harris. "They just don't lend themselves to publishing in traditional journals. It's really hard to understand what's going on unless you look at these in a three-dimensional view. It's too expensive to publish in print journals because of the cost of color."

Last fall, he devised a solution. Harris, a cancer researcher at Abbott Northwestern Hospital, formed a small publishing company and launched the *World Wide Web Journal of Biology*, a free, peer-reviewed electronic journal. Now, in addition to downloading charts, graphs, sound files, video clips, and full-color illustrations, other researchers can download the enormous data files, project them as three-dimensional images, rotate them on screen, color-

By Rob French

Illustrations by Dave Plunkert

code them in a variety of ways, and watch how they interact. "Electronic publishing is the only way these can be communicated to other researchers," Harris says.

The advent of the fast, cheap, global dissemination of digitized information has begun transforming any number of industries, but with the exception of telecommunications, none will face more pressure to change than publishing.

· ·

Like Darwin's finches, blown from the mainland onto the strange world of the Galapagos Islands, the publishing industry finds itself looking out on an entirely new landscape. Many publishers are already evolving, spinning off CD-ROMS, Web sites, online magazines, interactive games, online art collections, and electronic academic journals.

Harris's electronic journal is one of an estimated 500 new and existing academic publications that have begun publishing on the Web. At last count, the Internet was offering 200 online magazines and 3,000 online news services. Some 30 newspapers had launched electronic versions on the Web; in five years, more than 2,000 are expected worldwide. Magazines designed solely for online distribution, such as *Salon* and *HotWired*, are proliferating rapidly. And lest anyone fear that the Internet is only for serious content, online soap operas are currently in the works.

The advent of electronic publishing and interactive multimedia appears destined to bring about a grand convergence of formerly disparate media. In time, many of today's traditional print publishers may more closely resemble MGM Studios than Random House. Today's demarcations between newspapers and encyclopedias, between film producers and book publishers, will likely blur, then fade altogether.

"Multimedia will change how we read and how we think," says Pegie Stark Adam, an associate in visual journalism at the Poynter Institute for Media Studies.

As with biology, however, the evolution of some life forms does not necessarily spell immediate doom for those who fail to change (or choose not to). Evolution is embracing, not replacing, and multimedia Web 'zines will coexist with their staid paper forebears for the foreseeable future.

· · · · · · · · · · · · · · · · · · · ·

In a broad, legal sense, "publishing" up until now has encompassed all acts of disseminating information in printed form. Though anyone who runs off a flyer and passes it out on the street is legally engaged in publishing, most people think of publishing as the enormous commercial industry that puts out some 50,000 books, 3,500 general-circulation magazines, 1,500 daily newspapers, and untold millions of journals, textbooks, newsletters, brochures, reports, and various other written communications each year in the U.S. alone. This is the case in the electronic arena as well; individuals who offer their recipes and family photos on a Web site may legally be "publishing," but in reality they are simply posting information to a very accessible bulletin board. Publishing remains the commercial act of acquiring, improving, promoting, and distributing information, literature, and images.

Understanding which publishers will be affected by the rise of digital media, and to what extent, requires an understanding not just of what publishers produce and how they do it, but of some of the business's intangible qualities as well. One of publishing's most central roles is to identify the best, the most relevant, the most entertaining, the most educational. Readers pay for this judgment, which saves them from wasting time reading bad novels, boring articles, and shoddy research.

Society also needs sources of reliable information. Reputable publishing houses go to great lengths to ensure the veracity of what they distribute, and editorial products bearing these brand names (such as the *New York Times* or McGraw-Hill) carry an assurance of accuracy and integrity.

Successful publishers are highly skilled at developing products that attract audiences and hold them. Their products are so good that readers invest in a long-term relationship, a relationship that advertisers can use to reach customers with related interests.

Finally, publishing offers prestige for authors and a sense of community for readers. These may be more intangible than quality and credibility, but are no less important. In the academic community, for example, career success often hinges on the ability to gain access to the pages of prestigious journals. "Publish or perish" is no hollow dictum.

· · · · · · · · · · · · · · · · · · · ·

Electronic publishing is making the fastest inroads in places where it can perform basic publishing functions faster, better, or cheaper.

For traditional print publishers, moving to an electronic format eliminates paper, printing presses, and postage—three of the industry's biggest budget items. Paper costs rose 44 percent in 1995, with another 20 percent hike expected this year. Second-class postage has risen 66 percent since 1988. Rich, detailed Web sites now cost an average of $1 million, according to International Data Corp./Link, but that's a tiny fraction of what it costs to produce, print, and deliver print magazines and newspapers.

"At the *[San Jose] Mercury News*, we spend $60 million per year for newsprint," says Robert Ingle, vice president for new media at
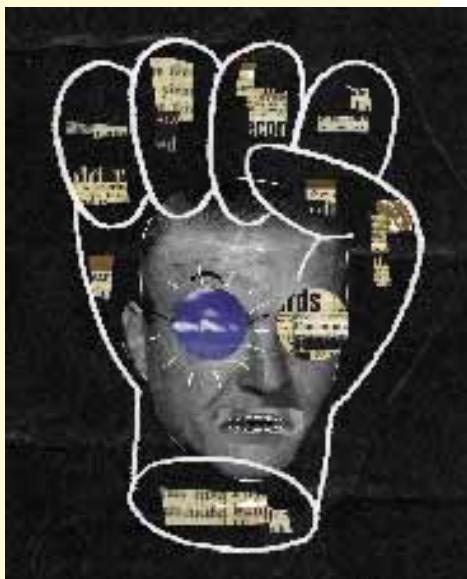
Knight-Ridder. "*Nothing* on the Internet costs $60 million."

Electronic publishing is thus perhaps the largest exercise in cost shifting in the industry's history. While publishers are freed from high fixed costs, readers spend $2,000 to $4,000 to buy an Internet- or multimedia-capable computer, plus additional fees for online access; if they print out something they download, that, too, is on their nickel.

And, while spending less, publishers gain access to a vast new audience. The Internet is well on its way to mass-medium status, experiencing the kind of explosive proliferation radio underwent in the 1920s and television saw in the 1940s. Between 8 and 10 million Americans now use the Internet, but that figure is expected to jump to as much as 40 million by the end of this year. When Time-Warner launched Pathfinder, its massive Web site, in the

> ## "We spend $60 million per year for newsprint. *Nothing* on the Internet costs $60 million."
> ### — Robert Ingle

fall of 1994, 200,000 hits were registered in the first week. Eighteen months later, Pathfinder was receiving 25 *million* hits per week.

Advertisers take note of numbers like that, and the demographics of the Net are excellent: primarily professionals between 30 and 44 years old, with 90 percent having attended college and a median income of $40,000. The Net also attracts a high proportion of young viewers, a highly desirable market for advertisers. Web publishers brought in $55 million in advertising last year, and media-consulting firm Jupiter Communications projects that by the year 2000 that figure will reach $4.6 billion—more than will be spent on radio advertising.

Electronic publishing on the Web will also make it possible for publishers to reach people who are not traditional readers. Because it places more emphasis on sounds and images, multimedia publications offer dyslexic readers another avenue for learning. Vision-impaired readers need not wait until large-print versions arrive; they can simply increase the point size of their on-screen text. And younger viewers, raised on television and MTV, are more adept at acquiring information visually and aurally than their parents. For coming generations, multimedia is a natural.

"It's our best way to reach younger adults," says Knight-Ridder's Ingle. "It's also our best chance to sell against TV that we've had in years."

Along with massive numbers of new viewers, the Internet delivers a highly detailed record of how the viewers respond to what they see. Download logs can show advertisers exactly which im-

ages were seen, and direct-response mechanisms show clearly which marketing efforts moved customers toward a sale or to request more information, and which ones led them to bail out.

For example, hypertext links allow advertisers to convey far more product information than a 30-second radio or TV spot or even a brochure. If an online ad for a Colorado ski resort catches a reader's eye, he or she can click on the resort's Web site, download detailed information about the slopes and accommodations, and make reservations online. Advertisers can go from generating a first impression to closing a deal all in one transaction. No showrooms, no 800 numbers, no brochures.

In other markets, it is the readers, not the publishers, who save money. Academic publishing is a prime example. U.S. institutions spend some $2 billion on upwards of 45,000 journals each year. Libraries complain about rapidly rising subscription rates, some of which now top $10,000 per year, and authors are frustrated by having to wait between six months and three years for publication, while their groundbreaking research and/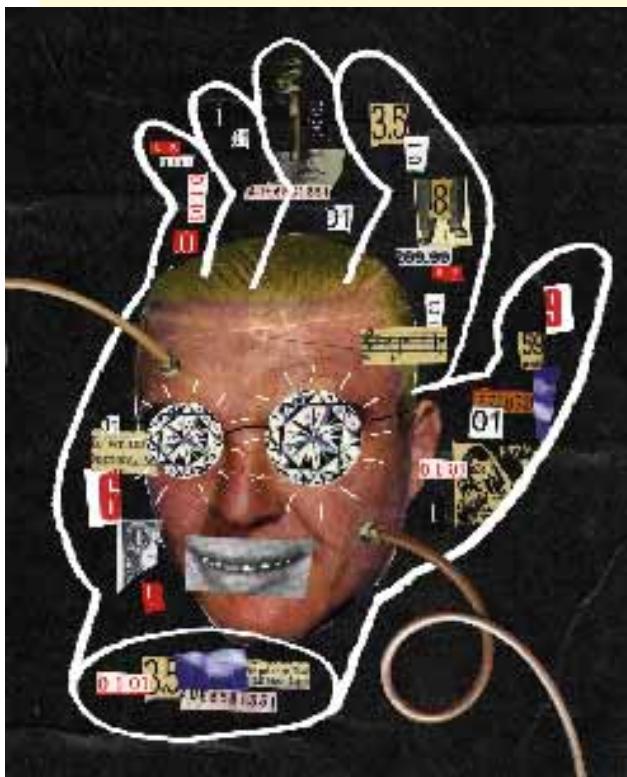or career advancement is placed in limbo. Some publishers require authors to pay up to $5,000 simply for the privilege of gracing their pages. "They charge people to publish, then they charge people to read it," says Harris. "It's not very conducive to the promotion of science."

By contrast, Harris publishes the *World Wide Web Journal of Biology* with a staff of three. Peer review of submitted manuscripts takes three weeks. The journal is free to readers, free to authors, and available 24 hours a day from any networked computer in the world.

With advantages like these, the academic world is rushing to embrace electronic publishing. In addition to the hundreds up and running at the start of 1996, new ones are coming online every week.

Budget savings and advertising revenue are only one advantage of electronic publishing. In many fields, particularly information retrieval, electronic products are simply better mousetraps.

Consider encyclopedias. Print versions are expensive, bulky products that few can afford. CD-ROM encyclopedias, however, can search vast amounts of information quickly, and they include audio and video content along with text and photos. With Mic-

rosoft *Encarta World Atlas*, for example, viewers interested in Senegal can, of course, read about the West African nation. They can also pull up full-color photographs of the people and the land and listen to indigenous Senegalese music. CD-ROM encyclopedias can search the globe for any place name given ("Where is the Sava River?") and compare statistics between countries. Most CD-ROM encyclopedias cost less than $100. Little surprise, then, that sales of print encyclopedias have plummeted since CD-ROM versions hit the market.

• • • • • • • • • • • • • • • • • • •

The possibilities for new types of ultra-rich content are what have fueled the heady growth of electronic publications, with multimedia leading the wave that will redefine the next generation of publishing. Some publishers will continue to work only in print, others are beginning to add multimedia elements to their electronic publications, but the overall direction is clear. Multimedia "is the way of the future," says Kim Veltman, director of the perspective unit at the McLuhan Program in Culture and Technology at the University of Toronto.

This grand convergence of text, sound, animation, video, music, and photography will require publishers to rethink how they convey information. "Publishing will evolve in a direction that's almost more like programming than textual content," says Ingle, Knight-Ridder's chief of new media. He and other experts predict that publishers will need to acquire and develop the additional talents of videographers, film editors, sound technicians, composers, illustrators, and programmers, then learn how to manage dynamic creative teams rather than a hierarchical food chain of editors, copy editors, and proofreaders. These teams will need to learn how to communicate with music, with light, with color, with motion. How does the meaning or mood of a poem shift when Brahms is played in the background versus Bach? What's communicated by a gradual fade from one scene or page into another, versus an abrupt transition?

The new blend of elements has a rhythm, structure, and logic all its own. "There is a grammar to TV, there is a grammar to film, and there is a grammar to online," says Paul Sagan, president and editor of new media at Time Inc. In electronic publications, the linear narrative often does not exist. Information must be constructed in three dimensions, in interrelated layers and lattices. In cyberspace, the limits are not word counts or pages, but time: the time it takes a viewer to navigate through the work. Editors must understand how to construct logical, simple pathways between related topics.

To judge by the words-with-still-pictures publications that currently dominate the Web, publishers still do not appear to understand this new language. As in the early days of film, many multimedia producers are simply trying to overlay the old media onto the new. It will take years of experimentation and evolution before multimedia is used to its full advantage.

"In a couple of years, the new electronic magazine won't resemble what's on the Net today," says David Zweig, publisher of *Salon*, a general-interest magazine published exclusively on the

Web and underwritten by Adobe, Apple Computer, Inc., and Borders Books. "[It] will be a hybrid between TV and animation and print."

Another major change in the electronic-publishing world is the addition of two-way interactivity—the means by which viewers can make choices, send feedback, and otherwise help shape their online experience.

Most publishers, editors, and writers today are not accustomed to the concept of true reader dialogue. The reigning culture for virtually all publishing and news enterprises is one in which editors and writers assemble thousands of pieces of information, then publish or broadcast a brief distillation to the public.

Some, though, are already saying that won't work in the future. "Too many Web-based editors are in a broadcast mode," says Zweig, publisher of *Salon*. "We love the idea of reader contribution, but honestly, it's not second nature to us. There will be a younger generation of editors for whom this *is* second nature."

"It's got to be interactive or people will only look at it once," argues Time Inc.'s Sagan. "You've got to add value to it."

In fact, interactivity is already changing the nature of publishing. It's almost impossible to find an online magazine or journal that does not allow feedback both to the editor and among readers themselves. And the technology which makes that possible also means electronic publications can be continuously refined, corrected, and updated. Book publishers need not wait for a second edition to correct errors. Science textbooks can actually keep pace with rapidly advancing knowledge. Encyclopedias can respond to changing events as quickly as a daily newspaper or wire service. The notion of buying a book may become obsolete; books may eventually become something you subscribe to.

Even more confusingly, because online publications can now be works in progress, traditional boundaries are starting to crumble. An online newspaper can offer the latest update from Bosnia, then allow a reader to jump to a summary of the last five years of fighting there, then jump to a detailed history of conflicts in the region stretching back into the 12th century. Newspapers can begin to offer the depth of encyclopedias—and what's to stop encyclopedias from offering a quick analysis of recent events?

Finally, electronic publishing will not only change what publishers produce and how they go about doing it. For many publishers, their fundamental role will evolve as well.

Until now, publishers have produced self-contained products: books, magazines, brochures, newsletters—packages of content bounded by two covers. On the Web, however, publications do not exist solely as discrete units. They are connected by links and hypertext to dozens or hundreds of other documents. In time, a publisher's services in being a gatekeeper of knowledge—in steering people to the content they need, wherever it may be found— may become more important than producing content directly.

"It used to be publishing was all formatted packages," says Knight-Ridder's Ingle. "We're quickly getting to the point where publishing consists of constructing useful interfaces to databases. That's a very different function."

> "There is a grammar to TV, there is a grammar to film, and there is a grammar to online."
> — *Paul Sagan*

Where Is Publishing Headed ❓

Some publishers are deeply apprehensive about the rise of electronic publishing. Once a work is published on the Internet, what's to prevent users from copying it and sending it to all their friends? Authors are now able to post their writings on their own Web sites, bypassing publishers altogether. And with intelligent search engines, who needs editors?

The copyright threat is very real—and different in character from threats to other industries posed by new technology. Though it took a chunk out of record-company profits, for example, illegal taping of records and compact discs did not seriously hurt the music industry. That's partly because a bootleg tape must be physically reproduced to be passed on. The Internet, however, allows illegal copies to spread across the globe almost instantaneously, and there's no degradation through generations—a copy of a copy of a copy can be indistinguishable from

on the Web is the cost of advertising yourself," says *Salon*'s Zweig. "I use the analogy of a TV set with 20,000 channels and no dial. You have to promote your site or no one knows it's there."

Similarly, while the current generation of Web sites could be produced by authors of modest skills, talent is flooding the industry and consumer expectations are rising. The cost of producing a visually appealing, multilayered Web site will rise dramatically as online animation, sound, and video become realities.

"All this is going to move in the direction of being more expensive," says Knight-Ridder's Ingle. "That will quickly divide the at-home publishers from the big players."

In addition, electronic publishing in general, and information services in particular, give already deluged readers access to even more information. Viewers may need good editors more than ever, to point the way to the most relevant, high-quality content.

"The more content there is, the more people are going to be desiring editors," says Paul Sagan, of Time Inc. "No one wants to sit at the bottom of Niagara Falls with a bucket, saying, 'I can't keep up with all this.'"

And, in a medium where information and images can be copied, altered, and redistributed with a few keystrokes, consumers are likely to place even more premium on having trusted sources of reliable information. Respected brand names for information brokers will probably become more important in cyberspace, not less so.

Finally, there is the matter of editorial

> ## "In a couple of years, the new electronic magazine won't resemble what's on the Net today."
> — *David Zweig*

the original. Publishers are experimenting with several solutions, including electronic watermarks that would verify the authenticity of the work and prevent copying, but some are refusing to enter the electronic-publishing arena until copyright protection issues are resolved.

In the larger picture, however, the Internet may not be the threat to publishers that some think it is. Though the look and feel of their products and roles may change, publishing houses will likely always be needed because the underlying services they provide—judgment, quality, credibility—will be in even greater demand in the future.

Few people, for instance, will have time to browse the Web sites of hundreds of authors to see who has interesting new material. And authors will always need the marketing resources that only established publishing houses can offer. "The cost of publishing

presence. Search engines, intelligent agents, and other "spiders" will help locate relevant information in the vast expanse of cyberspace, but no intelligent agent can offer the nuance, wit, charm, and personality that keeps bringing readers back time after time. Quality, whether of information or insight or style, will doubtless always sell. For that, publishers need designers, editors, and writers who know their craft.

"The notion that everyone is a publisher is a nice notion, but not everyone has the experience to do a good job," says the University of Toronto's Veltman. "The publisher represents an upholding of a standard. They will continue because they will keep that standard going." ◗

Rob French writes about multimedia trends and develops creative plans for multimedia publications.

browse