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The End

By Linton Weeks
Washington Post Staff Writer
Monday, April 24, 2000; Page C01

First of three articles

THE FUTURE OF READING, writing, storytelling, the words we use and the very way we think just might be a crotchety old guy in a raggedy wool suit named Harvey Ross. On this foggy gray day in Austin, Ross, 78, is unveiling his latest invention, the BookBuilder--a nine-foot-long, lights-and-gears-and-conveyors machine that looks mighty like the contraption that launched Frankenstein's monster.

To anyone who reads, Ross's apparatus is remarkable not only because it promises to print, bind, trim and deliver just about any book you want from any era in any language in five minutes.

More important, it is at ground zero of the most earth-shaking, tradition-breaking revolution in publishing in more than 500 years, a tectonic shift in the way books are made, bought, sold and ultimately, perhaps, rendered obsolete.

The BookBuilder is only one primitive example of the complete, complex and ever-changing digital make-over of the \$24 billion idea-publishing industry. Slightly more advanced are electronic reading gizmos cobbled together by two companies, NuvoMedia's Rocket eBook and SoftBook. Several firms, including Microsoft (who else?), are developing software that will allow folks to read books on anything with a screen.

Random House, the largest trade publisher in America, is digitizing every one of its 20,000 titles. Other publishing giants such as Simon & Schuster and McGraw-Hill are not far behind.

Another bunch of breakneck innovators is frantically perfecting electronic ink, a substance that can be printed just about anywhere. The cool attribute of e-ink: It receives electronic signals and displays them as writing and images. The result: any thin panel, including one you can carry to the beach or the bathroom, can take in all sorts of up-to-the-minute information via satellite.

Whether by e-ink, e-book or e-ruptions yet to come, pioneers are racing to rearrange the way we receive thoughts and stories we once took in only through physical books with paper leaves and cardboard covers.

This series of reports not only reviews this revolution in books and publishing, but asks whether words themselves have a future in the rapid evolution of how people carry on one of the oldest human endeavors--storytelling.

Within the next five years many types of physical books--travel, science, sports, for example--may disappear altogether.

Erik Engstrom, president of Random House, is one levelheaded publishing executive who entertains this notion. Take his company's popular series, Fodor's travel guides. More and more the travel advice traditionally found in the books will be dispensed on the Internet, he believes. Other types of books with information that changes rapidly will follow.

"You've already seen a dramatic change in the encyclopedia division," Engstrom says.

In fact, as online reference works proliferated, Encyclopaedia Britannica reduced the company's famous door-to-door sales force from 2,300 to 0 in seven years. They were booksellers.

Since 1996, the electronic versions of the encyclopedia--CD-ROMs,

The Last Book


The Last Book, a three-part series about the future of words, was written for the newspaper and the Web site. Parts 1 and 2, printed in the Style section of The Washington Post on April 24 and April 25, are being presented on washingtonpost.com in the usual fashion. Part 3 of the series will be published in The Washington Post on April 26. At that time, the souped-up digital version of the entire series will be unveiled on washingtonpost.com. It will contain hyperlinks, video and audio clips, interactive features and other enhancements that foreshadow the coming revolution in reading, writing and storytelling.

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DVD disks and the Web site--have been the company's "main source of revenue," says Tom Panelas of Britannica.com, the made-over encyclopedia company.



Panelas valiantly explains that in many cases the e-versions are preferable. You can search for a word or phrase throughout the whole text, you can link some encyclopedia entries to others, you can link entries to helpful Web sites. "We have seen all kinds of advantages in digital delivery," he says. Subtext: This hard-bound compilation of human wisdom, renowned since 1768, is dead and gone forever. The venerable Oxford English Dictionary moved online this spring.

Can business books, cookbooks, investment guides, almanacs, gardening books, parenting handbooks, computer manuals, sex manuals, repair guides, scholarly tomes, every textbook under the sun and who-knows-what-else be far behind?

Sure, there will always be some people who prefer to hold a hardback in their hands. But will there be enough to justify large print runs?

A mass extinction of many species of physical books may not mean the end of bound-paper volumes as we know them, but it is liable to cause a great shift in the kinds of books or booklike assemblages that publishing companies publish. If publishers in America are forced by technological advances to reinvent themselves, the traditional products they produce--what we call books--will take on new forms: Ever-morphing video poetry. Virtual reality pop-up books. Enhanced mysteries and romances and science fiction tales and biographies, wild and alive with jetting images, soundtracks, voices, special effects, hypertext narrative and interactive elements.

Where will it all end? Or begin? Novels might be truly novel again. Fiction might fascinate. Words and pictures and noises and other sensory experiences might give birth to a new storm--and forms--of storytelling.

For now, Harvey Ross, inventor of the BookBuilder, just wants to make a fast book--and a fast buck.

Instant Books

On this day at the ragged end of the 20th century, the BookBuilder is being unveiled at Eakin Press, a small operation in the Austin suburbs that specializes in regional history books, which is run by 72-year-old Ed Eakin. He sits in his office, on the desk a pewter armadillo, on the wall a wooden plaque shaped like Texas with samples of barbed wire and the year each was invented.

Not far away, a man demonstrates the new contraption. A couple of high-end copiers make the two-sided pages. A fancy color copier spits out the cover. But the centerpiece of the BookBuilder is the trimmer-binder. It's about nine feet long. It's covered with glass. You slide the copied pages here, the color cover there. A conveyor drags the pages through a glue pot, the cover rises up and is crimp-sealed onto the pages. Then the rough-cut book is trimmed here, there and there and voila! in a few minutes, a finished, physical book slides down a chute and into your mitts.

The promise, some say, is that books long out of print can be scanned into computers and printed. Titles of small-sales books, books that would have traditionally gone out of print, can be stored on disks and given infinite shelf lives.

But there's another promise. No longer will books have to be printed in bulk to sit on shelves. A reader will be able to waltz up to a kiosk or to a home electronic device, call up a book and have it printed before her very eyes.

In the way that video stores will give way to on-demand movies beamed down by satellites, bookstores could fade into our museumic past. BookBuilders, or devices like them, could become as ubiquitous as Coke machines or ATMs. Other companies, such as Atlanta-based Sprout, are also developing on-demand book-printing machines. Still others, such as InstaBook of Gainesville, Fla., are creating on-the-spot devices that will let you create a perfect-bound, paperback book in the comfort of your own home.

With weather-beaten skin, Ed Eakin is a tough old coot. A no-nonsense Texan. Eakin's not going to futz around with a future that doesn't work. He likes the BookBuilder, he says, because he intuitively understands how it works. And how it breaks down.

Sure enough, in a few minutes, the machine's clutch wheezes and whinges. Pages are stuck in the "down" position. The guy who is running the machine pushes a couple of reset buttons and feeds in a new batch of pages. "This is the law of demonstrations," he says, sticking in

another cover. As the pages make their way toward the trimmer, he tosses in a handful of glue pellets. There are still bugs in the system.

Inventor Harvey Ross, who has flown in from St. Louis for the glorious occasion, steps up to make a book. "Gutenberg," he says, "would turn over in his grave."

Y.S. Chi, meanwhile, isn't too impressed by the BookBuilder. Chi is the mastermind behind another much-talked-about technology, Ingram's Lightning Print.

Developed over the past three years, Lightning Print is a small on-demand press capable of printing one to 2,000 copies of a book at a time. It's cool, compact and competitive.

Lightning Print is already receiving more than a thousand orders a day from bookstores, libraries and publishers around the country. Many of the requests are for titles that have been considered "out of print." And many are for one title at a time.

More than 400 publishers have provided Lightning Print with digital versions of their books. When an order comes in, computers do most of the labor immediately. Warehouses (Ingram's has seven giant ones throughout the country) become unnecessary.

With Lightning Print and other on-demand technology, publishers are able to move quickly. For example, the University of Virginia Press learned last year that one of its titles, "Thomas Jefferson and Sally Hemings: An American Controversy," had been selected for Oprah Winfrey's book club. Huge presses were incapable of cranking up fast enough to meet the instant demand, so the publisher contracted with Lightning Print to do a small run to get them over the hump.

Harvey Ross's BookBuilder, of course, could knock the props out from under Lightning Print. If BookBuilder "could be implemented in a commercially viable way--which is a large leap--it would probably increase the size of the on-demand pie and our portion of the pie would be reduced," says Y.S. Chi.

For on-the-spot printing, Chi says, there are many practical issues to be resolved. Can a book be properly trimmed and bound? Will people sit there and wait?

If BookBuilders do wind up in bookstores, the technology "will be very complementary. It would legitimize just-in-time manufacturing," he says.

Joyce Meskis, owner of the Tattered Cover bookstores in Denver, can't wait. She's signed up to be the first on any block to install a BookBuilder in her store. "I think it just has so many potential uses," Meskis says of Ross's invention. "The most obvious one: Books do not need to go out of print anymore."

Meskis and Ross are planning to put 2,000 of the bookstore's titles--those that sell several copies a month--in the machine's memory. Eventually, of course, bookstores could sell perennial paperback favorites such as "Charlotte's Web" and "Little House on the Prairie." Or self-service kiosks in malls could replace bookstores altogether.

"Are we going to become the incredible shrinking bookstore? A kiosk on every corner?" Meskis wonders rhetorically.

The costs of printing and distribution continue to spiral upward, she says. "I'm not going to stand in the way of the freight train of change. I'm just going to try to lay the track in the right direction."

She recalls a time when booksellers turned up their noses at paperback books and refused to stock them. She's determined not to be blindsided by inevitability. Many other booksellers feel the same way. Last year the Borders bookstore chain, for instance, invested in Sprout.

Selling books regardless of their form, Meskis says, "supersedes other worries I might have about technology."

An Ancient Lineage

The physical book itself was once a new and feared technology.

Though books as we know them--sheets of paper bound between covers--did not become widespread until the invention of the printing press in the 15th century, the practice of preserving words for future generations dates back more than 5,000 years. In 3500 B.C., the Sumerians first used an alphabet to jot down stuff on clay Post-it pads. Perhaps the most famous clay-tablet production, written circa 2000 B.C., is the Mesopotamian tale of Gilgamesh--a hero who survived a global flood--considered by many scholars to be the first great work of literature.

This, arguably, was also the first book.

Around the time that Gilgamesh was being written, scribes in western Asia were scribbling prose and poetry on animal skins. The Book of the Dead, penned on pounded water-grass called papyrus, appeared in Egypt around 2000 B.C. One version was more than 70 feet long. The earliest example of Chinese writing, found on bones and tortoise shells, is from about 1200 B.C. Eventually humans everywhere were scrawling books on stone, leather, wood, bamboo and just about any flat surface available.

Circa 300 B.C., King Ptolemy I Soter of Egypt--successor to Alexander the Great and a writer himself--established the world's first great library. He and his successors asked all the leaders of Egypt, Greece and the known world to send all writings worthy of serious attention to the library being established in the new city of Alexandria. There were a few book collections here and there--Aristotle's, for instance--but the Alexandria library was the first grand aggregation of Western civilization. This was an age when all books were rare and many tablets and scrolls carried revolutionary ideas about science or architecture or geography.

Those charged with amassing the books for Alexandria searched the ships that docked in the port city and seized any books they could find. By some accounts, the library offered collateral for certain precious volumes, then sent back copies of the book to the owners and forfeited the money.

Hundreds of thousands of books poured in. Together the volumes made up "the memory of mankind," observed one historian. The library flourished for about 700 years, then burned to the ground. Lost forever were invaluable works of science and the imagination: dozens of dramatic works by Sophocles and Euripides and the work of astronomer Aristarchus of Samos, asserting--a thousand years before Copernicus--that our planet orbits the sun.

Perhaps it is this devastating erasure that haunts the civilized mind and gives rise to a cultlike worship of the book. English essayist Leigh Hunt loved to sit in his 19th-century home library, surrounded by his books. "I looked sideways at my Spenser," he wrote, "my Theocritus, and my 'Arabian Nights'; then above at my Italian poets; then behind me at my Dryden and Pope, my romances, and my Boccaccio; then on my left side at my Chaucer, who lay on my writing desk; and thought how natural it was in [essayist] Charles Lamb to give a kiss to an old folio, as I once saw him do to Chapman's Homer."

The printed book, made possible by Johann Gutenberg's miraculous technology, the printing press, "was something more than a triumph of technical ingenuity," write Lucien Febvre and Henri-Jean Martin in "The Coming of the Book: The Impact of Printing 1450-1800," "but was also one of the most potent agents at the disposal of western civilization in bringing together the scattered ideas of representative thinkers."

In the 20th century, printing technology improved exponentially. The cost of books came down. The number of books sold rose. For the book, the 20th century was the Golden Age.

A Dream Come True

Standing beside his beloved BookBuilder, Harvey Ross, Lamb-like, holds a copy of "The Devil's Backbone: Ghost Stories From the Texas Hill Country" to his lips.

This is a dream come true.

As a young boy, Ross was a ham radio operator. He worked for Allied Radio Corp., then Motorola. He rode herd over a lab of 300 people making defense systems. While at Motorola, he was introduced to the Pentagon's Advanced Research Project Agency, which would invent the Internet. He left Motorola in 1966 to form a company that made acoustic couplers--an early form of modem.

Ross didn't really know it, but he was riding the curl of the Internet wave. He became "fascinated by the distribution of information in the Information Age."

He filed for his first book-machine patent in 1990. He tried to convince Ingram Book Co. that it should develop the BookBuilder. He says the company turned him down. "If you want to rearrange the deck chairs on the Titanic, be my guest," Ross remembers thinking.

To Ross, the only thing that makes sense is producing the book at point of sale.

Which of course, is exactly what Microsoft and other e-book and e-ink proponents are thinking.

They are also thinking other thoughts, the most revolutionary being:
What if we just don't need books anymore at all?

THE HISTORY OF STORYTELLING

(15000 B.C.)

Cave Paintings

Writing on the wall: In an early form of storytelling, human beings sketched symbols and images on cave walls to immortalize tales of great derring-do.

(3500 B.C.)

Sumerian Cuneiform Tablet

The first portable writing: Sumerians summed things up on clay tablets that were handier than cave walls, but easier to break.

(2000 B.C.)

Book of the Dead

Deathless prose: The Egyptians jotted down the do's and don'ts of the afterlife on papyrus in the Book of the Dead.

(300 B.C.)

Library at Alexandria

Check it out: The library at Alexandria, Egypt, served as the cultural memory of the ancient world for some 700 years.

ABOUT THE SERIES

Today

The good news is that we will soon be able to get any book of any era in any language pumped out to us in minutes, like cash from an ATM. The bad news is that this foot-in-the-door technology may bury books as we know them.

Tomorrow

The sound of one book closing: If it has no pages, just a magic tablet that emits sounds, sights, smells and tastes, is a book still a book? Will children's brains, now being buffeted by a storm of images, still be capable of reading Jules Verne?

Wednesday

Why do stories have to have words? Why do they have to have authors? Who needs beginnings, middles and endings? We are rewiring our children's brains. The future of storytelling will be the story of you. Will you like this new world?

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