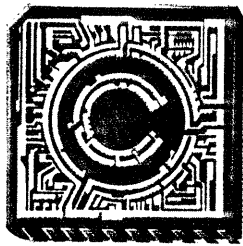


57-82.

WHO WILL OWN YOUR NEXT GOOD IDEA?

by CHARLES C. MANN



*Some corporations want to lock up copyright even tighter.
Some naive intellectuals want to abandon copyright altogether.
Where is a "do-nothing" Congress now
that we need one?*

ABOUT twelve years ago I walked past a magazine kiosk in Europe and noticed the words "*temple des rats*" on the cover of a French magazine. Rat temple! I was amazed. A few months before, a friend of mine had traveled to northwestern India to write about the world's only shrine to humankind's least favorite rodent. The temple was in a village in the Marusthali Desert. That two Western journalists should have visited within a few months of each other stunned me. Naturally, I bought the magazine.

The article began with a Gallic tirade against the genus *Rattus*. *Le spectre du rat, le cauchemar d'humanité! Quel horreur!*—that sort of thing. Then came the meat: an interview, in Q&A form, with a "noted American journalist" who had just gone to the rat temple. The journalist, who was named, was my friend. No such interview had occurred: the article was a straight translation, with fake interruptions by the "interviewer" such as "*Vraiment?*" and "*Mon Dieu!*"

I was outraged. To my way of thinking, these French people had ripped off my friend. I telephoned him immediately: he had the same reaction. Expletives crackled wildly across

the Atlantic. Reprinting his copyrighted article without permission or payment was the same, we decided, as kicking down his door and stealing his CD player.

We were wrong. Although the magazine had done my friend wrong, what was stolen was not at all like a CD player. CD players are physical property. Magazine articles are *intellectual* property, a different matter entirely. When thieves steal CD players, the owners no longer have them, and are obviously worse off. But when my friend's writing was appropriated, he still had the original manuscript. What, then, was stolen? Because the article had been translated, not one sentence in the French version appeared in the original. How could it be considered a copy? Anomalies like this are why intellectual property has its own set of laws.

Intellectual property is knowledge or expression that is owned by someone. It has three customary domains: copyright, patent, and trademark (a fourth form, trade secrets, is sometimes included). Copyrighted songs, patented drugs, and trademarked soft drinks have long been familiar denizens of the American landscape, but the growth of digital tech-

nology has pushed intellectual property into new territory. Nowadays one might best define intellectual property as anything that can be sold in the form of zeroes and ones. It is the primary product of the Information Age.

All three forms of intellectual property are growing in importance, but copyright holds pride of place. In legal terms, copyright governs the right to make copies of a given work. It awards limited monopolies to creators on their creations: for a given number of years no one but Walt Disney can sell Mickey Mouse cartoons without permission. Such monopolies, always valuable, are increasingly lucrative. For the past twenty years the copyright industry has grown almost three times as fast as the economy as a whole, according to the International Intellectual Property Alliance, a trade group representing film studios, book publishers, and the like. Last year, the alliance says, copyrighted material contributed more than \$400 billion to the national economy and was the country's single most important export.

These figures may actually understate the value of copyright. Today it is widely believed that personal computers, cable television, the Internet, and the telephone system are converging into a giant hose that will spray huge amounts of data—intellectual property—into American living rooms. As this occurs, according to the conventional scenario, the economic winners will be those who own the zeroes and ones, not those who make the equipment that copies, transmits, and displays them. Because copyright is the mechanism for establishing ownership, it is increasingly seen as the key to wealth in the Information Age.

At the same time, the transformation of intellectual property into electronic form creates new problems. If the cost of manufacturing and distributing a product falls, economic forces will drive down its price, too. The Net embodies this principle to an extreme degree. Manufacturing and distribution costs collapse almost to nothing online: zeroes and ones can be shot around the world with a few clicks of a mouse. Hence producers of digital texts, music, and films will have trouble charging anything at all for copies of their works—competitors can always offer substitutes for less, pushing the price toward the vanishing point.

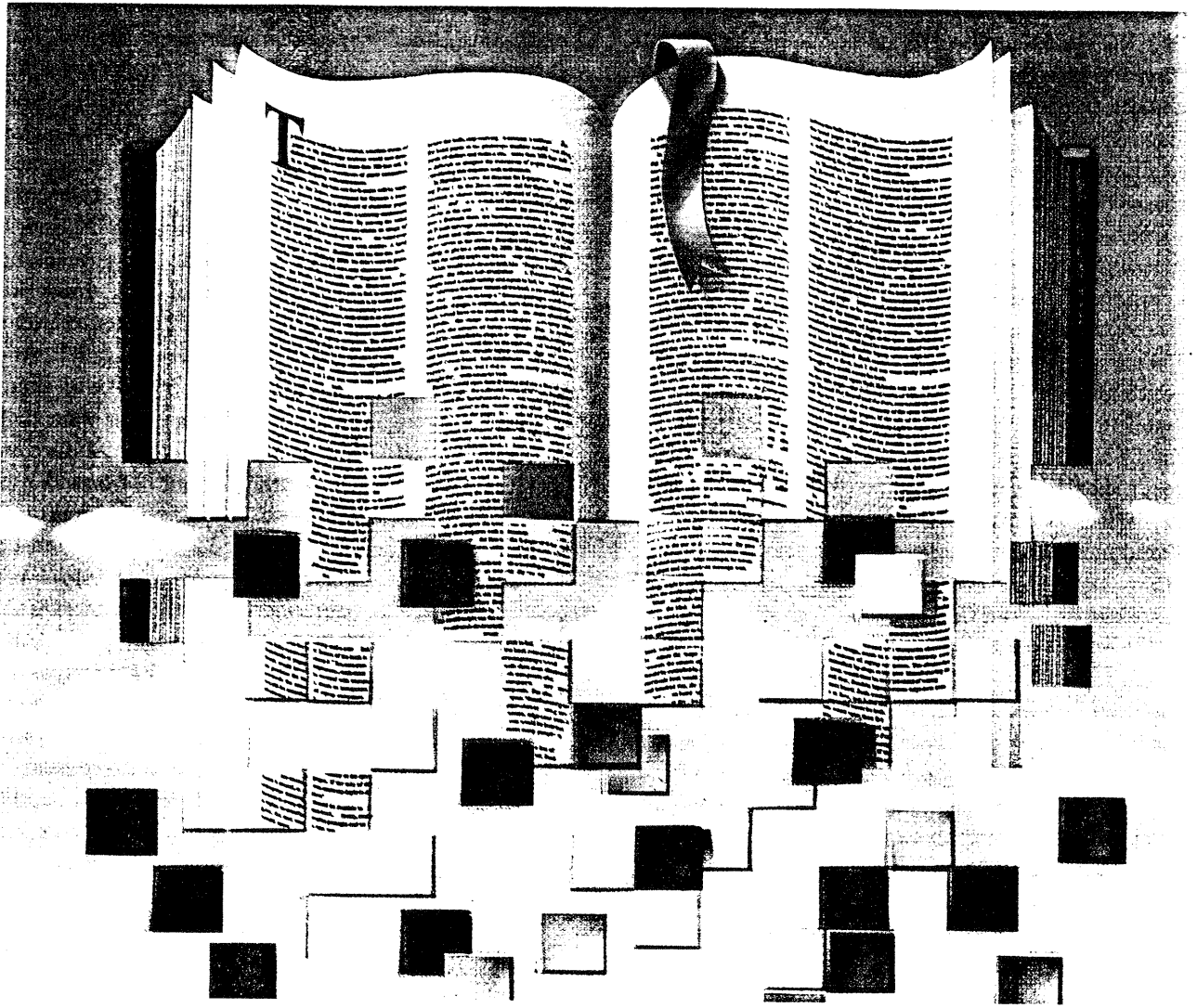
In addition, creators must deal with piracy, which is vastly easier and more effective in the digital environment. People have long been able to photocopy texts, tape-record music, and videotape television shows. Such leakage, as copyright lawyers call it, has existed since the first day a reader lent a (copyrighted) book to a friend. With the rise of digital media, the leakage threatens to turn into a gush. To make and distribute a dozen copies of a videotaped film requires at least two videocassette recorders, a dozen tapes, padded envelopes and postage, and considerable patience. And because the copies are tapes of tapes, the quality suffers. But if the film has been digitized into a computer file, it can be E-mailed to millions of people in minutes: because

strings of zeroes and ones can be reproduced with absolute fidelity, the copies are perfect. And online pirates have no development costs—they don't even have to pay for paper or blank cassettes—so they don't really have a bottom line. In other words, even as digital technology drives the potential value of copyright to ever greater heights, that same technology threatens to make it next to worthless.

This paradox has engendered two reactions. One is to advocate eliminating copyright altogether. Led by a small but surprisingly influential cadre of libertarian futurists, anti-copyrightists believe that the increased ease of copying effectively obviates the © symbol and all it entails. "Information wants to be free"—a phrase apparently coined by the writer Stewart Brand—is the apothegm of choice here. In this view, copyright restricts what people can do with the intellectual property coming through the wires. Futilely but dangerously, it tries to fence the electronic frontier. It unjustly creates monopolies in the basic commodity of the Information Age. It is a relic of the past and should be expunged.

The other, opposing reaction is to strengthen the hand of copyright owners. Realizing the growing economic import of copyright, Congress is rapidly trying to overhaul the nation's intellectual-property regime. The changes would give copyright owners more control for longer times: some would make it a crime to work around copyright-protection schemes. A different tack is being taken by state governments, which may bypass copyright altogether by amending the laws governing sales contracts. If they succeed, copyright owners will be able to ask individual customers to agree to contracts regulating the zeroes and ones flowing into their homes. *Before we send this vintage episode of Seinfeld to your computer, please read the following conditions and terms, paying careful attention to the clauses that forbid taping or replaying the program even once. After you click "OK," the transmission will start.*

Because I make much of my living from copyright, I find the to-and-fro fascinating, and have a vested interest in the results. But issues bigger than the financial status of writers are involved. Copyright is the regulatory authority for the marketplace of ideas. It lays out the economic ground rules to create the hubbub of debate that the Founders believed necessary for democracy—one reason that they included copyright in the Constitution (Article I, Section 8, instructs Congress to "secure[e] for limited Times to Authors and Inventors the exclusive Right to their Respective Writings and Discoveries"). Copyright law allows Michael Jackson to make a fortune from the Beatles catalogue, and Bill Gates to add to his untold wealth by licensing electronic reproductions of the photographs of Ansel Adams. But its real purpose is to foster ever more ideas and ever more innovation from ever more diverse sources. When, in 1790, George Washington asked Congress to enact copyright legislation, he argued that it would increase the national stock of knowledge. And knowledge, he said, is "the surest basis of public happiness."



Today the marketplace of ideas is being shaken up by the competing demands of technology, finance, and law. Large sums of money are at stake. Change seems inevitable. One way or another, we will lay a new institutional foundation for literary culture in the United States. How we do it will play a big role, according to the logic of the Founders, in determining our future well-being. It would be comforting to believe that decisions will be made thoughtfully and well. But little evidence suggests this is true. Indeed, we may be heading into a muddle that it will take us a long time to escape.

SWITCHED-ON BOOKS

SET next to a horse pasture in the foothills of the Santa Cruz Mountains, the Xerox Palo Alto Research Center is a flat, Miesian rectangle with the bronze-tinted windows and anodized-aluminum mullions that are ubiquitous in Silicon Valley. Despite its nondescript appearance, PARC occupies a special place in the annals of computing. In the 1970s researchers there created the windows-and-mouse

interface now seen on millions of desktops around the world. Xerox failed to capitalize on this innovation. Steve Jobs, of Apple Computer, saw it demonstrated on a tour of PARC in 1979. He borrowed the idea, hired some of its creators, and went on to build the Macintosh.

Xerox's decision to shelve the mouse is notorious in digital circles. Less well known is that at about the same time the company decided not to pursue another big innovation: the technology for electronic paper. In this case the company was lucky enough to have a second shot at the idea: the original researcher, Nick Sheridan, remained at PARC, and in 1991 he was given permission to pick up where he had left off. The results of his work were unveiled in an advertisement broadcast during the Olympics last winter.

Sheridan calls his invention Gyricon, for "rotating image," but it's really a flexible, cordless computer screen that looks and acts like a piece of paper. Or will look and act—in its current, still-crude state, electronic paper resembles thin, floppy pieces of gray vinyl. Sheridan asked me when I recently visited PARC if I wanted to hold a sheet. I felt like someone being

offered the chance to see the first, staticky RCA television in 1932. The sheet of Gyricon was dark and grainy and had an unlovable, spongy feel. But despite the imperfections I was fascinated. There in my hands was a rough draft of a possible future. If E-paper is widely accepted, as seems plausible, it will turn the world of copyright upside down, and with it literary culture.

Technophiles evoke a future in which ordinary books, bookstores, and libraries disappear, replaced by the all-encompassing pipeline of zeroes and ones into the home. Printed pages, the rancher and rock lyricist turned Internet advocate John Perry Barlow explains, are nothing but bottles for ideas. "Now, as information enters cyberspace, the native home of Mind, the bottles are vanishing," he has written. In the future, says William Mitchell, the dean of architecture at the Massachusetts Institute of Technology, physical books will be of interest mainly to those "addicted to the look and feel of tree flakes encased in dead cow."

As skeptics note, these triumphalist predictions recall the scene in *The Hunchback of Notre Dame* in which the dour, scholarly Archdeacon Frollo confronts a scary new technology: the printing press. "*Ceci tuera cela!*" the archdeacon cries. "The book will kill the church!" Frollo's vision of the demise of religion was spectacularly wrong. Technophobes argue that the predicted death of the book is equally exaggerated. Who will curl up with a computer in bed? they ask. Readers can't dog-ear pages or highlight favorite passages on today's computer screens; they can't even see where the text begins and ends. Indeed, many prophets of the book's demise make their claims in the pages of books—a practice, the PARC consultant Paul Duguid has observed, "which has much of the logic of making yourself the executor of your own will."

Although Sheridan loves the flexibility and ease of digital technology, he tends to agree with the pro-book forces. "Paper has remained unchanged for two thousand years," he told me. "There's a message there." The message is that people like paper: they have not adjusted to bulky picture tubes on their desks. Sheridan likens the monitor to polyester, a substance that did everything but make people want to wear

INTELLECTUAL
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it. Xerox studies suggest that most people print out electronic mail that is longer than half a page; paper use rises by 40 percent in offices that introduce E-mail. Instead of trying to make computers replace books and paper, Sheridan concluded, computers should *become* books and paper.

Each Gyricon sheet is made of transparent silicone rubber. Inside are millions of plastic balls, each smaller in diameter than a human hair, embedded in the silicone like so many marbles. Every ball has a white half and a black half, making it look in magnification a bit like a model of the moon. The ball carries an electrostatic charge—the same kind of charge that makes clothes stick together in the dryer. If electrical fields approach, they attract or repel the black half, causing the spheres to rotate within their little pockets in the plastic. If a white half points toward the surface of the paper, it makes a white dot; if a black half is up, the dot is black. Arranging the black and white dots creates a black-and-white image in much the same way that arranging pixels creates an image on the computer screen.

Once rotated, the balls stay in place, locked in position within their cavities. "You can get very long-term storage of an image," Sheridan says. "Or you can run the paper through the charge again and make another image." The plastic can be made cheaply, and each sheet can be used at least a million times before the balls stop working. In contrast, a million sheets of the bond paper in my photocopy machine would cost thousands of dollars and make a stack more than 300 feet tall. Sheridan told me that this technology might be available by 2000. He didn't want to guess when the world might see the next step: electronic books.

What would such devices look like? "Regular books." Joseph Jacobson, a researcher at the MIT Media Lab who is working on another version of E-paper, says. Electronic books "might need a small battery and a port to link to computers, but otherwise the basic format of the book is so useful that I see little reason not to keep it." Three companies—SoftBook and NuvoMedia, in Silicon Valley, and Everybook, in Pennsylvania—are poised to introduce "electronic books" within the next year, but these will be, in essence, keyboard-

less portable computers that can display words. To Jacobson, true electronic books should open and shut like paper books and have bendable pages that can be flipped through. To show text, each sheet in an electronic book would have to be covered with transparent electrodes, much as the screens of laptop computers are now controlled by transparent circuitry. The electrodes would be controlled by chips in the spine. Manufacturing an electronic book would thus be the equivalent of wiring several hundred thin, flexible laptop screens edge-first into a narrow circuit board. Such mechanisms would be hideously expensive at first, but in researching this article I did not meet many people who thought they would never be built.

Readers would open their E-books and see a list of works on the title page—the collected works of William Faulkner, say. To read *The Sound and the Fury*, one would tap the title, and the text, stored in the circuitry of the spine, would flow noiselessly onto the pages. If the tale of the Compsons seemed too involved, one could tap *Light in August* and actuate it instead, or *Absalom, Absalom!* Given the advances in computer memory, it should be feasible to store entire libraries in every electronic book. Readers could use a stylus to underline favorite passages and write in the margins; the next time the text was generated, the marginalia would appear as well.

Giving me a tour of his laboratory, Jacobson dilated cheerfully on the possibilities of electronic books. In the future, he suggested, books will never go out of print. Landfills will not be clogged with obsolete telephone directories. The Sunday *New York Times* will not consume forests every week. Jacobson had several electronic-paper projects under way, in one of which charged white balls formed an image by swimming to the surface of a dark-blue page. He demonstrated some early versions of his electronic paper, but made me promise not to divulge details, in order to avoid upsetting his corporate sponsors. To my untrained eye his E-paper seemed glitzier than Sheridan's but further from realization.

Imagine, Jacobson said, a world in which decaying stacks of old *National Geographics* did not sit in garages. "You guys must spend a fortune on paper, ink, and postage," he said, referring to this magazine. Why not zap text and artwork directly to subscribers? "That's what they buy the magazine for, isn't it? Not to mention that the whole business of printing and mailing takes so much time." *Atlantic Monthly* subscribers might receive blank electronic magazines, he suggested. Every month readers would plug the magazines into their computers to receive the next issue—or an issue of another magazine, depending on which chips the receptacle contained.

I asked, not for the first time, about piracy. What would prevent unscrupulous entrepreneurs in faraway countries from buying books and magazines and reselling them at half price on the World Wide Web? Would the existence of electronic paper make it dramatically more difficult to sell written works?

"That's the problem, isn't it?" Jacobson said, smiling. Tech-

nology always has an upside and a downside, he said. He thinks that electronic books and magazines will inevitably come into existence, because they promise such economic and ecological advantages. "But we need to do it all in the right way," he said. "Otherwise the intellectual-property issues . . ." His voice trailed off. "Well," he said, "you might really have a negative impact on the culture."

RED, WHITE, AND BLUE FOR \$20

HOW real is the threat of piracy? Very real, according to Jack Valenti, of the Motion Picture Association of America. The world, in his view, is a "heartbreaking," "devastating" "pirate bazaar" in which counterfeiters with "no sense of morality" steal billions from America's moviemakers. In December the MPAA estimated that piracy, chiefly in the form of illegal videocassettes, costs the U.S. motion-picture industry more than \$2.5 billion a year.

Movies are not the only losers. Publishers complain that pirates knock off expensively produced textbooks in fields ranging from business management and computer science to medicine and English. Music companies hire a firm called GrayZone to hunt down bootleg-CD makers and Web-site pirates around the globe. In some countries—Russia and China, for example—more than 90 percent of all new business software is pirated, according to the Business Software Alliance and the Software Publishers Association, the two major trade associations in the field. The International Intellectual Property Alliance claims that foreign copyright infringement alone costs U.S. firms as much as \$20 billion a year.

Critics charge that these huge figures are absurd, and not only because of the obvious difficulty of measuring illicit activity. While researching this article I obtained a CD-ROM called "CAD Xpress" for about \$30 ("CAD" is the acronym for "computer-assisted design"). It contained a copy of the current version of AutoCAD, the leading brand of architectural-drafting software, which has a list price of \$3,750. According to the Software Publishers Association, my copy of CAD Xpress represents a \$3,750 loss to Autodesk, the manufacturer of AutoCAD. This assumes, of course, that I, and every other buyer of CAD Xpress, would otherwise pony up thousands of dollars for AutoCAD.

More important, in the view of Stanley Besen, an economist at Charles River Associates, a consulting firm in Washington, D.C., the huge estimates of piracy losses don't take into account the copyright owners' responses to copying. "Suppose I know that people are going to copy Lotus 1-2-3," he said to me. "So I sell it for \$500, knowing that four people will make copies of each program, whereas I might sell it for only \$100 if all five users purchased programs for themselves." The price takes copying into account, and no loss occurs.

Such accommodations might insulate software firms from

some of the effects of copying. But Besen does not think that they can insulate the companies from all of them, especially when a single bootleg can spawn so many other illicit copies that the original company can't raise the price enough to compensate for the losses incurred. I bought CAD Xpress at the Golden Shopping Centre, in Hong Kong. The Golden Shopping Centre was a kind of shopping mall for copyright infringement: three stories of pirated video games, CDs, videotapes, and software. Situated next to the Sham Shui Po subway station, in Kowloon, the mall was not hard to find—the address was in my *Fodor's Citypack* guidebook to Hong Kong.

The mall consisted of an unlovely concrete block jammed with small, kioskl-like stores. Stores on the first floor sold mainly bootleg video games and devices that permit players illicitly to use games built for one company's machines on machines made by another. The second floor was full of pirated music and film. I wasn't interested in the music, because most of it was Chinese pop I didn't know. But I was intrigued by the stacks of digital video disks. DVDs are compact disks that contain entire movies (they are sometimes called video compact disks, or VCDs). Expatriate cinéastes complain that most theaters in Hong Kong are devoted to the local product: action pictures starring the fleet-footed likes of Jackie Chan and Chow-yun Fat. But the stacks of illegal DVDs included such esoteric fare as the works of the late Polish director Krzysztof Kieslowski, whose trilogy, *Red, White, and Blue*, was available for \$20. *Grand Illusion* for \$6.00! *The Crying Game* for \$8.00! Fellini's *Satyricon* for next to nothing! I began to see what low-cost distribution was all about.

The third floor was devoted to computer programs. Here I bought CAD Xpress. In a gesture to the law, it was sold under the counter. Actually, what was under the counter was loose-leaf binders that catalogued the store's illicit wares. Confused by the descriptions, which were written in garbled English. I asked a woman at one store if she sold AutoCAD, and she spoke to a young person who ran off and ten minutes later reappeared with the CD-ROM. "How much is it?" I asked. She wrote "240" on a slip of paper—240 Hong Kong dollars, then about \$30 U.S. Because I make my living from copyright, I felt funny about buying pirated software. To satisfy my curiosity without arousing my conscience, I had decided to buy software that my family already owned. This idea collapsed when I saw CAD Xpress and its ilk. Competition among pirates ensures that their CD-ROMs are crammed with software; buying a single program wasn't easy. According to my local Autodesk dealer, my \$30 copy of CAD Xpress contains more than \$20,000 worth of computer-assisted-design software.

For me, the software was less than ideal. Most of the instructions were in Chinese, and some of the programs didn't work (or at least I couldn't make them work). But overall the disk was still a good buy. For another \$30 I bought a CD-ROM called Power Dragon Software. One of its forty-eight programs was Quicken, the popular accounting software. Given

the relatively small size of Quicken, I presumably paid less than a dollar for it—indeed, less than a quarter. In another store I bought the same version of Quicken on two floppy disks. This cost \$25—about a hundred times as much, and almost as much as the whole CD-ROM, which included forty-seven other programs. The difference was that the floppy disks came with a photocopy of the manual, which is more informative than the program's help screens. Because the manual was not available electronically, it was considerably harder to copy than the program and hence considerably more valuable.

Many stores in the Golden Shopping Centre sold compilations of computer games, fifty or so per CD-ROM. It occurred to me as I flipped through them that I was inspecting a kind of precursor to the electronic book. I had recently written a book. Completely formatted, the manuscript was about 600,000 bytes in size. A CD-ROM holds more than 600 million bytes, enough for scores of books.

Complaining too loudly about illicit software exposes Americans to a charge of hypocrisy. During the nineteenth century U.S. copyright law did not extend to foreigners' works. New York City became the piracy center of the world. Charles Dickens's *A Christmas Carol* sold for the equivalent of \$2.50 in England. On this side of the Atlantic bootleg editions cost six cents. U.S. publishers were unmoved by the plight of their writers who were pirated in England: they could make more money by stealing *Little Dorrit* here than by selling *Little Women* there. Only in 1891 did Congress pass international-copyright legislation.

I asked the man who sold me Power Dragon if the threat of prosecution worried him. He asked a friend to translate. The friend said, "He is not worried. Soon, very soon, his boss will sell on the Internet. They will send the programs through another country." Which one? I asked. Iraq, India, Bulgaria, somewhere in Africa, the friend said. It didn't matter. In a world made up of hundreds of different nations, someone would always be willing to assist his operations. Later I found out that the salesman was right. When the United States pressured China to stop piracy, last year, most of the industry simply moved across the harbor to Macau. At the time, I asked the salesman's friend if business was good. "Yes," he said. He pointed to the crowd around us. "Better every day," he said.

JAMES BROWN HAS A PROBLEM

IF there is a totemic example of the vexations of copyright infringement, it's James Brown, the Godfather of Soul. Now sixty-five, Brown was born horribly poor and raised by his aunt in a Georgia brothel. As a child, he shilled for the brothel by singing and dancing in the streets. He was caught stealing clothes from cars and was sent away for several years when still in his teens. But rather than slide into

full-fledged delinquency. Brown emerged to begin a fifty-year music career that shaped the course of gospel, rhythm and blues, rock-and-roll, disco, and funk (which he more or less invented). Spinning, falling on his knees, dropping into splits, he climaxed shows with an exuberant fake heart attack, after which he was carried offstage on a cape and "resurrected" by screaming fans. Brown was one of the first African-American pop singers to wrest control of his career—including the copyright to his songs—from the white music establishment.

In the 1980s Brown's commercial star dimmed. But his

music was heard more than ever before, because rappers by the dozen built their songs around recorded snippets—"samples," in the jargon, which are "looped," or played over and over—of such Brown hits as "Cold Sweat" and "Get on the Good Foot." Thirty years after the release of "Say It Loud (I'm Black and I'm Proud)," Brown's black-power anthem from 1968, bits and pieces of the song are still all over the airwaves. "It is impossible to listen to more than 15 minutes of rap radio on any given night in Boston without hearing a back beat, a guitar hook, or a snatch of vocals from 'Say It Loud,'" Mark Costello and David Foster Wallace wrote in

THE RETURN

All afternoon my father drove the country roads
between Detroit and Lansing. What he was looking for
I never learned, no doubt because he never knew himself,
though he would grab any unfamiliar side road
and follow where it led past fields of tall sweet corn
in August or in winter those of frozen sheaves.
Often he'd leave the Terraplane beside the highway
to enter the stunned silence of mid-September,
his eyes cast down for a sign, the only music
his own breath or the wind tracking slowly through
the stalks or riding above the barren ground. Later
he'd come home, his dress shoes coated with dust or mud,
his long black overcoat stained or tattered
at the hem, sit wordless in his favorite chair,
his necktie loosened, and stare at nothing. At first
my brothers and I tried conversation, questions
only he could answer: Why had he gone to war?
Where did he learn Arabic? Where was his father?
I remember none of this. I read it all later,
years later as an old man, a grandfather myself,
in a journal he left my mother with little drawings
of ruined barns and telephone poles, receding
toward a future he never lived, aphorisms
from Montaigne, Juvenal, Voltaire, and perhaps a few
of his own: "He who looks for answers finds questions."
Three times he wrote, "I was meant to be someone else,"
and went on to describe the perfumes of the damp fields.
"It all starts with seeds," and a pencil drawing
of young apple trees he saw somewhere or else dreamed.

I inherited the book when I was almost seventy,
and with it the need to return to who we were.
In the Detroit airport I rented a Taurus;
the woman at the counter was bored or crazy:
Did I want company? she asked; she knew every road
from here to Chicago. She had a slight accent,
Dutch or German, long black hair, and one frozen eye.
I considered but decided to go alone,
determined to find what he had never found.
Slowly the autumn morning warmed; flocks of starlings
rose above the vacant fields and blotted out the sun.
I drove on until I found the grove of apple trees
heavy with fruit, and left the car, the motor running,
beside a sagging fence, and entered his life
on my own for maybe the first time. A crow welcomed
me home, the sun rode above, austere and silent,
the early afternoon was cloudless, perfect.
When the crow dragged itself off to another world,
the shade deepened slowly in pools that darkened around
the trees; for a moment everything in sight stopped.
The wind hummed in my good ear, not words exactly,
not nonsense either, nor what I spoke to myself,
just the language creation once awakened to.
I took off my hat, a mistake in the presence
of my father's God, wiped my brow with what I had,
the back of my hand, and marveled at what was here:
nothing at all except the stubbornness of things.

—PHILIP LEVINE

Signifying Rappers, a critical study of the genre.

What does Brown think of his place on the cutting edge of intellectual-property regulation? I called him to find out. A receptionist patched me through to a cell phone. Brown was in a car and somewhat distracted; he had discerned clues to a fellow driver's mental condition and unwholesome fondness for his mother from his behavior at the wheel. I knew that the unlicensed copying of Brown's music had been curtailed in the aftermath of a 1991 court decision, which prevented the rapper Biz Markie from distributing a record that sampled the singer Gilbert O'Sullivan without permission. I wanted to know what Mr. Please, Please, Please thought of the new software that allows people to put entire albums on the World Wide Web. The previous night, for instance, I had downloaded part of his landmark 1963 album, *The James Brown Show Live at the Apollo*, from a computer in Finland. "This technology," he said, "I hate it. Hate it!" Then he hung up.

"I feel for the guy," says Scott Burnett, the marketing vice-president of Liquid Audio, a two-year-old company in Redwood City, California, that sells a system for distributing music over the Internet. "But James Brown—like a lot of other musicians—needs to say, 'I can't keep fending off the Internet. I need to embrace the Internet and deal with its vagaries. I need to find a way to leverage the Internet, given my situation as an artist, to help me make money.'"

To help musicians safeguard their work in the digital age, Liquid Audio tucks inaudible copyright and licensing data into recorded music, a process called "digital watermarking." To watermark a piece of music, Liquid Audio takes advantage of a quirk of digital recording: its characteristically harsh tone. Even the most grating rock songs are full of smooth, continuous sounds; the sequences of zeroes and ones in digital recording can only approximate the flow, in somewhat the way the steps on a spiral staircase approximate the curve of a helix. To fill in the gaps, a studio will overpaint the recording with a thin wash of noise—a technique known as "dithering." Dithering, according to Rick Fleischman, the company's senior marketing director, "pro-

COPYRIGHT IS THE REGULATORY AUTHORITY FOR THE MARKETPLACE OF IDEAS. TODAY THAT MARKET- PLACE IS BEING SHAKEN UP BY THE COMPETING DEMANDS OF TECHNOLOGY, FINANCE, AND LAW.



vides this extremely low-level noise you can hide things in." By "sculpting" the dither, Liquid Audio can, in theory, encrypt up to sixty-four characters, including the International Standard Recording Code (a sort of serial number for recorded sound), a second code identifying the computer that watermarked the song, a third identifying the computer that downloaded it, and a fourth, added at the time of the sale, giving information about who bought the song.

Such schemes (more than a dozen companies are developing them) may make illicit copies of watermarked works easy to identify, but copyright owners will have to sieve the Internet to find them. In a pilot effort Broadcast Music, Inc. (BMI), one of the major music-rights agencies, has begun sending out "spider" programs that crawl from Web site to Web site, cataloguing sound files in a search for copyright infringers. Digimarc, a photo-watermarking company in Portland, Oregon, has a spider that combs cyberspace on *Playboy's* behalf for unauthorized copies of Miss November. Similar spiders have been used for several years to construct Internet indexes such as AltaVista, HotBot, and Lycos. But the Web is so large that

even the busiest spiders can barely catalogue half of it. Copyright owners will thus be condemned to play an eternal game of catch-up, according to Mark Stefik, a researcher at Xerox PARC, the editor of *Internet Dreams* (1996), and the author of the forthcoming *The Internet Edge*. A real solution to piracy will require what he delicately refers to as "a hardware component."

In the age of the Internet, Stefik argues, the only way to foil piracy—indeed, the only way to charge for intellectual property—will be to equip all televisions, telephones, computers, music players, and electronic books with chips that regulate the flow of copyrighted material. "Kind of like having V-chips for copyright," he says. When I download *The Sound and the Fury* into my electronic book, the ©-chip will register the transaction, speeding my payment to the copyright owner and invisibly encoding the record in my copy of the text. If I lend the novel to my sister by E-mailing her a copy, my E-book will erase the original copy, so that only one is in circulation. The software won't permit my sister to dump the text into any

E-book without a ©-chip, so the copy will always remain within a closed circle. Similar rules will apply to videos, music, journalism, databases, photographs, and broadcast performances—any configuration of zeroes and ones that can be sold and delivered by wire. Current, if primitive, examples of what Stefik calls “copyright boxes” include Nintendo machines, whose proprietary hardware is meant to ensure that only Nintendo-approved games work on them, and digital audio tape (DAT) recorders, which contain a chip that prevents the copying of previously copied tapes.

Copyright boxes could let copyright owners subdivide usage rights, creating new markets for information. If I want to download music by James Brown, for example, I could negotiate the terms at the Web site of his company, James Brown Enterprises. By paying a little extra, I could obtain the right to send a copy of “Say It Loud” to my sister without deleting it from my computer. By paying a little less, I could rent the music for a party next week, with the ©-chip expunging the music the morning after. I might buy a site license, so that everyone in the family could listen to “Say It Loud.” I might acquire only the right to listen myself, typing in a password to prove my identity every time I wanted to hear the Hardest Working Man in Show Business. Copyright boxes, Stefik says, “open up a lot of possibilities.”

These possibilities, he concedes, will not be easy to achieve: “I don’t see this as a debate about next week.” People may find ways to circumvent ©-chips; others may regard the chips as unworkably inconvenient. But perhaps the greatest obstacle, Stefik thinks, is attitude. A small but significant group of technophiles scoffs at the whole idea of copyright boxes, believing that the Internet changes the role of intellectual property so much that the chips will be useless. Some Web denizens believe that the change is profound enough that efforts to safeguard copyright in the digital world actually work against the interests of a democratic society.

FREE SOFTWARE

THE first time I spoke with Richard Stallman, he took off most of his clothes. Clad only in his pants, he marched down a long, busy corridor in MIT’s Laboratory for Computer Science. His destination was a room full of large computers, in which he had installed a NordicTrack exercise machine. In front of the exercise machine stood a big fan, which Stallman switched on. To keep the computers from overheating, the room was air-conditioned to about 65°. When I mentioned the cold-catching potential of shirtless exercise in a frigid wind, Stallman replied that he did not like to sweat. Then he began talking about copyright. Still talking, he stepped onto the NordicTrack and began to exercise vigorously. The fan blew his long hair out behind him like a flag. All the while he spoke with fluency, in neatly organized paragraphs, about copyright in the Information Age.

Writers, he said, do not actually own their words. Computer programmers—Stallman is one—do not own a single line of their programs, and never have. Painters own only their canvases, and those only until they are sold. Far from recognizing any natural rights of authors, he said, copyright is a bargain between the public and publishers, in which the public consents to restrict its rights as a kind of bribe to publishers. “The Constitution doesn’t care whether content owners make money,” Stallman claimed, puffing slightly. “What’s important is the public’s right to learn.”

I thought he was nuts. But the next time I spoke with him, I was contrite. I had since learned that many legal scholars share his views on the nature of copyright, and that he had devoted the past fourteen years to putting his beliefs into practice. Richard Stallman is the only programmer ever to receive a MacArthur fellowship—one of the prizes known, to his embarrassment, as “genius” awards. Having created several essential programming tools, he could easily have cashed in. Instead he gave his work away and set up the Free Software Foundation, a loosely organized group dedicated to replacing proprietary software with programs that people can trade among themselves without copyright restrictions. A principal goal of the foundation is to attack current notions of intellectual property.

In this country copyright was set up by a group of skeptics about copyright. The Founders knew how copyright had originated in Britain, and they didn’t like it. In 1557 Queen Mary I gave control of all printing and book sales to a single guild, the Stationers’ Company. Guild members bought manuscripts outright from writers and then had the exclusive right to print and sell them forever. The Crown even granted exclusive rights to print the works of long-dead writers like Plato and Virgil. In return the guild helped the Crown to censor “seditious and heretical books.” Protected by its statutory monopoly, the guild charged such high prices that John Locke railed against “the company of ignorant and lazy stationers.” Radically, Locke proposed that the guild should voluntarily allow anyone to publish writers who had been dead for more than a millennium. The guild ignored him.

Daniel Defoe led the charge to give writers some say in the literary trade. “A Book,” he argued, “is the Author’s Property, ’tis the Child of his Inventions, the Brat of his Brain.” When publishers ignored writers’ wishes, it was “every jot as unjust as lying with their Wives, and breaking-up their Houses.” Parliament began withdrawing royal monopolies, whereupon the Stationers’ Guild adroitly co-opted Defoe’s call for authors’ rights—booksellers would buy perpetual licenses to manuscripts, and everything would go as before. To the booksellers’ dismay, Parliament agreed that writers should be given control of their works, but only for a limited time (fourteen years, with the option of renewing for another fourteen). The Statute of Anne, the first modern copyright law, was enacted in 1710.

The guild spent decades trying to recapture its monopoly. In a series of lawsuits booksellers argued that authors naturally own their works, that booksellers can legitimately buy those works outright, and that the government cannot strip businesses of their property after fourteen years or any other arbitrary length of time. The very notion, the well-known jurist Richard Aston said, "is against natural reason and moral rectitude." Wait a minute, Samuel Johnson in effect retorted—if publishers own works forever, they can withhold them from the market, permanently diminishing the common store of knowledge. "For the general good of the world," Johnson believed, a writer's work "should be understood as . . . belonging to the publick." Only in 1774 did the House of Lords declare that authors and publishers have no absolute property rights over their works. To spur creativity, society dangles a carrot in the form of special rights to control distribution. The rights are temporary, meaning that the products of the mind always return to their real state: owned by no one, usable by everyone.

The Founders wholly approved. Products of the human mind "cannot, in nature, be a subject of property," Thomas Jefferson wrote. "He who receives an idea from me, receives instructions himself without lessening mine; as he who lights his taper at mine, receives light without darkening me." Nonetheless, Jefferson saw benefits in awarding writers a short-term monopoly on their works. Monopolies were generally "among the greatest nuisances in Government," James Madison agreed, but copyright was "too valuable to be wholly renounced." Anyway, if problems arose, it could always be abolished. Pamela Samuelson, an intellectual-property specialist at the University of California at Berkeley, says that Jefferson, Madison, and the other Founders regarded copyright as "a small evil done to accomplish a larger good." Like the Statute of Anne in Britain, the U.S. Copyright Act of 1790 gave writers of books, maps, and charts a fourteen-year copyright, with the option of renewing for another fourteen.

The debate about whether authors and publishers owned literary works was far from over. Writers themselves, the Framers of the Constitution were sympathetic to creators' proprietary feelings. They admitted that writers own their work before it is published. So why is it no longer their property afterward? In the most important nineteenth-century legal treatise on copyright, Eaton S. Drone scoffed at the "absurd" notion that authors should automatically lose their property rights—it "cannot be defended on any principle." Mark Twain groaned, "Only one thing is impossible to God—to find any sense in any copyright law on this planet." Sympathizing with creators, Congress has extended copyright to music, photographs, films, software codes, chip schematics, architectural drawings, and many different kinds of "literary works." Although the Supreme Court consistently reaffirmed the primacy of the public over copyright owners, the distinction meant less as Congress heard the owners'

pleas and gradually extended the length of copyright from fourteen years to the life of the author plus fifty years. The copyright term was so much longer than the natural life of most books that, for all practical purposes, authors might as well have owned the rights in perpetuity.

Richard Stallman knew nothing of this when he began working at MIT, in the early 1970s. Programs had passed from hand to hand, with ingenious computer users like Stallman and his colleagues freely tinkering with and improving the code for the good of all. By the end of the decade court decisions and legislation made software copyrightable, and computer-code software was increasingly under lock and key. "People were being stopped from changing, using, and improving software," Stallman told me. "They were forbidden to *share*."

In 1984 Stallman founded the Free Software Foundation, probably the first anti-copyright organization of the digital era. It spawned a movement. Today nonproprietary programs are used worldwide, though they are rarely encountered by ordinary people. Few E-mail users have heard of Sendmail, for instance, although it routes and delivers most electronic mail around the Internet. Nor do most Net surfers know that half the "server" computers that make up the Web depend on free software called Apache. But the most important legacy of the Free Software Foundation may be something other than software: an abiding skepticism on the Internet about the sanctity of all intellectual property.

Perhaps the most widely known copyright skeptic is John Perry Barlow, who co-founded the Electronic Frontier Foundation, a civil-liberties group for cyberspace. Intellectual-property law "cannot be patched, retrofitted, or expanded to contain digitized expression," Barlow declared in a widely read manifesto from 1994. "These towers of outmoded boilerplate will be a smoking heap sometime in the next decade." Barlow's idea derives from his experiences writing for the Grateful Dead. Unlike most bands, the Dead allowed fans to record concerts and trade the tapes, which ended up increasing their audience. "Not that we really planned it, but it was the smartest thing we could have done," Barlow told me recently. "We raised the sales of our records considerably because of it."

Experiences like his, he said, show that copyright is not so much wrong as outmoded: "Copyright's not about creation, which will happen anyway—it's about distribution." In Barlow's view, copyright made sense when companies had to set up elaborate industrial processes for "hauling forests into Waldenbooks or encapsulating music on CDs and distributing them to Tower Records." To make such investments feasible, unauthorized copying had to be stopped—that's why the Dead let fans trade homemade tapes of concerts but sent "nasty lawyers" after counterfeiters who duplicated and sold official recordings. In the future, Barlow told me, people will be able to download music and writing so easily that

they will be reluctant to take the trouble to seek out hard copies, let alone want to pay for them. Musicians or writers who want to be heard or read will have to thumbtack their creations onto the Web for fans to download—free, Barlow insisted. Because distributing material on the Internet costs next to nothing, there will be no investment in equipment and shipping to protect. Record companies and publishers will be obviated, and the economic justification for copyright will vanish. Copyright boxes will be ineffectual: the Internet is not just full of people who scoff at copyright but also, as a practical matter, too large to police.

In 1993 Barlow and Mitch Kapor, the creator of the Lotus 1-2-3 spreadsheet, visited the Golden Shopping Centre, in Hong Kong. "Mitch, just as a thought experiment," Barlow recounted, "ordered the latest version of Lotus 1-2-3." The woman in the store told Kapor to come back in half an hour to get a pirated copy. Kapor told her that he had written the program. "The girl," Barlow said, "looked at him without the slightest trace of moral anxiety and said, 'Yeah, but you still want a copy, right?'"

Some people may still try to control their works with copyright boxes, concedes Esther Dyson, a cyberpundit who puts out *Release 1.0*, an insiders' newsletter about technology. But they will have a tough time. Dyson has no truck with Stallman's notion that intellectual property is immoral. ("He doesn't have the right to say my property should be free. His can be free, if that's what he wants to do.") Nonetheless, she, too, believes that copyright will fade in importance. Even if creators can use ©-chips to forestall piracy, they will still have to compete for an audience with everyone else posting material on the Net—that is, with the entire world. Like television stations on cable systems with hundreds of channels, writers and musicians on the Internet will be so desperate for audiences that, Dyson says, they will be glad to be copied, because their increased notoriety will translate into lucrative personal-appearance fees. "It's a new world," Dyson says. "People will have to adjust."

Dyson's recent book, *Release 2.0*, sold for \$25. But in tomorrow's wired world, she believes, content providers will be paid for ancillary services or products, not for their works. "Maybe Steven King will post his books on the Internet—and start charging for readings. University professors publish works basically for free, and make money by teaching and by giving their institutions respectability with their names. Already some software companies are distributing software for free and charging for support. Consultants publish free newsletters in order to win clients." Not Dyson, though; she charges \$695 a year for her newsletter, which is available only on paper and is delivered to subscribers by the U.S. Post Office. "It's not a mass-market thing," she explained to me. "It's not timely, it's timeless."

Even without charging for CDs, James Brown, a master of the stage, could survive by giving concerts. Less dynamic

artists, the copyright doubters explain, would seek sponsors. After all, rich people paid artists to create the treasures of the Renaissance. "I don't think it's inconceivable that we can return to that," Barlow says. Corporations might package art with advertisements, the way Absolut vodka pays novelists to deck out its ads with short pieces of fiction that mention the company. "Look at the British Airways commercials," says Richard Saul Wurman, an "information architect" who runs the annual Technology, Entertainment, and Design conference, a wateringhole for digerati. "Some of those ads fit all the definitions of great pieces of art. They move you in the way that you would say a great poem does, and they're advertisements for an airline. It's not such a huge step to a novel created by Coca-Cola."

"Most great works of art were not written for money," Dyson told me, explaining why she is not worried about artists' losing copyright revenues. "Maybe I'm naive, but I think and hope that as this plays out, there will be less incentive for trashy stuff that is only marketed for money." In a world with little or no copyright "we could have more good things and be inundated by fewer bad ones." Perhaps. But before embracing the loss of copyright it might be useful to consider what happened the last time a country, jettisoning all restrictions on literary property, let information go truly free.

INFORMATION ANXIETY

BEHIND the prognostications of the anti-copyrightists is the assumption that we are living in a time of unprecedented change—a "radically new culture" created by the transition from "atoms to bits," in the words of Nicholas Negroponte, the head of the MIT Media Lab. The economic change wrought by the Internet, according to Kevin Kelley, the executive editor of *Wired*, is "a tectonic upheaval in our commonwealth, a social shift that reorders our lives more than mere hardware or software ever can." The advent of the Web, Barlow told *Harper's*, is "the most transforming technological event since the capture of fire."

Economists and historians tend to be exasperated by claims like these. "I do sometimes wonder where they get this stuff," Robert Darnton, a historian at Princeton University, said to me recently. I wondered too. For instance, I asked Richard Saul Wurman about an intriguing assertion—"A weekday edition of *The New York Times* contains more information than the average person was likely to come across in a lifetime in seventeenth-century England"—that appears in extra-large italic letters on the first page of his book *Information Anxiety*. "I forget where I got that, but I got it someplace," he said of this comparison, which has been repeated more than 200 times in the media since the book was published. "But it's easy to see that it's so. It's obvious."

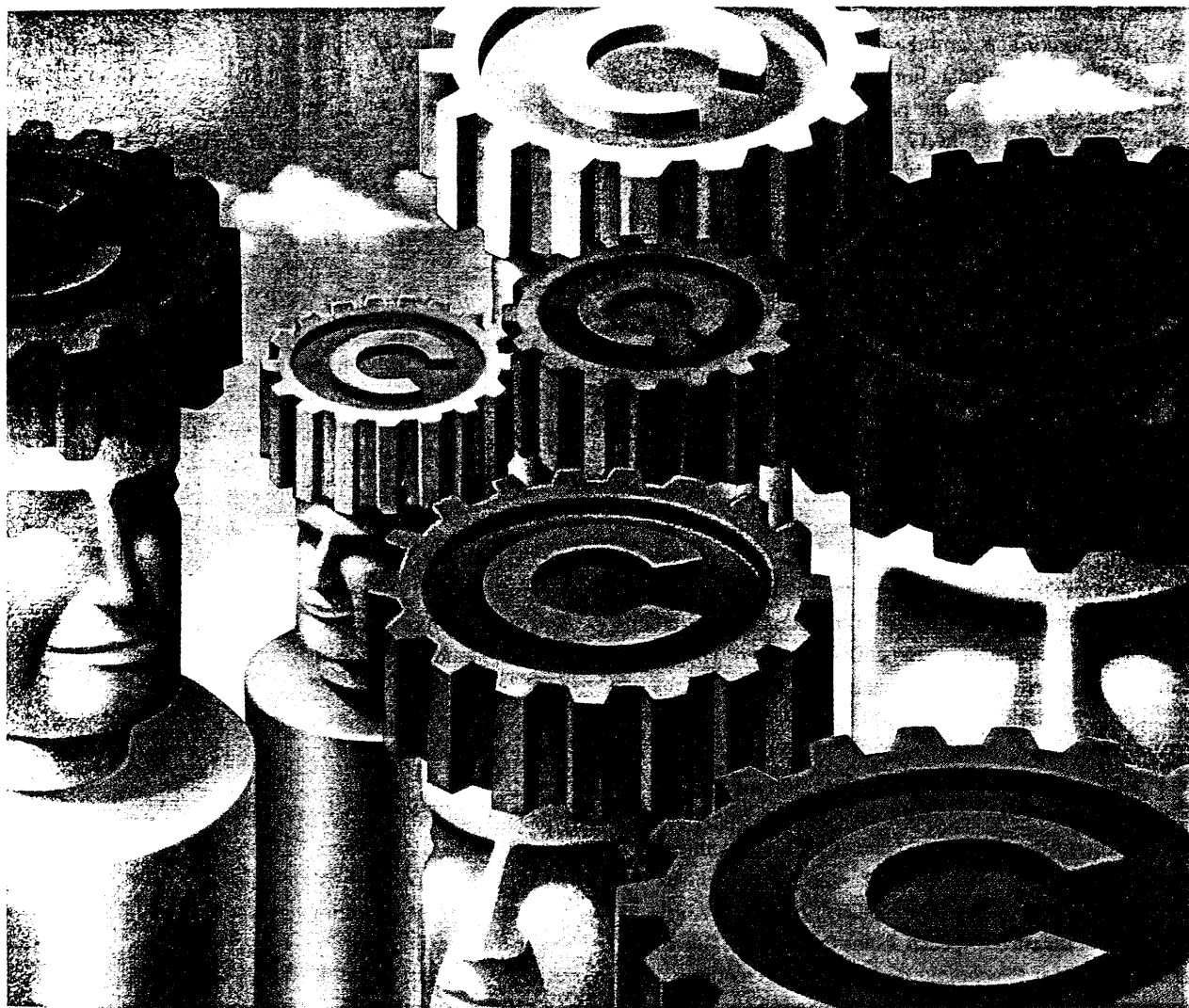
When I described this exchange to Darnton, he made a noise that was the audible equivalent of hiking up his eye-

brows. "Places like pre-revolutionary Paris were just *buzzing* with all sorts of messages being exchanged through all sorts of media," he said. "It was highly wired, but without the wires." In the excitement of discovering faxes, E-mail, and other new means of transmitting information, we forget that our ancestors used many other media that have now vanished. Among lost ways of knowing, a favorite of Darnton's is the improvised political song that circulated through French cities, spreading the latest news like Baroque-era rap. "Children in the eighteenth century could sing songs about changes in government, royal mistresses, and wars," he said. "Everyone could tell you a dozen political ditties based on one song." Worried about the plague of rhyming information, the government kept militating against the music of the streets. Talk today about the rising amount of information always refers to published documents, not private, irreproducible communications like these French songs. And who lives in a more meaning-saturated context, Darnton wondered: an American surfing through fifty channels of the same official press conference, or a Frenchman encircled

by tunelessly subversive variants on the day's events from a dozen different sources?

In his books *The Literary Underground of the Old Regime* and *The Forbidden Best-Sellers of Pre-Revolutionary France*, Darnton has examined what took place as eighteenth-century France gradually lost the ability to restrict intellectual property—exactly what the digital pundits see coming today. Before the Revolution, all books, printers, and booksellers had to have a royal stamp of approval, called a "privilege." In return for their lucrative monopoly, the French guild of printers and booksellers helped the police to suppress anything that upset royal sensibilities or ran contrary to their interests. Below the happy privileged few was a mob of underground printers, many across the border in Switzerland, who flooded France with pirated, pornographic, and seditious literature. And below them were the nation's thousands of writers, most at the edge of starvation, trying to persuade underground booksellers to commission a scurrilous pamphlet, a collection of dirty poems, or a tract promoting atheism.

The bread and butter of the outlaws was pirating privileged



works, especially best sellers like the novels of Marie-Jeanne Laboras de Mézières Riccoboni, a kind of ancien régime Danielle Steel. "When she put out a new novel," Darnton says, "the pirates bribed workers at the [privileged] presses to give them freshly printed sheets." By cutting books into pieces and resetting each piece on a different press, the pirates often got their wares on the streets at the same time the legitimate edition appeared—an eighteenth-century version of the instant piracy that today's publishers fear will happen when books are available electronically. Darnton estimates that before the Revolution "about half" the books in France were illegal.

Nobody was happy. Privileged booksellers detested the underground, the underground loathed the privileged booksellers, and the government wanted to quash both the overweening guild and the pornoseditionary underground. In 1777 the King threatened the monopoly by reducing the duration of publishers' privileges to the lifetime of the author. After writers died, their works would go into the public domain and anyone could print them. Like the British Stationers' Guild, the French booksellers fought back, cloaking their self-interest in the claim that the decree trampled on authors' rights to own their works. Once a writer sold a book to a publisher, the guild insisted, "No authority can take our property from us and give it to someone else."

The booksellers made this argument in January of 1789, just before Paris was engulfed by insurrection. Seven months later the revolutionary government ended the privilege system. No more restrictions: information was free, and anyone could print anything. The result? "Cultural anarchy," according to Carla Hesse, a historian at the University of California at Berkeley. As Hesse recounts in *Publishing and Cultural Politics in Revolutionary Paris*, liberation from copyright turned every bookseller into a pirate. Incredibly, identical versions of the same journal came out—the same headlines and articles printed by different publishers. Trapped by his own advocacy of unfettered speech, Louis Prudhomme, the owner of the newspaper *Révolutions de Paris*, had no recourse when another *Révolutions de Paris* appeared. Serious books, which

I ASKED THE MAN
AT A PIRATED-
SOFTWARE STORE
A HONG KONG
SHOPPING MALL
IF BUSINESS WAS
GOOD. "YES,"
HE SAID. HE
POINTED TO THE
CROWD AROUND US.
"BETTER EVERY DAY,"
HE SAID.



have ever taken longer to sell, were especially vulnerable to piracy, and publishers stopped issuing them. Instead they produced gossipy, libelous pamphlets, which flew off the shelves before anyone could counterfeit them. As for the great texts of the Enlightenment, Hesse writes, "once legalized and freed for all to copy and sell," they "fell out of print."

Enter Marie-Jean-Antoine-Nicolas de Caritat, Marquis de Condorcet. Mathematician, philosopher, education reformer, passionate advocate for science and rationality, Condorcet greeted the Revolution jubilantly despite his aristocratic background. As far back as 1776 he had disputed the notion that authors could own their work. If someone plants a field, Condorcet said, the land can't be used by anyone else; but a writer's words can be used by millions of people without being lost to the originator. Anticipating the visions of digitophiles today, Condorcet limned a utopia in which the citizenry manipulated and circulated information with absolute freedom. Confronted by the reality that lifting all restrictions on literary property had triggered a cultural race for the bottom, the marquis changed his mind. Early in 1790 he proposed

giving authors power over their own work lasting until ten years after their deaths. The proposal—the basis for France's first modern copyright law—passed in 1793, by which time Condorcet had been purged by the Revolution. He died in prison a year later.

Geoffrey Nunberg, a linguist at Xerox PARC and Stanford University, thinks that what happened in France helps to illustrate, among other things, today's confusion about the word "information." After the Revolution the sum of printed material in Paris soared, but that didn't mean there was more information. For centuries "information" was an innocuous noun that meant "news" or "instruction"—data that meant something. Nowadays the word, a mantra for Internauts like Barlow, Dyson, and the editors of *Wired*, has acquired a talismanic power, conjuring up a mysterious domain in cyberspace, filled with irreducible atoms of data, that is somehow the key to power, riches, and fame. The word acquired its technological aura in 1949, when Claude Shannon and Warren Weaver published *The Mathematical Theory of Commu-*

nication, the book that popularized the term "information theory." People came to think that bits—the "information" in information theory—are the same thing as the "information" that the term ordinarily describes. But they're not. "Information theory is about things like channels and noise and how many bits it takes to transfer texts over a noisy channel," Nunberg says. "It has nothing to say about *content*."

In other words, digital technology may put transcripts and video clips of *The Jerry Springer Show* on thousands of Web sites, but that doesn't increase the world's store of meaning. Condorcet's about-face on the value of unfettered speech suggests that Americans should be careful about allowing the laws of intellectual property to weaken and fail: the debate essential to democracy depends on the national supply of substantive facts, argument, and expression, not the per capita quota of zeroes and ones.

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I DO not mean to suggest that ephemeral outrages like Jerry Springer are the problem. I'm sure that the hundreds of college students in my town who converge in dormitory lounges to hoot ironically at his show are having an aesthetically complex postmodern experience. The problem in post-privileged France was not the shallowness of what was produced (not that it was cause for joy either) but its homogeneity. Tabloid TV is okay, but not if all TV is tabloid TV. I emphasize this because I want to avoid anti-Web overtones. It doesn't take long on the Web to encounter the notion that the fat old-media dinosaur is at all costs trying to silence the vox populi whooshing through the wires of new media. Old media just don't get it—that's the new-media refrain.

An exemplary scene of communication failure occurred when I asked Esther Dyson about the social scientists who question her belief that we have more information today than ever before. After all, having access to more data in the office doesn't necessarily imply that the worldwide sum of data is growing too. "Pardon me, but they're wrong," she said. Her tone suggested that she was exasperated at my denseness. "You couldn't sit in your office and get the things you need—it is very different today, I'm sorry. We're talking about hundreds of thousands of different people trying to push information on the Web." But if the global network is replacing the knowledge of previously disparate cultures with a single reference point, it could actually be diminishing the total. . . . "Pardon me, but information is growing," Dyson said. "We're in a radically different time now. It just is different." Then she asked if I had another question.

"The technology *has* changed," Hal Varian, an economist who is the dean of the School of Information Management and Systems at Berkeley, acknowledges. "But that doesn't mean the laws of economics have been repealed." Varian and Carl Shapiro, another Berkeley economist, are the authors of *Infor-*

mation Rules, a forthcoming guide to the "durable economic principles" that underlie the new technology. Yes, Varian says, the Internet means that content providers must compete for audiences in a new medium. But the situation is "hardly unprecedented." Businesses have overcome such problems in the past. Dyson's proposal that software firms give away programs and charge for every support call is "like the old story of giving away the razor to sell the blade," says Stanley Besen, the economist at Charles River Associates. "Nothing really strange there."

Although such economic strategies have been around for decades, the authors of computer programs, newspaper articles, and books have seldom employed them—or at least not with happy results. If software companies made their money by charging for every support call, they would lack the incentive to produce reliable, easy-to-use products. If editors of newspapers and magazines had to depend solely on advertisements and sponsorship, they would be even more vulnerable to conflicts of interest than they already are. If novelists had to make their living from public performances, Thomas Pynchon and J. D. Salinger would be penniless, and Salman Rushdie would be dead.

Content providers have instead relied on two other time-tested strategies. One is to shout for attention—as the Fox network does when it broadcasts videos of wild-animal attacks, or Matthew Drudge does when he prints lurid rumors about political figures in the online Drudge Report. A second strategy is to try to produce works with some special quality, and thereby attract a small, loyal audience. Highbrow artists adopt this method, and so does almost everyone who isn't purveying animal-attack videos: Charles Wuorinen, the atonal composer, and R. Crumb, the underground cartoonist, are two examples. This strategy produces most of the diversity. From the standpoint of society, a major goal of copyright is to smooth diversity's path, by giving creators special rights to exploit their work. If copyright becomes meaningless, the durable economic principles Varian speaks of will make it almost impossible to create works for small, specialized audiences, and an awful shrieking homogeneity will beset the culture.

Copyright works for the public good in another, equally important way: it prevents content owners from locking up the raw materials of culture. Too little copyright protection can be bad, but if copyright is overly strengthened—if what legal scholars like to call its "delicate balance" is disrupted—we face a different peril. What is that? I've found the prospect hard to describe to friends, because there aren't many familiar historical analogies. Sometimes I call it Clickwrap World. Sometimes I call it 1984™. Whatever the name, it's what government and the copyright industry seem to be giving us. Alas, proposed changes in intellectual-property law that are now before Congress and the states have the potential to make the Internet every bit as revolutionary as the cyberpundits say.

CLICKWRAP WORLD

DAVID Nimmer has a story. Imagine the year 2010, he says. The last Barnes & Noble–Walden–Borders–Broadway store in the United States has just closed. Now no offline book, music, or video stores remain, except for a replica bookstore in Disneyland. Anyone who wants to obtain poems, essays, or novels must download them from the Internet into an electronic book. Anyone who wants to watch a movie, listen to recorded music, or look at a reproduction of a painting must download it into the appropriate copyright box. But before getting books, music, and films, people must first click on the “OK” button to accept the terms of the ubiquitous standard download contract—the “Gates from Hell Agreement.” Nimmer and two co-authors call it in a forthcoming article in the *California Law Review*.

The agreement prohibits the contractee from letting anyone else view the copyrighted material. If problems surface, the agreement authorizes private police officers to descend on users’ houses to check for illicit printouts and copies. Should search victims whine about unwarranted search and seizure, the courts reply that they freely signed away those Fourth Amendment rights by clicking the “OK” button.

“Crazy, isn’t it?” Nimmer says of this scenario. “But that’s what they’re talking about.” A former federal prosecutor, Nimmer is now at the Los Angeles firm of Irell and Manella, and is an author, with his late father, of *Nimmer on Copyright*, a widely cited treatise. A lawyer who represents entertainment, publishing, and technology companies, Nimmer is an advocate for the rights of copyright holders. Yet he is greatly distressed by some of the proposed legislation. “You’re talking not about copyright but about an attack on copyright,” he says. “I’m extremely bothered by where we might be heading.”

Because the copyright industry has energetically campaigned for protection against illicit copying, Congress is knee-deep in copyright bills. One of the most important would bring this country into conformity with a treaty adopted in 1996 by the World Intellectual Property Organization. WIPO administers the Berne Convention, an international-copyright agreement enacted in 1887. The WIPO treaty, which is universally lauded, asks signatory nations to “provide adequate legal protection . . . against the circumvention of effective technological measures” against piracy. To implement this request, the Clinton Administration and many prominent Republicans have backed legislation that bans making or using any device that can evade any method of copy protection. In making the vague language of the treaty harshly specific, the Administration set off an explosion of protest.

Proponents of the legislation, who range from Jack Valenti, of the MPAA, to Mark Stefik, of PARC, regard it as essential to fighting piracy—unless evading copyright protection is

made illegal, copyright boxes will be futile. New “cable modems,” Valenti says, “can haul down a two-hour motion picture in about two minutes. If we don’t have a protective shield around our encrypted material, I don’t have to tell you how dangerous that will be.” Opponents such as Adam Eisgrau, of the American Library Association, and Pamela Samuelson, the Berkeley law professor, believe that the proposed legislation is more sweeping than needed to implement the treaty. Today students can go to the library, photocopy maps from an atlas, and hand in the copies with their homework. Such private, noncommercial copying is traditionally known as “fair use.” If the electronic atlases of the future have ©-chips that make any copying impossible, libraries may not be able to help students in the same way without breaking the law; the penalties for circumventing copyright protection will apply even to fair use. One proponent, Allan Adler, of the Association of American Publishers, says that carving out exemptions for libraries and home users will give the legal go-ahead to manufacture devices to beat copyright protection, which will make the ban useless. Publishers will not abuse their sweeping new powers, he says, because they will have to compete with other publishers who can offer books on more-favorable terms. Eisgrau argues in return that the technology is changing so rapidly that no one can predict the conditions of tomorrow’s market. “So why put architecture into place that encourages abuse?” he asks. The Senate passed the implementing legislation in May by a 99–0 vote. But in the House the two sides, each driven by its own fear of the future, have been skirmishing bitterly in committee. The fight will continue this month.

By a voice vote in May the House did, however, pass a separate major copyright law: the Collections of Information Antipiracy Act, which makes databases copyrightable. In 1991 the Supreme Court ruled unanimously that a company can copy a competitor’s entire telephone directory without infringing copyright, because facts cannot be copyrighted, and the listings, though expensive to collect, are just facts. Economists decried the decision, which reduces the incentive to create databases. The database industry begged Congress for help. Opponents continue to fear that in the long run the Collections of Information Act will effectively make the facts in databases copyrightable—a big mess for everyone, especially reporters. Remember the remarks from Samuel Johnson and Daniel Defoe cited above? As is common journalistic practice, I lifted them from someone else—in this case Mark Rose, of the University of California at Santa Barbara, who spent countless hours scouring eighteenth-century periodicals in researching his book *Authors and Owners: The Invention of Copyright*. My failure to attribute the quotations to Rose was discourteous but not illegal—fair use applies. If Rose had assembled those quotations into a database of pithy remarks about copyright, matters might change. Although the database-antipiracy act specifically allows journalists and re-



searchers to use isolated facts from databases without permission, opponents believe that the new law, by permitting prosecution, will make reporters and scientists reluctant to cite facts. "Here we are, privatizing a large chunk of the world of fact," says James Boyle, a copyright specialist at the Washington College of Law at American University, "and *The New York Times* hasn't even written a story about it." The Senate has not yet considered the House bill.

Yet a third congressional action would extend the term of copyright to the life of the author plus seventy years, the length now common in Europe. The proposed legislation would also protect works owned by corporations for as long as ninety-five years. The extension is fervently backed by the estates of songwriters, including Oscar Hammerstein II: without it, "Ol' Man River" and other songs from the 1928 musical *Show Boat*, with music by Jerome Kern, might go out of copyright in 2003. To Hal Varian, of Berkeley, the extension doesn't make economic sense, because people generally discount future prospects: lengthening the term after death will not greatly motivate innovation. Especially odd, in Varian's opinion, is the

plan to grandfather in material that has already been created. In cost-benefit terms, giving the company a longer time to use the material simply extends its monopoly without much offsetting benefit to the public. Neither the Senate nor the House has voted on the bill.

When these proposals appeared, last year, they aroused violent opposition from what Barlow proudly calls "a ragtag assembly of librarians, law professors, and actual artists." He adds, "This will sound hyperbolic, but I really feel that the copyright industry, its congressional supporters, and the Clinton Administration were trying to propose that if you read a book, you were making a copy in your memory and should therefore pay a proper license." The underlying legislative problem is that "the movement is all in one direction," James Boyle says. "There's no movement to contract copyright terms or increase fair use. And that isn't even starting to talk about Article 2B."

In intellectual-property circles "Article 2B" is shorthand for proposed changes in that portion of the Uniform Commercial Code. The primary body of commercial law in the

United States, the UCC traces its origins to the late nineteenth century, when representatives of the states, worried that Washington would preempt local governmental power, convened and agreed to draft standardized laws that would settle many interstate confusions and also keep Uncle Sam away. After enacting statutes governing areas such as divorce, stock transfers, and business partnerships, the states ambitiously decided in the late 1940s to create a comprehensive national framework for buying and selling. Since 1974 the Uniform Commercial Code has held sway in every state (Louisiana hasn't endorsed all of it).

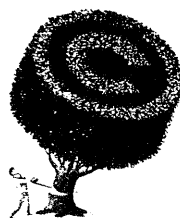
Article 2 of the UCC governs sales. If a customer in a store selects and pays for a shirt without exchanging a word with the salesclerk, can the shirt be returned because of a defect? Yes, because the transaction is covered by an implied contract, and the terms of that contract are set out in Article 2. Buyers automatically get an "implied warrant of merchantability"—a promise that the merchandise is fit for ordinary use.

Naturally, some businesses would rather not accept returned goods. To avoid Article 2, they must disavow the warrant of merchantability. Conspicuous signs saying ALL SALES "AS IS" will do the trick. Note the "conspicuous"—the disclaimer can't be hidden. The annals of state courts are littered with suits in which sneaky sellers hid disclaimers in the glove compartments of cars or within packages of seeds. Invariably, the merchants lost.

Now consider a customer who selects and pays for a computer program without exchanging a word with the salesclerk. Thinking that the software can be returned if defective, the customer drives home, opens the shrink-wrapped box, and—what's this? Inside the box is a limited warranty and a license agreement. The warranty for my copy of Windows95, for instance, disclaims all "implied warrants of merchantability." Does this absolve Microsoft from Article 2? In 1991 the federal appellate judge John Wisdom said no. "Shrinkwrap licenses," as they are called, change the terms of the implied contract after it has been negotiated, violating the Uniform Commercial Code.

Manufacturers hide licenses inside the box because shopkeepers and customers alike would rebel against such terms if they were clearly stated at the time of sale. Despite the po-

CONGRESS IS RAPIDLY OVERHAULING OUR INTELLECTUAL- PROPERTY REGIME. HOW WE DO IT, ACCORDING TO THE LOGIC OF THE FOUNDING FATHERS, WILL PLAY A BIG ROLE IN OUR FUTURE WELL-BEING.



April that clickwrap agreements are enforceable, the software industry wanted the new Article 2B to remove all doubts.

In plain language, the proposed Article 2B legitimizes both shrinkwrap and clickwrap licenses. This in itself upsets consumer advocates. What dismays David Nimmer and other experts is that the licenses have already been used to claim such wide-reaching rights that their general application could have a major impact on the culture as a whole. "People don't understand what's going on, because it's software, and software is strange stuff to them," says Cem Kaner, a software developer and lawyer in Santa Clara, California. "But it's exactly the same as buying a book and being told that you can read it only in one room of the house and can't lend it to friends."

Microsoft Agent is a program that makes cute little animated figures. The license not only tells customers they can't "rent, lease or lend" the program but also informs them that they have no right to make the figures "disparage" Microsoft.

tential for alienating customers, the industry believes that the licenses are an essential weapon in the war against piracy. ("Nonsense," Nimmer says. "This law called the Copyright Act gives them all the protection they need.") Software producers also say that programs are so complex that they cannot be offered at a reasonable price with warranties of usability. Hence the dismay with which software companies greeted Judge Wisdom's decision against shrinkwrap licenses. In 1996 another federal judge, Frank Easterbrook, ruled that the licenses were legitimate. But the conflicting decisions left the companies keen to overhaul Article 2.

An additional motive was the emergence of "clickwrap" licenses—the interposition of an on-screen disclaimer and an attendant "OK" button that users must click to accept its terms before downloading intellectual property from the Web. Clickwrap licenses, too, are controversial, because buyers cannot conceivably negotiate their terms. Such contracts have frequently been ruled invalid. Although a federal judge in California, relying on Easterbrook's shrinkwrap decision, decided last

McAfee VirusScan, the leading anti-virus software, has a license term that is every writer's dream: nobody may publish a review of the program "without prior consent" from the company. But even that is surpassed by Digital Directory Assistance, maker of PhoneDisc, a CD-ROM containing millions of phone numbers and addresses. According to the license, the software can't be "used . . . in any way or form without prior written consent of Digital Directory Assistance, Inc."

If agreements like these govern electronic books in the future, the ©-chip inside will not permit the text to be transmitted unless the customer first accepts the clickwrap license. Because current licenses typically forbid copying or lending intellectual property, Nimmer fears that copyright owners will end up with all the protections of copyright while the public is forced to surrender its benefits—especially the right to lend privately or copy within the limits of fair use the expressions of others. Any reader who wants to challenge the licenses for overreaching copyright will be forced into litigation—a situation that inevitably redounds to the benefit of large companies that can afford to pay legal fees. "It's an end run around copyright," Nimmer says. "It provides a mechanism to put a stranglehold on information, and that in itself is a bad idea."

I submit that it is even worse than he thinks. Copyright, according to Martha Woodmansee, an English professor at Case Western Reserve University, is implicitly based on the "romantic notion of the author." During the Renaissance, she explains in *The Author, Art, and the Market*, writers generally considered themselves vehicles for divine inspiration, and thus not entitled to benefit personally from their work. "Freely have I received," Martin Luther said of his writing, "freely given, and want nothing in return." In the eighteenth century the book trade grew; some writers changed their minds about making a living from the pen. Justifying the switch, the German philosophers Johann Fichte and Immanuel Kant evolved the image of the artist as a sovereign being who creates beauty out of nothing but inspiration.

This picture, though lovely, is incomplete. Artists often combine the materials around them into new forms—inconveniently for copyright, which assumes solitary originality. As the critic Northrop Frye put it, "Poetry can only be made out of other poems; novels out of other novels." Shakespeare derived some of the language in *Julius Caesar* from an English translation of a French translation of Plutarch; he followed a printed history so closely for *Henry V* that scholars believe he had the book open on his desk as he wrote. In this century Eugene O'Neill gleaned *Mourning Becomes Electra* from Aeschylus. Charles Ives was an inveterate borrower: in his Fourth Symphony the second movement alone quotes at least two dozen tunes by other composers. Andy Warhol filled galleries with reproductions of Brillo boxes, Campbell's soup

cans, and photographs of Marilyn Monroe. And so on.

Warhol's place in art history is uncertain, but in one respect he was right on target. In a time increasingly dominated by corporate products and commercial media, the raw materials out of which art is constructed seem certain to include those products and media. In the 1940s little girls bonded emotionally with anonymous dolls and had elaborate self-transformative fantasies about Cinderella, whose story they might have heard from their parents. Today girls bond with Barbie™ and dream of the broadcast exploits of Sabrina the Teenage Witch™. Fans fill the Internet with homemade stories about Captain Kirk, Spiderman, and Special Agent Fox Mulder—skewed, present-day versions of the folktales our forebears concocted about Wotan, Paul Bunyan, and Coyote the Trickster. Five hundred channels watched six hours a day—how can art that truly reflects the times ignore it?

Copyright should not impede artistic efforts to explain our times. Nor should we let it interfere with the relation between producers and consumers of art. Any work of art is a gift, at least in part—something done not purely from motives of calculation. Knowing this, people approach works of art in a more receptive state than they do, say, advertisements. The same people who would unhesitatingly copy Microsoft Word at their jobs, the novelist Neal Stephenson said to me recently, "would no more bootleg a good novel than they would jump the turnstile at an art museum." Stephenson, the author of *The Diamond Age*, a witty, imaginative science-fiction novel about pirating an electronic book, and the forthcoming *Cryptonomicon*, believes that in the long run this relationship of respect and trust is the only safeguard that works of art have. It is also the reason they are worth safeguarding. What will the act of reading be like if every time I open a book I must negotiate the terms under which I read it? The combined changes in copyright law could lead us closer to what Michael Heller, a law professor at the University of Michigan, calls "the tragedy of the anticommons," in which creators and writers cannot easily connect, because they are divided by too many gates and too many tollkeepers.

It seems unlikely that in the foreseeable future all ties will be severed. But opposing pressures from the Internauts who want to open copyright up and the software companies and publishers who want to clamp it shut presage major change in the way our culture is created and experienced. Unfortunately, as Hal Varian points out, we will be changing laws today to fit a tomorrow we can as yet only guess at. The likelihood of guessing correctly now, he says, is "close to minimal." Yet it's easy to feel the pressure to make—and force—decisions right away. As I write this, knowing that I am close to finished, I realize what will be one of the first questions my editors ask: whether they can put this article on the Web. ♫

In fact, this article (along with the rest of the September issue) is available on The Atlantic's Web site, at <http://www.theatlantic.com>, supplemented by links to related articles and other online resources.