

CLONING AND COPYRIGHT

STEPHEN E. WEIL*

INTRODUCTION

In September 1996, at a Symposium celebrating the Smithsonian Institution's 150th anniversary,¹ Brian Ferren, the Executive Vice President for Creative Technology in the Walt Disney Corporation's Research and Development Division, asked participants to imagine themselves in the following fantastical situation.

It is the mid-1950s. You have just learned that you have a serious, probably even fatal, heart problem. However, the doctor tells you not to worry, that your life can be prolonged through new technology. "We are," says the doctor, "going to saw your chest open. We are going to put in a computer."² (Here Ferren paused to remind his audience that in the mid-1950s, the only computer that anybody knew about was a bulky, multi-ton mainframe that occupied its own large and specially air-conditioned workspace.)³

We are going to put in a stethoscope and listen to your heart. We are going to put in a cattle prod, so if it stops, we will give it a little 'zotz' and get it going again. We have to power this, and because it is hard to get connectors through the skin, we will probably put a little nuclear power plant in your heart, a little plutonium, but you should live a long healthy life.⁴

This seemingly impossible combination of devices to which Ferren referred became, of course, the pacemaker. Through miniaturization and the economies attributable to mass production, technologies that were once cutting edge and exotic have today become commonplace and widely affordable. In the 1950s, developments that would occur within only the next four or five decades, even in existing technologies, were, for most people, completely unforeseeable. The wonders that might yet spring from wholly new technologies were beyond imagination.

* Emeritus Senior Scholar in the Smithsonian Institution's Center for Museum Studies. From 1974 until his retirement in 1995, Mr. Weil served as Deputy Director of the Smithsonian's Hirshhorn Museum and Sculpture Garden. Mr. Weil graduated from Brown University in 1949, and from Columbia University School of Law in 1956.

¹ See generally SMITHSONIAN INSTITUTION, MUSEUMS FOR THE NEW MILLENNIUM: A SYMPOSIUM FOR THE MUSEUM COMMUNITY (Sept. 5-7, 1996) (Amer. Assn. of Museums ed., 1997) [hereinafter SMITHSONIAN INSTITUTION].

² *Id.*

³ See generally *id.*

⁴ *Id.*

In the brief paper that follows, I want to touch on two subjects in which new technologies—those that are foreseeable and already in development—may have an enormous impact: cloning and copyright.

I. CLONING

The cover of the April-May issue of the Library of Congress's magazine, *Civilization*, carried this headline: *Garage Biotech is Here or Just Around the Corner*.⁵ The story illustrated how, in the field of plant biotechnology, the expense of setting up a home-based do-it-yourself laboratory had steadily plummeted to where "the cost [for] required materials and equipment was next to nothing."⁶ The Chairman of Edvotek—a company that sells biotechnology-related, educational supplies—was quoted as saying that an adequately equipped home lab could certainly be set up for less than \$3,500.⁷

As this technology continues to develop—from reproducing and/or modifying existing genes, to producing new and wholly novel genes and/or combinations of genes—and, as it also continues to become more readily accessible, how long will it be before the first visual artist begins to explore its use as a medium of artistic expression? When that exploration takes place, what consequences will ensue under intellectual property law? Could the artist's work in such a medium receive the relatively lengthy protection of a copyright through the artist's claim that it is a living, self-replicating structure?⁸ What about mutations? Would those constitute derivative works? Or would such work be limited to the shorter protection period of a patent?⁹ What kind of moral rights,¹⁰ if any, might ultimately attach to such a living work? Would an owner's failure to water or fertilize such a work be a violation of that moral right? The questions are many.

Such inquiries seem simple compared with those that may arise at the next potential level of complexity: cloning animals. That technology is still in its earliest phase. (For those interested, however, there is an ongoing experiment at Texas A&M to create a genetic duplicate of an aging mutt named Missy. The work is be-

⁵ See Fred Hapgood, *Garage Biotech is Here or Just Around the Corner*, CIVILIZATION ONLINE, available at <http://www.civmag.com/articles/C0004F01.html> (last visited Mar. 2, 2001).

⁶ *Id.*

⁷ See *id.*

⁸ See 17 U.S.C. § 302 (2000) (providing the federal law for duration of copyright).

⁹ See 35 U.S.C. § 154 (2000) (providing the federal law for duration of patent).

¹⁰ See 17 U.S.C. § 106A (2000) (providing the federal law on moral rights for visual artists).

ing financed by Missy's "wealthy owners" and can be followed through monthly progress reports posted on the experiment's own dedicated website).¹¹ If animal cloning—not limited to genetic duplication, but extending to genetic enhancement as well—follows the same path as other technologies, then in two or three generations, it might well be as publicly accessible as plant cloning is today.¹²

If animal cloning is a temptation, consider what it might be like for artists when they acquire the ability to express themselves by designing their own creatures—when every artist can become a "Dr. Frankenstein." Imagine the extraordinary tangle of legal issues that such extraordinary creative power might generate.

Given the danger that an artist could accidentally flood the planet with self-replicating creatures that might in time compete with humans for food and space, ought we to permit this type of creation at all? If we do, then how should the resultant creatures be classified? If we consider them human, then a variety of civil and human rights issues will beg resolution. If we instead consider them to be animals, then now-surfacing issues of animal rights may come into play.¹³ Even if we were to create some new category for the creatures, a host of intellectual property and personal property questions would need to be addressed.

The foregoing discussion was my prelude. The main focus of my address here—touching on some concerns of John Merryman, in whose honor we have assembled—is the possibility (and, by the end of this century, perhaps the reality) of cloning *objects*. What would it mean if we could create duplicate, triplicate, or even, an almost infinite number of copies of original objects that, in every detail—molecule for molecule, atom for atom—replicate the original objects exactly?

The field of investigation that gives rise to this startling possibility is called nanotechnology.¹⁴ Of the several definitions of na-

¹¹ See *Introducing the Missyplicity Project*, available at <http://www.missyplicity.com> (last visited Mar. 11, 2001). "[T]he Missyplicity Project . . . seeks to clone a dog for the first time in history—a specific dog named Missy. Missy is a beloved pet, getting on in years, whose wealthy owners wish to reproduce her—or at least create a genetic duplicate . . ." *Id.*

¹² See Christopher Mario, *A Spark of Science, A Storm of Controversy*, available at <http://www.princetoninfo.com/clone.html> (last visited Mar. 11, 2001) (maintaining that plant cloning is used widely in agricultural research).

¹³ For a discussion concerning the strength of such animal rights' claims, see generally STEVEN M. WISE, *RATTLING THE CAGE: TOWARD LEGAL RIGHTS FOR ANIMALS* (Perseus Books ed., 2000) (arguing that at least certain animals—chimpanzees and others—ought to be granted a legal "personhood" that would be the basis of at least limited rights).

¹⁴ See *Nano-technology Makes the SchNEWS*, available at <http://www.redrival.com/greenrd.nano.html> (last visited Mar. 2, 2001) (defining nano-technology as "positioning

notechnology now in circulation, the simplest might be “mechanical engineering at the atomic level.”¹⁵ Nanotechnology contemplates the extraordinarily precise assembly of objects, one atom at a time.¹⁶ Although the great American physicist Richard Feynman is generally credited with having first suggested that such a process might be possible,¹⁷ the founding theoretical work in the field was done by K. Eric Drexler, and first published in his 1986 book, *Engines of Creation*.¹⁸ In the fifteen years since then, nanotechnology—initially greeted with considerable skepticism as little more than the stuff of science fiction—has slowly changed its image from that of a fringe science freak show to an increasingly mainstream area of scientific and industrial research.

In 1996, for example, three scientists shared the Nobel Prize for Chemistry for their work with “buckyballs”¹⁹—soccer-ball like arrangements of sixty or more carbon atoms. That work, in turn, has now led to the creation of “buckytubes,” a pattern of carbon atoms that can be formed into fibers 100 times as strong as—but less than one-sixth the weight of—steel.²⁰ Even now, as if to demonstrate the rapidity with which a technology can move from the exotic to the commonplace, Rice University has a website through which nanotubes can be ordered at the current posted price of \$1,000 per gram.²¹

For fiscal year 2000, the Federal budget for nanotechnology research was \$123 million.²² In his budget proposal for fiscal year 2001, President Clinton—launching what the White House calls the

individual atoms together at high speed to create virtually any physically-possible physical object, at low cost”).

¹⁵ *Id.*

¹⁶ *See id.*

¹⁷ *See Nanosystems*, available at <http://www.geocities.com/capecanaveral/launchpad/7045/richardhlglobalei.html> (last visited Mar. 2, 2001) (crediting Richard Feynman for first having suggested the idea of nano-technology in his “classic talk in 1959”).

¹⁸ *See id.* (stating that K. Eric Drexler established the field of nano-technology); *see also* K. ERIC DREXLER, *ENGINES OF CREATION* (Anchor Press/Doubleday ed. 1986).

¹⁹ *See* Andy Gion, *Bucky Balls*, available at <http://www.nidlink.com/~jfromm/bucky/bucky.htm> (last visited Mar. 11, 2001) (naming scientists Richard Smalley, Professor at Rice University; Robert Curl, Professor at Rice University, and Harold Kroto, Professor at University of Sussex in England). The name “buckyballs” was taken from Buckminster Fuller. *See id.* The 1996 Nobel Prize in Chemistry was awarded to three chemists for their discovery of Fullerenes, a family of highly symmetrical carbon-cage molecules whose prototypical member of C60 is known as Buckminster Fullerene, or “Bucky Ball” for short. *See id.*

²⁰ These “buckytubes” were created at Rice’s Center for Nanoscale Science and Technology.

²¹ One can no longer order the nano-tubes at the Rice University website. To order nano-tubes, see *Carbon Nanotechnologies, Inc.*, available at http://www.carbonnanotech.com/CNI_home.html (last visited Mar. 18, 2001) (providing that single-wall nanotubes may be purchased for \$500 per gram).

²² *See Budget of the United States Government, Fiscal Year 2000*, available at <http://w3.access.gpo.gov/usbudget/fy2000/maindown.html> (last visited Apr. 5, 2001).

National Nanotechnology Initiative—has proposed that this amount be increased to \$227 million.²³ Interestingly, approximately ten percent of that total is to be used to study nanotechnology's impact on society from "legal, ethical, social, economic, and workforce preparation perspectives. . . ."²⁴

My own fascination with this technology and its possible applications to works of art can be traced to a meeting of the Texas Museum Association about three years ago.²⁵ In the middle of an otherwise sober presentation about nanotechnology, Hal Ham, director of the Connor Museum at the Texas Museum Association, with his tongue only partly in cheek, suddenly tossed out the exhilarating proposition that, through such a technology, there could someday be a *Mona Lisa* in every museum in Texas or, even better, a *Mona Lisa* in every home in America.²⁶

His audience, liberally sprinkled with curators, was in an immediate uproar. Several shouted angrily that none of those clones, no matter how perfect, would be a "true" *Mona Lisa*. "Why not?" Ham kept asking. The curators answered: because they did not come from Leonardo's hand and because the artist had never touched them, not once, not ever.²⁷ Ham enjoyed himself immensely. "I thought that this here *Mona Lisa* was about art," he teased them, pushing hard on his Texas accent.

What I'm hearing from you folks now is that it's really about history, that it's not so great of a painting—else it'd be a terrific thing for everybody to have one—but it's actually great because it's a Leonardo artifact, because a famous artist once touched it in person.²⁸

After a few more minutes of this, Ham smilingly concluded his

²³ See *Budget of the United States Government, Fiscal Year 2001*, available at <http://w3.access.gpo.gov/usbudget/fy2001/maindown.html> (last visited Apr. 5, 2001).

²⁴ *National Nanotechnology Initiative, Leading to the Next Industrial Revolution*, available at <http://www.nano.gov/press.htm> (last visited Apr. 5, 2001).

²⁵ See generally *About the Texas Association of Museums*, at <http://www.io.com/~tam/abouttam.html> (last visited Mar. 2, 2001).

²⁶ See generally Hal Ham, Remarks at the Annual Meeting of the Texas Association of Museums (Apr. 10-12, 1997) [hereinafter Hal Ham]. With regard to the potential application of nanotechnology to previously unique works of art, Bill Spence, the President of NanoTechnology Magazine, has argued that:

[t]he ability to manipulate atoms individually . . . will cause the possession of artifacts to become irrelevant. As long as digital schema for an artifact is maintained the artifact itself is superfluous. The entire collections of all the world's museums and galleries could be reduced to digital storage and reproduced at any location on demand.

(on file with author); see also *NanoTechnology Magazine*, available at <http://www.nanozine.com> (last visited Apr. 5, 2001).

²⁷ See Hal Ham, *supra* note 26.

²⁸ *Id.*

presentation with the drawled observation that he had found the whole interchange “mighty puzzling!”²⁹

Three years later, this notion of a perfect three-dimensional replica still seems to me not only puzzling, but also wonderfully provocative. Consider, for example, the Elgin marbles.³⁰ What consequences might follow from the fabrication of their nanotech duplicate? With two identical sets of marbles, what would be the legal situation? Would one be entitled to the privileged treatment that the law accords to a work of art, while the other were treated as no more than a humble manufactured artifact? With how much confidence could we really talk about the original’s “aura”—so sadly lacking from the clone—when we really couldn’t tell which was which? Legal treatment aside, might we use the replica to solve the long-standing dispute between Greece and Britain? Or would each party insist that it must have the true original—Greece for patrimonial reasons, and Britain because that is what its bargain called for.

Or, to take a dispute much closer to home, consider the current legal wrangle over the so-called Willamette Meteorite, now installed in the American Museum of Natural History’s Rose Center for Earth and Space.³¹ Having landed in Alaska at some unknown date, the meteorite was dragged south by a glacier and eventually

²⁹ *Id.* Two outlandish thoughts occur in this connection. First, a contemporary Leonardo—digital camera in hand—might well choose to portray his sitter in a medium that would be infinitely reproducible. Leonardo da Vinci, though, had no such choice. The state of the art being what it was, the best he could manage was to smear some pigments on a flat surface and to create a unique object. Now, with the potential advent of nanotechnology, we at long last have the possibility to overcome that technical limitation and to distribute Leonardo’s work in multiple exact copies to a far wider audience. Is that not a good thing? Second, rather than treating this previous inability to make infinitely reproducible works of fine art as a technical shortcoming to be overcome, art museums (and private collectors as well) have tended instead to fetishize unique works of art to the point of celebrating their uniqueness as a virtue rather than deploring it as a technical failure. To what extent might this response be linked to some lurking desire for exclusivity? To be the possessor of unique object is, by definition, to exclude everybody else from such a possibility. To own an infinitely reproducible copy of anything would, by contrast, confer no more distinction than to own a copy of an ordinary book or compact disc.

³⁰ In 1801, Lord Elgin, the British ambassador to the Ottoman Empire, ordered the removal of marble sculptures from the Parthenon. The British Museum currently has possession of the marbles. However, both Greece and Britain argue that they are the rightful owner. See David Rudenstine, *The Legality of Elgin’s Taking: A Review Essay of Four Books on the Parthenon Marbles*, 8 INT’L J. CULTURAL PROP 356, 356-57 (1999).

³¹ See *Willamette Meteorite, Rose Center for Earth and Space, American Museum of Natural History*, available at http://www.amnh.org/rose/meteorite_agreement.html (last visited Mar. 11, 2001) [hereinafter *Willamette Meteorite*] (stating that over one million people from around the world have already visited the Rose Center for Earth and Space, universally hailed as an architectural, scientific, and educational triumph since it opened to the public on February 19, 2000. The Willamette Meteorite is the centerpiece of the Cullman Hall of the Universe in the Rose Center of Earth and Space); see also Robert W. Oliver, *How to Catch a Falling Star Or, How to Cash in on the Discovery of the Largest Meteorite Ever Found in the United States*, 54 OR. ST. B. BULL. 13 (1993).

came to rest in Oregon's Willamette Valley.³² In due course, it came to play a role in the religious observances of a local tribe of Native Americans, the Clackamas.³³ In 1857, the Clackamas tribe relinquished its land in the Valley to the United States Government and was settled on a reservation elsewhere.³⁴ The land around the meteorite subsequently passed to the Oregon Iron and Steel Company. In 1902, an enterprising trespasser severed the meteorite and hauled it off to become a sideshow attraction.³⁵ In 1905, the Oregon Iron and Steel Company successfully sued the trespasser/showman for its return.³⁶ The American Museum of Natural History then purchased the meteorite the following year.³⁷

In 1999, the Clackamas Tribe (now represented by the Confederated Tribes of the Grand Ronde Community of Oregon), acting under the Native American Graves and Repatriation Act ("NAGPRA"),³⁸ filed a claim with the Museum demanding the return of the meteorite as a "sacred" object.³⁹ The Museum did not only deny this claim but, in taking the offensive, went to Federal Court in February 2000, seeking a declaratory judgment that the claim itself lacked any merit.⁴⁰ Among the arguments raised by the Museum was that the meteorite was not an "object" at all (at least back when it figured in the Clackamas observances), but a natural feature of the landscape; that the Clackamas had never (as required for a NAGPRA recovery) "owned or controlled" the meteorite; and that the Clackamas could not overcome the Museum's showing that the method by which it had acquired the meteorite in 1906—an arm's length purchase for value from a vendor previously declared to have good title—gave it an actual "right" of possession.⁴¹

³² See *Willamette Meteorite*, *supra* note 31.

³³ See *id.*

³⁴ See *id.*

³⁵ See Oliver, *supra* note 31.

³⁶ See generally *Oregon Iron Co. v. Hughes*, 81 P. 572 (1905).

³⁷ See *Willamette Meteorite*, *supra* note 31.

³⁸ See 25 U.S.C. § 3001 (2001).

³⁹ A "sacred object" is as an object required for the practice of one's religion. See *Willamette Meteorite*, *supra* note 31.

⁴⁰ See generally *Museum Sues Tribes Over Planetarium Meteorite*, available at <http://abcnews.go.com/sections/science/DailyNews/meteorite000228.html> (last visited Apr. 5, 2001).

⁴¹ See *id.*

Known as 'Tomanowos' to the Clackamas, who lived in the Willamette Valley before the arrival of European settlers, the Meteorite is revered by the Clackamas and their descendants. According to the tradition of the Clackamas, Tomanowos has healed and empowered people in the Willamette Valley since the beginning of time. The Clackamas believe that Tomanowos came to the valley as a representative of the Sky People and that a union occurred between the sky, earth, and water when it rested in the ground and collected rainwater in its

Again, could cloning resolve this dispute? My guess is that it could not. Most likely, the Clackamas Tribe, consistent with its religious beliefs, would insist that only the original of the two identical objects was truly imbued with the traditional sacred power. Likewise, the scientific staff of the Museum, consistent with its own particular (and strangely parallel) belief system, would probably insist with equal stubbornness that only one of those same two objects had really come from outer space. Both would continue to vie for the original.

The Elgin Marbles and the Willamette Meteorite contests both seem to suggest that, perhaps to a greater degree than we generally acknowledge, it is not only the visual and/or physical aspects of objects that make them important to us, but also (and perhaps even more so) their particular histories. Is it those histories, rather than any fact of uniqueness, that imbues objects with their purported "aura?" Certainly, by so palpably connecting us to our own cultural and personal roots, these objects, beyond their aesthetic or scientific interest, can play powerful roles in helping us to locate ourselves in the present. As John Merryman has quoted from John Steinbeck's *The Grapes of Wrath* in this regard: "How will we know it's us without our past?"⁴²

II. COPYRIGHT

Turning, then, to copyright, let me begin with the proposition that copyright is only one of two basic means by which the owner and/or possessor of cultural property can exercise control over its use by others; the other means is by controlling access to the property itself.

Traditionally, the great advantage of copyright has been that it permits the copyright holder to distribute the copyrighted work to a broad audience without having to negotiate the terms of a separate agreement with each user.⁴³ In the United States, though, copyright has traditionally been a matter of balance.⁴⁴ As virtually every commentator in the field has noted, the constitutional provi-

basins. The rainwater served as a powerful purifying, cleansing, and healing source for the Clackamas and their neighbors. Tribal hunters, seeking power, dipped their arrowheads in the water collected in the Meteorite's crevices. These traditions and the spiritual link with Tomanowos are preserved today through the ceremonies and songs of the descendants of the Clackamas.

Id.; see also *Oregon Iron Co.*, 81 P. at 572-73.

⁴² See John Henry Merryman, *The Public Interest in Cultural Property*, 77 CAL. L. REV. 339, 339 (1989) (quoting JOHN STEINBECK, *THE GRAPES OF WRATH* 114 (Penguin Books ed. 1976) (1939)).

⁴³ See generally 17 U.S.C. §§ 101-107 (2001).

⁴⁴ See MELVILLE B. NIMMER, *NIMMER ON COPYRIGHT* § 1.10(B)(2) (2000).

sion that authorizes the grant of copyright makes clear that its underlying purpose is ultimately a public one: “[t]o promote the progress of . . . [the] useful arts. . . .”⁴⁵ Accordingly, the Constitution also provides that copyright can only be granted for a limited time.⁴⁶ Works of authorship that receive copyright protection must sooner or later fall into the public domain and become freely available for use by all.⁴⁷

Also embodied in our copyright law are the concepts of “fair use” and “first sale.” Under Section 107, fair use permits a variety of uses for such purposes as criticism, comment, news reporting, teaching, scholarship or research without any need for the copyright proprietor’s approval.⁴⁸ Under Section 109(A), the first sale doctrine provides that the purchaser of a copyrighted work—a book, for example—is then free (without any need for the copyright proprietor’s approval) to resell that book, or to lend it to friends, to lease it, even to destroy it—in short, to do anything but copy it.⁴⁹

For many of us, these three limitations on the otherwise monopolistic reach of copyright—public domain, fair use, and first sale—are more than simple technicalities. They respond directly to the reason that copyright appears in the Constitution at all, i.e., that it is integral to the scheme of self-government.⁵⁰ For self-government to work, the citizenry must keep itself continuously informed through the free flow of information and ideas. Copyright, by encouraging the creation and dissemination of fresh ideas, novel insights, free commentary and informed criticism, is among the mechanisms intended to assure that the citizenry *does* become, and remain, informed. Such a product-centered view of copyright is light years removed from those author-centered European approaches that treat copyright as a natural right of creative individuals rather than as an incentive intended to enrich the communal discourse.⁵¹

In contrast to copyright, limiting other people’s use of a work

⁴⁵ U.S. CONST. art. I, § 8.

⁴⁶ *See id.*

⁴⁷ *See* 17 U.S.C. § 102 (2001).

⁴⁸ *See id.* at § 107.

⁴⁹ *See id.* at § 109A.

⁵⁰ *See* Deborah Hartnett, *A New Era for Copyright Law: Reconstituting the Fair Use Doctrine* 34 N.Y.L. SCH. L. REV. 267, 298 (1989) “Copyright law and the fair use doctrine contain many of the safeguards needed to ensure the robust public debate that is essential to self-government.” *Id.*

⁵¹ *See* Leslie Gail Williams, *Aspects of Intellectual Property Law in the European Community*, 16 HASTINGS INT’L. & COMP. L. REV. 527, 533-37 (1993) (providing a discussion of European copyright law).

by controlling access to that work has traditionally been practical only when the work to be controlled exists in very few copies— ideally only one.⁵² Consider a late nineteenth-century painting in a museum collection. Notwithstanding the fact that the museum may have never had a copyright in the work and/or that the painting has long since passed into the public domain, the museum can exercise as tight a control over reproductions of that work of art as if it actually held a valid copyright. For example, simply by monitoring the activities permitted on its premises, by forbidding visitors to bring in commercial-grade photography equipment and lights, such control is exercised. A combination of criminal law (forbidding breaking and entering), tort law (providing protection against trespass), and contract law (permitting the museum to limit the scope of any permitted uses), obviates the need for copyright or any other law pertinent to the painting itself.

We are now finding ourselves catapulted into an unprecedented “have-your-cake-and-eat-it” situation in which a copyright holder may *both* distribute a work to a broad audience *and* at the same time keep the tight control that has traditionally been possible only when the work was unique. Three factors contribute to this development: a new environment, a new technology, and a new law. The new environment is the digital one, with its capacity to convert text, images, and sound into digital data and distribute that data around the world; the new technology is encryption, the electronic equivalent of a strongroom inside which digital data can be safeguarded from any previously unauthorized use;⁵³ and the new law is the Digital Millennium Copyright Act (“DMCA”),⁵⁴ passed by Congress in 1998 to implement the United States obligations under the 1996 WIPO Copyright Treaty.⁵⁵ Among other things, the DMCA criminalizes both the circumvention of encryption *and* the manufacture and distribution of equipment that might be used for that purpose.⁵⁶ Under the DMCA, circumven-

⁵² See PAUL GOLDSTEIN, *COPYRIGHT* § 1.4 (2d ed. 2000) “The basic design of the 1976 Act is generally to prohibit all unauthorized, economically significant uses of copyrighted works and to carve out exceptions to this general prohibition through specifically expressed limitations.” *Id.*

⁵³ “Encryption” is the translation of data into a secret code. See *Webopedia*, available at <http://www.webopedia.internet.com/TERM/e/encryption.html> (last visited Feb. 28, 2001).

⁵⁴ See Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2360 (codified in 17 U.S.C. §§ 512, 1201-1205, 1301-1332, 4001) (1998) [hereinafter DMCA].

⁵⁵ The DMCA amended the Copyright Act to implement the World Intellectual Property Organization (“WIPO”). See generally H.R. Conf. Rep. No. 105-796 (1998), reprinted in 144 Cong. Rec. H10048 (daily ed. Oct. 8, 1998).

⁵⁶ See DMCA, *supra* note 54, at § 1201.

tion is the equivalent of breaking and entering.

In effect, this combination of factors destroys the traditional balance between copyright proprietors and potential users. Copyrighted material, once encrypted, can remain encrypted forever—thus killing off the notion of public domain.⁵⁷ Once encrypted, it can also be walled off from fair use.⁵⁸ Notwithstanding the possibility that a prospective fair user could fairly use it if she acquired access to it, the very effort to secure that access has itself been made a crime. Copyrighted material, once encrypted, can also be screened off from first sale because the owner need never sell it at all. Rather, he can decide to lease it—on whatever restrictive terms he chooses.

Consider, for example, how this might function in the case of a scholarly journal. In the pre-digital world, a library, having made a one-time payment, would thereafter be the owner of a hard copy version that it could lend out to the public, keep on an open shelf for browsing and/or other reference, and within certain limits, copy in facsimile form. After the work passed into the public domain, the library could freely copy it with no further limitation. Pending that day, library users would nevertheless still be able to make fair use of its contents. Finally, at the end of time, the library might still have the original hard copy in its archives with its text, incorruptible, still reading identically as it had on the day of the original acquisition.⁵⁹

In what appears to be the coming electronic environment, things may be wholly different. Instead of being able to buy a copy, and have it available indefinitely, the library may be forced to lease it instead and have it available only for as long as it continues to make its lease payments. Through encryption, the publisher may be able to impose separate charges, and/or otherwise control whether, and to what extent, the library's users may browse the journal's text. The control will be wholly in the hands of the publisher. If the publisher should go out of business, then back issues of the journal may simply cease to exist. The publisher would con-

⁵⁷ See generally PETER WAYNER, *DIGITAL COPYRIGHT PROTECTION* (1997).

⁵⁸ See *id.* at 8.

⁵⁹ By contrast, a web site may constantly be changed. For many converts to e-publishing, this ability to change a text—and often more than once—following its first distribution is one of its most positive attributes. Consider, for example, *Harrison's Principles of Internal Medicine*, a two-volume reference text of nearly 2,700 pages. McGraw-Hill sells a hard copy version of this work for \$149.00, but it also offers the work as a website at an annual cost of \$89.00. The website, unlike the hard copy, is continuously updated as the results of new medical research become available. See *Harrison's Principles of Internal Medicine (Harrison's Online)*, available at <http://www.health.library.mcgill.ca/database/harri-s.htm> (last visited Apr. 6, 2001).

trol whether the text remains constant, or if it changes, and the library will have a pile of receipts left in the end, not a traditional archival copy.

For content providers, this ability to control access can provide them with all of the exclusionary benefits of copyright and none of copyright's "down" sides: public domain, fair use, first sale. For a publisher, tightly in control of its materials, the expiration of copyright—even the extinguishing of copyright law itself—would be a non-event.

For the rest of us, however, this game is not even zero-sum. Our loss stands to be considerably greater than the content provider's gain. With the further diminution of public domain (already eroded by the Sonny Bono Copyright Term Extension Act),⁶⁰ and the emasculation of fair use and first sale, we will also lose some part of the common body of discourse that we need to share if we are to govern ourselves wisely and responsibly.

Is this ongoing destabilization of our copyright law reversible? To what extent might it be simply a by-product of the larger movement toward the globalization of trade, a movement certainly reflected in the United States's 1989 decision to become a signatory to the Berne Copyright Convention? Might there be some potential coalition that could mobilize the political pressure necessary to restore the traditional balance between content providers and users? Perhaps most important of all, might the constitutional roots from which our copyright law springs provide some legal basis through which we could reinvigorate public domain, fair use and first sale?

Given what's at stake, these questions might well be ones that a rising generation of copyright lawyers might fruitfully choose to address.

⁶⁰ See Sonny Bono Copyright Term Extension Act, Pub. L. No. 105-298, 112 Stat. 2827 (1998) (codified at 17 U.S.C. §§ 108, 203, 301-304 (2000)).