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Protecting Authors' Rights in a Digital Age

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DOERMANN DISTINGUISHED
LECTURER

PROTECTING AUTHORS' RIGHTS IN A DIGITAL AGE

Marshall Leaffer
Doermann Distinguished Lecturer

I FROM GUTENBERG TO ELECTRONIC NETWORKS

The Background

FOR the past twenty-five years I have been involved, in one way or another, in the Law of Copyright, and since 1978, I have taught a course on copyright law at the University of Toledo College of Law. I am grateful to have this forum provided by the Doermann Distinguished Lecture Program, to talk about my subject with a group of people in and outside the legal profession. In so doing, I do not plan to delve into the intricacies of copyright law, but to talk about the importance of this law that protects works of authorship. Specifically, I wish to concentrate on the difficulties that the digital revolution poses in protecting the creative output of authors.\(^1\) My conclusion is that traditional copyright law may

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In October 1995, University of Toledo President Frank Horton rededicated the Doermann Theater, which had undergone major renovation. This 650 seat room is the jewel of University Hall one of the finest university buildings in America.

To mark the rededication, the University announced the creation of a new institution, the Doermann Distinguished Lectureships. Beginning in 1996-97 three of our most accomplished faculty members will hold these lectureships each year. The first class of Doermann Distinguished Lecturers included Marshall Leaffer, professor of law; Carol Menning, professor and chair of history; and Charles Blatz, professor of philosophy. These persons were chosen from nominations put forward by the deans of all the colleges. The term of the lectureship is one year and each of the appointees receives an award of $1,500.

The lecturers are chosen for their career accomplishments in teaching and research and for their demonstrated ability to make their intellectual interests compelling to a diverse audience of faculty, students and public persons. The Doermann Distinguished Lectureships are intended to take their place alongside the annual awards for outstanding teaching and research. Like these long standing awards, the lectureship will confer upon the recipient the highest recognition which the University gives to its faculty.

1 As a matter of terminology, I am using the term 'author' as the person or persons who
largely be rendered obsolete by the digital revolution, which has challenged as never before the copyright owner's ability to control the unauthorized uses of the copyrighted work. In my talk, I am going to predict some things about the future. Needless to say, futurists, even professional ones, have a very poor track record for accuracy. I do not even claim to be an amateur futurist.

Predicting the future is a hazardous endeavor. For example, thirty years ago people were predicting video-phones and other technological marvels, and, thirty years later, they are nowhere to be found. Likewise, thirty years ago few people would have predicted the great changes in all our lives brought about by digitization.

Before I engage in the perils of futurism, I would like to explain why I think copyright law is a subject of immediate interest. The reason is the increasing importance of informational products in the U.S. economy.

The Economic Importance of the Copyright

In a surprisingly short period of time, the United States has evolved from an industrial to an information and services based society. Our post-industrial era is marked by a rapid technological change in which our ability to reproduce and receive information grows exponentially. It is hard to believe that motion pictures first appeared little more than seventy years ago. Many of us in this audience can remember a time when cable and satellite communications belonged to a hazy future. Who can predict what new information-based technologies lie ahead?

From all indications, the communications revolution is only in its infancy.

As the value of communicative expression grows, so does the legal structure that governs the rules concerning its ownership. Products of the mind are protected under three areas of intellectual property law. Patent law provides a limited monopoly for new and inventive products and processes and designs. Trademark law prohibits product imitators from passing off their goods or services as those of others. Copyright law protects original works of authorship.

The information industries are vital to the American economy in its post-industrial stage. The numbers are simply staggering. Depending on what study you use, the information industries generate over 400 billion in revenues, employing over seven million individuals. A selected sample of core copyright industries (including pre-recorded music, motion pictures, home videos, books, periodicals, newspapers, and computer software) shows foreign sales in 1990 of at least forty billion. To put these figures in perspective, only aviation and agricultural exports were larger. Of course, these figures are sure to grow in future years.

Such developments clearly indicate the growing importance of intellectual property and the legal structures that govern its ownership. The transfer of information has become an ever-greater component of international trade, and the centerpiece of U.S. competitiveness. Unlike other areas of the economy, where

create a work. The author is the initial copyright owner of the work. The author can transfer ownership to another person who now becomes the copyright owner.

2 Marshall Leaffer, Understanding Copyright Law 1 (2d ed. 1995)
intellectual property is concerned, the United States is a net exporter—indeed the world’s largest exporter, by far. Whether old media (motion pictures and music) or new (computer software), and multimedia works, this nation is preeminent in the production and distribution of copyrighted works. But there is a dark side to this success. American copyright owners have become increasingly vulnerable to piracy and expropriation abroad and to inadequate protection of their interests under foreign laws. Concern about piracy of American intellectual property abroad is a major foreign-policy issue, and a principal reason behind the United States support of the Uruguay Round of GATT, successfully completed at the end of 1994. Today, it seems as if the United States is as concerned about China’s piracy industry as it is about its sale of nuclear arms to Pakistan. But the increasing inability of authors and copyright owners to control unauthorized use of their works is much more than a foreign-policy dilemma. The digital revolution has made it possible to gain access to and exploit copyrighted works to a degree vastly superseding all other technologies permitting the reproduction and dissemination of information. Before I talk about this latter development, I would like to provide an overview of copyright law. To get a good grip on the subject, let us take a look at a brief historical tour to understand how the law of copyright has evolved and where we stand today.

Copyright Law from an Historical Perspective

In the broadest sense, copyright law creates a system of property rights for certain kinds of intangible products called “works of authorship.” Initiated in eighteenth-century England, the first copyright act gave authors the exclusive right to make copies of their books. One might view copyright law and its development as a continuing response to the challenge posed by new technologies that reproduce and distribute human expression. Indeed, the original copyright statute was a reaction to a new technology of the fifteenth century—the printing press. The printing press was introduced into England, in 1476, by William Caxton. This extraordinary invention allowed large-scale reproduction of books for the first time. It enriched booksellers but not necessarily authors and threatened the Crown. The Crown shuddered at the thought of widespread dissemination of works advocating religious heresy and political upheaval. The solution to these threats was a system of regulation designed to control this dangerous art of printing and publishing. In 1534, a royal decree prohibited anyone from publishing without a license and without approval by official censors. The Crown conferred a publishing monopoly on the Stationer’s Company, a group of London printers and booksellers who were expected to do the Crown’s bidding while handsomely lining their own pockets.

After a controversial and checkered career, during which the Stationer’s copyright was used as an instrument of both monopoly and press control, official licensing to publish expired in 1695, leaving the Stationer’s Company unsheltered by regulation and vulnerable to competition from upstart publishers. Parliament listened to the Company’s predictions of economic disaster and anarchy. In response to these lobbying efforts, parliament passed the first copyright act, the
Statute of Anne, in 1710. On the whole, the Statute of Anne became the model for copyright law in the United States. It prohibited the reproduction, that is, the copying, of a book without the consent of the copyright owner. While it recognized a property right in literature published in books, it gave this right for a specific, limited term of fourteen years. At the expiration of the term, the work would fall into the public domain. In this way, the Statute of Anne crafted a balance between a creator’s right to protect his literary creation and the public’s right of access.

Today, copyright covers much broader ground, including not only most artistic, literary, and musical work, but computer software and databases as well. Thus, copyright goes much farther than protecting the *Beaux Arts* and *Belles Lettres*. Telephone books and operating system programs are a far cry from a novel by John Updike, a piece of music by Aaron Copland, or a painting by Matisse.

The term “copyright” is a highly descriptive term: the right to make copies. But the descriptive nature of the term “copyright” is misleading if taken too literally. Today’s copyright law goes much farther than protecting works against copying in the strict sense of the word. Much of what we protect in copyright law today, such as performance rights, display rights, and derivative work rights, are more akin to rights to use a work rather than to copy. Today’s copyright act, known as the 1976 Copyright Act,4 is, in some ways, an intricate piece of legislation with some quite complicated provisions. Despite its complicated and sometimes convoluted provisions, the Act is founded on a basic structure and a simply stated principle. It provides that copyright subsists in all “original works of authorship fixed in a tangible medium of expression.”5 Obtaining copyright is easy. Copyright begins when an author places his work in material form—when a writer places the work on a piece of paper, a painter puts paint on a canvas, or a musical-work composer records the work on tape. Thus, the copyright act forces the author to place his work in a material form before he can seek protection.

Copyrightable subject matter is enumerated in eight categories in the Act. The more important of these categories are: literary works, dramatic works, graphic pictorial and sculptural works, audiovisual works, motion pictures, sound recordings, and architectural works. Once a work is fixed in a tangible medium and falls into one the subject matter categories, the author enjoys the bundle of rights that are called the “exclusive rights” of copyright. The exclusive rights include the right to reproduce, to distribute, and to perform publicly the copyrighted work. The exclusive rights are not absolute. The Act creates a complicated series exceptions to the exclusive rights. The best known of these exceptions is the fair use privilege that allows others to make use of the copyright work in a reasonable manner. Other portions of the Act include provisions concerning the ownership and duration of a copyrighted work, and remedies for

3 8 Anne ch 19 (1710)
4 Copyright Act of 1976, Pub L No 94 553 90 Stat 2541 (codified as amended in 17 USC)
5 17 USC § 102(a) (1994)
copyright infringement  The Copyright Act covers a lot of ground, but here I wish to focus on the the basic structure of copyright, founded on copyrightable subject matter, and the exclusive rights that attach to the work

Copyright as a System of Incentives

As reflected in the provisions that I have just outlined, the copyright law tries to strike a balance between protecting authors and allowing public access to the copyrighted work  Our copyright law is based on the Anglo-American notion that undesirable economic results will occur if unimpeded copying is allowed of those intangible products whose production we wish to encourage Copyright law focused on the benefits derived by the public from the labors of authors By this view, reward to the copyright owner is a necessary, though secondary, concern In other words, copyright operates as a method that encourages the production of works of authorship But a bargain is struck An author will receive a limited monopoly right over her novel, or painting, or piece of music In return, the term of protection will eventually expire, and the public will have full access to the work

The law of copyright erects an intricate set of fences and gates that allow the copyright owner to exclude others from use of the work, and in other ways, allows limited access to the work True, any monopoly is an evil from the consumer's standpoint But here it is a necessary evil Without protection of one's intellectual labor, there would be no incentive to create a work And ultimately, the public would be impoverished Samuel Johnson said it best: "[N]o man but a blockhead would write except for money"

Since the Statute of Anne was passed in the eighteenth century, the scope of copyright has greatly expanded to include more than purely traditional works It now encompasses photography, sound recordings, architectural works, and choreography Through the years, the system has tried to adapt to new technologies and the new ways by which we express ourselves The adaptation has not been perfect, but most would agree that it has, at least, been adequate The measure of this adequacy is, of course, the copyright law's ability to provide a practical method by which authors may protect their intellectual creations, but where the public is allowed access to the work

Today, the very foundation of copyright law is challenged by the new technologies Of course, a lot has changed since Gutenberg We have progressed from typewriters to Xerox machines, and now computers With each stage of technological development, the copyright laws in their adaptation have, on the whole, effectively protected the rights of authors Will copyright rise once again to the latest challenge—that of the digital age—or will the new digital technologies overwhelm the already overburdened copyright system? Let us now examine how digitization has challenged the fundamental premises of copyright law that have remained generally intact since the Statute of Anne
II THE DIGITAL REVOLUTION

What is Different About the Digital Revolution

What is different about the digital era when compared with the other technological challenges that authors have faced in protecting their works? In short, the digital revolution allows us to store, manipulate, and transmit data in ways that greatly transcend our previous techniques of storage, replication, and dissemination of information. As for data storage, digitization allows us to record all information in binary format—that is in "0's" and "1's". In this way, digitization enables all works to be recorded in a universal format. In addition to this common format, compression techniques have extended our ability to store data in ever smaller areas. We all know that one compact disk can digitally store a twenty-six volume encyclopedia, containing not only words, but images and sounds as well.

The second revolutionary aspect of the digital technology is that it allows us to manipulate data in ways undreamed of until recently. Once a work has been digitized, software programs enable us to isolate and modify any aspect of the work we wish to manipulate. Consider, for example, an image captured by a digital camera. Because the image is digitized, one may select particular colors, contrasts, or shapes from the image, and separate these elements from the overall image. In addition, digitization permits us to alter data without degrading it. Again, a digital photograph provides an excellent example of this phenomenon. We can alter the photograph, modifying it infinitely without any loss of visual quality as compared with a traditional touching-up.

The third aspect of this digital revolution concerns the transmission of data. With the phenomenal development in communications networking, transmission of data is no longer limited to one-to-one communication (e.g., telephone communication) or one-to-many communications (e.g., broadcasting). The networking of communications facilities allows the transmission of data from everyone to anywhere. Physical limits do not restrict the number of copies of a work that can be transmitted by electronic means. Similarly, no ceiling exists as to the number of recipients that can receive the work or where they may receive it.

Washington is a driving force behind these developments. Seeking to secure the United States' dominance as the world's leader in the information age, the President has endorsed the continued development of the national information infrastructure (NII) commonly referred to as the "information superhighway." As envisioned, the NII will link homes, offices, businesses, libraries, government agencies, and computers to each other and to individuals who may communicate through television or personal computers. The amount of information available to the average user would be vast, and barriers to information caused by walls or oceans would disappear. As the NII develops, along with its role in the global superhighway, it will rely heavily on its forerunner, today's most talked about communications network, the Internet.
Internet Infringement Interactivity

Nothing exceeds the Internet as an exemplary replicating mechanism. With a few strokes on the keyboard, a subscriber can post materials or copy/download them from the Internet. The types of information that can be transferred to or from the Internet run the gamut, from computer software, photographs and music to newspaper articles. The vastness of cyberspace renders untraceable the unauthorized reproduction and distribution of copyrighted materials. The software and entertainment industries, among others, are deeply concerned about the faceless, diffuse nature of these unauthorized uses that render their copyrights unenforceable. The problem is exacerbated by the culture of the Internet—an anything goes attitude among some Internet users. In sum, on the Internet, copying can take place without limits, without visibility, and without cost to the copier; a formula that spells disaster for authors to control use of their works.

Electronic networks facilitate interactivity, radically changing the meaning of communication as we have known it. With interactive communication, the receiver of data may be a supplier of data. An interactive reader of a text can also be its author, just as an interactive watcher of images can also be its creator. As I will discuss, interactivity and other aspects of the digital revolution allow new forms of creation and communication to occur. In so doing, however, they have upset the fundamental precepts of copyright law, based on authorial identity and the static text.

III Digitization Upsets the Bases of Copyright

Blurring the Boundaries of Copyright Law

What do these technological developments have to do with the future of authors’ rights? Quite a lot. The digital revolution will make us rethink all of the fundamental givens of copyright law.

As I stated earlier, the Copyright Act places subject matter in eight discrete categories such as literary, musical, artistic works, motion pictures, audiovisual, and sound-recordings, to name a few. Categorization is important. What category you place a particular work in will determine the scope of the rights each work enjoys. For example, if you characterize a work as a literary work, it cannot be performed publicly without consent of the copyright owner. On the other hand, if the work is categorized as a sound recording, the copyright owner will not enjoy a performance right. Digitization plays havoc with traditional categories. When a work is digitized and supplied in electronic digital format, via a communications network, it becomes impossible, and perhaps irrelevant, to categorize that subject matter using one of these copyright classifications. For example, how does one classify a work, received by an on-line service, of an actor reciting a piece of poetry, where visual images and music are transmitted? Is it a literary work, dramatic work, or a sound recording? Take another example. How do we classify an electronic book that contains text, sounds, still images, and moving ones, all stored on a CD-ROM? Is it a motion picture, or audiovisual work? In sum, digitization upsets the traditional notions of copyright law.
Copyright is based on the concept of a fixed text whose contents are static, permanent, unchanging. The Act confers the copyright privilege only on those works that are "fixed in a tangible medium of expression." Traditionally, the author has been able to determine the finished product—whether carvings in stone, ink on paper, or dye on celluloid. By contrast, digitized information is not frozen in print. The digital world is an interactive one, radically different than the world of the printing press on which so much of our current copyright law is based. Unlike the static Gutenberg world, interactive patterns of information are like life forms, constantly evolving and adapting to their surroundings, as in the oral tradition. In a way, we may be returning to an earlier era where stories were passed on from mouth to ear, without an authoritative version. But our system of copyright makes no accommodation whatsoever for expressions which do not become fixed at some point or for cultural expressions which lack a specific author. Will we look back at copyright law as a Gutenberg artifact, without relevancy to the way in which expressive information is produced and disseminated?

**The New Authorship**

Easy storage and manipulation of digital data, and the changing nature of copyrighted works, has forced us to reconceptualize the meaning of "authorship." Let me say some words about the concept of the author in copyright law. The author, and the notion of authorship, plays a critical, one might say an almost sacred, role in copyright law. In copyright law, the author is the one "from whom the work owes its origin." When we use the word "author" in this traditional way, one generally thinks of an individual or finite group of named individuals who collaborate as joint authors, such as songwriters who collaborate to create words and music. Authorial identity determines initial ownership of the copyrighted work and is a precondition to the granting of rights of a work.

Moreover, the concept of authorship in copyright law presupposes a human author. Consider the duration of copyright. The basic term of copyright worldwide is measured by the life of author plus fifty years. But look at the nature of authorship in the digitized world, in particular, the multimedia work. Multimedia creations are not so much authored as compiled from pre-existing works. Even more striking from this standpoint, more and more works, such as virtual reality works, are largely created by computer and involve little input by a human author. Today, computers generate literary, dramatic, musical, or artistic work, where little or no human input is apparent.

**Users as Authors Creation Democratized**

Interactive media further undermines the notion of authorial identity. Interactivity empowers the user to play a large role in determining the ultimate nature of the work. We are entering an era where the boundary between creator

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7 Burrow Giles Lithographic Co v Sarony 111 U.S. 53, 58 (1884)
and user becomes increasingly blurred. Compare the amount of active user input between a work of authorship embodied in a book and a video game, specifically designed for active tangible user input. As a result, the convenient dichotomy between author and user evaporates in an interactive environment. This, in turn, upsets the allocation of ownership rights between the author/copyright owner and user of the work. This breakdown suggests that we must rethink the meaning of authorship, in this digital era. It will make us reassess our individualistic notion of authorship—also called the romantic model of authorship—that is ingrained in popular thinking and inscribed in the law of copyright. But is this individualistic model of creation, on which so much of copyright law is based, appropriate to the world of digital electronic technologies, where sound, images, and words are duplicated, rearranged, and disseminated over vast reticulated electronic networks? Unlike our individualistic model of creation, the interactive digital world is one of shared texts—electronic bulletin boards, news groups, and electronic documents. Who is the author, and who is the publisher of these valuable informational products that result from these group efforts? Application of traditional copyright principles requires answers to such basic questions, but none are forthcoming. Unquestionably, these collaborations will present a multitude of legal and ethical issues about the ownership of the material produced. But can traditional copyright principles be adapted to the electronic network without stifling dynamic, rapidly evolving cultural commons? Some have forcefully argued that traditional copyright principles, based on individualistic notions of authorship, are inappropriate for the proper development of this new technology.

Although digital communication has displaced the static text and undermined the notion of authorial identity, it has also democratized and unleashed new forms of creation. In this decentralized environment, every consumer is a potential author, a potential publisher, and a potential infringer of copyright, all in one. Lack of fixed boundaries renders transactions involving copyright ownership chaotic and uncertain. In other words, the decentralization of creators, users, and distributors makes the prospect of informal arrangements between those parties exceedingly complicated and costly. Practitioners of copyright law worry that the present contract and licensing systems cannot accommodate these more fluid and unstructured relationships.

In sum, the digital revolution has allowed access to works and their reproduction and dissemination in ways not thought possible, until recently. Data storage, transmission, and manipulability seriously challenge the control of the copyright owner over his work. Without the ability to exclude others, creators will have little incentive to create works that take a heavy investment of time and effort. We may be left with these wonderful copying and transmission techniques, with less and less worth copying. In addition, the digital revolution has undermined copyright law's sacred notion of the author and has rendered meaningless, in large part, the traditional boundaries that we have erected to define works of authorship.

With these principles in mind, I would like to now turn to what future, if any, copyright law will play in protecting the creative output of authors.
IV  THE  FUTURE

Technological Self-help

For the foreseeable future, traditional copyright law will have a role to play in the protection of works of authorship. Copyright law, as we have known it, however, may be largely inadequate as applied to digitized works in electronic networks, forcing authors to seek other means to protect their works. Ultimately, the only answer to protecting authorship in the digital age may not be through a specific body of law, but a combination of technological self-help and contract. As for technological self-help, the principal method is by encryption techniques, which are the focus of much current research. Encryption encodes a work so that it cannot be read without the proper key. To have access to a work, the user must pay a fee to obtain a decryption key. Copy protection systems are not foolproof, and cracking encryption systems has become a form of sport for some programmers. Despite its limitations, we already have evidence that encryption provides effective protection. For example, new subscriptions to various commercial satellite TV services increased significantly when more effective encryption techniques effectively excluded unauthorized use, despite a prospering underground market in decoder chips. Because encryption will become ever more essential in protecting author's rights, we will see a major push for legislation that criminalizes any attempt to circumvent technological means for protecting digitized intellectual products.

Combining Technological Help, Contractual Arrangements and Criminal Sanctions

When works of authorship will less and less exist in material form, and reside in electronic networks, when technology to protect intellectual property is perfected and attempts to defeat it are made illegal, copyright law as a means of protecting these works will, in large part, become obsolete. In place of traditional copyright law, a combination of technological restrictions, contractual arrangements, and criminal sanctions may well provide sufficient protection to creators and innovators who will largely ignore traditional copyright law as the basis of enforcing their rights. In the coming world of the celestial jukebox, box office, or library, on-line access to a work will be allowed only to those who agree to conditions of payment and terms of use. Authors and owners will negotiate for the kind of access license the user desires, such as read-only access, access for viewing, or copying access. Here, payment for access may be guaranteed by automatic, on-line debiting of a credit card, and unauthorized use will be excluded by technological means. In addition, it will become possible to trace any subsequent unauthorized uses of the work and to automatically debit the account for the unauthorized use. These contractual structures will be reinforced by civil and criminal remedies against users of the networks who do not observe restrictions of their access license or who try to evade the security of the network. A legal regime based on technological and contractual exclusion against unauthorized use recognizes that the rights of authors can no longer be protected.
by a system of national regimes. The problem is that international copyright does not truly exist. The international conventions stipulate certain minimal provisions that member country laws should contain, but the norms set forth by the international conventions are not enforceable by individuals. For example, if someone in France makes an unauthorized download from an electronic network, the copyright law of France would be used in asserting rights against the infringer. But national law is obviously ineffective if a person can download a work in France without the owner of the exclusive rights in the United States either knowing about it or being able to prevent it. Thus, a new legal structure is necessitated by the realities of digital works residing in electronic networks that have no respect for national boundaries or the territoriability principle of international copyright.

Creation of Multimedia Products  Collective Solutions

The nature of the new multimedia products will change the way in which works of authorship will be licensed for their incorporation in other creative works. Although contractual and technological self-help strategies may provide sufficient protection for the rights holder, these methods will fall short in allowing the efficient use of preexisting works for the creator of multimedia. Licensing of multimedia works is clearly not new. What is new, however, is the magnitude of individual pieces of audiovisual work that must be licensed and the brevity of each such piece. Accordingly, other mechanisms for the licensing of works will have to be developed. To appreciate the licensing problems involved, imagine a typical multimedia work to be distributed on CD-ROM, such as an encyclopedia of Jazz. This work may have five or six hundred video and audio clips, the rights of which are owned by one or two hundred authors. The amount of licensing work involved in such an undertaking to clear rights is monumental, the practical questions it raises are imponderable, and the transaction costs involved are overwhelming. How would Columbia Records license three seconds of John Coltrane playing his instrument, to be used in the jazz encyclopedia mentioned above? What I foresee is the increased use of collective societies, much like those that provide a clearinghouse mechanism to collectively enforce the rights of musical copyright owners such as ASCAP-BMI. Other countries are ahead of the United States in recognizing the problem. For example, the Japanese Institute of Intellectual Property, in a 1994 report, has recommended the creation of a Digital Information Center, to act as a clearing house to administer voluntary licenses to use copyright works.

In contrast, the U.S. White Paper on International Property and the National Information Infrastructure,8 while noting the difficulties in obtaining licenses to create multimedia works, avoided recommending the establishment of even a voluntary licensing scheme. This reluctance to consider more elaborate collective licensing, I believe, reflects an American cultural bias against collective licensing systems. Although collective rights societies have a rich tradition in American

8 INFORMATION INFRASTRUCTURE TASK FORCE, INTELLECTUAL PROPERTY AND THE NATIONAL INFORMATION INFRASTRUCTURE (1995)
society, they are an exception to the traditional view that rights should be directly negotiated between copyright owners and prospective users. Despite this reluctance toward collectivization, I foresee a change in attitude eventually taking place, necessitated by the needs of creators to have access to the works of others to create their own.

V Conclusion

In concluding, some might criticize my remarks as being overly pessimistic about the ability of copyright law to adapt to the challenges of the digital revolution. There are those who say that copyright law can adapt to new technology as it has adapted to other technological challenges throughout its history. To the optimists, copyright law has been able to subsume such new expressive media as photography, motion pictures, and sound recordings. My own view is that we are in for some big changes in the way in which we protect the power of the creator against the power of owners of technologies that earn money exploiting the creations of authors. The debate over technology and the interests of authors is the very essence of copyright law, whatever form or name it might take. Whether we protect the creative output of authors by traditional methods or some new mechanism, this goal is socially imperative and worth the struggle.