THE NATIONAL INFORMATION INFRASTRUCTURE

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I want to thank you for inviting me to contribute a few thoughts about copyright in the twenty-first century. I am sure that this is not the first symposium with that title, and I think that we can be confident that it will not be the last. In fact, I understand that there is one scheduled for December 1999, which will be called "Copyright Two Weeks from Next Friday." The pace of change is accelerating, so there will probably be plenty to talk about at that point as well.

If this meeting were to have been held five or ten years ago when the twenty-first century seemed like a very distant prospect, we could all make grandiose pronouncements about how "the future lies ahead," and perhaps speculate. But, in fact, I think we have to recognize that the future is at hand. The twenty-first century is very close to us. The year 2000 (which the purists would tell me is not the twenty-first century, but most people think it is) is actually as close to us today, for example, as the beginning of the Bush administration is in the opposite direction. And that does not seem like so long ago.

We need to take a very practical approach and examine the elements of the future that already exist, as I believe that many of such elements already do exist and can provide adequate foresight. For example, we hear a lot about the National Information Infrastructure (the "NII") as an initiative of this administration. We already have an excellent national information infrastructure.

As a people, we generate enormous volumes of information of all kinds: the profound to the trivial and everything in between. And we distribute that information through a variety of efficient distribution networks—including print, broadcast, and digital—delivered to very broad publics. We may already have a national information infrastructure, but what we are talking about is one that is even more advanced in the future.

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Another common phrase is "digital libraries." The current administration has a big initiative on digital libraries, as did the Bush administration. We already have vast digital libraries. They have been in operation for many years. Just think about the databases that are collected, cataloged, and managed by organizations such as Dialog[1] or Lexis/Nexis[2] or many non-profit institutions. The current digital libraries are not as accessible or as large as the future digital libraries will be, but they are already here.

And then, of course, there is the Information Superhighway. Do we have one? Yes, we do. The Information Superhighway does not go to as many places as it will in the future; it is not as accessible as it will be in the future. But it seems to me that one gift that we can give to the rest of the century and to those who will follow us, is to retire the Information Superhighway metaphor. Let us not have any more speculations about rest stops, roadkill, or tollbooths, as there are other metaphors that might be more useful.

We are not suffering from a lack of information. I think most of us would agree that in many cases, the issue is not too little access to information; it is too much access. The issue is access to the wrong kind of information and the inability to usefully process the information that we have access to. Change will be fast, and it will be unpredictable, but we also have to remember that there is an element of continuity in such a process. The seeds of the twenty-first century information infrastructure are germinating today, if we know where to look.

I would like to look at those seeds for just a minute through a lens that is not often used, certainly not in Washington. That is the idea that the information which is the key element of this infrastructure does not simply materialize; it does not appear on screen once the computers and the networks are in place. It has to be created; it has to be maintained; it has to be put into a user-friendly format. It has to be available in ways that are responsive to the real needs of the market, the real needs of the public.

Ideally, it has to be attractive. This is especially true with respect to entertainment software. Moreover, with respect to factual databases, it has to be factually verified. An enormous investment is required to create the resources for this information infrastructure to exist. Some social incentives are needed to facilitate the creation and the maintenance of such information resources, and to facilitate transactions using this information. That is how the constitutional goal of promoting the progress of science and the useful arts[3] is achieved: by facilitating just those transactions in all types and all kinds of information.

[1] Dialog Information Services, Inc. is part of Knight-Ridder Business Information Services. Dialog offers online access to business and financial publications, news sources, and scientific, technical, and patent literature.

[2] The Lexis/Nexis research service includes online access to full-text news sources and to archives of federal and state legal materials, including case law, codes, and regulations. At the time of the symposium, the service was known as Mead Data Central. In late 1994, the Mead Corporation sold Lexis/Nexis to Reed Elsevier, plc.

So where does one look for the seeds of the twenty-first century information infrastructure? One place to look right now is to the Internet—a structure of more than two million host computers, a network of networks with traffic growing at double-digit rates per month.[4] New services are being announced every day that are indicative of the information infrastructure of the next century.

What do we see on the Internet? We see two things that may appear to be contradictory. First, there is an alarming lack of security for information. We see, in effect, a marketplace where shoplifting of other people's information is at least tolerated, if not encouraged. The recent indictment for software piracy on the Internet is one example. The problem of programs that serve people who are logging into remote computers via the Internet presents a second example.

Let us put it charitably: the mechanisms for creating and enforcing the revenue streams for access to information in the copyright sphere have lagged far behind the mechanisms for facilitating wide-spread unauthorized duplication, adaptation, and other uses of this information. Therefore, it is no wonder that many copyright proprietors approach the Internet with some trepidation.

But at the same time, we see something else happening on the Internet. We see a level of creativity that is flourishing despite the insecure environment. There is a lot of public domain software and databases that do add value to the experience of Internet users, particularly the retrieval and discovery tools like Gopher, Worldwide Web, Mosaic, and others.[5] I will defer to those who know more about the technology than I do to say whether or not these tools are technological breakthroughs. However, they certainly provide important means for diffusing information and re-

[3] The U.S. Constitution reads in part:

> The Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.

U.S. CONST. art. I, § 8, cl. 8.

[4] *See generally* S.E. Goodman, *The Global Diffusion of the Internet: Patterns and Problems*, COMM. OF THE ACM, Aug. 1994, at 27.

[5] *See generally* Jeffrey Frentzen, *Navigating the Airwaves*, PC WEEK, Nov. 15, 1993, at N15.

lated technology to a broader public. From the traditional copyright standpoint, these two simultaneous developments in the Internet create a remarkable paradox.

This paradox is better understood if we look beyond some of the theological disputes that have characterized a lot of recent copyright discourse. Perhaps it is easier to do that now because the twenty-first century is almost here. We are not talking about the great hereafter, but something that is virtually here. Some people claim that everything has changed because of the digital revolution; that we need to destroy our existing legal structure and start over. On the other end of the spectrum, there is the belief that nothing has changed and recent developments are just more of the same old thing. I think some bridges need to be built between those two positions.

Perhaps there is some kind of harmonic convergence going on. This is the end of the millennium. At the end of the last millennium there were waves of mass hysteria that swept Europe. People felt the end of the world was at hand. I shared that feeling when I read the following two quotes.

The first: "Information is a life-form. Self-replicating patterns of information propagate themselves across the ecologies of mind. The place where information dwells is the holy moment where transmission becomes reception."[6]

The second: "Information is living and breathing. It lends life and meaning. And when renewed and replenished, it nourishes and empowers."[7]

As I read these two passages, there is some convergence, at least metaphorically speaking, between the two opposing viewpoints. Hopefully, we can proceed here without fear of excommunication from either camp.

I want to make three points about what I see ahead in the information infrastructure. First, copyright is not alone. Second, if content is king, who is the prime minister? Third, what is the role of culture in all of this?

Copyright is obviously a very important factor in the future of the information infrastructure, but it is not alone in two respects.

[6] John Perry Barlow, *The Economy of Ideas: A Framework for Patents and Copyrights in the Digital Age (Everything you know about intellectual property is wrong)*, WIRED, Mar. 1994, at 126.

[7] Vance Opperman, *NII—Defining the 'It'*, Council Member Submission distributed at the meeting of the United States Advisory Council on the National Information Infrastructure (Washington D.C., Mar. 18, 1994) (on file with *Cardozo Arts & Entertainment Law Journal*). Mr. Opperman, the President of West Publishing Company, did *not* entitle his article "*Everything You Know About Intellectual Property Is Right*," but he might have. He is certainly a vigorous advocate of strong copyright protection.

First, it has never been suggested that copyright is the *only* system of incentives for the creation and distribution of information, simply that it is the best one. Experience bears this out and will continue to do so. The Internet and other examples illustrate that there is a lot to be accomplished through other forms of incentives, chiefly through patronage. Many of these advances on the Internet have been supported by wealthy patrons—whether they be universities or other institutions, or, the wealthiest patron of all, the taxpayers—who collectively have helped to finance much of this. Clearly, the information infrastructure of the future is going to be a mixed world in which some areas are governed by copyright and some by other incentive systems.

There is a second sense in which copyright is not alone. There are many other legal doctrines that operate to determine rights in information that will continue and probably accelerate. Besides other intellectual property laws, especially patent and trade secret regulations, which have an effect here, there is also the protection of the Electronics Communications Privacy Act (the "ECPA").[8] The ECPA makes the unauthorized interception of a digital message under certain circumstances a crime as well as a statutory tort. It is unclear how one would intercept a message without also reproducing it. Although the ECPA does overlap with copyright, it is the ECPA which governs much of the legal rights and responsibilities in this area.

Other examples are specific to certain types of information. If you consider databases on financial information, for example, the Securities Act and the Securities and Exchange Commission provide a lot of the legal environment, not the Copyright Act.

One area to watch, which will likely have more of an impact on the information infrastructure, is privacy law. The question of ownership of data on individuals is becoming increasingly controversial.

Chief among the other legal doctrines is contract law. If content is king, then contract is the prime minister. Contract law is the mechanism that is really used to determine who gets information and what they can do with it. That is certainly true today in the online, electronic environment. Online subscriber agreements govern issues such as access, downloading, and redistribution of information.

The same is true in the software field, as is the case with CD-

[8] Pub. Law No. 99-508, 100 Stat. 1848 (codified at 18 U.S.C. § 2510 *et seq.*).

ROM. As Michael Scott[9] noted, CD-ROM employs a portable medium but is conveyed under a license agreement, a contract by which rights are allocated. Subscription agreements of publishers make this a reality in the print world. After the Supreme Court decision in *Feist Publications, Inc., v. Rural Telephone Service Co.*,[10] even some one-time sales of printed products may have become licenses of printed products.

This trend towards contract is going to accelerate as the NII develops. That may appear paradoxical, but the Internet today is akin to a contract-free zone, and technology is moving in that direction. We at the Information Industry Association (the "IIA") have spent quite a few months reviewing many of the technological proposals for protecting and managing copyrighted information in this environment. Such technologies have the potential to make this network environment more hospitable to copyright proprietors, as will be discussed later this month in an extensive paper on that issue to be published by the IIA.[11]

There are a lot of different proposals out there; which ones will work best, we do not know. One common feature in many of these proposals is that the information be encapsulated or attached to a header or an envelope that would provide security but could also be used to set licensing terms and conditions. Perhaps the header or envelope could be used to meter usage of or access to the work. In other words, these technologies could facilitate transactions regarding copyrighted works by making one's access conditional on acceptance of and adherence to such contract terms.

This could become very common in the network environment if—and it is indeed a big if—there is a strong billing and collection mechanism in use to collect payments. So far, such a mechanism has not been institutionalized on the Internet. Technology could also facilitate negotiation of contract terms: not just take-it-or-leave-it contracts, but legitimate negotiations through the use of intelligent agents. The transaction costs that were referred to by previous speakers are a very real issue but perhaps technology can help to reduce them.

This technology is not just restricted to a pay-per-view or per-

9 Michael Scott, Esq., Vice President and General Counsel of the Sanctuary Woods Corporation, participated in *Cardozo Arts & Entertainment Law Journal*'s symposium, "Copyright in the Twenty-First Century."

10 499 U.S. 340 (1991) (holding that constitutional or statutory requirements for copyright protection were not met for directory containing names, towns, and telephone numbers of subscribers of a public utility company).

11 JOSEPH L. EBERSOLE, PROTECTING INTELLECTUAL PROPERTY RIGHTS ON THE INFORMATION SUPERHIGHWAYS (Information Industry Ass'n ed. 1994).

transaction system. It could facilitate collective transactions on both sides—collective administration of rights as well as collective access or licensing of rights. What if affinity groups of some kind—whether a campus or a neighborhood, a workforce or a club—were licensed collectively to access a certain body of information? The license terms could allow the information to be used within that affinity group but not outside it. A transaction of this sort, which could be automated, could be one of the methods by which people get access to information in the twenty-first century.

What are the resulting implications? I would like to mention three. First, does the rise of a contract mean the death of copyright? Not at all. Copyright continues to provide the ground rules. Copyright defines the rights that are the subject matter of these contracts, and it defines the default rules if a contract does not exist. Even though most people acquire real property through contracts or leases, real property law continues to be applicable. Very important copyright issues remain to be decided.

The second implication of this technology is that, obviously, it makes developments in contract law very important. One current development that is worth attention is the effort to revise Article Two of the Uniform Commercial Code (the "UCC"),[12] to cover licensing agreements concerning intangibles that include, among others, software and data. This effort confronts issues such as how to form a contract electronically. What are the warranties or liabilities involved? What remedies will be provided by law? These are all key issues in structuring transactions in information. The focus of the UCC revision effort is on freedom of contract so the parties can decide how to answer these questions themselves.[13] But the UCC could provide default rules and gap-fillers which could be very important in the advanced network environment.

The third implication of this contract regime is to stimulate focus on the work necessary in order for the regime to take effect. Much of that is technological research and development, some of which is summarized in the paper that I referred to previously this morning.[14] Some of the legislation that is pending on the information infrastructure identifies copyright protection and management as an area that deserves Federal support for research and

12 As part of the process of revising Article 2 of the UCC, consideration is being given to establishing uniform law provisions on licensing of intangibles (including access to information). *See generally* R. NIMMER, THE LAW OF COMPUTER TECHNOLOGY app. C ("Technology Contracts and Uniform Commercial Code Reform") (Supp. 1994).

13 *See* EBERSOLE, *supra* note 11.

14 *See id.*

development.[15] There is a need for test beds and experimentation to determine what actually works in practice.

Another type of work that needs to be achieved is development of some of the infrastructure that is needed for a contract environment to work. Standards and protocols for billing, collection, payment services, and digital cash, are some examples. The World Intellectual Property Organization has proposed an international numbering scheme for different types of works to identify the works that are currently being licensed.[16]

Perhaps the most important work is the work of dialogue—not theological debate, but, rather, bridge-building among the different interests that are involved. There needs to be some shared understanding of what these contract terms would mean, some greater definition and evaluation of the bundle of rights involved before one can expect a contract regime to work. It is no small feat to create an environment in which contract can flourish, but I believe it would be an effort well spent. To the extent that this effort facilitates informational transactions in the new information infrastructure, it also helps to achieve the objectives that underlie our copyright system.

My final point concerns culture. Many of the most important questions that need to be addressed are not legal or technological. They are cultural.

We have the ability to make a perfect digital copy of text or images or multimedia, and to make it accessible instantly to millions of users. Despite the exciting ramifications, such technology can also constitute a license to steal another's property cheaply, easily, and in a manner that destroys any incentive for future creativity.

This is an aspect of the development of the information infrastructure that we neglect at our peril. A lot of time, effort, and money, including our money as taxpayers, will be spent over the

15 *See, e.g.*, H.R. Rep. No. 1757, 103d Cong., 1st Sess. § 3 (1993), which, as approved by the House of Representatives, would amend the High Performance Computing Act of 1991 to authorize (in new section 309(b)(9)) federal research and development funding into "means for protecting copyrighted material in electronic form, including, if technologically feasible, systems with capabilities for electronically identifying copyrighted works and for electronically indicating whether any permission which is required by title 17, United States Code, has been granted by the copyright owner." H.R. Rep. No. 173, 103d Cong., 1st Sess. (1993) (National Information Infrastructure Act of 1993). The NII Act was not enacted during the 103rd Congress.

16 *See* World Intellectual Property Organization Doc. INS/CM/94/1, *Questions Concerning the Establishment of a Voluntary International Numbering System for Certain Categories of Literary and Artistic Works and for Phonograms* (Geneva: Feb. 14-15, 1994) (on file with the author).

next few years to encourage use of the advanced information networks. It is imperative that those of us who are involved in this system—those of us who learn and lecture about this area—understand our responsibility to encourage responsible use of those networks in order to achieve the goals of a national information infrastructure.