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ABSTRACT

The first half of the proceedings consists of three papers presented during the program session of a Library of Congress Network Advisory Committee (NAC) meeting. The first, a background paper by Robert L. Oakley, identifies some of the problems that modern information technology has created for the intellectual property system in the United States; reviews several alternative proposals for dealing with the problems; briefly examines the ways in which Canada and the United States have approached the same issues; and concludes that these problems are solvable through amendment, new "sui generis" approaches, and expanded roles for an administrative agency, or through the development of voluntary or compulsory licensing mechanisms. In the second paper, Shirley Echelman comments on issues raised by Robert Oakley's report, and summarizes presentations given at a previous program session. The third paper, by Robert J. Kost, interprets an Office of Technology Assessment report about intellectual property rights and explains why the marriage between the law and technology is currently "on the rocks." The second half of the proceedings is a report on the business session of the NAC. Appendixes include the meeting agenda; a list of working groups; criteria for membership in the NAC; a list of suggested and prioritized topics for future research on networking; and a statement from the American Library Association on the phone companies' open network architecture plans filed with the Federal Communications Commission and a request for input on these plans from libraries. (SD)

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Intellectual Property Issues in the Library Network Context

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CONTENTS

FOREWORD

Intellectual property systems of today, challenged by the new information and communications technologies, need substantial changes or new mechanisms to allocate both rights and awards in the library network environment. The technological changes are now outpacing legal structures that govern systems. The major focus of the Library of Congress Network Advisory Committee's program session, held during its March 23-25, 1988 meeting, was on the identification of intellectual property issues in the library network context. Invited speakers set the stage to provide NAC members with a better understanding of the issues involved. Their presentations addressed predictions that the copyright law will be replaced by contracts of adhesion; the use of collecting societies as a mechanism to provide fair compensation to creators; the expanded role of the Copyright Office; and the need to amend copyright law to meet the challenges of new technologies.

I gratefully acknowledge the assistance of the Program Subcommittee--Robert L. Oakley, Georgetown University Law Center Library; Ronald F. Miller, Cooperative Library Agency for Systems and Services; Charles P. Bourne, DIALOG Information Service, Inc.; Lois Ann Colaianni, National Library of Medicine; and Mary Ellen Jacob, OCLC Online Computer Library Center, Inc.--in making the meeting a success. The Program Subcommittee joins me in thanking all those who prepared papers and gave presentations--Robert L. Oakley who prepared the background paper; Robert J. Kost, PRODIGY Services Company; Stan Besen, Rand Corporation; Marybeth Peters, Library of Congress, Copyright Office; and Jon Baumgarten, Proskauer, Rose, Goetz, & Mendelsohn. Due to time pressure only Robert Kost was able to prepare a paper. Shirley Echelman summarized the program's presentations and the working groups' deliberations and Sigrid G. Harriman edited all papers and put the proceedings together.

The document has been issued within the Network Planning Paper series. It should be noted that the opinions expressed in the proceedings are those of the individual speakers and do not necessarily reflect the opinions of their organizations.

Henriette D. Avram
Chair, Network Advisory Committee

March 1, 1989

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INTELLECTUAL PROPERTY ISSUES AND INFORMATION NETWORKS:

a Background Paper

by Robert L. Oakley[1]

Abstract

The author identifies some of the problems that modern information technology has created for the intellectual property system in the United States. He then reviews several alternative proposals for dealing with the problems, and examines briefly the ways in which Canada and the United Kingdom have tried to deal with some of the same issues.

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[1] Robert L. Oakley is the Director of the Law Library and Professor of Law at the Georgetown University Law Center in Washington, D.C. This paper was prepared as a discussion document for the meeting of the Library of Congress Network Advisory Committee held March 23-25, 1988. The author would appreciate the courtesy of notification of any use or reproduction of this paper.

Contents of Background Paper

Introduction

With its roots in a pre-industrial agrarian society, the intellectual property system of the United States evolved at a time when writing and invention were synonymous with learning and progress. The founding fathers, being well educated themselves, were anxious to create an environment that would stimulate learning. They also knew that continued intellectual and scientific progress was vital to the new nation they were founding. Accordingly, they created a system of incentives to encourage the production of knowledge. The foundations of that system, both legal and philosophical, are found in Article I, Section 8 of the Constitution of the United States:

> Congress shall have the 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.

Although the system was intended to stimulate creativity by providing benefits to creators, its essential purpose was to benefit society as a whole. When the Copyright Act of 1909 was passed, Congress made the social goal even more explicit:

> The enactment of copyright legislation by Congress under the terms of the Constitution is not based on any natural right that the author has in his writings, for the Supreme Court has held that such rights as he has are purely statutory rights, but on the ground that the welfare of the public will be served and progress of science and useful arts will be promoted...Not primarily for the benefit of the author, but primarily for the benefit of the public such rights are given. Not that any particular class of citizens, however worthy, may benefit, but because the policy is believed to be for the benefit of the great body of people, in that it will stimulate writing and invention to give some bonus to authors and inventors.[2]

Although the original goals still seem valid, in the midst of the technological and information revolution of the twentieth century, the intellectual property system set up to achieve those goals seems to some to be increasingly anachronistic. Just as the industrial revolution had a profound impact on the eighteenth and nineteenth centuries, the information revolution is changing many of the social structures of the twentieth.[3]

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[2] S.Rep. No. 1108, 60th Cong., 2d Sess., 7 (1909).

[3] The U.S. economy is shifting from an industrial-based economy to one that is predominantly based in the information industry. According to a study by Forecasting International, "[t]he current 26% of the workforce involved in manufacturing will decline to 8-11% by 1990, while service sector employment will grow from 68% to 88% of the work force by 2000, of which 44% will be in the information industry ..." Computerworld, July 30,

Indeed, the new technology may even be undermining the very laws that were designed to stimulate the production and distribution of information.

At the heart of the revolution are networks that distribute information electronically by means of cable, telephone systems, or satellite transmission.[4] Through such networks, information is now reproduced and distributed within an office, across a city, throughout the country, or even around the world instantaneously. This environment is substantially different from what existed at the time of the origins of the intellectual property system. Then, books and other sources of information were produced individually, and conveying the information to someone else meant copying it by hand or transporting the physical item from one place to another. A key question in analyzing whether or not a complete restructuring of the intellectual property system is needed is whether these changes are so fundamental that the current system can no longer evolve to meet its own stated goals.

The term network now includes many different types of organizations and structures. Networks exist today everywhere records are created or maintained. They exist to maintain records on individuals;[5] they exist

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1984, p.14.

[4] Although the interest of NAC is primarily library networks, the intellectual property issues are much broader and involve information networks of any type. Similarly, the networks that are now of interest to libraries are much broader than just the bibliographic utilities that provide services to libraries. Accordingly, this paper will not limit its discussion to library or bibliographic networks, but will attempt to keep in mind all forms of information networking.

[5] Hospitals frequently keep patient records and other pertinent information in central data files. Credit information is available on most of the U.S. population through centralized credit bureaus. Individual criminal records as well as driving records are maintained by the law enforcement sector. Most of these databases are not available to the general public and do not raise intellectual property issues. They do, however, raise some troublesome questions related to privacy, unauthorized access, and international data flow, all of which are beyond the scope of this paper. P.L. 98-473, 98 Stat. 2190 (Oct. 12, 1984), as amended by P.L. 99-474, 100 Stat. 1213 (Oct. 16, 1986), (18 U.S.C.A. 1030 (1987 pp.)) made it a Federal crime to gain unauthorized access to Federal databases and certain private databases, particularly those of financial institutions. The O.E.C.D. and several European countries have been actively involved in promoting standards to safeguard private information on individuals. For the text of the O.E.C.D. guidelines see "OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data," 20 Int'l Leg. Mats. 422 (1981). See also "Council of Europe Convention for the Protection of Individuals with Regard to Automatic Processing of Personal Data", 20 Int'l Leg. Mats. 317 (1981). For a discussion of international data transfer generally, see Transborder Data Flows: Proceedings of an OECD Conference held December 1983 (North Holland, 1985).

throughout the service industry;[6] and they exist in many of the professions.[7] Beyond these specialized networks, in the last few years, many new networks have sprung up for the use of the general public. These include hundreds of local bulletin boards by which information, software, and other data is exchanged, as well as some larger national networks such as The Source, Genie, and Compuserve. Library networks have existed for many years, but until now their data files have been essentially limited to bibliographic data. Nonetheless, they have always held out the promise of going beyond bibliographic information to become a means of getting information directly to the user.[8] This discussion has surfaced again recently with new vigor.[9]

Direct access to information online implies the storage of copyrighted material for the express purpose of making it available to users, either by a screen display or in downloaded machine-readable or

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[6] For example, not only is the Official Airline Guide maintained online, but all of the reservations for the major airlines are also held centrally to facilitate the availability of flight information.

[7] Through the National Library of Medicine, the medical profession has long had a network to facilitate the identification and delivery of relevant information to a doctor or medical researcher. The legal profession has a network that provides them with the full text of relevant legal documents online. The library profession has developed several networks for the sharing of bibliographic and other related information.

[8] Library networks are already used to facilitate interlibrary lending, but with developing information storage technology, it seems only a matter of time before they begin to store the information itself for direct access by a library user.

[9] In a recent article, Fred Kilgour outlines the OCLC EIDOS project, which has been under discussion for some years, but which he says will begin to be available sometime in 1988. In essence, EIDOS will permit a user to search for information on OCLC, obtain a bibliographic reference, and then obtain the document online. 112 Library Journal 46 (October 1, 1987). The development of Hypertext adds yet another dimension to online networking and direct document access. Hypertext allows for the online storage of all information (full text) in a way that any piece of it is accessible by anyone at anytime. It permits the individual to locate information easily, create their own data files, and jump around from one bit of information to another at will. See Nelson, "On the Road to Xanadu", 11 Personal Computing 170 (November 1987). To a limited extent, small scale applications of both of these concepts are available through the full text legal databases, LEXIS and WESTLAW. Both of those systems allow you to identify relevant documents and see the text of those documents directly, online. Both also allow you to skip directly from one document to another without backing out of your original search and constructing a new one. These systems are relatively small compared to the universe of knowledge contemplated by both EIDOS and Xanadu, but they are important steps in the development of online document delivery.

paper copies. A considerable amount of such material is already available in LEXIS, NEXIS, and WESTLAW; similarly, Compuserve has created a "Library", in which one can find book reviews as well as the full text of creative works stored there by others.[10] A great deal of software is also freely available through such systems. As network development moves beyond information indexing and toward information access, some resolution of the intellectual property issues is critical to insure that the networks continue to develop unconstrained by an uncertain legal situation and to insure that the relationship among the parties is consistent with the goals of public policy.

In any system for the protection of intellectual property, the interests of the creator, the database owner, the vendor, and the ultimate user will all intersect. The intellectual property system establishes the legal environment in which the parties operate and defines the basic bundle of rights which each possesses in the absence of contractual modifications. To the extent that there are ambiguities in the law or the parties want to modify their respective rights, those differences can be resolved by contract. But even though such a contract is possible, the intellectual property system remains a critical part of the picture since it defines the starting point and provides the basis for negotiations. Lack of clarity in the system may constrain the development of new information systems because of uncertainties about the respective rights of the parties. It may also give one of the parties a better bargaining position than is consistent with the goals of the system.

Current Issues

Over the last several years, a variety of issues have surfaced concerning the application of intellectual property law to the new technological environment. Although the focus of much of the public discussion has been in the area of paper and electronic copying and document distribution, the development of information networks raises fundamental issues. Focusing on the network context, this paper will consider some of the questions related to (1) what is or should be protected and for how long; (2) what formalities should be required for protection; (3) what constitutes potential infringement; (4) what uses are not infringement; (5) where does private copying fit in; and (6) what are the difficulties of enforcement, and how can they be overcome?

A. What is/might be Protected and for How Long?

To qualify for protection under the current Copyright Act, a work must be an:

> original work of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived reproduced, or otherwise communicated, either

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[10] December 1987 Online Today 16.

directly or with the aid of a machine or device.[11]

The previous Copyright Act protected the "writings" of an author and provided a non-exclusive list of categories, including books, periodicals, lecturers, dramatic or musical works, maps, photographs, motion pictures, sound recordings, etc.[12] requirement preclude someone from seeking protection for an idea[13] and provides a measure of certainty about what has been protected. As information first began to be stored in machine readable form, however, the question arose about whether data stored on punched cards, on tape, or in computer memory warranted protection. An early case had held that rolls for a player piano were not copies of the musical composition because they did not constitute a "writing" and could not be easily deciphered.[14] The comparison of the piano rolls to punched cards and other early forms of machine readable information was inescapable. Since information stored in this way was not eye readable and could be changed easily, it did not appear to be a writing that would qualify for protection under the Act. After much discussion, the Copyright Act of 1976 dealt with this problem by making it clear that information stored in machine readable form would meet the requirements of the act so long as it could be perceived somehow, even though it might require the aid of a machine or other device. That issue having been resolved, it left behind a number of others concerning the copyrightability of certain kinds of works.

1. Works of Art, Fact, or Function

The OTA Report argues that one of the fundamental problems with the Copyright Act as it stands today is that it treats all works coming under its provisions as being alike.[15] The Report suggests that a tripartite

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[11] 17 U.S.C. 102(a) (1982)

[12] See 17 U.S.C. Sec. 4,5 (1976).

[13] In Baker v. Selden 101 U.S. 99, 25 L.Ed. 841 (1879) the plaintiff was seeking protection for a ledger book that by a particular system of lines and rulings allowed the user to review at a glance the transactions for a week at a time. The defendant had achieved a similar result with a different set of rulings. The court held that although the book may be copyrightable, the idea of organizing the transactions in this way was not, distinguishing between the book itself and the way in which it was presented and the idea embodied in the book. This case has stood as a landmark case for many years and may have particular relevance today, particularly to the so-called "look and feel" software cases.

[14] White-Smith Music Publishing Company v. Apollo Company, 209 U.S. 1, 18, 52 L.Ed. 655, 28 S.Ct. 319 (1908).

[15] Intellectual Property Rights in an Age of Electronics and Information, Report of the Office of Technology Assessment of the United States Congress, 1986, (hereinafter cited as OTA Report) at 65 et. seq. The author wishes to acknowledge here reliance he has placed on the OTA Report throughout this paper, particularly in the section on the identification of issues.

division of all works into works of art,[16] works of fact,[17] and works of function[18] provides an analytical framework that is more likely to lead to results that are consistent with the ways the works are actually used. The requirements for copyrightability could be different for the different categories and the duration of protection could more accurately reflect the perceived useful life of each type of work. Similarly, for each type there could be different standards for permissible copying. These categories need not be exclusive; there may be many other ways of looking at the universe of information. Nonetheless, the idea of copyright not being monolithic, but permitting different categories of "works", each with different standards and different benefits, is a new way to think about copyright, one that might be helpful to the Committee as it considers some of the other problems discussed below.

2. "Work of Authorship"

In today's information environment, even the fundamental concept of a "work of authorship" may need re-examination.

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[16] Works of art would include those works which are created for their own value, including works of fiction, drama, film, sculpture, painting, etc. OTA Report, p. 66.

[17] Although facts themselves may not be protected, works of fact include those works "whose value lies in the accurate representation of reality." It includes compilations of data and information as well as maps, news programs, etc. It also includes most scientific and scholarly literature although some scholarly literature may also cross the line into works of art. In works of fact, protection is limited to the way the information is expressed or presented. There is no protection for the raw data itself. OTA Report, p.73.

[18] Works of function include those works that "use information to describe or implement a process, procedure or algorithm". Some works of function are "physical objects that embody procedural information, such as cams or cogs in a machine, or punch cards for a loom." But works of function can also include written works, such as recipes or instruction manuals that describe a specific procedure or algorithm. Although protection is available for the writing, traditionally there has been no protection for the specific process or algorithm. Under certain circumstances, processes may be protected under patent law but not under copyright.

This limitation has posed particular difficulty for the protection of computer software, works which are now clearly accepted as writings, but which are also in themselves designed to accomplish a task or carry out a process or function. Congress dealt with this issue by including computer software as a "literary work" in the Copyright Act (See 1980 Computer Software Copyright Act, P.L. 96-517 94 Stat 3028 (1980).) Nonetheless, the conceptual problems behind the original dilemma have not gone away, and some key differences remain between software and the other types of writings. OTA Report, pp 76 et. seq.

Traditionally, a "work" has implied a finished product, something that is complete, stable, and fixable. At the same time, the statute provides protection "from the moment of creation",[19] suggesting that even as the words are written down they are protected. Thus, even drafts are automatically protected in the paper environment, because they are relatively stable, exist on paper, and have a kind of permanence. By contrast, in the networking environment, "works" may exist only in electronic memory and they may be constantly changing. (At the moment, this paper exists only in computer memory and on the computer screen; it has no permanence at all, since it has not yet been saved.) One commentator has noted that:

> the process of computer communication produces multitudinous versions of texts, which are partially authored by people and partly automatic. The receivers may be individuals, or they may be other machines that never print the words in visible form but use the information to produce something else again. So some of the text that is used exists electronically but is never apparent; some is flashed briefly on the screen; and some is printed out in hard copy. What starts as one text varies and changes by degrees to a new one. Totally new concepts will have to be invented to compensate creative work in this environment.[20]

Networks are already being used for online conferencing by scientists, scholars, and professionals. In addition to facilitating communication and the exchange of information, networks permit authors to work together in ways that were never possible before. Joint authors can now work online and quickly review each others' work. When a small number of co-authors work on a text in this relatively traditional way, using the network to critique each other, few new problems arise. However, online conferencing also permits large numbers of people unknown to each other to collaborate. A piece of fiction or music can be started by one person and over time be changed and embellished by others. In such a dynamic environment, the "work" will be constantly changing, and may never really be said to be finished.

The OTA Report points out that there is a key difference between information distributed electronically and information published in traditional sources.

> Works transmitted electronically are likely to be still in progress, with multiple authors, each at a different stage of revising the work. Eventually, scientific research may actually be published on such networks instead of on paper....[but] As Ithiel de Sola Pool has noted, 'the

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19 17 U.S.C. 302(a) (1982).

20 Ithiel de sola Pool, Technologies of Freedom, (Cambridge, MA., Belknap Pr., 1983) p.215.

> proliferation of texts in multiple forms, with no clear line between early drafts and final printed versions, will overwhelm any identification of what is the world's literature.'[21]

(Quite apart from notions of copyright, such a possibility is likely to be troublesome to librarians who have gone to great efforts not only to identify, but also to catalog the world's literature.) Under such circumstances, the concept of a finished "work", to be protected from the moment of creation seems difficult, if not impossible, to administer.

NAC may wish to consider the question of what should constitute a protectible "work" in the ever-changing world of networks. They might focus on this issue by considering when copyright protection should begin or when there is a "work" or something else that can be protected.

The concept of "authorship" in the online environment is even more problematic for reasons related to those discussed above. Under the current Act, the initial owner of the copyright is the author.[22] The Supreme Court has defined "author" as "he to whom anything owes its origin; originator, or maker."[23] But, in the dynamic environment described above, it may be extremely difficult to identify the author in any useful way.

In a computer network such as that described above, it is entirely possible for many people to contribute to a work, and for the contributors to be totally unknown to each other. Furthermore, unless the owner of the network has set it up to deal with these issues before people can contribute (by means of an online stipulation to a contractual agreement), it is unlikely that the participants will have agreed on their relationship in advance. In such an environment, does authorship rest with the person who first conceived a work and gave it its start? Or, does it belong to everyone who ever worked on a piece, no matter how much or how little they contributed? Does it only belong to those who contributed a certain percentage to the whole? Someone may have contributed very little but nonetheless have contributed a part that contained the germ of new ideas to which others added in significant ways. And if there were thousands of contributors, how far should the law go in protecting their part of the contribution? At some point does the contribution become de minimus, something that is small or diffuse for the law to take notice of? Perhaps then it should belong to the owner of the network? But that person may have done nothing creative at all.

The situation becomes even more complicated with works that are either produced by the computer or enhanced by it. In many programs, once an individual has provided some initial information, the computer will act on the information to enhance what it was given and produce a new work. In

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21 OTA Report, at 142, quoting Pool, supra., at 212.

22 17 U.S.C. 201(a) (1982).

23 Burrow-Giles Lithographic Co. v. Sarony, 111 U.S. 53, 4 S.Ct. 279, 28 L.Ed. 349 (1884).

effect, the computer itself can act as if it were one of the participants in the interactive environment described above. Examples of this kind of program include computer-aided-design, interactive fiction, and the electronic editing of visual images. In addition, some artificial intelligence systems now exist that cause the computer to create new works. These might include those programs that automatically generate an abstract of a document or those which generate a text based on some information that has been provided. Unquestionably, if such works were created by an individual, they would be copyrightable. Is the computer user entitled to hold the copyright? What are the rights of the person who wrote the program that actually created the new work? If used via a network, does the network owner have any rights, particularly when the new work is downloaded and removed from the network for possible resale?

One commentator concluded that computer processing can indeed generate new works and that the user or person causing the work to be generated should be considered the author.[24] She came to this conclusion after reviewing the legislative history of the statute as well as the definition of derivative work. Since computer-generated works need not contain recognizable portions of the protected work, the new work is not likely to be automatically found to be an infringing derivative product. Similarly, CONTU[25] rejected the notion that the computer itself might function as a contributing author, saying that "[t]he obvious answer is that the author is the one who employs the computer."[26] The OTA Report rejects this conclusion as misleading, arguing that computers have now become substantially more sophisticated, especially with the development of artificial intelligence. They conclude that the machine might indeed function in some ways as a co-creator, and that under those circumstances "the rights of the programmers and users of programs might not be easily determined under the present copyright system."[27]

NAC should consider who should be the author under these circumstances, or at least, if the subsequent work is deemed to be copyrightable, who should hold the copyright.

3. Databases

Databases raise some of the same questions about copyrightability, but with the added complication that traditionally, facts have not been copyrightable; only the way in which they are expressed may be protected.

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[24] Samuelson, Pamela, "Allocating Ownership Rights in Computer-Generated Works", 47 University of Pittsburgh Law Review 1185 (1986).

[25] The National Commission on New Technological Uses of Copyrighted Works was created in 1974 to review some of the problems with new technology and copyright and to make recommendations to the Congress.

[26] Final Report of the National Commission on New Technological Uses of Copyrighted Works (Washington, D.C., Library of Congress, 1979) p.44.

[27] OTA Report, p. 72

The facts themselves are in the public domain. Examples of factual compilations include, among others, airline schedules, census data, financial statistics, etc. In the manual environment it can be time consuming and expensive to assemble factual information. Although some lines of legal authority consider the selection and arrangement to be the primary reason for protection of data files,[28] others find the basis of protection for compilations primarily in the labor or cost of assembling the information.[29] In West Publishing Co. v. Mead Data Central, Inc. The eighth circuit found that the arrangement of cases in West's published reporters was "the result of considerable labor, talent, and judgment".[30] The Court then held that "West's case arrangements, an important part of which is internal page citations, are original works of authorship encitled to copyright protection."[31] Similarly, in Eckes v. Card Prices Update the Court found a directory of baseball cards protectible saying: "We have no doubt that appellants exercised selection, creativity and judgment in choosing among the 18,000 or so different baseball cards in order to determine which were the 5,000 premium cards."[32] By contrast, where the work did not involve selection or judgment, but simply the transcription of financial information in a predetermined way onto a card, the second circuit rejected protection, and explicitly rejected the "sweat of the brow" rationale: "To grant copyright protection based merely on the "sweat of the author's brow" would risk putting large areas of factual research material off limits and threaten the public's unrestrained access to information.[33] As a result of these cases, it appears that manual compilations can be protected but only when they contain a sufficient quantum of judgment or originality to be considered an original work of authorship.

In the online environment, the reasons for protecting a compilation are less clear. The potentially copyrightable parts of factual databases include any original material, and the selection, arrangement, and presentation of the factual information, as well as the means by which the information is searched. But, for online databases, neither the "sweat of the brow" rationale nor the selection and arrangement criteria seem particularly compelling. With the help of computers, many databases can now be compiled automatically or can be derived automatically from other available information. They can also be reorganized automatically and

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28 See e.g., Triangle Publications, Inc. v. Sports Eye, Inc., 415 F.Supp. 682 (E.D.Pa. 1976).

29 See, e.g., Leon v. Pacific Telephone & Telegraph Co., 91 F.2d 484 (9th Cir. 1937) on the compilation of telephone directories.

30 799 F.2d 1219,1226 (8th Cir.1986)

31 Id., p. 1227

32 736 F2d 859, 863 (2d Cir. 1984).

33 Financial Information Inc. v. Moody's Investors Service, Inc., 808 F.2d 204, 207 (1986).

presented in new and different ways with little or no creative work on the part of an "author".

Although it may once have required a great deal of manual effort to compile a telephone directory, today such a directory can be easily and automatically compiled from the telephone company's list of subscribers. Similarly, although the selection and arrangement of information could be criteria for the protection of a print publication, in the online environment neither of those may be relevant. There may be no selection at all if the database is simply composed of pieces of information added by network participants (as in an online Bulletin Board System). In many cases, the information is simply stored sequentially in the order in which it was added. Despite all this, there still is likely to be some effort required to create and maintain a database, and it seems desirable for some level of protection to be accorded to it, if not based on labor, at least based on the investment and the cost of creating and maintaining the database.

Some of the major library databases are compiled and stored centrally, but are composed of information contributed by participants in the database. Such databases look like a protectible compilation, but it may be difficult to sort out the respective rights of the contributors to the database and the central compiler/vendor/distributor. Under current law, it appears that the rights of the individual creator of individual records in the system are considered de minimus, i.e. too minor to be recognized by the law. However, the rights of both the contributing institutions and the database owner have both been recognized. The Library of Congress Copyright Office has accepted the OCLC database as a whole for registration and has also accepted for registration the separate portions of the database contributed by several institutional contributors. Under the current law, this seems to be a sound resolution to a controversial issue. OCLC has the rights to the compilation as a whole and the manner in which it is arranged, searched and presented, while the contributing libraries retain the basic rights to the works they have created except insofar as they have agreed by contract to relinquish those rights.

NAC might wish to consider under what circumstances databases should be protected. Should the database be protected when it is generated automatically, for example through the automatic recording of data from scientific instruments, or when it is essentially a computer-generated reorganization of information otherwise available in the public domain? What standards of originality or creativity should be applied to online compilations, whether compiled by hand or generated automatically? Although it may find it difficult to do so, the Committee should also consider whether or not a database as a whole should be protected when it is made up of copyrighted or potentially copyrighted contributions from network participants? And should those individual contributions be copyrightable, either individually, or if minor, in a collective grouping? Does the Committee view on this change if it is not talking about bibliographic records, but about more extensive works, such as online creative writing or software? Finally, does the fact that a database may be constantly changing affect the question of whether or not a database

should be protected?[34]

4. Software

Software is widely distributed today through computer networks.[35] Some of those networks are local bulletin boards with no fees,[36] and some are major national networks[37] that require the payment of a time-based connect charge. Although surcharges may be imposed for access to some commercial services made available through the network, for the most part there is no additional charge for downloading software. Rarely, if ever, are royalty payments made to the authors of the software stored in the systems.

Most of the software in these libraries has been placed there with the knowledge that it may be freely copied. In many cases, the author of the program has authorized the making of copies, but has requested the payment of a fee if the user finds the program useful. This hybrid situation has been dubbed shareware. It is an attempt to rely on the users' good will and sense of fairness to encourage them to pay a reasonable price for those programs they actually use. The actual experience with shareware is limited, but published reports suggest that with a few exceptions, the number of people who pay for such software is small compared to the number of people who copy it.[38] Although the requirement to pay is theoretically enforceable as an implied contract, as a matter of practice it is hard to enforce since it is difficult to keep track of all the copies that are made, and impossible to know who is actually using the program.

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[34] The theoretical question of protection should be distinguished from the problems of administration. Some feel that the fact that a database is dynamic precludes protection. Even if such a database is found to be protectible, however, it creates difficult problems of administration because of the need to deposit copies of the protected work with the Library of Congress (See section on formalities, infra.)

[35] Computer networks contain substantial software libraries and even publish catalogs of their holdings. The catalog for IBM compatible software available on Compuserve alone contains 704 items and is 72 pages long. See Compuserve Forum Libraries: The Best of IBMNET, 2d ed. (1987). (Such catalogs are not generally in standard library formats, and the library world, which has otherwise attempted to catalog and classify the world's literature and knowledge, has only just barely begun to try to capture the bibliographic information about this growing body of work.)

[36] Some bulletin board systems which have no monetary fees require that the user contribute a certain amount of new software to the data file in lieu of a monetary payment.

[37] Examples of these systems include Compuserve, Genie, and The Source.

[38] Buttonware, the originator of the concept, seems to be doing well, and provides technical support and first class manuals for the payment of the fee. See 6 Capital PC Monitor 38 (November 1987). Others, however, have not fared as well.

Protection of software through the intellectual property system has plagued policy makers on the theoretical level for many years. In the early days of computers, programs were executed by rewiring the machine itself, a change to the hardware that suggested patent as an appropriate means of protection.[39] In addition, the very function of programs was to carry out a process, and certain types of processes were already included in the scheme of patent protection.[40] Despite the early inclination to seek patent protection for software, the requirements for patent protection are strict. The minimum legal requirements include a threshold of novelty, non obviousness, and usefulness. Like other kinds of knowledge, however, software has often built upon what has gone before, and these tests, particularly the novelty test may be difficult to meet.[41] In addition, patent protection is routinely denied on mathematical formulas, algorithms, mental processes, and laws of nature. As a result, except in some limited circumstances, it has been difficult to secure patent protection for most software. Moreover, the process of securing patent protection is expensive, cumbersome and time-consuming. Such a long drawn out process is not likely to meet the needs of a rapidly developing industry with many individual developers and entrepreneurs.

The potential applicability of patent law to software has been the subject of considerable legal debate. For many years, the Patent and Trademark Office denied patent protection for programs on the grounds that they could be characterized as a series of mental steps, algorithms, or mathematical formulas. The Court of Customs and Patent Appeals was more lenient, however, and tended to overrule those decisions. Without deciding the general issue of software patentability, the Supreme Court overruled the C.C.P.A.[42] in several cases. This line of cases culminated with Diamond v. Diehr, 450 U.S. 175 (1981), in which the Supreme Court permitted

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[39] Computer functions can be carried out in any of several ways: by rewiring the machine itself (hardware), by the permanent storage of instructions on a chip (firmware), or by loading the instructions into the machine when needed (software). These different mechanisms for causing the computer to perform certain functions has caused some of the confusion since it is hard to determine whether what is being protected is a machine configuration (more likely to be protected by patent) or a series of coded instructions (more likely to be protected by copyright).

[40] The patent act specifically provides that [w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore...35 U.S.C. 101 (1982).

[41] Where would LOTUS 1-2-3 or any of the other spreadsheet packages be today, if it had not been for the original development of Visi-calc? Ironically, some of the look-and-feel discussion seems to be headed toward trying to import something like a novelty requirement into the copyright system.

[42] See, e.g., Gottschalk v. Benson, 409 U.S. 63 (1972), Dann v. Johnston, 425 U.S. 219 (1975), Parker v. Flook, 437 U.S. 584 (1978).

a patent to be granted on a program that was part of a larger process of manufacture. In that case the computer program was used to assist in timing the curing of rubber. That program was permitted protection because it was a part of a physical process that was a more traditional matter for protection.

If patent protection for software seemed to be inappropriate, copyright protection seemed equally problematic. First, computer programs were not, in many cases, in a form that could be read and understood by the ordinary person. In their most extreme object code form, they were in a complex binary code that could only be read by the computer itself and highly skilled programmers. This presents obvious problems of administration. Second, as noted before, copyright cannot be used to protect an idea or a process, only its expression. Yet, in many cases it is the idea that is embodied in a program--what the program does and how it does it--that needs protection, not the binary encoded program. Finally, computer programs are fundamentally different from other kinds of writings in that they can cause something to happen. Unlike other functional works, which may simply instruct a person how to do something like repair a car or make a loaf of bread, software is designed to carry out the function directly.

After years of discussion about how to provide protection for software, it was clear both traditional copyright and patent law had major problems, both conceptually and in terms of administration. The logjam was broken when CONTU recommended that computer programs should be copyrighted as literary works, a legal fiction constructed to solve a vexing problem. Although they do not look like traditional literary works, Congress adopted that policy in the Computer Software Copyright Act of 1980,[43] and much of the legal debate has subsequently died down, although some of the conceptual problems remain.[44]

On the conceptual level, the OTA Report has argued that "copyright law cannot be successfully applied to computer programs."[45] They say that:

> ...[T]he Federal courts, in interpreting copyright law, will eventually face a dilemma; either: (1) the copyrightable expression in a computer program will be limited to the strict line-by-line program code, in which case the unscrupulous might easily escape liability for infringement by simply varying the code in a trivial way, or (2) the copyrightable expression will be extended to the logic, design structure, performance or even the output of the computer program, in which case one has copyrighted a 'procedure, process, system, or method of operation.' The cases that have been decide thus far indicate

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43 P.L. 96-517, 94 Stat. 3028 (1980).

44 In particular, Samuelson and Davidson remain troubled by the conceptual problems and have been urging alternate solutions. For a discussion of their approaches, see section on alternatives, infra.

45 OTA Report, p. 81.

that the courts are adopting the latter alternative, and have extended the meaning of expression in computer programs to include the processes that the programs implement .... [C]opyright in computer software is an either/or choice Either one protects the words or variables as they are literally represented by the programmer, or one is forced to interpret those words or variables in terms of the procedure they implement in a computer system; thus protecting a procedure, process, or method of operation.[46]

NAC may wish to consider the nature of protection for software. Should there be a wholly new system of protection for such works? Such a system could be developed by amending the current law or by developing an entirely new law for the protection of software.[47] Or should we leave well enough alone, recognizing that software does not quite fit the traditional categories and accepting that there are likely to be further incremental changes to the law by statutory amendment or by judicial interpretation to insure that software protection is effective?

5. Screen Displays

In recent months, the question has been raised about whether individual graphic screen displays should be separately registrable for copyright protection.[48] The current practice of the Copyright Office is not to accept screen displays that are essentially textual, and therefore literary works for registration. Consideration is being given to registration of graphics screens as audio-visual works. Some interested parties have argued that since the entire program is protected by copyright, no additional protection is necessary to protect individual screens.[49] Others have argued strongly that there should be registration of separate screen displays, particularly where the display, on its own, meets the usual standards of originality.[50] They have pointed out that it

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[46] Id. at 81, 83.

[47] See infra., for some specific ideas about how this might be achieved.

[48] 52 Fed. Reg. 28311 (July 29, 1987).

[49] See testimony of Thomas Lemberg and Ed Belove, representing Lotus Development Corporation at a hearing before the before the U.S. Copyright Office, September 9, 1987. Mr. Lemberg stated at pp. 12-13: "The reality of the creation and sale of software is that a program is a single work. It is created as a unitary work with a multiplicity of elements which are molded into a cohesive, integrated whole. It operates as a unitary work, in which the internals [program code] and the numerous elements of each of those categories work together as a single entity. The program is sold as an entity and is bought and used by consumers as a single work....Just as a movie or a song is a single work, so is a computer program.

[50] See written submission of Apple Computer, Inc. for the Public Hearing on Registration and Deposit of Computer Screen Displays, September 4, 1987. At p.25 Apple states that "In the case of a fanciful,

is quite possible to arrive at the identical screen display through different programs and different code structures, depending on the machine and the operating system. If what is protected is merely the written expression of the program in code, the resultant screen display may not be protected at all.[51] In a middle position, some commentators favor a single registration for a program, but would also permit a separate screen registration upon request.[52]

The case for protection of screens is particularly compelling for video games of for something like the graphics-user interface developed by Apple for the LISA and MacIntosh computers. The latter were an entirely new approach to the way in which a user relates to the computer. They might be sufficiently novel, in fact, to be a good candidate for patent protection. But even without patent protection, the layout of the screen, together with the different icons, seems to present a plausible claim for protection of some sort.

Although the time for comment on the proposed regulation[53] will have passed by the time the Committee meets, NAC might wish, nonetheless, to indicate its views on the issue of copyright registration for individual screen displays.

6. Government Documents

Under the Copyright Act, publications of the U.S. Government are not subject to copyright protection.[54] There are several reasons for such a policy, including encouraging the free distribution of government information, and recognizing the democratic character of the government. It would not be consistent with such a philosophy to restrict access to government documents.

Despite the policy of promoting access to government publications, the government has increasingly found it more convenient and cost effective to turn to the private sector to produce and distribute its documents. In

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graphically-oriented screen display meeting the statutory definition of an audiovisual work, separate registration is warranted and, indeed, required to implement the stated purpose of the copyright statute--protection of 'original works of authorship.' The various examples included within this submission demonstrate that the creative authorship in a program's audiovisual components is altogether separate from the creative authorship in a program's code."

[51] Id. p. 26-27.

[52] See letter from ADAPSO on the Registration and Deposit of Computer Screen Displays to the U.S. Copyright Office dated September 9, 1987. See also testimony of Morton David Goldberg on behalf of the Information Industry Association before the U.S. Copyright Office, September 9, 1987.

[53] 52 Fed. Reg. 28311 (July 29, 1987).

[54] 17 U.S.C. 105 (1982).

many cases in the future, these materials may be made available electronically, by optical disk or an online network. As part of the incentive to take on the job, the government may wish to grant the contractor an exclusive right to distribute the materials.[55] Similarly, there has also been some discussion of protecting these materials by copyright in order to minimize the competition and maximize the incentive to the publisher.

The Association of Research Libraries has recently released a report in which it considers some of the implications of the distribution of government information in electronic form. In a draft statement of principles at the end of the report, the task force writing the report urges that "Copyright should not be applied to U.S. Government information....Policies and practices that allow a Federal agency or a private organization to exert exclusive rights or other kinds of proprietary controls over government information in any format should be resisted."[56]

NAC might wish to consider this issue from the standpoint of distributing of such documents through networks. NAC might decide whether or not to endorse ARL's proposed position. ARL will be meeting later in the spring to consider adopting the Statement of Principles. Input from NAC would undoubtedly be most welcome.

7. Formalities

Chapter 4 of the Copyright Act establishes three formalities for complete Copyright protection: registration, notice, and deposit.[57] These requirements have been in existence since the first U.S. Copyright Act in 1790.[58]

According to the House Report on the 1976 Copyright Act the notice

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[55] For example, a contract for an exclusive right to disseminate reports collected by the National Technical Information Service.

[56] Technology & U.S. Government Information Policies: Catalysts for New Partnerships, Washington, D.C., ARL, 1987, p.27.

[57] Although copyright protection exists from the moment of creation, registration (and compliance with the other formalities) is required under the statute before an action for infringement may be initiated. See 17 U.S.C. 411 (1982).

[58] The first U.S. Copyright Act required that notice be given by publication "in one or more of the newspapers printed in the United States, for the space of four weeks." Act of May 31, 1790, c. 15, sec. 3, 1 Stat. 124, 125. In 1802 the notice requirement was amended to require a specified notice on the published work itself as a condition of protection. Act of April 29, 1802, C.36, sec. 1 and 2, 2 Stat. 171. The 1790 Act also required "That the author or proprietor of any...map, chart, book, or books, shall, within six months...deliver, or cause to be delivered to the Secretary of State a copy of the same, to be preserved in his office." Supra. sec. 4, p. 125.

requirement serves four basic purposes: (1) placing a substantial body of material that no one is interested in copyrighting into the public domain (by the omission of the notice); (2) informing the public as to whether a particular work is copyrighted; (3) identifying the copyright owner; and (4) showing the date of publication.[59] The Act indicates that the notice should be affixed in such a way as to give "reasonable notice of the claims of copyright."[60] By way of example, the Copyright Office has indicated that for works published in machine readable form, reasonable notice would be found for any of the following: (1) a notice that appears near the title of any printout; (2) a notice that appears on the terminal continuously or at least when the user signs onto the system; and (3) a notice on a label affixed to a box, cassette, disk, etc.[61] The standard used by the statute is a reasonableness standard, and this requirement does not now appear to pose any difficulty for works distributed in machine readable form.

The registration and deposit requirements are more difficult. First, much of the material may be in a form that is not intelligible to the ordinary person. Computer programs, for example, may only exist on tape, a disk, or even in RAM. Furthermore, even if reduced to a visible representation, they would be pages and pages of machine language, accessible to only a few people. In such a case, what would fulfill a meaningful deposit requirement? Second, many databases are changing constantly. How often they should be registered and how much of the database should be deposited is a thorny question.

Current practice of the Copyright Office is to allow the database owner to decide how frequently to register a database and its updates, but not to allow the grouping of separately published updates on a single registration. Within this framework, OCLC has registered its updates once a month. On September 17, 1987 the Copyright Office proposed[62] that database updates could be registered as a group once every three months, provided the updates themselves would be individually copyrightable.[63] Although some respondents to an earlier request for input wanted a longer period (annual) covering group registration, the three month provision was proposed to encourage earlier registration and to be consistent with some other grace periods in the statute.

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59 H.Rept. No. 94-1476, p.143 (1976).

60 17 U.S.C. 401 (1982).

61 37 C.F.R. Sec. 201.20(g) (July 1, 1987).

62 "Registration of Claims to Copyright; Registration and Deposit of Databases--Proposed Regulations, 52 F.R. 37167-70 (October 5, 1987).

63 The proposal cites Financial Information, Inc. v. Moody's, 751 F.2d 501 (2d Cir. 1984), supra. nt.33, holding that the daily updates of bond rating information were not copyrightable. In accord with that decision, the Copyright Office indicated that updates to databases being registered must each meet "the statutory standard of original work of authorship." Id. p. 37169.

In the same proposal, the Copyright Office considered simplifying its deposit requirements for machine readable works. Current regulations require that for computer programs and machine readable databases one copy of "identifying portions" of the work reproduced in eye-legible form be deposited with the office. In most cases "identifying portions" means the first and last 25 pages. In the case of a multi-file database, representative portions of each file (50 records) are to be submitted.[64] This same requirement is imposed for updates. Some members of the information industry urged the Copyright Office to reduce the deposit requirement for updates, and only require a statement from the copyright owner that the prior material is still representative of the database. The Copyright Office indicated, however, that it needed to assure itself of coyrightability and create an adequate record for judicial review. As proposed, then, for database updates the copyright owner will be required to submit "identifying portions that contain 50 representative pages or equivalent units, or representative data records, that have been marked to disclose the copyrightable revisions..."

As of the date of the writing of this paper, there had been no final action on this proposal. Although the time for comment has passed, NAC may wish to express its opinion on the registration and deposit requirements.

8. Duration and Scope of Protection

For works created since the new Act went into effect, copyright protection lasts for the life of the author plus fifty years. For corporate authors and works made for hire, the period of protection is 75 years from publication or 100 years from first creation, whichever comes first.[65] Copyright protection is easy to obtain, since it comes into being as the work is created. By contrast, patent protection is relatively difficult to obtain and lasts for only 17 years.[66] Copyright grants a more limited bundle of rights, primarily focused on making and distributing copies and derivative works, as well as on public performances and displays. Patent protection, on the other hand, grants a virtual monopoly: creating the "right to exclude others from making, using, or selling the invention throughout the United States."[67]

The OTA Report suggests that, at least for computer software, neither Copyright nor Patent protection is entirely appropriate.[68] Copyright may provide too little protection for too long. But, patent protection may be too difficult to obtain. It may be that there should be protection more like patents, but for a shorter period of time. The 1984 Act protecting

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64 37 C.F.R. Sec. 202.20((c)(vii)(A) and (B) (July 1, 1987).

65 17 U.S.C. Sec. 302 (1982).

66 35 U.S.C. Sec. 154 (1982).

67 35 U.S.C. Sec. 154 (1982).

68 See generally, OTA Report, supra. nt.15, chapter 3.

semi-conductor chips[69] extends protection to mask works for their reproduction, importation, and distribution, for a period of ten years.

NAC might want to consider whether such a completely fresh approach should be taken for computer software or other forms of machine readable information.

B. What Constitutes Potential Infringement?

1. Rights of the Copyright Owner

The primary reason for seeking copyright protection is that the statute grants to the owner of the copyright a series of exclusive rights--activities they may do or authorize to be done. Those include (1) the right to reproduce the work, (2) the right to prepare derivative works, (3) the right to distribute copies of the work by sale or transfer of ownership, or by rental, lease, or lending, and (4) the right to perform or display the work publicly in the case of literary, musical, dramatic, choreographic, audiovisual or other similar works.[70] Subject to a series of important limitations,[71] anything which impinges on the exclusive rights of the copyright owner is potentially an infringement.

Most of these rights relate to the traditional intellectual environment, in which the item being protected is manifested in a physical object such as a book, a map, or a chart. Only the last--the right to perform or display a work publicly--is related to works that have different manifestations. Setting aside the question of enforcement (see infra.), NAC may wish to consider whether the rights granted under the Copyright Act are appropriate for the online environment. In some cases NAC may find that these rights are too broad and inhibit the kind of creativity the copyright act is supposed to promote. In other cases, they may feel that the rights need to be tightened in order to protect the copyright holder adequately.

2. The Making of Copies and/or Conversion to the Online Form

In the paper environment, the right to make copies for sale or distribution has always been at the heart of the Copyright Act. It was always the individual copy of the work that was sold and from which the

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69 See text at nt. 123, infra.

70 17 U.S.C. Sec. 106 (1982).

71 See generally, 17 U.S.C. Secs. 107-112, and Sec. 117 (1982). The major limitations include fair use (Sec. 107), certain uses by libraries and archives (Sec. 108), the first sale doctrine (Sec. 109), performances or displays of certain works in educational, religious or other limited and non-public settings (Sec. 110), some secondary transmissions (Sec. 111), and the making of copies of computer programs as an essential step in using the program or for archival purposes (Sec. 117). For further discussion of some of these, see section on "What is Not an Infringement", infra.

copyright owner derived compensation. In the online environment, the sale of copies may not be an accurate reflection of appropriate compensation due to a creator since it is no longer an indication of use. It may also be that some amount of copying is both necessary and appropriate.

First, what constitutes copying? Some have worried that any use of a computer--even to display something on a screen--would constitute copying since a document thus displayed is copied first into computer memory and then again onto the screen. With regard to the use of lawfully acquired software, the Copyright Act now dispenses with this problem. There, it explicitly provides that:

> ...[I]t is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided: (1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner...[72]

This section was added pursuant to the recommendation of CONTU. Although it deals with the use of software, it does not address the question of software and other works distributed in an online environment. In using a full-text network, for example, at what point has an infringing copy been made? When a document is retrieved from the network and loaded into computer memory? When it is displayed on a screen in whole or in part? When it is downloaded to disk? When it is printed to paper? When it is loaded into the database in the first place? Under traditional fair use analysis, for most works a copy of a single screen of text or data would probably be insubstantial and would qualify as fair use. At what point might that change?

Second, even if the right to make copies remains an exclusive right of the copyright holder, should there be some further qualifications to that right in the electronic environment or the library networking context.[73] Is there some level of copying that is not only in the interest of the public but also in the interests of the copyright holder to permit and even encourage?

An important example of such copying is the conversion of traditional print materials into electronic formats for purposes of preservation or improved retrieval and distribution. The Optical Disk Project at the Library of Congress is a pilot project in which print materials--primarily current periodicals--are converted to optical disk format for improved indexing and more efficient use. For the present, only a small number of

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[72] 17 U.S.C. 117 (1982).

[73] Section 108 of the Act provides a series of limitations on the exclusive right of the copyright holder for libraries and library users. For example, under certain specified circumstances, libraries may copy for purposes of preservation or security (b), replacement of damaged or deteriorating items (c), for the private research and study of a user (d), or for interlibrary lending for private research and study (e).

titles are being converted and their use is restricted to workstations within the Library. In all cases, the Library has obtained the permission of the publisher before loading the material into the datafile. But, the process of securing permission is time consuming and expensive, and may be a barrier to a major conversion effort.

A more general conversion from print to electronic formats may have several benefits. For a library such as the National Library of Medicine, which provides extensive national photocopy services, it would both help to preserve the content of the original and reduce the resources required to provide interlibrary loan service. Copying could then be de entralized or even done electronically. The efficiency of storing and transmitting information electronically creates economic pressures to convert materials to electronic format, by a library, by a commercial vendor, or by a central clearinghouse.

Should the making of an electronic copy by a library be permitted as a matter of policy, provided the library has paid for a subscription? Or should there be an alternative mechanism for compensating authors, for example, for each use of the work, rather than for the making of a copy? What if the conversion to electronic format is not done by a library but by a commercial network, such as LEXIS, NEXIS, or WESTLAW? Each of those organizations has loaded the full text of copyrighted materials into their databases after extensive negotiation with individual copyright holders.[74] The transaction costs for creating the database in this way are high and NAC may wish to consider whether this inhibits the development of online data services and whether the exclusive right to control the making of copies should be continued in the electronic environment. It may be that the basic doctrine is valid but that some limitations need to be put on it, parallel to the other limitations on exclusive rights, in order promote the free distribution of information electronically.

3. Derivative Works

The right to control the making of derivative works has traditionally been one of the exclusive rights of the Copyright holder. Originally, it was intended to permit the author to take advantage of foreign translations of his or her written work. It has also been a useful concept for the preparation of a stageplay or a movie from an earlier novel. In the online context, however, the concept seems to break down because what the computer does so well is precisely to allow others to expand upon what has gone before and prepare new works that are valuable in their own right.

Derivative works can be produced from any of the major types of works identified by the OTA Report: works of art, works of fact, and works of function. Digital retouching of photographs and editing of videotapes is already sophisticated enough to add or delete objects from an image with no trace whatsoever. (Protecting the integrity of a work is a separate question that may be implicated, particularly in the case of works of art.) Although indexes and abstracts were never before considered derivative

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[74] For a further discussion of the negotiations, see the section on use of contract as a control mechanism, infra.

works, today the line is blurring because they can be generated automatically with computer-supported textual analysis systems. Databases are frequently downloaded in whole or in part, reformatted, subjected to refined computer analysis, and repackaged as a new work. Since facts are not subject to copyright, this process is generally accepted. However, it raises clearly the question of how far one can go in simply manipulating the work of others to generate new works. Finally, works of function (software) are frequently designed to create new works. When a computer program exists to help a person compose or arrange music, the resultant compositions are plainly derivative products. Should the person who wrote the program be the owner of all such works?

NAC might wish to consider how far the control over derivative works should go. Specifically, should the copyright owner of a particular work be entitled to all of the subsequent products of that work? Or should there be an attempt to define where the rights of the original owner leave off and the rights of a new creator begin? One concept that has been mentioned in this regard is the notion of adding value to a work.[75] Such a concept implies that when a sufficient quantum of new value was added to a work--perhaps by a new analysis, but maybe even just some new formatting--the new work would qualify for protection. The treatment of derivative works is difficult and has important implications for the development of computer-based works. The views of NAC on this issue would probably be helpful.

4. Transmission or Retransmission

Sections 106(4) and 106(5) of the Act give the copyright owner the exclusive right to perform or display certain works, including literary works, publicly. If a copyrighted work is placed into a network and then distributed to network subscribers without the permission of the copyright holder, such action could constitute an infringing display of the work.

> The...definition of 'display' covers any showing of a 'copy' of the work, 'either directly or by means of a film, slide, television image, or any other device or process.' In addition to the direct showings of a copy of a work, 'display' would include the projection of an image on a screen or other surface by any method, the transmission of an image by electronic or other means, and the showing of an image on a cathode ray tube, or similar viewing apparatus connected with any sort of information storage and retrieval system.[76]

Section 110 establishes a series of exemptions to the foregoing, for example in a carefully circumscribed educational or religious settings. Focusing primarily on cable TV, but not limiting itself entirely to that medium, section 111 establishes some limited exemptions for secondary

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75 See Robert S. Taylor, Value-Added Processes in Information Systems (Ablex, 1986).

76 17 U.S.C.A. Sec 106, nt. (1977)

transmissions, including for those carriers who act passively to relay data placed there by others. This exemption might be useful in the networking context, although to the extent that the network administrators select or review material placed there, they will unable to take advantage of the exemption. To come under the provisions of the Act, the carrier must have:

> no direct or indirect control over the content or selection of the primary transmission or over the particular recipients of the secondary transmission,[77]

and its activities must:

> consist solely of providing wires, cables, or other communications channels for the use of others...[78]

A proviso is then added making it clear that these exemptions only apply to secondary transmissions of the carrier and

> do not exempt from liability the activities of others with respect to their own primary or secondary transmissions.[79]

In addition to creating this potentially important exemptions for networks, section 111(c) establishes a compulsory licensing system for secondary transmissions by cable companies. Compulsory licensing systems will be discussed more fully below, but briefly, under this section cable systems that retransmit certain primary transmissions are required to account semi-annually to the Register of Copyrights and pay a specified fee. Annually, the Copyright Royalty Tribunal receives claims, and distributes funds to copyright owners who claim that their works were the subject of secondary transmissions by cable systems.[80]

NAC might want to consider whether the current provisions of the Copyright Act governing the transmission or retransmission of copyrighted materials is adequate to promote the development of information networks. Do information networks have unique characteristics that make the statute unworkable or, from a policy perspective, undesirable? The Committee may also wish to consider whether the model of a compulsory licensing scheme for cable television is a useful model to apply to information networks.

5. Tampering with the Integrity of a Work

Copyright owners are understandably concerned, not only that their work not be used without attribution and compensation, but also that it not be changed without their knowledge and agreement. Creators of artistic

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77 17 U.S.C. Sec. 111 (1982).

78 Id.

79 Id.

80 17 U.S.C.A. 111(d) as amended in 1986 (1987 p.p.). See also 37 C.F.R. Sec. 302 (July 1987) on the Filing of Claims to Cable Royalty Fees.

works find this to be a particularly important problem. Similarly, database owners must vouch for the accuracy and integrity of their data. To the extent that tampering takes place, their reputation as a reliable source of information is jeopardized. In part, this issue has to do with the security of computer systems and databases, and in part it has to do with derivative works. In the last analysis, however, the answer may not be found in the intellectual property system.

The security of computer systems has been a worry ever since computers began to be used to maintain datafiles. It is essential that health and insurance records, credit data, and similar information be kept private and secure. There are also many government databases whose security is vital to individual citizens and/or to the national interest. In addition, the many database vendors that exist today have a vital interest in the security of their systems. In order to protect themselves, databases which need to remain secure have developed a series of passwords that must be used to gain access. But despite such protections, or maybe because of them, in recent years hackers have taken it as a challenge to break into restricted databases, and in many cases they have succeeded. Federal law now makes it a crime to break into Federal databases or to gain access to computers and obtain unauthorized financial or credit information on a consumer.[81]

To deal with the problem of alteration of a work, most European countries recognize a doctrine called the moral right of an author. That doctrine may be summarized as the right of a creator to have his work attributed to him in the form in which he created it. Thus, even if someone is the lawful owner of a work, they may not modify it in ways that are not accepted by the creator. The owner of a painting, for example, may not commission another artist to add additional material or delete material from the canvas. As noted above, however, with modern technology, such changes to a visual image are easy. The United States has never accepted the moral rights doctrine, preferring instead to rely on the portion of the law dealing with derivative works doctrine to protect the interests of the creator. Given this fact, the Committee will want to be cautious about recommending major changes to the portion of the law dealing with derivative works.

> American copyright law, as presently written does not recognize moral rights or provide a cause of action for their violation, since the law seeks to vindicate the economic, rather than the personal rights of authors. Nevertheless, the economic incentive for artistic and intellectual creation that serves as the foundation for American copyright law,...cannot be reconciled with the inability of artists to obtain relief for mutilation or misrepresentation of their work to the public....Thus courts have long granted relief for misrepresentation of an artist's work by relying on theories outside the statutory law of copyright, such as contract law...or the tort of unfair competition. Although such

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[81] P.L. 98-473, 98 Stat. 2190 (1984), as amended by P.L. 99-474, 100 Stat. 1213 (1986) 18 U.S.C.A. Sec. 1030(a) (1987).

> decisions are clothed in terms of proprietary right in one's creation, they also properly vindicate the author's personal right to prevent the presentation of his work to the public in a distorted form.[82]

From this it is apparent that other branches of the law may provide the necessary remedy to those whose works have been tampered with.

NAC might want to consider whether there needs to be some addition to the intellectual property framework to inhibit tampering with works distributed through the network environment. Should the United States accept something like the moral right of the author, or would that restrain unduly the preparation of legitimate derivative works?

C. What is Not Infringement

In addition to the specific limitations on the exclusive rights of the copyright holder described above, the act also provides for some more general limitations on those rights.

1. Fair Use

Fair use is a judicially created equitable rule of reason to permit limited copying of protected works. It was developed to permit researchers to copy portions of a work into their notes and to use excerpts from a protected work in a subsequent work. Examples of such uses include literary criticism, scholarship, news reporting, parody, etc. When the Copyright Act was passed in 1976, it attempted to incorporate the judicial doctrine of fair use as it had been developed to that time.[83] As enacted, the statute gives examples of possible fair use and provides a list of criteria for the courts to review in individual cases to determine whether or not a particular use is fair:

> Notwithstanding the provisions of section 106, the fair use of a copyrighted work...for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an

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[82] Gilliam et. al...,Monty Python v. American Broadcasting Co., Inc., 538 F.2d 14, 24, 192 U.S.P.Q. 1, 8 (2d Cir., 1975), citing among others Strauss, "The Moral Right of the Author" in 1963 Studies on Copyright 128-138 and Roeder, "The Doctrine of Moral Right", 53 Harvard L. Rev. 554 (1940).

[83] Both the House and Senate reports indicated their intent "to restate the present judicial doctrine of fair use, not to change, narrow, or enlarge it in any way." At the same time, however, they were also careful to indicate that it was not their intention to "freeze the doctrine in the statute, especially during a period of rapid technological change..."See H.R. Rep. 94-1476, at 66 (1976) and S.Rep. 94-473 at 62 (1975), cited in Patry, The Fair Use Privilege in Copyright Law at vii (1985).

infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include--(1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work.[84]

Researchers who have reviewed the history of the fair use doctrine have found that in most cases finding fair use before the 1970's, the use in question was for a second author to use portions of a copyrighted work in a new creative work.[85] (This is sometimes referred to as "productive use".) In any event, in no cases before Williams and Wilkins v. U.S.[86] was the copying of a entire work to be used in the same manner as the original found to be fair use.[87] That case ended when the Supreme Court affirmed the Court of Claims opinion in favor the Library by a 4-4 vote, with no opinion. The Court's failure to rule on the issue left the law in a state of some uncertainty.

The nature of the question and the discussion had changed[88] by the time of Williams and Wilkins because photocopying technology had become sufficiently advanced to permit the development of such a large scale program. The continuing advance of technology and the development of

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[84] 17 U.S.C. Sec. 107 (1982).

[85] Patry, supra. nt. 66 at ix.

[86] In Williams and Wilkins v. U.S. the National Library of Medicine was sued for infringement by a medical publisher for providing photocopies of articles to medical professionals. Among the findings were that in 1970 the National Institutes of Health made 86,000 copies, constituting 930,000 pages and in 1968 the National Library of Medicine made 120,000 copies, totalling 1.2 million pages. The trial judge found that this kind of copying constituted infringement in a ruling that alarmed the library community 172 U.S.P.Q. 670 (1970). The Court of Claims reversed at 487 F.2d 1345 (Ct.Cl. 1973) and the Supreme Court upheld that reversal, without opinion, by an equally divided court at 420 U.S. 376 (1975).

[87] Seltzer, Exemptions and Fair Use in Copyright 24 (1978).

[88] Seltzer indicates his belief that the change in approach to fair use occurred with a 1961 Report of the Register of Copyrights where the Register said "[Fair use eludes precise definition; broadly speaking, it means that a reasonable portion of a copyrighted work may be reproduced without permission when necessary for a legitimate purpose which is not competitive with the copyright owner's market for his work." Report of the Register of Copyrights, "Copyright Law Revision", House Committee on the Judiciary, 87th Cong. 1st Sess., (Comm. Print 1961) p. 33, cited in Seltzer, at 27. Seltzer believes that this statement changed the terms of the debate from "use" to "reproduction".

online full text information networks takes this question one step further. Now the same documents from which the copies were made in Williams and Wilkins can be stored in a network and delivered directly to the user electronically. In one sense, if such a database were established for document delivery over a network, it would simply make the delivery of the information already upheld by the court more efficient. In another sense though, it is a further step down the road of making copies available to readers without compensation to the author. This is a long way from the original notion of fair use and a long way from the foundation of copyright that sought to provide an economic incentive for the production of new works.

Adding to the complexity of the question is the issue of private use. In Sony v. Universal Studios[89] the Court held that private off-air videotaping of free broadcast programs for purposes of time shifting was fair use. The Court defined time shifting as:

> the practice of recording a program to view it once at a later time, and thereafter erasing it. Time-shifting enables viewers to see programs they otherwise would miss because they are not at home, are occupied with other tasks, or are viewing a program on another station at the time of a broadcast they desire to watch.[90]

Although the discussion of the Court is quite broad, the actual holding is limited to the factual situation of private home videotaping for later viewing and ultimate erasure. In reaching this conclusion, the Court emphasized the private, noncommercial character of the use. In Sony, the copy was not a substitute for a purchase, it was a substitute for viewing at a particular time.

Seltzer, too, identifies private use as one of the critical points in fair use analysis. The traditional fair use cases involve copying by hand (or by a typewriter) "by a private reader, scholar, writer, student or teacher for the copier's own private use."[91] In a note in Williams and Wilkins, the Court says "it is almost unanimously accepted that a scholar can make a handwritten copy of an entire copyrighted article for his own use."[92] Traditionally then, copies made by hand for private use are considered fair use. Moreover, after Sony, the mechanical reproduction of a complete work under very limited circumstances has also been held to be fair use. Does this imply that eventually all private use might be considered fair use? If not, where will the line be? How will "private" be defined?

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89 464 U.S. 417, 78 L.Ed. 2d 574, 104 S.Ct. 774 (1984), rehearing denied March 19, 1984, 465 U.S. 1112, 104 S.Ct. 1619, 80 L.Ed. 2d 148.

90 Id. at 423.

91 Seltzer, supra. nt. at p.26.

92 487 F.2d 1345, 1350 (Ct.Cl. 1973).

Commentators have suggested that of the four factors listed in the statute, the most important is the last, dealing with the economic impact of copying. The economic impact of copying by hand is very limited, but high speed photocopiers can now reproduce materials as efficiently--and sometimes more efficiently--as the original printing. Certainly, the original purposes of copyright--providing an economic incentive for creation--suggests that fair use is more likely to be found where the copying has a limited impact on the "potential market for or value of the copyrighted work."[93] In Sony, the Court seems to have accepted this analysis since it created a presumption against commercial use.

> ... every commercial use of copyrighted material is presumptively an unfair exploitation of the monopoly privilege that belongs to the owner of the copyright...[94]

In this context, commercial use would probably include commercial copying as well as copying for use in a trade, business, or profession.

Seltzer has suggested a simpler formulation of the fair use doctrine:

> Fair use is use that is necessary for the furtherance of knowledge, literature, and the arts AND does not deprive the creator of the work of an appropriately expected economic reward.[95]

Such a formulation raises the issue of what is an "appropriately expected economic reward", the question implicit in any discussion of fair use. Some have suggested that new technology has changed the concept of what is "fair" It may be instead that the new technology has changed the perception of what constitutes something for which it is appropriate to expect an economic reward. Alan Latman has suggested that the answer to that question might be whether the reasonable owner would have consented to the use.[96] Although such a formulation is still an equitable rule of reason, it adopts the traditional "reasonable man" approach and may be somewhat easier to apply.

The OTA Report argues that fair use is basically not an appropriate doctrine to invoke in the context of private use for two reasons. First, fair use arises only as a defense to an allegedly infringing use, but neither the Congress nor the Courts have ever found private uses to be infringing.[97] Although this argument is appealing, it may not work since

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93 17 U.S.C. Sec. 107(4) (1982).

94 Sony, nt. 89 at p.451.

95 Seltzer, nt. 87 at p.31.

96 Latman, "Fair Use of Copyrighted Works", in U.S. Copyright Office, Copyright Law Revision, Study No. 14, 86th Cong., 2d Sess. 31 (Senate Judiciary Comm. Print 1960).

97 OTA Report, supra. nt. 15 at 196.

the Copyright Act does give the Copyright owner an exclusive right to make copies, and until the question of private copying is resolved, even a single private copy may be a sufficient allegation to get into court, thus making fair use a necessary defense. Second, the OTA Report argues that acceptance of private use as fair use is a policy decision that ought to be made by the Congress, not the courts. Such a decision calls for evaluating competing claims, and "evaluat[ing] who shall benefit, and how, from new technological uses, and whether copyright protection should extend beyond protecting commercial activities to protecting profits in markets that did not exist before the introduction of new technologies."[98] While such a policy decision could and probably should be made by Congress, in the absence of Congressional action, the Courts will be called upon to resolve disputes in specific cases, and as in Sony may begin to develop a body of case law where specific private copying is found to be fair use.

NAC should consider what constitutes fair use in the network environment. The paradigm could be the full text information network that distributes documents electronically directly to users. Those users might be individual scholars or they might be businesses or professional people doing research for the practice of their profession. The OTA suggests four criteria that might be helpful in making the necessary policy analysis: (1) Economic harm, actual or potential; (2) economically efficient operation of the information markets; (3) access to information distributed electronically. (I.e., materials once in print may be freely distributed; vendors of electronic information can control it on a continuing basis.) and (4) public opinion.[99]

2. The Library Exemption

Closely related to fair use in the network context is the exemption provided in the statute for certain library copying. Sections 108(d) and (e) permit copies to be made for a user from another library collection under certain specified circumstances, provided that the copies become the property of the user and the library had no notice that the copies would be used for any purpose other than private study, scholarship, or research. Section 108(g) indicates that the privileges for libraries only extend to the:

> isolated and unrelated reproduction or distribution of a single copy or phonorecord of the same material on separate occasions, but do not extend to cases where the library or archives, or its employee--
>
> (1) is aware or has substantial reason to believe that it is engaging in the related or concerted reproduction or distribution of multiple copies...of the same material.....
> (2) engages in the systematic reproduction or distribution of single or multiple copies....Provided, That nothing in this cause prevents a library or archives from

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98 Id.

99 OTA Report, p. 197 et.seq.

participating in interlibrary arrangements that do not have, as their purpose or effect, that the library or archives receiving such copies...does so in such aggregate quantities as to substitute for a subscription to or purchase of such work.

NAC should consider the impact of this section on the development of library networks. The Commictee may feel that left unmodified, it would constrain the development of online networks. Alternatively, this section might not even be applicable in the online full text environment, if the user ordered documents from the network directly, without the intervention of their library. In order to clarify the situation with respect to library networks, the Committee might want to consider recommending a parallel new exemption for noncommercial networks. Given the many competing interests, such a proposal would be likely to be controversial. However, since many of those interests are represented on NAC, if the Committee could agree on a recommendation, there might be some chance for success.

3. First Sale

The first sale doctrine is related to America's concept of democracy and to the necessity of making information readily available to the people. To change that doctrine, either as a matter of policy or by changing the way information is actually delivered raises important social questions.

The first sale doctrine is incorporated into the Copyright Act in Section 109. It states that where a work is sold in copies, the copyright owner's control over the individual copies (as distinct from the intellectual work itself) ends when the copies are sold. This doctrine permits the purchaser of a copy to lend, sell, or otherwise dispose of the copy without the permission of the copyright owner. Among other things, it creates the essential legal foundation for free public libraries, since material acquired by a library can be lent to many users without further cost to the library (or further compensation to the copyright owner).[100] Both legally and conceptually, the first sale doctrine depends on the distribution of documents in copies, and if the basic mechanisms for

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100 The American first sale doctrine is fundamentally different from the policy involved in a relatively new program known as the Public Lending Right which has been adopted in Great Britain, the Scandinavian countries, New Zealand, Australia, West Germany, Canada, and the Netherlands. Under that system, the concept of fee-for-use has been extended to print materials and public libraries. In Britain, using sampling techniques, an assessment is made of the relative uses of different book titles and royalties are then distributed to those authors who file a claim. General government revenues are used to finance this system in order to avoid a cumbersome and expensive to administer transaction fee collected at the library. In 1986-87 the payment was 1.2 pence per loan resulting in total payments of 2,403,000 pounds. Those payments were distributed to authors in amounts ranging from less than 50 pounds up to the maximum 5,000 pounds. See Sumison, "Public Lending Right", 1987 British Book News, 396 (July 1987).

information distribution change, the doctrine may become irrelevant as a practical matter.

The alternative to the first sale doctrine appears to be some form of compensation to the author for the use of their works instead of the sale of individual copies. Although a fee for the use of print copies has been adopted in those countries that have accepted the Public Lending Right, many librarians in the United States find the concept antithetical to their basic philosophy of library service. Despite the concerns of librarians, fee-for-use has become the commonly accepted means of collecting revenues for on line systems because no other alternative has been developed. Faced with a conflict between their ideals and practical reality, many librarians are seeking mechanisms to make the information available without passing the fee on to individual users.[101]

In addition to the question of fee-for-use, if material is not distributed in copies, but is distributed electronically instead, questions concerning the control of information are raised. With material distributed in freely available copies, there is no further control over the information after the copies are put into the stream of commerce. However, when data is distributed by centralized electronic systems, there is a much greater possibility for the withdrawal of information from the system or for controlling who has access.

These are important questions of social policy which need to be resolved in order to promote the distribution of information online. NAC may wish to consider the continuing viability of the first sale doctrine, at least in the library and network context. It may be that the trend is toward fee-for-use as a more accurate reflection of the compensation due to authors even though it raises the troublesome questions noted above. Should the United States consider repealing the first sale doctrine and implementing a Public Lending Right to provide greater uniformity of compensation to authors in the various parts of the information marketplace?

D. Enforcement

Granting legal rights is little more than an effort at moral suasion if there is no mechanism for enforcing those rights. Yet, technology has made the enforcement of intellectual property rights problematic at best, and maybe impossible.

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101 Indeed, in a recent ruling the Attorney General for the state of Maryland indicated that it was illegal for a library to charge fees services. Opinion No. 87-057 of the Attorney General of the State of Maryland, 72 Opinions of the Attorney General ___ (December 9, 1987). One mechanism that helped to solve this dilemma in law school environment was the adoption of a flat rate unlimited search contract by LEXIS and WESTLAW. Since the price was then known and not excessive, it could be built into individual library budgets. This approach is quite different from that of most other databases, where all charges, some very high charges, are based on actual usage. The impact of such an approach on the library budget will always be uncertain.

Traditionally, the individual copyright owner was responsible for the enforcement of his own rights. If that person discovered an infringement, they sought redress through a court action. This approach required discovery of the infringing action, gathering sufficient evidence to prove it in court, and having the desire and the money to pursue the litigation. Before the days of easy and inexpensive copying, infringing actions were relatively few and relatively easy to discover.

Today, the technology of copying is so efficient that copying is fast, inexpensive, and easy. Much copying is done privately, on local photocopiers; some is done digitally across great distances through telefacsmile transmission; and some is done through computer-based information networks. Furthermore, unlike the days before the photocopier, most of these copies are single copies for a particular user. (This is not meant to imply that they are necessarily for private use since many of them are undoubtedly for commercial or business purposes.) Whether or not these copies are for private purposes, substantial numbers of the copies are made directly by the individual or his agent.

In the network context the problem is exacerbated since even larger quantities of material can be easily and quickly downloaded from a host computer. Large-scale downloading is technically feasible, but because of its scale, once discovered may be dealt with using traditional enforcement mechanisms. Local bulletin board systems used by computer hobbyists provide a vehicle for the rapid dissemination of copyrighted material--such as copyrighted software--on a smaller but still significant scale that will make it difficult to discover, difficult to prove culpability (since the material is loaded to the BBS by a third party), and difficult to prosecute (since there are so many of them and they are relatively small operations).

Despite widespread copying, the public in general is not particularly concerned about intellectual property rights and their enforcement. In the preparation of its report, the OTA commissioned a survey of public attitudes on intellectual property. The survey found that the vast majority of the public finds some forms of unauthorized copying (especially private copying for personal use) acceptable, meaning that the individual would be willing to do it even while acknowledging that it is probably wrong. Interestingly, according to the study, the public tends not to condone behaviors that involve "the obvious or active circumvention of a payment, when they are done for sale or profit, or on behalf of business or in a corporate setting."[102] This is consistent with the presumption against commercial copying established by the Supreme Court in Sony v. Universal Studios.[103] In general, though, the public perceives these issues as a marketplace problem whose solution should come from the industries and companies affected.[104]

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102 OTA Report, supra., nt. 15 at 122.

103 See supra., nt. 94.

104 OTA Report, supra. nt. 15 at 122.

Pursuing the marketplace analysis, the Rand Corporation recently completed a study on the economic effects of private copying.[105] Their analysis shows that it is difficult to predict accurately the effect of copying on information producers or consumers. The results depend on the substitutability of copies for originals as well as the costs of each. If the marginal cost of copying is constant, the Rand Report found that the demand for originals is reduced to a degree influenced primarily by the substitutability of one for the other. In other words the producers "lose" while the consumers "gain". On the other hand, if the marginal cost of copying increases with the number of copies (due to the need to establish distribution channels, procedures for administration, etc.), and the price of originals is high, both the consumer and producer are better off when copying is efficient and worse off when it is not. Under those same circumstances, if the cost of both originals and copies are low, producers will lose and consumers will gain by copying. With regard to royalty payments, the study shows that when originals and copies are imperfect substitutes, the producer may be better off with a royalty. However, if they are perfect substitutes, the optimal royalty may be zero when the cost of copying is low, or originals are expensive.[106]

Whether the enforcement of copyright will be settled in the marketplace, in the legal arena, or through technological devices has yet to be resolved. At least three solutions have been proposed in the OTA Report.[107] Those include technological protection such as security devices or computer monitoring of usage, public relations campaigns, and campaigning for strengthening traditional enforcement mechanisms. None of these really seem to solve the problem.

NAC could consider whether there is some enforcement mechanism that could solve some of these problems, at least in the network context. For example, since a computer can easily track item usage, it should be a relatively simple matter to devise a mechanism for royalty payments to creators of works distributed in an online system. Perhaps there are other mechanisms that the Committee might recommend for the enforcement of rights.

Selected Approaches to the Issues

The foregoing discussion highlights many of the problems and ambiguities that exist for information networks under the current intellectual property system. Most of these questions arise primarily because of changing technology, not because the current system is fundamentally unsound. Any system would have to deal with them in some way. Some of the ways in which those specific problems might be resolved

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105 Besen and Kirby, Private Copying, Appropriability, and Optimal Copying Royalties, (Rand 1987). The text that follows is drawn largely from the conclusions of the study at p.29-30.

106 A detailed mathematical analysis of these conclusions is provided in the Rand study, Id.

107 See generally OTA Report, at 116 et.seq.

have been indicated in the earlier discussion. Consideration will be given in this section to some of the systemic ways in which those changes might be accomplished. In addition, some thought will be given to providing a structural mechanism that will permit the system to respond more quickly to future technological changes.

A. Continue Reliance on Intellectual Property with Amendments to Solve the Various Issues Identified Above.

Intellectual property in general and copyright in particular have been part of the English and American legal tradition since the Statute of Anne in 1709.[108] During the time since then, many new types of works have needed protection and have been incorporated into the Copyright system. These include photographs, motion pictures, sound recordings, and most recently, computer software. To deal with some of the differences between the newer forms of expression and the print media, the rights of public performance and display have been added to the rights of the creator. Some commentators have argued strongly that the Copyright system has thus shown itself to be remarkably adaptable, and should not be abandoned simply because yet another new form of expression and creativity has been developed.[109]

There are powerful arguments supporting this view. First, intellectual property is property, in the legal and Constitutional sense. Although it is somewhat unclear what kind of property it is,[110] there is, nonetheless, a considerable body of law about property, its ownership, the rights that pertain to ownership, and its transfer to others. Second, despite some of the current concerns and ambiguities that have been discussed in this paper, the purpose of the current intellectual property regime is to protect the rights of creators and stimulate creativity while striking a reasonable balance between the potentially competing interests of creators and users. If there are particular aspects of the system that are not working, it may make more sense to deal with them rather than seek an entirely new structure that would probably create a whole host of new questions and problems. A radical departure from the current approach would create much uncertainty and might well shift the balance in unpredictable ways.

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[108] The Statute of Anne, 8 Anne c.19 (1709) was the first English Copyright statute. Although its original purpose was to control the press, because of the limited monopoly it created, it came to be viewed as a device to protect the interests of the publisher and author who had a clear stake in protecting their monopoly privileges. In protecting the economic interests of authors and publishers, it also created an economic incentive to write and publish.

[109] See generally Baumgarten and Meyer, "Program Copyright and The Office of Technology Assessment", Parts 1 and 2, 4(10) Computer Lawyer 8 (October 1987) and 4(11) Computer Lawyer 1 (November 1987).

[110] See Jessica D. Litman, "Copyright, Compromise, and Legislative History, 72 Cornell L.R. 857 (1987).

1. Amending the Current Act

Most, if not all, of the problems identified above can probably be accommodated in the basic property-orientated system by amending the Act or by Judicial interpretation. Because of the vested interests in the current system, however, the task is not easy. Nonetheless, most of the concerns can be dealt with by redefining concepts, making policy choices among competing interests, and incorporating those changes into the act. Areas of particular concern include (1) what is protectable and why, (2) whether the nature of information distribution in society has changed so fundamentally as to change what is permissible copying under fair use, or to create a need for expanded exemptions, and (3) how intellectual property rights can be enforced in an era when so much information transfer takes place in private.

2. Overall Revision of the Act

The OTA Report argues that the changes taking place in the information and communications industries are so fundamental and pervasive that the Copyright Act is in need of fundamental revision both in conception and in structure.

Conceptually, they say, the Copyright Act is rooted in an earlier era, in which information was distributed by printing in copies. Access to information then could be controlled by controlling the process of printing and the making of copies. Now, however, the works needing protection may not be "fixed" in a copy as before; instead, they may be a dynamic database and may exist only electronically. In addition, they may not be in a form that can be directly read or perceived by a person. Finally, information can be disseminated electronically without "fixing" a copy at all. Even the other new technologies to which Copyright has had to adapt in the past (sound recordings, motion pictures, etc.) did not attack the fundamental notion of being available in copies and being directly perceptible by a person.

In addition to the notion of protecting a work in copies, the development of computer software presents further conceptual problems for the Copyright system. In one sense, the program itself is writing and has been included within the scope of Copyright protection. On the other hand, the purpose of the program is to cause something to happen within a computer. In that sense, it represents a process or a function that is more likely to be the subject of patent protection.

Finally, copying no longer needs to be centralized in the hands of publishers; it can be completely decentralized directly into the hands of end users. In addition, copying is now qualitatively different than it was when the fundamentals of the copyright system were developed. Copying has become so routine and so fast that it is fundamentally different from the type of copying that was done even 20 years ago. This change presents fundamental problems for enforcement in a system whose essential purpose is to protect the making and distribution of copies.

As a result of these and other similar considerations, the OTA Report concludes that despite the difficulty of doing so, the Copyright Act will

have to be revised within the next decade.[111] They have suggested that one way in which such a revision might be done is to divide copyright into works of art, works of fact, and works of function. This would mean that different aspects of the law could be tailored to the needs of that type of work. For example, the duration of protection for a literary work, might be substantially longer than for a functional work or a piece of software, reflecting differences in their functional lives. Similarly, there might be different standards for what constitutes a derivative work for a work of fact than for a work of art.

There might be different answers to many of the concerns that have been raised above depending on the type of work involved. As a result, the OTA Report seems to suggest that the current Copyright Act needs to abandon the fiction that all works are alike and recognize the reality that different kinds of works need different kinds of protection. Such an approach would require a general revision of the Act.

B. Increase Reliance on Compulsory Licenses[112]

Compulsory licenses provide a mechanism for compensation to creators in situations where control of copies or control over the use of a particular work is difficult. Essentially, the compulsory license grants blanket permission to use a particular kind of work in a way that would otherwise violate one of the exclusive rights of the creator in return for payment of a single fee to a central agency. The royalties thus collected form a pool of funds from which compensation is provided to creators participating in the system.

Under United States law, compulsory licenses began with a license for the reproduction of copyrighted music.[113] Under the 1909 Act, once the copyright owner had licensed the first recording, subsequent recordings of the same musical composition could be made by paying a royalty. With a few changes, this basic scheme for sound recordings was carried forward into

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111 OTA Report, p. 93.

112 For a discussion of compulsory licenses generally, and compulsory licenses for cable T.V. in particular, see Hyman, "The Socialization of Copyright: the Increased Use of Compulsory Licenses", 4 Cardoza Arts & Entertainment Law Journal 105 (1985).

113 The case of White-Smith Music Publishing Co. v. Apollo Co., 209 U.S. 1 (1908) found that piano rolls were not copies of copyrighted music, but part of a machine that played the musical works. In response to this case, in the Copyright Act of 1909, Congress established a provision to allow any manufacturer of recordings or mechanical reproductions to use a musical composition that had previously been recorded provided the manufacturer paid a royalty to the copyright owner. This scheme has been administered by ASCAP and BMI which collect and distribute the statutory royalty (2 cents per disk until 1976, 2 3/4 cents per disk or 1/2 cent per minute, whichever is larger after 1976).

the Copyright Act of 1976.[114] The 1976 Act also added compulsory licenses for jukeboxes,[115] public broadcasting,[116] and cable television.[117]

In each case, the statute provides for a mechanism to collect royalty payments in order to provide a pool of funds for distribution to copyright holders. In the case of cable television, the rates are established as a percentage of the gross receipts of the company; for jukeboxes, an annual fee is paid for each machine; for making and distributing phonorecords, a fee for each disk is levied for each work included on the disk; and for public broadcasting, fees are collected for each performance of a covered work.[118] The fees for cable television and jukebox royalties are collected by the Register of Copyrights and distributed by the Copyright Royalty Tribunal. The Copyright Royalty Tribunal also sets or reviews the rates for cable television, for phonorecords and coin operated phonorecord players, and for non-commercial broadcasting. In setting the rates for phonorecords and jukeboxes, the CRT is specifically directed to balance the following objectives:

> (A) To maximize the availability of creative works to the public;
> (B) to afford the copyright owner a fair return for his creative work and the copyright user a fair income under existing economic conditions;
> (C) to reflect the relative roles of the copyright owner and copyright user in the product made available to the public with respect to relative creative contribution, technological contribution, capital investment, cost, risk, and contribution to the opening of new markets for creative expression and media for their communication; and
> (D) to minimize any disruptive impact on the structure of the industries involved and on generally prevailing industry practices.[119]

Because of the relative success of compulsory licenses, similar systems have also been established on a voluntary basis in other parts of the information industry. For example, the Copyright Clearance Center has been established to provide a clearing house for the copying of journals beyond the statutory rights of fair use and the library exemption of Section 108. Originally, payment to the CCC was made on a per copy basis, and royalties distributed accordingly. In recent years, the CCC has developed an annual license program for its major corporate users. In that program, payments are based on industry surveys and sophisticated

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114 See 17 U.S.C. Sec. 115 (1982).

115 17 U.S.C. Sec 116 (1982).

116 17 U.S.C. Sec. 118 (1982).

117 17 U.S.C. Sec. 111 (1982).

118 See generally 37 C.F.R. Sec. 303 to 308 (July 1987).

119 17 U.S.C. Sec. 801(b)(1) (1982).

econometric modeling. Similarly, for the non-theatrical institutional market,[120] the Motion Picture Licensing Corporation has been established to provide a mechanism for the collection of royalties and payment to owners for the institutional showing of home video cassettes and videodiscs. In most cases, the MPLC is negotiating a blanket agreement with each participating institution. The existence of voluntary licensing groups suggests that the industry sees them as a viable way to provide compensation to creators for the use of their work. However, without the clear force of law behind them, participation in such systems seems likely to be limited to those cases where the potential for otherwise finding infringement is relatively clear.

The compulsory license may offer a solution to some of the problems of enforcement and to the problems of creating a mechanism to provide fair compensation to creators for the use of their work. Such a system is increasingly being adopted by foreign jurisdictions,[121] and should be considered by NAC. One commentator has suggested that "compulsory licensing is offered when technology has created new uses for which the author's exclusive rights have not been clearly established. It is also used when technology has made old licensing methods for established rights ponderous or inefficient."[122] The technological integration of networks can provide alternative mechanisms for royalty collection and payment. Such mechanisms could be modeled after cable networks, in which the pool is collected as a percentage of the gross. Alternatively, they could be modeled after the Public Lending Right in which computer tracks the usage of particular works, and royalties are collected and paid on a per use basis. Finally, a use tax could be avoided altogether by imposing a surcharge on hardware and/or blank media.

C. Expanded Role for an Administrative Tribunal

By its very nature, Congress is slow to respond to social and technological developments. In recognition of this fact, when dealing with an area of the law that is technologically sophisticated and changing very fast, they have found it convenient to establish broad policy and delegate the authority to an administrative agency to develop the rules by which that policy is carried out. Examples of such delegated authority include the work of the Environmental Protection Agency and the Federal Communications Commission. Both of those areas are affected significantly by developing technology, and Congress found it expedient to create a specialized agency to keep up with those developments and shape the law accordingly, within the outlines established by Congress. It seems entirely possible that the developing information industry has created another area where the law could be more responsive to technological change if it were monitored by an administrative unit specifically charged with

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120 E.g., nursing homes and libraries where there is a limited audience and their viewing is incidental to their use of the institution.

121 See text at nt. 139 infra.

122 Lee, "An Economic Analysis of Compulsory License Provisions in Copyright Law", 5 W. New Eng. L. Rev. 203, 209 (1982).

the task.

The expanded activities of the Copyright Office and the Copyright Royalty Tribunal in recent years show, somewhat, how such an agency might work. They could be given the task of balancing competing interests in a manner similar to the CRT, as discussed at note 119 above. At the same time, they could monitor other parts of the intellectual property environment and respond appropriately. For example, they could decide on new classes of works that should be protected; they could deal with the derivative works question in ways that respond to the different kinds of protected works and the ways in which they are used; and they could modify the formalities required for the protection of different kinds of works. Within the limits imposed by Congress, they could provide different lengths of protection for different kinds of works. Finally, they could devise compensation mechanisms that respond differently to different kinds of works but attempt to achieve a fair balance between the competing rights of users and creators.

Again, several foreign jurisdictions have been experimenting with an expanded role for an administrative body. Such a change might provide greater clarity in the law as well as greater flexibility to meet the demands of changing technology.

D. Sui Generis Legislation

Several of the issues raised earlier in this paper suggest the existence of fundamental conceptual problems about the appropriateness of relying on existing patent or copyright legislation for a solution to all intellectual property problems. Some things--most notably computer software--just do not seem to fit. The law could respond, not by trying to stretch the existing law, but instead by designing a new law tailored to meet the special requirements of each new kind of intellectual property. Dealing with each situation separately in this way is referred to as sui generis.

This approach was followed a few years ago when Congress passed the Semi-Conductor Chip Protection Act of 1984.[123] That Act provides protection for semiconductor chips and mask works for a period of ten years, and grants exclusive rights to produce, import or distribute the work. An important limitation on these exclusive rights permits reverse engineering to learn how the chip works or to produce a new, but original design.[124]

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[123] P.L. 98-620, Title III, 98 Stat. 3347, 17 U.S.C.A. Sec. 901 et. seq. (1987 pp).

[124] For a discussion of the Act see the symposium issue of the Minnesota L. Rev., (Dec. 1985). See especially, Samuelson, "Creating a New Kind of Intellectual Property: Applying the Lessons of the Chip Law to Computer Programs", 70 Minn. L. Rev. 271 (1985), Kastenmeier and Remington, "The Semiconductor Chip Protection Act of 1984: A Swamp or Firm Ground?" 70 Minn. L. Rev. 417 (1985), and Brown, "Eligibility for Copyright Protection: A Search for Principled Standards" 70 Minn. L.Rev. 579 (1985).

Samuelson[125] argues that there are strong economic reasons for protecting those things like software and computer chips that seem to be in the gap between traditional copyright and traditional patent law. But, she says new laws may be needed when "inclusion of a new technology into patent or copyright law would upset the intellectual property bargain."[126] In the case of chips, for example, the bargain struck is quite different from Copyright since the bundle of rights granted by the two statutes is quite different. Samuelson argues strongly that the inclusion of software in the Copyright Act was a mistake and should be reconsidered because it extends Copyright protection for the first time to utilitarian works. A new act for software similar to the Chip Act, could create a different bundle of rights,[127] a different set of limitations on those rights,[128] and a different test for infringement.

If NAC believes that the needs of networking place the electronic delivery of information beyond the logical realm of the current intellectual property laws, then it ought to consider recommending the Sui Generis approach to deal with that context. If it wishes to explore that option, NAC should take care to explain why the current statutes cannot be amended to work, and then outline the basic contours of a law that would.

E. Contract

The uncertainty of the law has stimulated a rush by companies to seek as many layers of protection as possible, including patent, copyright, and trade secret protection. In addition, many software producers are using licensing agreements to try to create a different bundle of rights than that which is accorded under the statute. The enforceability of those licenses, which may not have the express agreement of the purchaser, is open to question,[129] but their existence demonstrates that when intellectual property law is perceived to be inadequate to the needs of the industry, contractual arrangements can be devised to fill the gap.

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125 Samuelson, Id.

126 Id., at 514.

127 The duration of protection could be shorter, for example, as it is under the Patent and Chip Laws. In addition, the right to make and distribute copies would probably be included among the exclusive rights, but the rights of public display or public performance might not be since they might "result in a technical infringement, but an infringement to which it would be inappropriate to attach liability." [Footnote omitted]. Id. at 521.

128 E.g., to permit reverse engineering.

129 So called shrink-wrap licenses are an attempt to bind the consumer to certain restrictions without an express agreement. Such agreements assume the existence of an implied contract once the user opens the wrap.

The providers of information through networks are already relying heavily on contractual arrangements to define the rights between the parties. Although many databases are copyrighted as a whole, some contain separate works that are themselves copyrightable. The most obvious and pertinent examples are the full text databases, such as LEXIS, NEXIS, and WESTLAW that reproduce verbatim the contents of a large number of different publications. Dialog also loads many copyrighted files. Other examples include bibliographic databases and computer networks such as Compuserve that store the works of its contributors. As library networking matures, the issues surrounding the online distribution of full text and or otherwise copyrighted information will become critical.

Dialog acquires the license to load a file into its network in return for a payment of a specific royalty. The terms of the agreement are limited by time, and the title to the file remains with the original proprietor. Dialog takes special care to insure that the notice of copyright (The language of the notice for each database is supplied by the individual proprietor.) is provided both online and in all offline documentation and products. Royalties are paid to the copyright owner in different ways: in some cases there is a flat fee per year; in some cases, there is a set rate per connect hour of use; in some cases there is a charge for records printed either offline (printed on paper) or online (to a screen or a disk);[130] and in some cases, the fee is a percentage of the royalties received by Dialog. These costs are passed on to the user in a bundled price. In general, charges to the user charges are based on a connect-hour fee plus a fee for online or offline printing.[131] Similarly, LEXIS collects fees from its customers based on the usage of particular files, a printing charge of 2 cents per line, and a subscription fee. A portion of those funds are returned to the copyright holder on a basis that is negotiated separately with each.

To a large extent, the absence of a clear body of law has created a necessity for the relationships between the database owner/vendors to be resolved by contract. This seems to be working reasonably well, at least from the point of view of the owner/vendor. Industry participants seem reasonably satisfied. However, because the database vendors have substantial bargaining power, it is not clear whether this approach provides the best balance to meet the needs of the user and the needs of the copyright owner. There are, for example, some substantial transaction costs for the prospective creator who wishes to distribute their work online but who first must negotiate an individual relationship with the vendor. NAC may wish to consider whether the current reliance on individually negotiated contracts best meets the Constitutional objectives of balancing competing interests or whether it may be desirable to develop national policies governing information networking. If it seems appropriate to develop some

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[130] Online printing charges are likely to be used more widely in the future due to the increased speeds of data transmission and the increased use of P.C.'s to download information directly.

[131] Information on Dialog supplied by Charles Bourne, Director, General Information Division, in a telephone conversation, February 3, 1988.

national policies, prevailing industry practices may suggest an appropriate direction.

F. Develop a Common Law Doctrine of Misappropriation of Expression

Duncan Davidson points out that all of these approaches involve the creation of a complex legal regime--whether through legislative amendment of existing law, sui generis legislation, or the creation of an administrative agency which would, in turn, create its own body of complex rules and regulations. He argues that "[t]he problem with attempting to create a complex system of protection a priori is that no small group of us has the foresight or wisdom to anticipate how the information economy will develop. It is simply too early."[132] He concludes that the common law process provides a better mechanism for dealing with the issues incrementally over time, rather than all at once in a grand scheme that will probably fail. Although the common law process would create some uncertainty, Davidson feels that it would "develop answers for many of the areas of information policy, but [allow us to] feel comfortable that we are implementing a system in which erroneous decisions can be corrected and a more accurate policy can be developed."[133]

The foundation of this proposal is a concept called the "limited use principle" which states that "information can only be used for the limited purpose for which it was first acquired or disclosed."[134] To go beyond the reasonable expectations of use of the persons involved in the exchange would constitute a "misappropriation of expression", actionable in court.[135] As stated by Davidson, the goals of this approach would be to prevent the work from being: (1) used beyond the scope contemplated in the price paid; (2) copied and used by others in avoidance of paying for it; (3) reverse engineered in order to create competitive versions; and (4) analyzed in order to publish the knowledge within the work.[136]

As applied to software, Davidson would adopt a "black box model".[137] Such a model would view the internal elements of a program to be untouchable[138] while the external features could be reverse engineerable

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132 Davidson, "Common Law, Uncommon Software", 47 Univ. of Pittsburgh L. Rev. 1037 (1986).

133 Id. p. 1068.

134 Id., p. 1115.

135 Interestingly, this sounds a great deal like the Latman proposal concerning fair use. See text at nt. 96, supra.

136 Id., p. 1109.

137 Id., p. 1080 et. seq.

138 Internal similarities between one program and a subsequent one would be prima facie evidence of a violation of the rights of the former. Such similarities might include literal similarities in the program code or

unless separately protected. It would draw the line between idea and expression between the external manifestations of the program (the idea) and the internal documentation that carries it out (expression). Fair use is not specifically accommodated in the model but could be added to it. As currently interpreted by Sony, fair use would imply that a researcher could go into the black box for personal uses that did not cause a significant impact on the economic market for the program. The black box approach permits independent creation of competitive software; fair use permits a researcher to learn about programs and programming techniques so long as it was not used for competitive purposes. Combined, they balance the needs of the creator with that of the individual researcher.

In areas other than software, the courts would look to the guiding principles outlined above. The goal would be to not base infringement on copying per se, but on conduct that goes beyond the reasonable expectation of the parties. With some acceptance of the principles of misappropriation, Davidson believes that equitable solutions can be evolved over time.

The Davidson proposal is, in some ways, more radical than any of the others since it seems to abandon any systematic attempt to grapple with the issues. On the other hand, the common law methods have allowed the law to evolve over many years and to deal with the most complex of issues. Its beauty lies is the simplicity and power of relying on a single broad concept--misappropriation of expression--to provide guidance in the resolution of future disputes. As those disputes are resolved, the law will take shape. If NAC finds such an evolutionary approach appealing, it might want to make a recommendation that the basic doctrine proposed by Davidson (or some other similarly broad principle) be incorporated into the Copyright Act, and that the Courts be given jurisdiction to expand and develop the basic principles.

G. Other Approaches

With little doubt, there are other approaches that might help to resolve some of the intellectual property dilemmas posed above. This review is not necessarily intended to be comprehensive, but rather to indicate some of the main threads of the debate. Perhaps with this much to stimulate the thinking of the members of NAC, still other new solutions might be forthcoming.

Recent Proposals in Other Jurisdictions

The general issues under discussion here are being dealt with all over the world, and other countries have adopted a variety of approaches to the problem. Although a thorough review of what other countries are doing is beyond the scope of this paper, both Canada and the United Kingdom have recently introduced new Copyright legislation into their parliaments. A

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nonliteral similarities in which the second program makes too many of the same decisions made by the first. Examples of nonliteral similarity might include the sequencing of operations, some unusual routines or algorithms, and the way the data is stored and structured. Id., p. 1086-88.

review some of the relevant portions of those bills might be instructive.

A. Canada

The proposed new Copyright legislation, Bill C-60, received its second reading on June 26, 1987 and was then referred to a Committee for hearings. The bill was preceded by a 1984 white paper,[139] and incorporates several of its recommendations.[140]

The Canadian proposal grants full copyright protection to computer programs as literary works for the usual duration (life of the author plus fifty years). The bill authorizes someone in "lawful and actual possession of a copy of a computer program" to make a reasonable number of reproductions provided the person does not use more than one copy at any given time, the reproduction is used in lieu of the original, and the reproductions are destroyed when the person is no longer is lawful possession of the original. U.S. law grants copying privileges only to an owner (rather than a possessor), only for archival purposes, and only in a single copy. However, the U.S. provision does not require the destruction of the copies; instead, they may be transferred along with the ownership of the original. U.S. law authorizes adaptations to be made only for archival purposes or when necessary as an essential step in the utilization of the program (e.g. copying the program into RAM). The Canadian proposal permits an adaptation to be made for any purpose by any lawful possessor of the program, provided the adaptation is for their own use, is not used in more than one copy at a time, and the reproduction is destroyed when the person is no longer entitled to possession. The Act also essentially recodifies the two moral rights of paternity (right to claim authorship), and integrity.

Like the U.S. law, the current Canadian Copyright Act encourages collectives for musical performances. Although other collecting societies are certainly possible, they have previously been discouraged by their potential conflict with the Canadian antitrust laws. In order to stimulate the development of more collecting societies, the bill specifically authorizes the formation of voluntary societies to negotiate blanket license agreements with users. The negotiated agreements will then be submitted to the proposed Copyright Board to make sure they are in the general public interest. If the parties cannot agree, either may ask the Board to set royalties along with any other terms or conditions. Under this part of the proposal, the existing Copyright Appeal Board will be reconstituted as the Copyright Board and given much broader review powers over the various collective agreements that are anticipated.

Many other issues originally dealt with by the white paper are not

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139 From Gutenbeg to Telidon: a White Paper on Copyright, Proposals for the Revision of the Canadian Copyright Act, [1984].

140 For the text of relevant sections of the bill, comparison to the provisions of U.S. law, and a general discussion of the proposal, see Racicot, "Copyright Reform in Canada--Phase I Legislation", VI(5) Software Protection 1 (October 1987).

covered by C-60. It may be anticipated that there will be other proposals dealing with other aspects of the problem once this legislation has passed.

B. United Kingdom

A white paper was also issued in the United Kingdom in 1986.[141] Subsequently, a bill drawing heavily on that report was published on October 30, 1987. The author of this paper has not been able to obtain a copy of the bill. Nonetheless, the Report contains some significant discussion of the issues.

The white paper recognizes that the enforcement of rights by individuals has become very difficult with the advent of modern copying technology. Accordingly, like the Canadian Act, the Government supports the trend toward setting up collecting societies for the collective enforcement of those rights. The Report specifically supports the use of a voluntary collecting societies for (1) photocopying in the educational environment beyond a limited minimum that would be considered fair dealing,[142] and (2) recording from television for educational purposes.[143] A pilot project resulted in the apparently successful establishment of the Copyright Licensing Agency (CLA) to set up licensing schemes in schools, colleges, and other similar institutions. The report proposes to leave such voluntary schemes in place for purposes of photocopying but to establish a compulsory license for recording from television for educational purposes.

The white paper also found that the best way to deal with home taping was to introduce a levy on blank tape. This was seen as the only realistic way to remunerate copyright owners and performers for the use of their material by those who tape them at home.[144] Recognizing that such a proposal involves a degree of rough justice, the White Paper proposed a levy on any blank recording medium but stated an intention to apply the levy only to audio tapes, not to video tapes.[145] The report specifically noted that this provision would not authorize the copying of pre-recorded computer programs or video programs. According to a subsequent report on the bill as introduced, this provision for a levy on blank media was dropped by the government.[146]

To administer and oversee the licensing provisions, the Performing

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141 Intellectual Property and Innovation, Presented to Parliament by the Secretary of State for Trade and Industry by Command of Her Majesty, April 1986. London, H.M.S.O. Cmnd. 9712.

142 Id. pp. 46 et. seq.

143 Id. p. 44-5.

144 Id. p. 38.

145 Id. p. 41.

146 1987 Bulletin of Legal Developments 192.

Right Tribunal would be renamed the Copyright Tribunal. It would implement the compulsory license provisions, regulate the levies on blank media (if approved), settle disputes between licensees and licensors, and generally oversee these matters to prevent undue use of the monopoly established by the use of a collecting society.

Conclusion

The problems raised by new technology are difficult, but they are surely solvable, through amendment, new sui generis approaches, an expanded role for an administrative agency, or through the development of voluntary or compulsory licensing mechanisms. NAC has an important role to play in this discussion. It should consider the full range of solutions and comment on them. It should formulate its own ideas and propose them. NAC represents the key players in the debate, and if its members could agree on how to solve these problems, it could be a breakthrough.

Possible Discussion Topics

1. Has the information delivery system changed so fundamentally in the twentieth century that the current system for protecting intellectual property can no longer evolve to meet its own stated goals.

2. Should the Copyright Act be amended to provide for different categories of works that could be treated differently for standards of copyrightability, duration of copyright, rights of the copyright owner, and infringement?

3. Should NAC take a position on royalties? If so, what mechanism should be used?

   a. Compulsory licensing
   b. Voluntary licensing
   c. Taxation of blank media

If not, what mechanism does NAC support to provide compensation to authors of materials distributed in the online environment?

4. Should the concept of fair use be expanded as a matter of public policy? What should be the policy on copying entire works for use in the same manner as the original? Should fair use be expanded to include all private use?

5. What rights should copyright owners have over the preparation of derivative works in the electronic environment.

6. Should the Copyright Act be amended to provide an exception, similar to the exception for certain kinds of library copying, for works distributed via an information network?

7. As a matter of policy, should information distribution be compensated on a fee for use basis or should there continue to be an approach that spreads the costs of information throughout society? Should the first sale doctrine be repealed? If the fee-for-use approach is adopted, is there some way to price discriminate so that people who value the information more pay more and those who value it less (or cannot afford to pay) pay less? If a mechanism for spreading the cost is found to be philosophically desirable, what mechanisms are possible?

8. How should the rights of copyright holders be enforced in the network environment?

INTELLECTUAL PROPERTY ISSUES AND INFORMATION NETWORKS:
Summary of the Program's Presentations and
the Working Groups Deliberations

Shirley Echelman

The Library of Congress Network Advisory Committee (NAC), founded in 1976, advises the Librarian of Congress on the role of the Library in a nationwide network of library and information services. It is also charged with promoting the development of nationwide networking and serving as a focal point and forum regarding networking issues; providing input to the Council on Library Resources (CLR) on its networking activities; and serving as a sounding board and a forum for the U.S. National Commission on Libraries and Information Science (NCLIS) on matters related to networking and of interest to the Commission. Its membership includes representatives of the major library, archival, and information industry professional and trade associations, regional and nationwide library networks, bibliographic utilities, database vendors, the national libraries, and other appropriate information service agencies. In pursuit of its charge, NAC has considered and made recommendations on a wide range of issues, from standards development to telecommunications policy.

In April of 1987, the members of NAC turned their attention to the issue of intellectual property rights in the technology-driven environment. The major program focus of this consideration was the 1986 report of the U.S. Congressional Office of Technology Assessment "Intellectual Property Rights in an Age of Electronics and Information."[1] Several speakers set the stage to provide NAC members with a better understanding of the issues involved. Their presentations included:

- a general and legal overview of the OTA Report;
- a review of the purposes of the 1976 Copyright Act;
- the position of the House Judiciary Subcommittee on Courts, Civil Liberties, and the Administration of Justices regarding intellectual property rights;
- a librarian's view of bibliographic database ownership; and
- presentations of real-life property rights situations in the private sector.

These presentations may be found in Network Planning Paper no. 16,

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[1] Intellectual Property Rights in an Age of Electronics and Information: Report of the Office of Technology Assessment of the United States Congress. Washington : Office of Technology Assessment, 1986. (Hereinafter cited as OTA Report).

published by the Library of Congress in 1987.[2]

Discussions during this meeting made it clear that fair use in photocopying and the relationship of copyright and contract law in regulating the use of databases, software, and other properties are still open to major differences in interpretation and practice. Therefore, it was agreed that a second meeting would be needed to gain further information and to isolate and describe the policy issues and their implications. The second meeting was held on March 24-25, 1988: and this report summarizes the presentations made and discussions held at that time. It is NAC's intention to disseminate the report to its constituent organizations for further discussion and comment.

Issues for Consideration by NAC

To assist the members of NAC in grappling with the issues relevant to intellectual property and information networks, a background paper was prepared by Robert L. Oakley,[3] with the assistance of the members of the Program Planning Committee of NAC. (Mr. Oakley, who chaired the committee, is Director of the Law Library and Professor of Law at the Georgetown University Law Center.) The paper focuses on such broad questions as (1) what is/might be protected and for how long, (2) what constitutes potential infringement, (3) what is not infringement, and (4) what mechanisms are used for enforcement. It indicates in each area, what critical legal issues have been created by the development of new technology and information networks. It then reviews several alternative approaches for dealing with these issues, such as continued reliance on the copyright system with amendment or revision of the present law, increased reliance on compulsory licenses, expansion of the role of an administrative tribunal, sui generis legislation, contracts, and/or development of a common law doctrine of misappropriation of expression. After a brief examination of the ways in which Canada and the United Kingdom have tried to deal with some of these same issues, Mr. Oakley suggested the following eight topics as a focus for NAC's deliberations:

1. Has the information delivery system changed so fundamentally in the twentieth century that the current system for protecting intellectual property can no longer evolve to meet its own stated goals?

2. Should the Copyright Act be amended to provide for different categories of works that could be treated differently for standards of copyrightability, duration of copyright, rights of the copyright owner, and infringement?

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2 Intellectual Property Rights in an Electronic Age: Proceedings of the Library of Congress Network Advisory Committee Meeting April 22-24, 1987. Washington : Library of Congress, 1987. (Network Planning Paper No. 16).

3 Intellectual Property Issues and Information Networks: a Background Paper, prepared by Robert L. Oakley for the Library of Congress Network Advisory Committee's meeting March 23-25, 1988. (Mr. Oakley's paper is included in the proceedings of this meeting).

3. Should the Network Advisory Committee take a position on [mechanisms for the payment of] royalties? If so, what mechanism should be used?
   a. Compulsory licensing,
   b. Voluntary licensing,
   c. Taxation of blank media.

   If not, what mechanism does NAC support to provide compensation to authors of materials distributed in the online environment?

4. Should the concept of fair use be expanded as matter of public policy? What should be the policy of copying entire works for use in the same manner as the original? Should fair use be expanded to include all private use?

5. What rights should copyright owners have over the preparation of derivative works in the electronic environment?

6. Should the Copyright Act be amended to provide an exception, similar to the exception for certain kinds of library copying, for works distributed via an information network?

7. As a matter of policy, should information distribution be compensated on a fee-for-use basis or should there continue to be an approach that spreads the costs of information throughout society? Should the first sale doctrine be repealed? If the fee-for-use approach is adopted, is there some way to price discriminate so that people who value the information more pay more and those who value it less (or cannot afford to pay) pay less? If a mechanism for spreading the cost is found to be philosophically desirable, what mechanisms are possible?

8. How should the rights of copyright holders be enforced in the network environment?

Program Presentation

In addition to Mr. Oakley's background paper, four speakers presented their views of various aspects of intellectual property rights in a high-tech environment. They were Robert J. Kost, legal analyst with PRODIGY Service Company and formerly with the Office of Technology Assessment; Stanley Besen, an economist with the Rand Corporation; Marybeth Peters, policy planning advisor in the Copyright Office of the Library of Congress; and Jon Baumgarten, a copyright attorney and partner with the law firm of Proskauer, Rose, Goetz and Mendelsohn, former general counsel to the Copyright Office, specializing in intellectual property law.[4]

Robert Kost[5] had contended at the April 1987 NAC meeting that the

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[4] The agenda of the meeting has been included as Appendix A.

[5] Mr. Kost prepared a paper, titled "Useright," based on his presentation at the Network Advisory Committee meeting on March 24, 1988. (Mr. Kost's paper is included in the proceedings of this meeting).

copyright system has been successful insofar as it has made information, which is of itself an intangible property, behave in the marketplace as if it were a tangible property, like shoes, refrigerators, or automobiles. This success depended on the fact that publishing during the centuries between the invention of the printing press and the present resulted in the production of print-on-paper, or static media. Since the beginning of the twentieth century, copyright has been increasingly unsuccessful in protecting intellectual property because of the invention of new ways to move information through intangible, electromagnetic signals and new ways of liberating information from the package in which it is sold. In his second presentation, as an example of an alternative to copyright, Mr. Kost proposed a system for the protection of intellectual property in the emerging age of dynamic digital media, which he referred to as the "Useright".

Offered by Mr. Kost as an illustration of the kind of experimental thinking that must go on to accommodate the notion of proprietary rights in a network environment, Useright is a system that compensates "Originators" of works (i.e., those who enter a work into a network) by encouraging others (called "Distributors") to copy and distribute the Originator's work. The Originator is compensated every time a "Consumer", who is the terminus of this chain of copying and distribution, accepts a copy of a work from a Distributor. Useright operates on three basic principles: (1) only an Originator can receive payment for a copy; (2) a Distributor can be paid only by an Originator; and (3) a Consumer can pay only an Originator of a work. The Distributor is the key player in Useright; and receives a percentage of the amount the Consumer pays the Originator, depending on the "tier" occupied by that Distributor (which is calculated by the number of times a work has previously been distributed). Thus, the incentive of the Distributor is to make and distribute copies of a work as quickly as possible. The Originator, in turn, is the beneficiary of the Distributor's incentive; and is paid every time the Distributor negotiates payment for transmission of a copy to a Consumer. That any user of a network may at any given point be Originator, Distributor, or Consumer is a recognition of the fact that, in an online environment, we are all to some extent publishers. The information necessary to administer Useright--the identification of the work, the Originator, the Distributor, the Consumer, the distribution tier, the price of the copy, etc.,--is built into network transactions themselves. Copying works and debiting and crediting the accounts of the various parties to Useright are, to the network, all transactions in information. Useright is simultaneously a library and a banking system. It succeeds at precisely the point where copying fails, and provides incentives for precisely those activities that copyright attempts to prohibit. As an electronic "free market," Useright requires neither legislation nor lawyers, and preserves the spirit of copyright in an electronic environment. Mr. Kost's contention is that whether Useright will actually work is an empirical question, subject to testing, rather than an a priori economic impossibility.

Stanley Besen gave the second presentation of the morning. Mr. Besen has recently completed a study on the economic impact of private copyright. He addressed the broad topic of the economics of sharing of information, positing that the rush of technological change has altered the quantitative nature of sharing and has disturbed the equilibrium between publishers and

consumers. Sharing activities fall into two basic categories: private duplicative sharing activities, such as photocopying, computer software copying, and the copying of audio or video cassettes; and sequential sharing, such as interlibrary loan and the rental of video cassettes.

In attempting to mitigate the effects of private duplicative sharing, producers may adapt in a number of ways, either by unilateral action (self help) or by cooperative behavior. Self help may include changing the price for the original to compensate for anticipated copying activity, employment of technical fixes or engineering adaptations that limit copying activity, or adjusting marketing strategies, for example, by packaging a computer program with a fat manual, providing additional services to accompany the original product, or frequent revision of the product.

Examples of cooperative behavior include copyright collectives or government intervention, such as compulsory payment of royalties or a tax on blank copies of the media used to store copies. He then enumerated the functions of collectives as economizing on the cost of collection, establishing royalty rates, and providing centralized mechanisms for the collection and distribution of payments. Among the effects of collective behavior might be the lowering of transaction costs to consumers, cooperative pricing, and simplification of royalty distribution.

Mr. Besen also described the three major types of pricing schemes used by collectives. The transactional scheme used by the Copyright Clearance Center (CCC) is characterized by different prices for different items, with the individual prices established by each producer. A copyright licensing system such as has been established in the United Kingdom, in which the price per page photocopied is the same for all items is the second type; and the third type, blanket licensing, in which an annual payment is made based on average use calculated for a previous period, is exemplified by the American Society for Composers and Publishers (ASCAP) and the annual license of the CCC.

In his concluding remarks, Mr. Besen described possible roles for the Federal government: (1) antitrust oversight, (2) administration of the collecting system or administrative oversight, (3) establishment of the limits of collective enforcement, and (4) compulsory licensing. He pointed out that copyright owners need to be able to enforce appropriability, i.e., ownership rights, before they can recover income from the sale of both the original and copies.

Marybeth Peters began her presentation by stating that, unlike the first two speakers, she believed that the present Copyright Law is generally adequate to meet the needs of the present. She also stated that, as an exception, identification of the element of human authorship in certain databases has been a problem for the Copyright Office, and implied that either amendment or some other protective device might be required for factual databases. She reviewed the functions of the Copyright Office: the registration and recording of claims to copyright and documents pertaining to copyright; advice to Congress on questions of copyright; advice to the Library of Congress, for example, advice on the copyright implications of the Optical Disk Project; advice to the U.S. Department of State and other Federal agencies on copyright questions; and accomplishing

studies of a variety of copyright-related topics at the request of the Congress.

Ms. Peters then reviewed the conclusions of the 1988 "Report of the Register of Copyrights on Section 108 of the Copyright Law."[6] Ms. Peters noted the recommendation that unless Congress requests the Office to examine Section 108 specifically in relation to electronic technology, further reviews are probably not necessary. If they are to be done they should be done at less frequent intervals. Among the current issues under consideration in the Copyright Office are whether or not automatically compiled databases are to be considered copyrightable and therefore registrable. The Office has recently decided to follow the second Circuit Court which has held that exhaustive listings which involve no selection or judgement are non-copyrightable. Another issue concerns the deposit of machine-readable copies; the Library of Congress has recently opened a Machine-Readable Collections Reading Room and it wishes to acquire copies through the copyright system.

Ms. Peters did not advocate an expanded role for the Copyright Office to include either quasi-judicial or rate making powers. In this regard, she noted that the examining staff of the Office does not consist of subject specialists, but of generalists.

The last speaker of the morning was **Jon Baumgarten.** He addressed the question of whether the copyright law requires a major overhaul to meet the needs of copyright holders in the technological environment in which we now find ourselves. He stated that adjustments and perhaps even supplementation of the present law, particularly in order to provide adequate protection of databases, may be necessary; but emphasized that in his opinion the law did not need general overhaul. He categorically rejected Mr. Kost's premise that the Copyright Law could not deal with dynamic media, stating instead that the fundamental structure and basic premises of the copyright system are still sound.

In commenting on the principal theme of the OTA Report; i.e., that the copyright system needs restructuring to accommodate the trichotomous nature of intellectual property--works of art, works of fact, works of utility--Mr. Baumgarten pointed out that the Copyright Law has always made relative distinctions among differing types of works. Examples of these distinctions include the different treatments given with respect to performance rights for dramatic and non-dramatic works, the special provision for computer works, the distinction that the courts have made between utilitarian and fanciful drawings, and the general acceptance by the courts that different treatment may be appropriate for works of fact and works of imagination. He argued that relevant differences in the scope of protection for different works are adequately recognized both by the Congress and by the courts, and that these distinctions have been made for principled reasons and not simply to create distinctive labels for variant categories of intellectual property.

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6 Report of the Register of Copyrights, Library Reproduction of Copyright Works. (17 U. S. C. 108). Washington : Government Printing Office, January 1988. 3 vols.

Mr. Baumgarten then turned to the issue of private use. He characterized institutional use, such as intra-institutional uses, as "semi-private at best" and therefore falling under the same concepts of permissible and non-permissible activities as more public uses. He admitted that it is very difficult to enforce copyright use restrictions for private and semi-private use. He warned that broad application of the SONY-BetaMax decision as a precedent for unrestricted private copying is unwarranted, stating categorically that the Supreme Court decision in this case did not accept the private use argument. He strongly reiterated the basic contention of copyright holders' advocates that it makes no difference to the economic interests of copyright owners if a "commercial pirate" makes 10,000 copies of a work or 10,000 "private" individuals make one copy each.

Turning to the special problems of protecting databases, Mr. Baumgarten pointed out that the law has been protecting print-on-paper format databases for a long time, the protection accorded to telephone books being only one example. However, because of the very nature of the computer, the doctrines applied to the protection of databases are uncertain in the online situation. The 2nd Circuit Court (N.Y.) has denied the doctrine of the amount of labor involved, the doctrine of arrangement is no longer sufficient protection because computers make the rearrangement of data an extremely easy process, and the doctrine of selectivity fails to protect those databases that are exhaustive within their own defining parameters.

In concluding his remarks, Mr. Baumgarten warned of the danger of fixating on the technological aspects of the issues under discussion. He reminded NAC that "at every stage of its creation, individual and organizational authors are the driving motivational force in the production of intellectual property."

Discussion of Issues Presented to the Meeting

After a period for questions to the speakers and general comments, NAC members identified several topics or questions that arose from the presentations and that they wanted to add to the topics outlined in Mr. Oakley's paper to form the structure for their ensuing discussions. (Note: the latter appear on pages two and three of this report.) The additional topics were:

1. Can all of the rights that Mr. Baumgarten says are socially desirable for copyright holders to have be enforced? Since laws can be enforced only to the degree in which society wishes them to be enforced, is the degree of enforceability a red herring?

2. It is accepted that rights holders have private remedies for unwarranted use of their property. How effective are these private enforcement remedies? If they are not as effective as they once were or as they need to be, are other kinds of governmental activities appropriate to assist the rights holders in enforcement of their rights?

3. The situation in regard to the basis for protection of databases has been described as chaotic. Among the reasons for this chaos is the uncertainty of definition of database ownership. What, if anything, can be done about this?

4. How widely should copyright be extended to particular practices or activities? Are old concepts flexible enough to fit new product formats?

5. To what extent does the scope of protection impede the ability of others to use the idea underlying a copyrighted work?

6. In practice, how much monopoly power is being granted to rights holders? What underlying principles are employed by the courts in making decisions in intellectual property cases (like the "reasonable man" standard in torts cases)?

In order to facilitate discussion, the participants were then divided into five working groups. Each group was asked to decide on the three most important issues from the two lists, and to make a recommendation for action by NAC for each of their choices. The entire afternoon was devoted to the working group discussions, and the results for each group were reported at the final session the following morning.

Reports of the Working Groups

Working Group I (Robert Oakley, recorder)[7] concluded that there was no need for a major overhaul of the copyright system as we know it today. There is a need for clarification or amendment in several areas but the system should not be scrapped in favor of a significantly different approach to the protection of intellectual property. In arriving at this conclusion, the group recognized that saying that the system basically works means that a variety of techniques are at work, among them the Copyright Act itself, contracts to resolve issues in a way different from that provided by the Act, and the evolution of legal doctrine in the courts.

The group recognized enforcement as one of the most difficult problems in copyright. Here, it was felt that the newest technology may be ameliorative because, in the network environment, the computer can monitor usage and help to insure that appropriate royalty payments are made.

The group discussed whether the cost of information should be transferred at the time of use or whether the cost should continue to be assessed at the time of sale. Both techniques are now in use, and the group could see no alternative to use fees for some kinds of information, concluding that both mechanisms will continue to co-exist. They did not think that use fees should be extended to print media, as is the case with the public lending right.

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[7] The composition of individual working groups has been included in Appendix B.

Group I recognized that fair use creates a degree of uncertainty and some slippage in the application of the law, but they felt that it should not be expanded in the online environment.

Four specific recommendations were drafted for consideration by NAC.

- A pamphlet should be prepared that explains to the professional community the current state of the law. It was recognized that several publications are already available, but they take a particular point of view, and there is still a general lack of understanding about the impact of copyright and what is and is not permissible.

- NAC should urge publishers to participate in cooperative licensing mechanisms such as the CCC in order to facilitate the building of networks and the availability of materials on networks. The process of creating networks would be greatly simplified if greater use were made of collecting societies such as CCC because the difficulties of obtaining permission to load copyrighted material into an online network would be mitigated.

- Section 108 of the Copyright Law should be reviewed in the light of electronic networking. A review of this section of the law is important to permit the kind of usage in the electronic environment that is now accepted for print-on-paper, since the applicability of the section in the online environment is unclear.

- The group discussed, but did not reach agreement on, the possible creation of a central database of periodicals in electronic format to facilitate the distribution of such materials to network participants. Some thought that this was worthy of serious consideration, but others recalled the ill-fated proposal for a national periodicals center and warned that publishers might still find the idea highly threatening.

Working Group II. (Charles Bourne, recorder) identified twenty-seven issues from Mr. Oakley's paper, including the eight listed at the end (and identified on pages two and three of this report). After a brief discussion, the group decided to concentrate on the eight listed issues, and proceeded to rank these for priority attention. The following four were deemed to be the most important:

- How should the rights of copyright holders be enforced in the network environment? (no.8)

- What rights should copyright owners have over the preparation of derivative works in the electronic environment? (no.5)

- Should the concept of fair use be expanded as a matter of public policy? What should be the policy on copying entire works for use in the same manner as the original? Should fair use be expanded to include all private use? (no.4)

- Should the Copyright Act be amended to provide an exception, similar to the exception for certain kinds of library copying, for works distributed via an information network? (no.6)

After further discussion, the group was of the collective opinion that these were all interesting questions which benefit from occasional discussion and the airing of differing viewpoints. However, the group concluded that there is nothing in the current copyright system that is so dysfunctional that a major overhaul is needed. No member of the group felt that his or her actions or activities were unduly constrained by the current system. No one could describe any specific example of a copyright-related situation that had unreasonably hampered a network in performing its job. The group did feel that there was a need for clarification of several operational issues. Clearer definition of the meaning of the term "derivative works" would be very useful, along with guidelines and examples of what is and is not permissible for networks in this area of activity. Identification and clarification of the obligations and liabilities of network intermediaries and better ways to inform the network's clients about these obligations and liabilities was thought to be important. The group recommended that a brochure or tutorial materials be developed to accomplish this. In short, Group II concluded that the copyright system is not broke, and does not require fixing.

Working Group III (Ron Miller, Recorder) also reviewed the eight discussion topics from the Oakley paper, along with several other topics that had surfaced during the morning discussion. First, the group dealt with the general issue of whether the Copyright Law should be overhauled. They concluded that the basic approach should be to fine tune the current law rather than completely revising it, and that special cases could be dealt with by amendment. Toward this end, precise definitions need to be devised for concepts such as "database compilation" so that data in volatile electronic form may come more readily under the protection of the law. The current deposit requirements for electronic data do not seem to satisfy the need to protect such data. However, the group was not able to suggest a specific alternative to the one in use at present in the Copyright Office, that is, a snapshot sampling of the data at stated periods.

On the question of royalties, the group agreed that corporate and personal authors should be compensated for use of their property, but thought that the currently operating royalty systems may not be the only way to generate such compensation. They suggested that the pay-back model suggested by Mr. Kost should be studied further as a possible alternative. Other problem areas include whether "public authors" (e.g., government agencies) should be entitled to copyright, how should intermediaries who add value to a work be compensated, and how those intermediaries should compensate the original author for use of the work.

Turning to the issue of fair use in the electronic environment, the group concluded that the doctrine works pretty well for traditional media, but that some redefinition of fair use may be required in the case of electronic databases accessible through networks. Current practice in the networks intertwines fair use with a chain of contracts between creators, distributors, intermediaries and end-users. The complexities of this chain seem likely to drive decisions about what is fair use into the court system, a direction that is not entirely desirable. The group disagreed with Mr. Baumgarten's interpretation of the SONY-BetaMax decision,

concluding instead that the precedent established demonstrated that private use is indeed subject to the fair use doctrine.

Group III then considered the rights of copyright holders in the twork environment, and agreed that there is no apparent justification for imposing any special conditions to protect owners of "electronic documents." They thought that, even in networking, copies of entire works should not be used in the same manner as the originals, since this causes a cascading of multiple fair uses which becomes a de facto violation of the intent of the Copyright Law.

A number of cost and pricing issues were explored. There was agreement that the first sale doctrine should be retained, since copyright owners have the option of reverting to contract law if they wish to pursue other methods of compensation. In terms of the provision of service by libraries, it was felt that fee-for-use services and services that are free to the user but paid for by the institution or public funds, both of which are now used, operate reasonably well and that both modes of service will probably continue to operate side-by-side. When information is commercially exploited, market forces may continue to be relied upon to determine price. In the public domain, costs to users should continue to be paid for by society as a public good.

Finally, Group III responded to the question of how the rights of copyright holders should be enforced in the network environment. They concluded that enforcement is the responsibility of individual copyright holders, or collective organizations that represent them. However, the group felt that the resources of the Copyright Office should be enhanced to enable the Office to better deal with the filing load from electronic databases, and that this enhancement would assist copyright holders to enforce their rights. The group recommended that the Kost model of using "counters and headers" on data placed in networks should be studied further as a standard to assist copyright holders in the collection of just compensation and also to control distribution when appropriate.

Working Group IV, (Lois Ann Colaianni, recorder) concentrated on the following questions:

- Should the Copyright Act be amended to provide for different categories of works that could be treated differently for standards of copyrightability, duration of copyright, rights of the copyright owner, and infringement?

- What rights should copyright holders have over the preparation of derivative works in the electronic environment?

- Should NAC take a position on royalties? If it takes a position in favor of royalties, what mechanism should be used; compulsory licensing, voluntary licensing, or taxation of blank media? If it does not favor royalties, what mechanism should be supported to provide compensation for materials distributed in the online environment?

It came as a surprise to some members of the group that the speakers

had convinced them that it was not necessary to initiate major new legislation to protect intellectual property rights in the network environment, but that amendment, modification, and supplementation of the existing body of law would suffice. Among the reasons for preferring the current law to a new initiative were that an acceptable balance has been achieved between creators and users of copyrighted materials, a large body of case law already exists as guidance, the newer technologies are not really that revolutionary, and there is widespread international recognition of the validity of the present law. The group considered this issue from the viewpoints of librarians, publishers, and authors, and agreed that the conclusion reached would probably be similar from any of these. In the electronic age, the distinction among the three viewpoints is difficult to draw since many individuals and organizations have multiple roles. The distinction between commercial and private use is also difficult to make.

A discussion of rights to derivative works began with an exploration of the permissible use of bibliographic records from a national network and from a subset of a subject-oriented database run on a local computer. Aspects of this issue were identified as definition, statement of authorship, permissible users, derivative works, the relation of creators, producers, distributors and users, and definition and timing of registrations. Another issue was identification of the original source of a database so that permission may be sought to produce a derivative work. It was suggested that one solution to the problems of registration might be to provide the Copyright Office with an affidavit stating that the database was a continuing one and giving the frequency and types of changes that were planned.

The group then considered types of payment and mechanisms for collection. It was recognized that there needs to be a balance of benefits to the creator and costs to the user. At one point in the discussion, the group came to the realization that librarians are in the anomalous position of trying to convince their clientele and employers that information is valuable while at the same time fighting hard not to pay for it. "We struggle hard to maintain long-held assumptions," stated one member.

Identified as payment options were royalties, per use charges, flat rates, and percent of sales. Collection options included the distributive method described by Kost, cooperative collectives, licenses, and the public lending right. The group did not have a preference, but agreed that whichever mechanism is selected needs to be simple to administer and with an overhead that does not exceed the cost of the information itself. Compensation mechanisms are clearly related to a definition of fair use in the network environment.

The group referred to NAC's attention the issue of how to deal with the interests of the creator in maintaining the integrity or quality of the database through successive downloading or preparation of derivative products. Although this issue had not been previously identified, Group IV felt that it was important, citing the concerns of one large scientific database and the current legislative hearings on the colorization of films as examples.

Group IV concluded its discussion by acknowledging that the background paper prepared by Mr. Oakley has identified most of the outstanding issues relating to intellectual property in the network environment. They recommend that the next step would be to form and fund a task force made up of individuals from all components of the information community to examine the issues more closely and develop specific recommendations for action where they are appropriate. The report of this task force would be reviewed by NAC and submitted to the community as a whole for comment. The group agreed that this report would probably take at least two years to complete.

Working Group V (Mary Ellen Jacob, Recorder) began by considering what is different about networking and how these differences relate to the existing system for protection of intellectual property rights. First, networking deals with both static and dynamic data. The group defined a static database as one in which the data does not change after the database is loaded. A dynamic database, on the other hand, is one in which new information is superimposed over existing information, as well as one in which new data is merely added to the file. After considerable discussion the group concluded that, in both cases, the existing intellectual property systems are adequate.

Problems for copyright holders in the network environment arise from the large numbers of people who have access to the information, the potential for cheap and easy re-use, and the difficulty or inability to fully monitor both use and re-use. While network traffic can be monitored, it is difficult, if not impossible, to determine what happens to the material once it has been accessed. Despite these difficulties, the group felt that many aspects of both protection and incentives were not dissimilar in a network or in a print environment.

The group then considered several issues in an effort to determine the degree to which the nature of networking would or should result in the necessity to change the Copyright Law. The issues identified as important were:

- Should the Copyright Law be modified?
- What is the impact of the new technologies on the protection of intellectual property?
- Does compulsory licensing have a role in the network environment?
- Should the Library of Congress give advice to Congress on the protection of intellectual property in national and international networking?

Of particular consideration in this environment are the value-added aspects, which affect both the economics of creating and maintaining data and the economics of use. The use aspect is, in turn, related to the differences between individual and organizational use. Difficulties arise here because of the different perspectives held by users, vendors, and networks of what is reasonable or fair regarding pricing for use and re-use of data. Much of this difficulty comes from the high degree of uncertainty

regarding re-use. In assembling value-added packages, it is not always easy to determine how much change is required to create a new product or what reward should be allocated to the supplier of the original data. In the past, copyright has primarily been restricted to the formal means of expression and not to the ideas contained therein. Some recent modifications to this concept involve software and "look and feel" menus. The treatment of these remains unresolved.

In case of items created on a network, the group raised questions about ownership. Should ownership be assigned to the network? What rights should individual users have or retain? Does full-text access change any of these considerations?

One of the more difficult aspects, both in terms of arriving at consensus and in terms of defining advice to others, is how to balance power between database producers, online systems and users. The group expressed considerable concern about maintaining accessibility to information while recognizing that the ultimate choice for database producers lay in withdrawal of availability.

Group V concluded that, while the Copyright Law does not require massive modification to accommodate networking, the law alone is not sufficient to protect, promote access to, and encourage creativity in the use of dynamic data. However, in those cases where the law proves to be insufficient, contracts and licensing agreements can usually deal with the imbalance of interests. The group strongly favored voluntary licensing over compulsory licensing, recommending that compulsory licensing be resorted to only where an important public policy interest requires it and voluntary arrangements have failed significantly.

Finally, the group did not come to an agreement about what the role of the Library of Congress should be vis a vis advice to Congress. However, there was some agreement that the addition of subject specialists in the Copyright Office would significantly enhance and speed the current registration process.

Final Observations

On the morning after the working groups completed their discussions, the members of NAC and the observers present at the meeting reconvened to consider the reports and recommendations of the working groups. There was general surprise at the degree of unanimity reached, especially in light of the diverse interests represented by the participants. A consensus was reached concerning four major points.

1. The dynamic quality and multiple simultaneous access to electronic data in the networking environment creates some problems in the application of the provisions of the current Copyright Law.

2. It is the consensus of NAC that the copyright system as it presently exists is working adequately in most areas. In those areas where the law cannot necessary modifications should be undertaken gradually.

3. Fair use can work in the networking environment, but monitoring its effectiveness and application is a problem. NAC members hold varying opinions about whether monitoring will be easier or more difficult in this environment.

4. NAC feels that there are still major areas of uncertainty about the definition of certain concepts and terms in the Copyright Law. It was agreed that clarification would be useful, but there was little agreement as to how such clarification might be accomplished.

USERIGHT

Robert John Kost[1]
Counsel, PRODIGY Services Company

My sincere thanks to the members of the Library of Congress Network Advisory Committee for the invitation to speak today. I'm flattered to be here. Although much of what I have to say will be based on some work I did while at the Office of Technology Assessment, I can't pretend to speak for them, since I no longer work there. Nor to speak for new employer, Prodigy Services company, an emerging provider of information and transactional services, and creator of the PRODIGY[sm] interactive personal service. All that leaves is me; you may therefore want to attribute greater or lesser weight to what I have to say, given that my views represent neither money nor power.

The debate over intellectual property policy serves as an illustration of Alfred Whitehead's observation that there are basically two types of people in the world; the simple-minded and the middle-headed. I've been away from the muddle of intellectual property and information technology for some time now, and have instead been simple-mindedly helping to work out the details of a company whose product is, to a great degree, intellectual property, and whose primary means of production is information technology. What I have to offer you today, therefore, is a simple-minded approach to some of my muddle-headed ideas.

The fundamental argument of the OTA Report[2] was that the technology that both necessitated copyright and made it possible has shifted out from under copyright. The printing press made thoughts into things (books), which could be sold in copies like other things. It made producing these things a centralized, capital intensive, and above all, commercial activity. The beauty of copyright was that it fit hand-in-glove with the milieu of the printing press. Copyright literally made printing, publishing, and vending a particular work an exclusive activity. And, by making the production of particular copies exclusive, copyright made copies sufficiently scarce to have monetary value. And, ironically, by endowing

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[1] This paper is based on a presentation given on March 24, 1988, at the meeting of the Library of Congress Network Advisory Committee. The opinions expressed herein are the author's and do not necessarily reflect those of either the Office of Technology Assessment or Prodigy Services Company. The author would appreciate the courtesy of notification of any use or reproduction of this paper.

[2] Intellectual Property Rights in an Age of Electronics and Information, Report of the Office of Technology Assessment of the United States Congress, 1986 (herein after cited as OTA Report)

copies with scarcity, copyright provided the incentive to make them plentiful. And so, we have a Library of Congress that houses 80 or 90 million of these things that, were it not for copyright, would be worth only the paper they were printed on.

The happy marriage between law and technology is today on the rocks. The ubiquitous effect of technology in the 20th Century has been to strip artistic and intellectual expression of its "thinghood," thereby debasing the "copy" as the unit of sale. The copy - far from being a permanent shrine for "the work" - is now a way station for information on its way private individuals. Printing and publishing - in a generic sense - is no longer a centralized commercial bottleneck. Though articulated in the Intellectual Property report, this observation is not the ex cathedra pronouncement of the OTA; it is latent in the testimony of every copyright interest that has complained about piracy to the Congress or the courts in the last 20 years. Quite aside from the philosophical contest over the conceptual adaptability of copyright law, the plain fact remains that copyrights are increasingly unenforceable -- especially as against private users of copyrighted works (a segment that historical analysis of copyright law reveals was never intended to be, and never has been, sued for infringement).

I have been charged with the task of outlining the "action plans" that fall out of the OTA Report on Intellectual Property; a report which, according to its critics, is an unsuccessful attempt to "debunk the system" whose conclusions were formed from an excessive "fascination with technology." If you believe, as the critics do, that copyright, with its "long and continuing tradition of incorporating new technologies" will serve NAC well as it prepares to put the Nation's Library out over telephone lines, then the only action plan I can offer is for you to consult your attorney.

No doubt, copyright can continue to incorporate new technologies into its large and growing corpus of statute and case law - it is, after all, a tautology that what has been incorporated can be incorporated. Whether anyone but lawyers would consider this process successful is, however, a different matter. Consider, for example, the software industry, which by some estimates is losing over 50% of its revenue on rights it cannot enforce, which universally licenses its products to avoid the ambiguities of copyright and the consequences of outright sale, and which is in the throes of a destructive series of lawsuits whose inconsistent outcomes generate more, rather than less, uncertainty for the industry as a whole. Of course, these trends can be dismissed as aberrations or transient adjustments while the law "settles in" around a technology that has been around for only 40 years.

If we look instead at television broadcasting - a technology by now prosaic enough that I can avoid accusations of being over-awed by mentioning it - the settling in period has been going on for over half a century; through, for example, innovations such as the creation of a new bureaucracy to deal with the fact that the wire from your television set to the rabbit ears has grown longer and more capacious; and the rationalization of "time-shifting" as an alternative to a system of private

taxation. Were I to discuss the eventual convergence of television and the computer, and the ensuing legal and political muddle that is sure to follow, I would be put into the position of debating a fait accompli by questioning whether copyright can accommodate such technologies.

Looking to the future through the lens of the recent past, we see an effort to "successfully" assimilate technology into copyright doctrine by disabling technologies, such as the digital Audio tape recorder, that do not conform to the version of reality mandated by the practitioners of copyright law.

It is important to understand that these statements in no way represents a contempt for either the copyright system or the authors and the public it is intended to protect. Quite the contrary; I find lamentable the demise of a social contract like copyright, and its replacement by contracts of adhesion, bureaucracies both private and public, litigiousness and industrial cannibalism, and latter-day Ludditism.

In many ways, the rise of computer networks, and especially a network that will transport "The Nation"s Library" to any individual with a personal computer, will prove to be the acid test of copyright law's acclaimed robustness. If NAC is willing to embrace copyright as its a priori then it must be in a position to negotiate permissions with several million authors and their lawyers to reproduce copyrighted works in machine readable form, disseminate those works to unknown users of the network, and make assurances that the proliferation and modification of those works throughout the nodes of the network and into gateways will either be controlled or compensated.

I suggest that if your attorney is able to make the grant vision of "The Nation's Library" work, it will be in spite of, rather than within, the present copyright system. The resultant legal regime, accomplished not through copyright, but through private contractual arrangements and the construction of technological fences, will bear as little resemblance to copyright as data networks do to a traveling print wagon of the 15th century.

If, in spite of polemics against the debunkers at OTA, you have doubts about the utility of copyright in helping to realize your "Statement of a Common Vision," I would like to suggest an alternative plan of action that goes with, rather than against the grain, of the technology you will be using. It is only an exploratory idea, does not have the backing of IBM, and no associates' billable hours have been spent in its construction.

Imagine an integrated world network, much like the current telephone system, which connects computers together and which translates between various "computer-dialects." An author's work, whether a computer program or a poem, enters the network through any one of its millions of nodes, or through a gateway. Suppose that the author sends the work to two of her friends, and that each of these two friends forwards the work on to two of their friends, and they to two of theirs, and so on. If each of these friends were to forward the work every 15 minutes, the copies in existence would roughly approximate the population of the globe in just over 8 hours.

Of course, this is hypothetical, and no doubt an emissary of the real world could find fault with it. Nevertheless, it serves as an object lesson in what is at least a minor problem for copyright law - about 4.21 billion copyright infringements.

Now, lets suppose that instead of copyright, we had a system that not only permitted copying, but provided incentives for it, while at the same time rewarding the erstwhile author. in this system, which I provisionally call "Useright," a network user may act in one of three roles at any given time: as an Originator, a Distributor, or a Consumer. An Originator is one whose name or ID is attached to and encrypted in the header of a file when it is loaded to the network. A Distributor is one who uploads an Originator's work to the network to send on to a consumer, and whose name or ID is attached to all copies of the work that he distributes. A Consumer is a terminus of this chain, and downloads the Originator's file to his own PC, and his name or ID is attached to a record that is sent to the Originator. Bear in mind, as this explication proceeds that the distinction between these three entities if purely functional; anyone in the network can act as Originator, Distributor, or Consumer at any given time.

Useright operates using three basic principles:

1) Only an Originator can receive payment for a copy;
2) a Distributor can be paid only by the Originator for the copies he has uploaded; and
3) A Consumer can pay only an Originator of the copy he has downloaded.

We need to supplement these principles with some other rules, and then see how such a system might work in practice. Bear with me for a minute, while I lay out the skeleton of this system.

First, payment is never made in cash for any work distributed over the network -- instead, credits are calculated by an administrative arm of the network, and are themselves negotiable instruments. This administrative ability is to a great degree already built into modern packer switching networks, and requires no technological leap of faith to imagine.

Second, the amount that is paid to a Distributor is a percentage of the amount paid the Originator by the consumer. It is calculated according to the tier occupied by that Distributor in the chain of distribution, and the tier is established by the number of names or Identification Numbers that precede the Distributor's in the header of the file. The price of the copy is also contained in the header.

Third, the amount paid for any given copy is negotiated between the Distributor and the consumer. Only the Distributor is responsible for the overhead involved in distribution, and for ensuring payment for any copies transmitted to a Consumer. If the Originator is not paid for the copy, neither is the Distributor.

We now know enough about the rules of Useright to see how the game is played. Let's go back to the original scenario of uncontrolled copying

in a network environment.

James Madison VII, descendant of the great statesman and genius of the constitution, discovers in himself a flair for writing very simple and powerful software, and wishes to exploit that talent in network publishing. For a small fee, he enters his latest innovation, an accounting program called "Cheques & Balances," into one of the many value added networks. Once in the network host, an identification number is encrypted into the file which comprises "Checks and Balances." James waits, hoping to become a profitable Originator.

I, as a Distributor, periodically browse through a variety of databases scattered throughout the world. My job is similar to what used to be editor and publisher, and my principal advantage over others is that I am able to sort a vast amount of chaff and render to wheat to an identified audience, and do so more quickly and acutely than others. I can also "package" a variety of works in an appealing and easy to use format. My livelihood depends on being the first in the network with the best. I sell to a variety of customers, principally other Distributors, but also Consumers.

The name "James Madison" attracts my attention - and I download his "Checks and Balances" to my PC, and tried it out. I know of other Distributors, in Singapore and Fairbanks, who market just this type of work, and I offer to let them try it out using my PC as a surrogate processor. They like it, and believe they know of some consumers who can use the software in their own business.

We negotiate price. I know, as a first tier Distributor, that I will get only 1% of whatever I am able to negotiate; therefore I set the price of a copy at $100,000. the Distributor in Singapore will buy the copy at this price; the Distributor in Fairbanks, however, has decided to take his chances at a lower tier of distribution, where the percentage he is entitled to is higher - perhaps 10% of the selling price. He faces the risk, however, that network prices for the software may drop dramatically beyond the 4th or 5th tier, since network supply will at some point near saturation.

When the Distributor in Singapore request "Checks and Balances" from my PC via a local switch, the switch copies the ID and address of James Madison, together with the ID of the requesting Distributor and the price of "Checks and Balances," and forwards this information to james Madison's local switch. the Singapore distributor's account is debited $100,000. James' account is credited $100,000, and James quits the software business and buys a yacht. I request a $100,000 credit, and if the information in my request matches that in James Madison's file, the request is accepted, and Madison's account is debited by the same amount.

The second tier Distributor in Singapore goes through a similar process, and james Madison periodically checks his growing account balance from his computer...in his boat...off the coast of Monte Carlo.

It turns out that several of the Consumers who eventually purchased a

copy at bargain rates from a fifth tier Distributor have decided to give "Cheques & Balances" away as a Hanukkah present. One of the recipients turns around a week later and gives "checks and Balances" as a Christmas present. One of these recipients wises up, and realizes that she can sell a copy of her Christmas present and perhaps make 20% of whatever she can negotiate as a tenth tier distributor. Since the buyers who would be willing to pay large amounts of money to be early Distributors have already realized what they can out of "Cheques & Balances," and since our 10th tier Distributor - who was an erstwhile consumer - is a rather amateurish and unknowing Distributor, she is only able to get $20 a copy for 5 copies. She makes $80 net, and James Madison buys a $20 cigar with his proceeds.

This is the Gordian knot for copyright law as we move into the 21st century: we are all publishers and printers now, or at least potentially so. And, because of this, we must come to grips with the loss of centralization formerly existing in the publishing universe. The loss of centralization creates the problem of privacy, and, for those wishing to play the game by the rules, also creates the problem of transactions costs involved in getting and giving permissions to use a work.

Now, of course, my Useright hypothesis is all very sketchy, has no precedent in the real world, and is, I'm sure, subject to attacks from those who are enamored with and profit by the status quo. But it does have its virtues: as the kernel of a working action plan, it requires no changes to the law, and indeed, no legal intervention whatsoever. It operates entirely outside of copyright, and like the copyright of the 15th century, exists in symbiotic - rather than antagonistic - relationship with technology. It "reharmonizes" the interests of author and public, and is consistent with the notion that the market, rather than the government or wealthy benefactors, is best suited to decide which works are worthy of support. And though I believe that a similar system might be applied to works that are easily coped in tangible form, it is ideally suited to the network environment that is being put into place today. The bureaucracy that makes the system work is embedded into the system itself; exchanging funds in a network is coextensive with the notion of exchanging information. These difficulties present in copyright law can be dispensed with: we need not, for example, concern ourselves with "substantial similarity" and "idea.expression," since the system provides no incentive to approximate another's expression; what is sold are copies in the narrow sense of "duplicates," rather than amorphous intellectual territory. Above all, we need not drag old notion of property kicking and screaming into the 21st century.

SUMMARY OF BUSINESS SESSION

The business sessions of the March 1988 Library of Congress Network Advisory Committee (NAC) meeting were held at the beginning and at the end of the meeting's program session. (See Appendix A, Meeting Agenda.) The following summary combines the two into one report.

Opening

Henriette D. Avram, chairman of NAC, opened the March meeting by welcoming all attendees. Avram also welcomed the new representatives of the University of California and Utlas International, Dennis Smith and Sydney Jones, respectively. Anita Anker and Sandra Milevski, newly elected alternates for the Minnesota Interlibrary Telecommunications Exchange and the U.S. National Commission on Libraries and Information Science (NCLIS), respectively, were also welcomed to the NAC meeting.

Membership Subcommittee Report

Lois Ann Colaianni, associate director of Library Operations at the National Library of Medicine and chair of the membership subcommittee, reported on approval of a new NAC member and the status of the "Criteria for Membership."

- The membership report recommended that the Association of Library and Information Science Education (ALISE) become a member of NAC and Toni Bearman its representative. The Network Advisory Committee approved unanimously the application of ALISE to become a new member.

- The March 1988 revision of the December 1987 "Library of Congress Network Advisory Committee Criteria for Membership" was reviewed. In response to comments, "Goals and Objectives" were reworded; eligibility, categories, and requirements for membership were generally rewritten (e.g., membership is limited to U.S. organizations); application for and approval of membership, as well as its termination were slightly revised. A statement regarding total membership in NAC (set at thirty-five) was added and a new category, "Ex Officio Membership," was added. Representatives of the Council on Library Resources (CLR) and NCLIS are to serve as ex officio voting members of NAC. The last category "Observers" remained unchanged. It is expected that the final revised version of the "Criteria for Membership" will be available at the next NAC meeting. (The revised "Criteria for Membership"

has been attached as Appendix C.)

New Member

Mrs Avram extended a special welcome to a new member, the Association of Library and Information Science Education (ALISE), and to Toni Carbo Bearman, dean of the School of Library and Information Science at the University of Pittsburgh, its representative. Avram expressed her belief that Toni Bearman, who represented NCLIS at NAC until a few years ago, will again play an active role at NAC discussions while representing ALISE.

Action Agenda Progress Reports

The second group of progress reports on the NAC action agenda, comprising twenty-nine tasks toward the realization of a common vision for library networking and adopted by the NAC membership at their December 1986 meeting. Individual reports were given and are summarized below.

1. **Documents, surveys, recommendations**--tasks 4, 6, 7, 15, 18, 19, 23, 25, 29.

   Tasks 4 and 6 combined--emphasize Library Services and Construction Act (LSCA) for minimum equipment (e.g., telephones) for networking and an inventory of LSCA programs and successes. A general outline was prepared for telecommunication needs of libraries, with a focus on the minimum that should be expected. The outline served as background information for testimony by American Library Association (ALA) staff on LSCA re-authorization hearings. (See Appendix D for NCLIS' response to Henriette D. Avram regarding tasks 4 and 19.) Task 6--produce an inventory of LSCA programs and successes. Avram reported that the decision was made to drop this task after discussions with the U.S. Department of Education. Such an inventory has been on the Education Department's wish list for some time, but no funding could be secured. Task 7--hold conferences replicating the discussions of NAC meetings to be organized by regional and specialized groups. It was considered prudent to drop this task because a number of activities are already under way. Tasks 8 and 9 combined--give regular presentations at ALA and other national conferences and closer cooperation with the Chief Officers of State Agencies (COSLA) and ALA's Association of Specialized and Cooperative Library Agencies (ASCLA), state and regional networks, etc. Avram suggested that both tasks be assigned to the Communications Subcommittee for the realization of such presentations. Task 15--determine the cost of library resource sharing and the cost of not sharing. CLR prepared a reply to NAC concerning such a study. CLR reported that its Bibliographic Services Study Committee has already begun to evaluate the National Cooperative Cataloging Project (NCCP) in order to determine the shared economics of shared cataloging systems. CLR expressed general interest in such a study, and the topic is important and of widespread interest. However, CLR feels that a more explicit set of investigative questions should be developed to isolate specific topics for analytical studies. Tasks 18 and 23 combined--investigate library education curricula in the area of networking and expand if required. The president of ALISE pledged her support to investigate the composition of library

education curricula. Task 19--collect information on existing inventories of electronic archives, etc. NCLIS responded to this task with an "electronic archives inventory" statement which was prepared for NCLIS by Sandra N. Milevski. However, NCLIS decided to reduce the number but increase the effective completion of projects. (See Appendix D.) Task 25--define scope and target audience for a brochure on linking. No action was taken on the development of such a brochure. It is hoped that progress can be reported at the next action agenda follow-up reporting session. Task 29--define and set priorities for network-related research and recommend the list to NAC organizations, library schools, etc. A memo was prepared listing the network-related research as identified by NAC. (See Appendix E for Priority Research Report.)

2. **NAC programs, topics, etc.**--tasks 16, 20, 24.
Task 16--impact of new technologies, e.g., CD-ROM, on linking and resource sharing and on the concept of "the Nation's Library." The Fred Mayer Charitable Trust report "Electronic Delivery Systems: Reports of five projects," (Library Hi Tech, issue 18, pp. 65-93) was part of the pre-meeting mailing. NAC members will be kept informed about planned studies and related conferences on this topic. Task 20--evaluate the extension of networks beyond bibliographic data. Task 20 will be the topic of a NAC program session, scheduled for March 1989. Task 24--state networking developments and the role of state agencies in fostering networking among libraries. Several activities were reported: (1) The Network Development Committee of COSLA developed its own action agenda; and (2) the updated "Overview of State Networking Activities, 1985-86" (prepared by OCLC) will be available soon.

3. **Conferences, programs--task 27.**
Task 27--preparation for pre-White House Conference on Libraries and Information Services conference (WHCLIS). Legislation was passed (Public Law 100-382) authorizing and requesting for "the President to call and conduct a White House Conference on Library and Information Services to be held not earlier than September 1, 1989 and not later than September 30, 1991." A NAC planning committee will look into the requirements (i.e., funding, budget model, outline for a funding proposal, and criteria for site selection) for a second pre-WHCLIS Networks for Networkers conference in 1989.

ALA Fact Sheet

The last item of business concerned a fact sheet, prepared by ALA's Washington Office, on the plans of the phone companies' (ATT&T and the Bell Operating Companies) open network architecture filed with the Federal Communications Commission (FCC). Carol C. Henderson, deputy director of the ALA Washington Office (and ALA's alternate to the Network Advisory Committee) distributed and reported on the fact sheet (Appendix F). She stressed the importance of libraries or networks desiring to comment on the phone companies' plans to write to FCC directly as soon as possible. Henderson reminded all of the impact that the library community's responses had in 1983 on FCC's decision regarding divestiture of AT&T.

Next Meeting and Adjournment

The date for the next meeting was set for December 5-7, 1988. Avram asked Sandra K. Paul, SKP Associates, and representative of the Association of American Publishers to chair the new program planning subcommittee. Other members on the committee are Carol C. Henderson, C. James Schmidt, vice president and director of the Research Libraries Information Network (RLIN), and Henriette D. Avram.

Avram adjourned the meeting at noon on March 25, 1988, after thanking all attendees for their active participation. She expressed special thanks to the program subcommittee chair, Robert L. Oakley, and members of the committee for the selection of stimulating speakers addressing the complex topic of intellectual property issues in the library network context.

APPENDIX A

LIBRARY OF CONGRESS NETWORK ADVISORY COMMITTEE

MEETING AGENDA
March 23-25, 1988

Wednesday, March 23	**BUSINESS SESSION**
8:30 pm	Presiding: Henriette D. Avram o Welcome and general remarks o Action Agenda progress report o Membership subcommittee report: part I Chairman, Lois Ann Colaianni
Thursday, March 24	**PROGRAM SESSION**
9:00 am	Chairman's welcome Henriette D. Avram Robert L. Oakley, Chairman, program subcommittee Introduction to program and goals of meeting Robert L. Kost, PRODIGY Actual action plans resulting from the OTA report Stan Besen, Rand Corporation Use of collecting societies as a mechanism to provide fair compensation to creators Marybeth Peters, LC Copyright Office Expanded role of an administrative agency to address these issues Jon Baumgarten, Proskauer, Rose, Goetz, & Mendelsohn The need to amend copyright to meet the challenges of new technologies General discussion
1:30 pm	Ronald F. Miller, co-chair, program subcommittee Initial discussion of major issues
2:00 pm	Group I-V discussions
Friday, March 25	**PROGRAM SESSION** (cont.)
9:00 am	Reports from groups I-V o Consensus statements o Plenary report
11:00 am	**BUSINESS SESSION** Presiding: Henriette D. Avram o Membership subcommittee report: part II o Date and topic of next meeting

APPENDIX B

Working Groups
March 1988 NAC Meeting

Working Group I

Robert L. Oakley, American Association of Law Libraries, chair;
Toni Carbo Bearman, Association for Library and Information Science Education;
Sandra N. Milevski, U.S. National Commission on Libraries and Information Science;
D. Lee Power, Federal Library and Information Center Committee;
Dennis Smith, University of California;
William J. Studer, Association of Research Libraries.

Working Group II

Charles P. Bourne, DIALOG Information Services, Inc., chair;
H. E. Broadbent, III, Pittsburgh Regional Library Center;
David H. Brunell, Bibliographical Center for Research;
Carol C. Henderson, American Library Association;
Charles T. Payne, University of Chicago;
David Y. Peyton, Information Industry Association;
Annette Smith, National Library Service, Barbados, observer.

Working Group III

Ronald F. Miller, Cooperative Library Agency for Systems and Services, chair;
Richard Akeroyd, Chief Officers of State Library Agencies;
Henriette D. Avram, Library of Congress;
Warren J. Haas, Council on Library Resources;
Sydney Jones, Utlas International;
C. James Schmidt, Research Libraries Group.

Working Group IV

Lois Ann Colaianni, National Library of Medicine, chair;
Anita Anker, Minnesota Interlibrary Telecommunications Exchange;
William L. Joyce, Society of American Archivists;
Deanne B. Marcum, Council on Library Resources;
Roberta A. Stevens, Library of Congress, observer;
Louella V. Wetherbee, AMIGOS, Bibliographic Council.

Working Group V

Mary Ellen Jacob, OCLC Inc., chair;
Bette Dillehay, Special Libraries Association;
Shirley Echelman, observer
Sandra K. Paul, Association of American Publishers;
Susan M. Tarr, Library of Congress, observer.

D R A F T

LIBRARY OF CONGRESS NETWORK ADVISORY COMMITTEE

CRITERIA FOR MEMBERSHIP

December 1987 (rev. March 1988)

I. The goals and objectives of the Network Advisory Committee (NAC) are to:

(1) Advise the Librarian of Congress on the role of the Library in a nationwide network of library and information services;

(2) Promote the development of nationwide networking of library and information services and serve as a focal point and forum regarding networking issues;

(3) Provide input to the Council on Library Resources on its networking related activities; and

(4) Serve as a sounding board and a forum for U.S. National Commission on Libraries and Information Science (NCLIS) on matters related to networking and of interest to NCLIS.

II. Eligibility for and Categories of Membership

U.S. organizations formally constituted and functioning in the public and private (for-profit or not-for-profit) sector which are actively engaged in regional or nationwide networking of library and information services, or have a significant impact on the development of nationwide networks providing library and information services, are eligible for membership.

NAC has established categories of membership (Attachment I) which are representative of the types of organizations generally eligible for membership. These categories are: national professional membership associations, trade and institutional associations, national libraries/federal information agencies, national bibliographic networks, regional/special bibliographic system operators, network sevice organizations, national reference systems, individual library systems, and observers. In order to maintain NAC as an effective discussion group and representative of the important organizations in or affecting library and information service organizations, the total membership in NAC is limited to no more than thirty-five.

As more organizations are expected to become part of networking, potential NAC member candidates expand rapidly. As noted above,

NAC is looking for institutions which can make unique contributions. Consequently, in addition to the general criteria above, NAC has also established these categories of membership and has designated certain categories as representative of classes of institutions. In such cases, NAC will maintain a roster of candidate institutions which have indicated interest in NAC. These institutions will receive all NAC materials, but attendance at meetings will be limited to those designated full members.

The number of institutions eligible within each category is given in the attached table. Where membership is limited, NAC will select current members from those indicating interest. Full membership will be for a period of a minimum of two years. If there are more candidates than positions, NAC membership will rotate with new candidates repla ing the earlier members on a two-year cycle. All candidate institutions will receive NAC publications and communications enabling those not currently members to maintain an interest in and of NAC in its activities.

III. Requirement for Membership

Each organization shall appoint one representative and a designated alternate. Members are expected to attend NAC meetings regularly and to participate in committee activities. The representatives shall attend the meetings and be recognized as the voting member; however, if the representative cannot be present at a NAC meeting, the designated alternate may attend the meeting and will be recognized as the voting member. Each organization shall have only one representative at a NAC meeting. Members are responsible for funding the participation of their representative. Members are also responsible for reporting on each NAC meeting to their organizations and for informing the NAC membership of activities in their organizations of interest to NAC. Attendance at NAC meetings will be limited to members and designated observers at the discretion of the NAC chair.

IV. Applications for Membership

Organizations applying for membership are required to submit their request in writing to the NAC chair indicating their interest in and justification for membership. They must show how their organization meets the eligibility requirements for membership and the unique contribution they can make to NAC.

V. Approval of Membership Applications

All applications for membership shall be sent by the NAC chair to the Membership Subcommittee. The Membership Subcommittee shall be appointed by the NAC chair and shall consist of representatives of the public and private sector of NAC, and the chair of NAC, ex officio. After a review of each application, the Membership Subcommittee shall recommend an appropriate action to NAC.

VI. Termination of Membership

To terminate membership, a member must submit the decision in writing to the NAC chair. Membership will be forfeited, after the organization is given due notice by the NAC chair, when a member no longer meets the Criteria for Membership; the representative becomes inactive by not attending two consecutive meetings; or the representative is unwilling to participate in NAC activities.

VII. Ex Officio Membership

Representatives of the Council on Library Resources and the U.S. National Commission on Libraries and Information Science shall serve as ex officio, voting members of NAC.

VIII. Observers

Observers may be invited to attend NAC meetings by the chair of NAC. The observers may participate in meeting discussions at the discretion of the chair; however, they may not vote.

ATTACHMENT I

LIBRARY OF CONGRESS NETWORK ADVISORY COMMITTEE
MEMBERSHIP CATEGORIES

	Categories	Number	Members	Potential Members
1.	National Professional Membership Associations	All	AALL, ALA, ALISE, ASIS, MLA, SAA, SLA	MLA (Music)
2.	Trade and Institutional Associations	All	AAP, ARI COSLA, IIA	CRL
3.	National Libraries/Federal Information Agencies	All	FLICC, LC, NAL, NLM	GPO
4.	National Bibliographic Networks 1/	All	OCLC, RLG/RLIN	
5.	Regional/Special Bibliographic System Operators 2/	4	AMIGOS, CLASS, SOLINET, UTLAS, WLN	SUNY, Illinois (LCS), CARL, HALS (Houston), Irving
6.	Network Service Organizations 3/	4	BCR, MINITEX, NELINET, PRLC	AFLI, CAPCON, CCLC, FAUL, ILLINET INCOLSA, MLC, NEBASE, OHIONET, PALINET, WLC
7.	National Reference Systems 4/	8	Dialog	BRS, SDC, Mead, CAS, Source, COMPUSERVE, NY Times INFOBANK
8.	Individual Library Systems	2	University of California, University of Chicago	
9.	Ex Officio	2	CLR, NCLIS	
10.	Observers	2	AAP, NEH	

1/ Computer-based services organized by and for libraries, wherin the library users contribute to and modify the resource databases used in the provision of various bibliographic services.

2/ Organizations that provide various bibliographic services by operating their own system.

3/ Organizations that act as a middle man by procuring services from the bibliographic networks and others for their users.

4/ Computer/based, publicly available information services containing bibliographic and other machine-readable data where the contents are created by the system or provided to it by database publishers and where their users do not modify the databases provided.

APPENDIX D

United States
National Commission on
Libraries and Information Science

13 May 1988

Mrs. Henriette Avram
Assistant Librarian
Processing Services
Library of Congress
Madison Building LM 642
Washington, D.C. 20540

Dear Henriette,

At its April meeting in Washington, D.C., the Commission considered and acted on several Network Advisory Committee (NAC) requests.

"Statement of a Common Vision" - I am pleased to notify you and the Library of Congress' Network Advisory Committee that the Commission has formally accepted the "Statement of a Common Vision" as it was composed by NAC. The Commission thanks NAC for its effort and will be pleased to help support realization of the goals expressed in the statement.

Electronic Archives Inventory Project Funding - I regret to inform you that the Commission has voted not to seek funding for the first stage of the electronic archives inventory project proposed by the Network Advisory Committee. I would like to stress that this refusal does not reflect a lack of awareness of the great need for and importance of such a project. Rather, it reflects an internal decision within the Commission to reduce the number but increase the effective completion of projects it undertakes with its limited staff and resources. For your information I enclose a copy of the NAC electronic archives proposal as it was written up for the Commissioners' notebooks.

Funding for Minimum Network Equipment - The Commission considered NAC's request to support funding for minimum network equipment during the LSCA reauthorization and appropriations process. Although the Commission unanimously recognized the widespread need for minimum networking equipment in smaller libraries and approved in principle its support for funding to that end, a number of questions needing clarification prevented it from taking formal action on NAC's request. These include:

- Is such equipment not eligible for purchase under LSCA Titles I and III? If so, how may the Commission further support funding for such purchases other than the

1111 18th Street, N.W., Suite 310
Washington, D.C. 20036
(202) 254-3100

Henriette Avram (continued)

testimony which it presents annually in support of the LSCA appropriation? Does NAC wish the Commission to recommend larger appropriations for those two particular titles, new language limiting expenditures on sophisticated equipment in favor of minimum-level equipment, or other action?

- How will the recent appropriation and regulations for HEA Title II-D affect technology purchases by smaller academic libraries? Will minimum equipment be eligible for purchase under this title?

- The NAC request assumes reauthorization of LSCA. How does the Administration's new legislative proposal, the "Library Improvement Act of 1988," affect this request?

On behalf of the Commission, I would like to invite a representative of NAC to attend our next meeting in Denver (June 14-15) to answer these and other related questions the Commissioners may have. If this is not possible, perhaps someone could clarify these points in writing.

Sincerely,

Daniel H. Carter

Daniel H. Carter
Commissioner and Acting
Executive Director, NCLIS

Enclosure

DHC/snm:jdm

ELECTRONIC ARCHIVES INVENTORY

The dangers posed to our great library collections and to our nation's intellectual heritage by the physical deterioration of paper, print, and binding materials are well known and are being addressed by the preservation field. A similar but generally unrecognized danger exists in the routine loss of quantities of records generated and maintained exclusively in electronic format. These range from local, state, and government records to constantly changing compilations of research statistics to electronic works of fancy.

One indication of the extent of such losses is provided by the National Archives and Records Administration (NARA), which represents the final stop for federal government records in a relatively well-organized system of retention. Guidelines for deposit of records by the federal agencies have resulted in NARA receipt of 2-3% of all print records over the past 20 years. However, during this time only .02% of all electronic records have been received. What has become of the rest of these electronic records?

As advanced technologies become pervasive, more and more information will be stored exclusively in this format. It is imperative that steps be taken now to ensure that we do not one day discover that we have lost the records of how we answered questions, solved problems, and reached decisions. Electronic records must be retained with adequate bibliographic control to know who has what and who may use it; research must be performed to perfect preservation techniques for electronic media; and mechanisms must be developed for maintaining permanent access to records on now obsolete technologies -- even now there are only two computers left on which the 1960 Census may be read.

To begin to assess and address the problem, the Network Advisory Committee (an advisory group of which NCLIS is a member, convened under the aegis of the Library of Congress) has adopted a recommendation to "collect existing inventories of electronic archives; to identify gaps in electronic data access, control, and preservation; to evaluate compatibility or the lack of it; and to make recommendations." Because of the large scope of this recommendation, NAC proposes to reduce it to component parts, beginning with a feasiblity/planning study. This study would encompass a literature review and follow-up on known leads (e.g. OMB's federal database inventory, higher education databases through Educom, etc.) to:

- o delimit the universe to be studied
- o deduce categories of electronic inventories and databases and define them

- o identify existing inventories by category
- o identify areas where records are archived but are not bibliographically controlled
- o identify areas where records are produced but apparently not controlled and not archived (i.e. records are lost)
- o set up categories for future investigation (e.g. control, access, preservation, compatibility and standards)
- o draw conclusions and make recommendations for further study towards satisfaction of the NAC recommendation.

A NAC subcommittee estimates that the preliminary feasibility/ planning study would require a qualified researcher three months time for $10,000. It is proposed that NCLIS solicit funds to support this preliminary study, to be performed by a contractor but administered and reviewed in-house.

APPENDIX E

TO: Members of the Network Advisory Committee (NAC)

FROM: Ronald F. Miller, CLASS DATE: March 23, 1988

CONCERNING: Report of "Action Agenda" Item Number 29

GOAL

The goal of this item is to define and prioritize network-related research and, with NAC's concurrence, to recommend that such research be undertaken by appropropriate research organizations. The context of such research is to promote the realization of the Common Vision statement adopted by NAC in December 1985. (Paraphrase)

METHOD

A NAC Sub-Committee, composed of Ron Miller (CLASS), Charles Bourne (DIALOG), and Michael Buckland (University of California) will attempt to extract from the summary sheets of the twenty-nine action agenda task statements of network research which the four NAC teams identified in 1986. The items will be reviewed by the Sub-Committee and the NAC, which may then decide to forward some or all of them to one or more of these agencies: ALISE, DOE-Library Programs, ALA-LRRT, CLR and NCLIS.

The list of research topics, priorities, sources and comments appear below.

Network-Related Research As Identified by the Network Advisory Committee (NAC). 3/23/88

	TOPIC	PRIORITY	SOURCE
1.	What are the costs of sharing resources among libraries as compared to the costs of not sharing resources?	I	Task 15
	Comment: A proposal has been drafted by Charles Payne to undertake a literature review of the topic as a first phase, and it may be submitted to CLR for review.		
2.	What is, or should be, the impact of new technology such as CD-ROM on linking and resource-sharing, and the concept of "The Nation's Library".	II	Task 16
	Comment: Several reports of investigations on this topic by OCLC and the Fred Myer Charitable Trust have been distributed to the NAC by Team 3 members. It is not clear if additional action is needed by NAC.		
3.	How do library education curricula in North American graduate library schools deal with the issues, concepts and current status of networking?	I	Task 18
	Comment: This topic was referred by letter to ALISE for action and a reply was received. It is unclear what next steps are appropriate.		
4.	Identify and describe existing inventories of electronic archives; identify how they are accessed, controlled, maintained and preserved; evaluate compatability of formats and access techniques with other archives; make recommendations (to NAC) about what should be done.	I	Task 19
	Comment: This research need was referred to NCLIS for action.		
5.	Should existing bibliographic networks be extended to include other non-bibliograhic data? If so, how?	II	Task 20
	Comment: This question may be dealt with as a NAC program topic before a formal research proposal recommendation is developed.		

6.	What is the status and benefits of multi-type library networking in North America?	II	Task 1&5
	Comment: See "handbook" tasks		
7.	What are the key trends in library networking at the end of the 1980's?	?	Committee
	Comment: This may better be considered as a bi-ennial program update, rather than a research project.		
8.	What career opportunities and pitfalls exist in networks?	?	Committee
9.	How well are networks serving minorities?	?	Committee
10.	What is the impact of international networking activities on local public and academic library networking?	?	Committee

APPENDIX F

PHONE COMPANIES' OPEN NETWORK ARCHITECTURE PLANS FILED WITH FCC
Library Input Needed for Comments on CC Docket 88-2

Recently, it has been called to our attention that AT&T and the Bell Operating Companies (BOCs) have filed Open Network Architecture (ONA) Plans with the Federal Communications Commission, meeting a February 1 deadline for submission. A new FCC docket (CC Docket 88-2) requests public comment on these plans by April 8 and reply comments by May 18. The ONA plans have been described as a "parts catalog" of unbundled service elements to be available on a non-discriminatory basis from which information service providers and other customers would choose in the future. Features would be offered separately rather than in packages.

The requirement for the filing of ONA plans stems from the FCC's Computer III inquiry (CC Docket 85-229, Phase I and II), in which the Commission permitted AT&T and the BOCs to offer enhanced services on an integrated basis with basic services. To prevent the carriers from taking unfair competitive advantage of the market power they possess in the provision of basic network services, the Commission replaced the previous structural separation requirements with nonstructural safeguards for the enhanced service operations of AT&T and the BOCs.

The development of the ONA plans have involved months of discussions between the BOCs and enhanced service providers (ESPs) such as Telenet, CompuServe, and message-answering services. The clientele of such ESPs, with the exception of a few large users, have not been part of the development process. Once a carrier's ONA plan has been approved by the Commission, it will no longer have to seek FCC approval of new enhanced services on a case-by-case basis.

ALA is considering filing general comments with the FCC to ask how the ONA plans address certain service elements which should be offered or enhanced by phone companies to meet library requirements for improved or more efficient telecommunications to support library and information services. Other questions are whether service elements would be offered throughout a carrier's entire service area (urban and rural), whether unbundled charges add up to more than current charges, and how complex the ordering of service and interpreting of bills might become.

What we need are examples of service elements which, in the view of the library community, should be offered, or concerns which should be addressed. For instance, at present many libraries in rural or sparsely populated areas must pay long-distance charges to get to a node or access point for a value-added network. Some of the very libraries which most need affordable access to remote databases must pay extra to get it. The new ONA environment could change this situation. Another example--if phone companies provided support for open system interconnection (OSI) protocols in the software they market for their packet switched networks, it would facilitate linked system project activities among libraries.

Libraries or networks desiring to comment directly should write to the Federal Communications Commission, 1919 M St., NW, Washington, DC 20554, with reference to CC Docket 88-2, Phases I and II. See Page 2 for examples of service elements filed in ONA plans. Please send examples of needed service capabilities with a few easily understandable paragraphs of justification BY APRIL 1 to:

American Library Association Washington Office
110 Maryland Avenue, N. E., Washington, D. C., 20002
202/547-4440; ALANET ID ALA0025

(Please see Page 2 for service element examples.)

EXAMPLES OF ONA OFFERINGS BY BELL OPERATING COMPANIES

Each regional phone company's Open Network Architecture Plan as filed with the FCC is lengthy and complex. In general, the seven regional phone companies (Ameritech, Bell Atlantic, Bellsouth, Nynex, Pacific, Southwestern Bell, and US West) have listed service elements in two to four categories and have used approximately the same definitions of terms. However, each BOC plan has significant differences from the others. The following summary of Bell Atlantic's offerings provides an example:

Basic Serving Arrangements

(a) Voice Grade - Line - Circuit Switched
(b) Voice Grade - Trunk - Circuit Switched
(c) Digital Grade - Circuit Switched
(d) Packet Switching
(e) Dedicated - Private Line

Basic Service Elements

1. Call Number Identification
2. Call Block
3. Automatic Recall
4. Automatic Call Back
5. Central Office Trace
6. Selective Call Forwarding
7. Distinctive Ringing
8. Call Forwarding on Busy Line
9. Call Forwarding on Don't Answer
10. Call Forwarding - Variable Ring Count
11. Remote Control - Call Forwarding
12. Cancel Call Waiting
13. One Number Service
14. Message Desk
15. Multi-line Hunting
16. Automatic Call Distribution
17. Line (Loop) Supervision - REACT Service
18. Direct Inward Dialing (DID)
19. Group Make Busy/Transfer
20. Dynamic Routing
21. Secondary Channel
22. Route Diversity
23. Automatic Protection Switching
24. Private Line Conditioning
25. Bridging
26. Closed User Group
27. Hunt Groups
28. Call Redirection
29. Direct Call

Complementary Network Services

1. Activation of Call Forwarding With Call Completion
2. Speed Calling
3. Post Dialing DTMF Signaling From Pay Stations
4. X.25 Interfaces
5. X.75 Interfaces
6. Trunk Side Access
7. Digital Private Lines
8. Broadband Line(s)
9. Calls Accepted with DNIC's
10. Virtual Dial Tone
11. Fast Select
12. Error Detection/Error Correction
13. Carrier Selection on Reverse Charge
14. Interconnection for Specialized Terminal Equipment
15. Compatibility to Existing Terminals
16. 4-Wire Interconnection/Switching
17. Equal Access to Exchange Network Signaling and Transmission

American Library Association, Washington Office
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March 1988

NETWORK PLANNING PAPERS

No. 1 Butler, Brett. *A Nationwide Location Data Base and Service.* (Washington, Library of Congress, 1978). 66 p.

No. 2 Dataflow Systems. *A Glossary for Library Networking.* (Washington, Library of Congress, 1978). 34 p.

No. 3 Buchinski, Edwin J. *Initial Considerations for a Nationwide Data Base.* (Washington, Library of Congress, 1978). 56 p.

No. 4 Network Technical Architecture Group. *Message Delivery System for the National Library and Information Service Network: General Requirements.* (Washington, Library of Congress, 1978). 35 p.

No. 5 Long, Philip L. *Study of Message Text Formats: Bibliographic Search Queries.* (Washington, Library of Congress, 1979). 28 p.

No. 6 Vondran, Raymond F. *National Union Catalog Experience: Implications for Network Planning.* (Washington, Library of Congress, 1980). 51 p.

No. 7 *Document Delivery—Background Papers Commissioned by the Network Advisory Committee.* (Washington, Library of Congress. 1982). various pagings.

No. 8 *Public/Private Sector Interactions: The Implications for Networking.* (Washington, Library of Congress, 1983). 48 p.

No. 9 *Electronic Information Delivery Systems:* Proceedings of the Library of Congress Network Advisory Committee Meeting, April 18-20, 1984. (Washington, Library of Congress, 1984). 79 p. $7.50.

No. 10 *The Information Economy in the U.S.: Its Effect on Libraries and Library Networks:* Proceedings of the Library of Congress Network Advisory Committee Meeting, November 14-16, 1984. (Washington, Library of Congress, 1985). 59 p. $7.50.

No. 11 Maruyama, Lenore S. *The Library of Congress Network Advisory Committee, Its First Decade.* (Washington, Library of Congress, 1985). 50 p. $7.50.

No. 12 *Key Issues in the Networking Field Today:* Proceedings of the Library of Congress Network Advisory Committee Meeting, May 6-8, 1985. (Washington, Library of Congress, 1985). 88 p. $7.50.

No. 13 *Toward a Common Vision in Library Networking:* Proceedings of the Library of Congress Network Advisory Committee Meeting, December 9-11, 1985. (Washington, Library of Congress, 1986). 88 p. $7.50.

No. 14 *The CONSER Project: Recommendations for the Future.* Report of a study conducted for the Library of Congress by Jeffrey Heynen and Julia C. Blixrud. (Washington, Library of Congress, 1986). 122 p. $7.50.

No. 15 *Nationwide Networking:* Proceedings of the Library of Congress Network Advisory Committee Meetings, July and December 1986. (Washington, Library of Congress, 1987). 65 p. $7.50.

No. 16 *Intellectual Property Rights in an Electronic Age:* Proceedings of the Library of Congress Network Advisory Committee Meeting, April 22-24, 1987. (Washington, Library of Congress, 1987). 66 p. $7.50.

Single copies available for sale from the Customer Services Section, Cataloging Distribution Service, Library of Congress, Washington, D.C. 20541.


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