ABSTRACT

The symposium on automated information systems and copyright law held at American University in April 1967 is entered into the Record by Hon. Robert W. Kastenmeier so as to be readily available to members and others interested in this subject matter. The papers are: (1) Copyright Law Revision; (2) Post-Gutenberg Copyright Concepts; (3) Copyright and the Computer; (4) Economics, Automation and Copyright; (5) Electronic Computers; (6) Technology and the Copyright Law; (7) Author's Rights; (8) Permission and Payments in Automated Systems; (9) A Code for the Unique Identification of Recorded Knowledge and Information; (10) The Publishers' Rumplestilskin; (11) Summary and Analysis and (12) Conclusions and Recommendations. (MM)
AUTOMATED INFORMATION SYSTEMS
AND COPYRIGHT LAW

A SYMPOSIUM OF THE AMERICAN UNIVERSITY

Edited by Lowell H. Hattery and George P. Bush

PREFACE

The newer methodologies in printing and the prospects of their effects inevitably conflict with a copyright law which was last revised in 1909. However, during consideration of proposed revision of the law during the past seven years, the computer-electronics-microfilm impact upon copyright concepts was minimal.

The Center for Technology and Administration of the American University sponsored a symposium in 1967 to explore objectively the nature and extent of the problem, varied interests and viewpoints, and alternative courses and options.

Although the symposium and several papers are related specifically to topical issues of copyright revision, there is no doubt that developments in both technology and user methods alter the environment and need for copyright protection continuously. No legislation will “settle” the issues for an extended period. It is in the nature of current shifts in information technology that new opportunities, stresses and accommodations will require continuous review.

Therefore, we believe this collection of selected papers has significant resource value. Symposium papers published elsewhere are cited in the bibliography. Others are summarized but not reproduced in full. Due to the special form of publication no index is included.

Differences of opinion will be found among the papers. It is one of the values of the collection that different perspectives, arguments and judgments are arrayed.

Lowell H. Hattery
George P. Bush
Copyright Law Revision: History and Prospects

by Barbara A. Rifkin, Assistant Register of Copyrights

This paper, which is an outgrowth of the Symposium on Intellectual Property in Automated Systems held under the auspices of the American University in late April 1967, is being written during one of the recurrent crises in the program for general revision of the copyright law. At the time of the Symposium the auguries were good: the bill for general revision had passed the House of Representatives the week before with a majority of 279 votes to 29, and hearings were nearing completion in the Senate. Some problems that many had regarded as insuperable, notably those of jukebox performances and educational uses, appeared on the way to being surmounted at last, and people were beginning to talk of a new copyright statute in terms of when rather than whether.

Writing now, in July 1967, I view the enactment of a revised copyright law in the near future as a probability but by no means a certainty. As the Twentieth Century technological revolution continues relentlessly to reshape and expand the availability and efficiency of methods of communication, new groups arise to challenge the exclusions rights that authors have traditionally been given under the copyright law. Two years ago our most significant problems came from jukebox performances and educational copying, today they come from uses by computers and community antenna television systems. It is more than ten years from now there may well be whole new industries whose future will be directly affected by the copyright law. This accelerating process makes the enactment of a revised copyright statute in the 90th Congress increasingly difficult at a time when the 1909 Act is proving increasingly inadequate.

The Federal copyright law now in effect in the United States was adopted in 1909, and has been amended in only a few relatively minor ways. It is essentially a Nineteenth Century copyright law, based on assumptions concerning the creativity and dissemination of author's works that have been completely overturned in the past fifty years. A Twentieth-Century copyright statute is long overdue in the United States, and the present need for a revised law that will anticipate the Twenty-First Century is so obvious as to be undeniable.

But we have found again and again that abstract agreement on this need for comprehensive revision has met fragmentation on particular provisions to appear in the new statute. As time goes on the problems become less comprehensible, the economic and political power of the special interests becomes greater, and the conflicts on particular issues become more intense. Major legislation can kill off the entire revision program. If their opposition on a particular point is strong enough, and there are issues on which certain groups could prefer the 1909 statute to some of the changes that have been proposed, Copyright law revision demands of anyponent a calm head, a delicate sense of balance, and infinite patience. It is more instructive than consoling to realize that our problems are not new. The proponent of American copyright law actually got underway 43 years ago, in 1924, and produced four distinct legislative attempts to bring about a copyright statute to some of the changes that have been proposed. Copyright law revision demands of anyponent a calm head, a delicate sense of balance, and infinite patience.

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Note: "This unabridged, reformatted edition is printed with support from the Graduate Dean's Fund for Faculty Research, The American University. July 1, 1968."
The initial study period, which was originally supposed to take three years, actually took about six. The product was worth the time: 34 public draft sessions, each followed by a report that found new, and often controversial, substantive issues in copyright law revision. A body of comments from members of the Panel of Consultants was published, with each of the study and the 1961 Report of the Register of Copyrights on General Revision of the Copyright Law: 1965 Revision Bill. The Register of Copyrights on General Revision was the first of many major contributions to the general revision program by Abraham L. Kaminstein, Mr. Fishbinder, and A. E. Register of Copyrights. The Register's Report was published with a supplement to the Register's Report. It contained numerous substantive issues in copyright law revision, and was followed by several years of hearing and discussion.

Publication of the Supplemental Report concludes with the opening of the hearings on the bill. The bill was May 26, 1965, and September 2, 1965, 22 days of public hearings were held before Subcommittee No. 4 of the House Committee on the Judiciary. A total of 163 witnesses, representing an extraordinary range of economic, political, and professional interests, appeared before the subcommittee chaired by Representative Robert W. Kastenmeier of Wisconsin. The record of the hearings, which comprises nearly 2,000 pages of printed text, includes not only the oral transcript, but also written statements. The Senate Judiciary Subcommittee under the chairmanship of Senator John L. McClellan of Arkansas, held a series of hearings on the revised form reported by the House, it was introduced by Senator McClellan and Representative Celler in the 90th Congress, and was considered by the newly-constituted membership of Subcommittee 4, again chaired by Representative Kastenmeier on February 20, 24, and 27, 1967. The revised version was one fundamental lesson: it is a mistake to take a long, complex, technical, and uninteresting debate in the House and turn it into an uninteresting debate in the Senate.

The bill, as revised by the subcommittee, was sent to the full House Judiciary Committee on September 21, 1965, and was reported without amendment by the full committee on December 12, 1965. The House Report, which comprises a total of 329 pages, including 141 pages of explanatory material. It is a valuable addition to the legislative history of the general revision bill. It examines virtually every provision of the bill in detail, recording the Committee's reasoning behind its decisions on substantive issues and the intention behind its choice of statutory language. It was sent to the 89th Congress for further legislative action, and indeed none had been expected in 1966. In the following year, however, it was brought to a genuine crisis in the late summer and fall of 1965. It became apparent that, if the entire project was not to founder, some method for advancing and considering alternative recommendations would have to be found.

In November 1965, the Register announced that the Copyright Office was prepared to change its position on some of the recommendations and new language. It announced that it would no longer support the position of the Register of Copyrights on General Revision of the Copyright Law: 1965 Revision Bill. The Register's Report was published with a supplement to the Register's Report. It contained numerous substantive issues in copyright law revision, and was followed by several years of hearing and discussion.
tion was very nearly fatal to the revision program.

When the House finally reconvened after 7:00 p.m. on April 6, it was apparent that a rescue operation was essential if an urgently needed revision could be delayed for years or even decades to come. Over the next four days, in an atmosphere of compromise, the bill was amended and reconsidered. On Tuesday, April 11, an amended bill was passed by the House, making no provision for a copyright liability for jukebox performances; the provisions dealing with community antenna transmission were struck, and the extra-territorial language that had given CATV systems full liability for copyright infringement; and the exemptions for instructional broadcasting were considerably broadened. On the other hand, the language and purpose of the bill itself has remained substantially intact, and the success achieved to date by those who became, in a feverish and politically-explosive atmosphere, the Subcommittee, indicates, to some of us, that despite all the problems, the bill will ultimately be enacted.

The Senate Judiciary Subcommittee, which had opened hearings in 1963 and had had a short recess in March 1964, was resumed its full-scale consideration of the bill, under the joint chairmanship of Senators McClellan and Burdick, on March 15, 1967. The Senate hearings were in full swing during the crisis in the House, when the subcommittee program resembled a three-day circus in more ways than one. To everyone’s surprise the record of the Senate hearings, which lasted to date, shows clearly that the hearings had become being printed, and it seems unlikely that the subcommittee will take action on the bill this session.

Of the several areas that emerged as full-blown issues at the Senate hearings, by far the most important is the problem of the use of copyrighted works in the field of electronic information storage and retrieval systems. This issue could well turn out to be the most important issue in the history of the copyright law. It seems clear that a definitive solution as part of the present bill for general revision would not only fail to solve the computer problem, but that the bill itself would become being printed, and it seems unlikely that the subcommittee will take action on the bill this session.

It is no exaggeration to say that the chips are down on general revision. The inadequacies of the 1909 Act and the critical importance of a revised statute to all producers and users of copyrighted material have become more apparent with each new technological development in communications. It is urgent that a general revision statute be enacted without delay. Copyright legislation directed specifically to the problems of computers will be needed eventually, but should be deferred until the possibility of a general revision is made. The problems now dealt with in the general revision bill are immediate, and their solution cannot await discussion of the computer problems of the future.

The views expressed in this article are those of the author and do not necessarily reflect official positions of the Copyright Office of the Library of Congress.


6 See, e.g., Mosch. The Law of Copyright Under the Universal Copyright Convention Commission Fair Use of Copyrighted Works, Photocopying of Copyrighted Material by Libraries, Limitations on Performing Rights, The Meaning of “Writings” in the Copyright Clause of the Constitution, The Moral Right of the Author, The Compulsory License Provision, The Economic Aspects of the Compulsory License, Notice of Copyright, Copyright in Government Works, Copyright in Polar Regions, Copyright in Indian Countries, Copyright in English-Speaking Countries Except Australia, Legislative History of the Universal Copyright Convention Act of 1952, Copyrights for Hire and for Works Made For Hire, Copyrights in Foreign Countries, Copyrights in Youth Literature, Copyright in Archival Works, Copyright in Architectural Works, Copyright in Choreographic Works, Protection of Unpublished Works, Duration of Copyright, Renewal of Copyright, Protection of Works of Foreign Origin, Copyright in Music, Copyrights and Copyrights in Territories and Possessions of the U.S. No separate studies were prepared on several other major areas, only briefly mentioned to be most important in general revision; the jukebox exemption (which was then regarded as a problem of the general revision), community antenna television, educational photocopying and broadcast rights, and the other aspects of the Berne Convention which had yet not emerged as major issues.

Thirty-three of the studies were grouped in 11 committee print packages by the Senate Subcommittee on Patents, Trademarks, and Copyrights together with a subject index. They are available in this form from the Copyright Office. These studies plus one on the Manufacturing Clause were also published in cumulative form in the Arthur Fisher Memorial Additions, Studies in Copyright, published by Fred B. Rothman and Company and Bobbs-Merrill Company, Inc. in 1963.


S. 1006, H.R. 4247, 89th Cong., 1st Sess. (1965); see also H.R. 5060, H.R. 6531, H.R. 6835, 89th Cong., 1st Sess. (1965) in which the bill was introduced by Representatives St. Onge, Helstoski, and Monagan, respectively.


Post-Gutenberg Copyright Concepts

by Paul G. Zerkowski, legislative assistant to Congressman K. W. Kaestnermeier

The demands of the information explosion and the capabilities of the proliferating new communications media have carried our civilization into a new publishing era, the Post Gutenberg Era. The vast increases in documented information we have experienced in this century require a more orderly, systematic means for organizing and keeping the information accessible than the Gutenberg technology offers. The new media promise to provide us that means. The full impact of the new era awaits a resolution of a copyright dilemma which marks its beginning.

Nothing in those statements is very startling, but the significant role required of copyright in the new era needs further examination. The following discussion seeks to define what the Post Gutenberg Era is in terms of copyright, publishing and copying and to suggest some broad concepts where the answers to the copyright dilemma of the Era might reasonably be found.

Simply stated, the dilemma of the Era is how to utilize the greater copying, storing, retrieving, and manipulatable capabilities we have today without eroding the incentives to authors and publishers to release their works in public in order to stimulate creative expression and public education.

The dilemma is not easily resolved. In every walk of life document copying, regardless of any segment of our society—students, institutions, scientists, and businessmen, industry, scientists, librarians and housewives, has nearly a vested right in copying when it pleases, when it is pleased for the single cost of a xerox copy? When common practice ignores the law, a lag in social institutions is indicated. Thus, as a social invention, the magnitude of the electrical-mechanical inventions that opened the Era must be developed (1) to bring the law up even with practice and (2) to advance the public in the law ahead of practice to encourage and stimulate the full development of the new media in meeting the increasing challenge of the information explosion.

The answer to the dilemma, the elements of the social invention needed, is to be found, if at all, in the complex of new communications media which have themselves created the lag and the dilemma. As of this time, the new media seem pre-occupied and largely unaware of the fact that Congress and the Copyright Office have been engaged in a massive litigation effort to impose directly on them, their uselessness now and in the future.

Few people seem perplexed by the reluc- tance of the new media to participate actively and directly in the dialogue over the legal concepts needed to facilitate their full utilization in affording the public selective access to their material.

Yet it is this reluctance which goes far to explain why solutions to the dilemma have not been forthcoming.

The new media can no longer avoid participation in the dialogue. They must join in seeking solutions to the real problems they have caused, thus solving problems that inhibit their use in meeting the demands of the information explosion will vastly enhance their market.

Gutenberg's invention made possible the production and wide dissemination of books. This view in this article are those of the author only.
Films format (images of pages serially arranged on 35-mm film) was accepted as normal and as affording convenient access as one could expect from micrographic storage. This is... longer the case.

For micrographic storage, far more sophisticated than 35-mm film, are already in existence as are new non-photographic media. The exclusive licensing feature of the existing University Microfilms contracts has prevented other companies from applying these new technologies to the journal articles. Obviously there are exclusive property rights that can and should accrue to University Microfilms as a result of their enterprise in reducing, with the permission of the copyright owner, hard copy publications to a particular non-Gutenberg format. Such a right could and would be protected with the suggested new format copyright.

Thus, without something more than a combination of existing copyright and a new format copyright, there remains the serious question whether the challenge of the information explosion can best be met by restricting the application of the new media simply to those copyrights or contracts that to those who can acquire publisher's copyrights by acquiring publishing houses. Unless steps are taken, ownership of copyrights as well as exclusive licensing arrangements may deny new media entry into the field through the denial of access to their stock in trade, intellectual property. A real danger lies in the fact that a finite number of new media companies are already in the process of gathering the exclusive rights to stocks of intellectual property. This, along with their existing property interests in new media, may result in a finite number of companies controlling, as a group, the means by which a democracy arrives at its understanding of truth. Its current wisdom. Truth itself cannot be possessed, but the means by which it is reached, that sifting and winnowing of expressions of conflicting ideas, possible only through multiple media affording unrestricted access to a variety of differing views, may so come into the possession of this finite number of companies.

In the new media and under the awful burden of the information explosion we may soon be limited to the brand of truth that is available to us in one of a limited number of particular media, with little or no chance to test it against other standards. I do not mean to suggest that any of the companies involved are purposefully seeking to establish such control, but there are forces at work, resulting in the inapplicability of Gutenberg Copyright concepts to these problems, which are carrying us in that direction.

Thus, in order to assure new media innovators access to the intellectual material to move through their new communications media or pipelines, a concomitant of a format copyright is some form of statutory licensing arrangement. It is possible to conceive of such a statutory licensing system that would provide the original copyright owner with the same degree of exclusive rights in the intellectual property and the same choice and control of format in which the work is published that he now enjoys, and, at the same time, provide incentives for him to publish it in new formats that would be protected by the suggested new format copyright.

The exclusive rights in existing copyright and the new format copyright would not co-exist. The format copyright term would be for a shorter period of time, geared to assuring him adequate inducement to make his works of authorship available to the public and in formats most useful to the public.

Following that period, the content of the copyrighted works could be published in new formats upon the payment of a licensing or royalty fee. A separate fee would be payable for the use of the basic copyright as well as for the use of a protected format in which either the original or subsequent copyright owner had an interest.

Licensing fees would be established by law as following the market price of the copy for each copying privilege. Price would be affected by format and the format's carrying capability among other things.

III. Unique identification numbering system

The key to copy making on demand is a method of identifying documents and authorized copies.

There is a need for a statutory provision that will be as effective for the Post-Gutenberg Era as the existing copyright concept was for the Gutenberg publishing era.

The creation of a system of unique identification numbers by which all the essential data regarding a copying transaction could be included and automated for accounting purposes offers a reasonable answer to the problem of establishing a statutory system. Computers, instead of being a mortal threat to creators and disseminators of intellectual property, would work to their benefit by providing the means of handling copying accounts. Lower copying costs and quicker access make it possible today to include a royalty payment as well as accounting costs in some copying transactions without exceeding the costs of copying alone only a few months ago. A unique document identification system and time sharing concepts would facilitate this centrally controlled accounting process. Information filtering and making information (document) centers to organize literature for quick access in the specific format desired.

The Post Gutenberg Era will itself be replaced by a Multi-Media Publishing Era in which both the publisher and the copier will enjoy and employ the freedom of multimedia formats in making documented fact more readily accessible to as many users as possible.

In the Multi-Media Era, presumably interest profiles for each of us could be maintained to a copyright owner of Gutenberg copyrights is not only palatable, but desirable to the post-Gutenberg era.

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Copyright and The Computer: Why the Unauthorized Duplication of Copyrighted Materials for Use as Computer Input Should Constitute Infringement

by Arthur J. Greenbaum,* Cowan, Liebowitz and Latman

The purpose of this paper is to explain why I believe that the conversion of copyrighted materials into machine readable form for use as computer input should be considered copyright infringement.

In the event of definitions, Computer "input" consists of the material which is available for manipulation or retrieval by the computer. By "conversion into machine readable form" I mean (a) transcribing text to punch cards, magnetic tapes, disks, or related information storage vehicles, or (b) directly transposing the information into the computer in some electronic form, so that the printed words can be utilized by the computer, for example, by proper designation of materials which are already in the machine readable form defined in (a).

The control requirements of the copyright proprietor over the materials at the point that it is converted into machine readable form for use as computer input. In other words, copying of a copyrighted work into machine readable form should constitute copyright infringement. My reasons are as follows:

1. Some computer users involve the manipulation or scanning of a considerable amount of input derived from copyrighted works. This input, which consists of only a solution which appears for a few moments on a screen or a minute bit of the total copyrighted work. Manipulation or scanning within the computer is not considered by some to be infringement and such limited uses may not be an infringement at the output level either because there is no copying or the copying may be so limited as to constitute a fair use. If the use is not fair or if it is not machine readable form constitutes infringement, then it is merely an infringement, no compensation is available to the copyright proprietor for the use of his work (other than the income from the sale of one copy of the original work), although his potential sales of the printed work could be destroyed.

2. Unless the conversion of copyrighted materials into machine readable form constitutes infringement, the copyright proprietor also loses potential income from the sale of his own works in machine readable form. The solution of this problem is to hold that the conversion or copying of a work into machine readable form for computer input constitutes infringement.

An illustration of this point is the case of the publisher of a directory listing all United States retailers of drugs and providing twenty dollars to each retailer, such as location of principal office, number of employees, annual sales, names of the proprietors or principal officers, non-product products carried, etc. It is easy to see that if a competitor can reproduce this directory and sell it in the form of punched cards or tape, that the original publisher cannot compete because the second comer has avoided the tremendous expense of reproducing the directory. The copyright proprietor cannot even sue for damages because the second comer may have obtained the information, taken free of charge from the original printed work or a duplication of the information from the original publisher. The second comer has no incentive to provide better service to the computer user. The amount of input derived from copyright materials into machine readable form constitutes infringement, the copyright proprietor is defenseless. The inevitable result of such a system is that there will be no publication of material which can be "borrowed" in such a way as to destroy the market for the copyrighted work.

The copyright proprietor cannot enjoy such blatant copying or collect damages from the one who copied the materials unless conversion or copying of a copyrighted work into machine readable form constitutes infringement.
both constitute infringement. As for suing the end user of the copied cards or tapes, his use may be a fair use because the copied data has been integrated into a nationwide computer network and each end user only utilizes small bits of the information at a time. The result, unless the conversion into machine readable form for use as computer input constitutes infringement, is that the copyright proprietor has no remedy even though his works are being unfairly used to destroy him.

3 Again, unless the conversion of copyrighted materials into machine readable form constitutes infringement, the copyright proprietor may find himself at a disadvantage in using his own works as part of his own computer system since other systems operators could (a) appropriate the printed work by copying it into machine readable form or (b) duplicate the originating machine readable materials and thereby avoid the expense of independently obtaining the information.

To illustrate this point; consider a publisher of a legal digest which classifies all of the published case reports into a legal classification system and publishes the digest in printed form. It also offers an additional computerized search system to lawyers. The computer input consists of the cases as classified in the digest. A competitor can convert the cases listed in the original publisher's digest into machine readable form for use as input for a competitive computer search service. Now if the use by the lawyer is the sole test of infringement, then no infringement exists (because such use is a "fair use"). It is submitted that such a result is atrocious as a matter of law, good sense, and ethical behavior.

4 If the copyright owner must rely only on computer output as infringement, he will find it most difficult, if not impossible, to police the system. The potential for abuse is enormous because the computer has such widespread application. It is submitted that the only way the copyright proprietor can control the mis-use of his copyrighted materials is to control the input. This involves a reasonably feasible task compared to the impossibility of discovering and checking each bit of output and then trying to determine if it constitutes an infringement or a fair use.

CONCLUSION

As of the writing of this paper (May 1967), the House Copyright Law Revision Bill provides that the conversion of copyrighted material into machine readable form constitutes, subject to the defense of fair use, infringement. I agree with this solution to the problem and hope that the Senate will also agree with the House. If experience indicates that his solution is not in the public interest, then the Bill can be amended to reflect the deficiencies which may appear as time goes by.

My prediction is that the publishers will do an excellent job of handling the new technology and there will be no need to make any major revisions in the future. The publishers will not be able to sit back and do nothing (as predicted by some) because there will always be at least one publisher (or the fear that there will be one) in the vanguard and he will force the others as a matter of competitive necessity to find the best ways to utilize the computer and related devices. No publisher will want to concede the new technology to his competitors.
Economics, Automation and Copyright

by Charles H. Lieb, Paikus, Gordon & Hyman

Most people agree that full use should be made of the burgeoning computer technology—for education, for information storage and distribution and for any other purposes that can be found for this modern-day genie. Publishers and authors certainly concur with this. Their function is to gather, protect and present against distortion to encourage them to continue to produce.

My purpose is to discuss the first factor, the reward, and to leave other problems for separate consideration.

REWARD TO AUTHOR AND PUBLISHER

If reward—royalties to author and profit to the publisher—is recognized as a basic factor which influences the production and flow of most intellectual work, we must keep in mind some simple but immutable laws of economics when we consider the rules under which the work is to be stored and used in computers.

A work usually will be published only if it is expected to be profitable. The publisher depends on sales, depend on "effective demand," a desire to purchase implemented by the financial ability to purchase.

The effective demand or the market varies widely for different kinds of work. What is needed for meaningful discussion is a searching examination of the market for each of the various kinds of publishing upon which computers will draw for their input and the effect of that input upon the relevant markets.

In stressing the importance of the market, we must stress at the same time the direct relation between it and the amount of the make-ready cost that precedes publication. Many of those participating in the copyright revision discussions seem not to realize that there is more than the publishing than the simple printing of a manuscript. In many areas of publishing, publishers create the publishing concept, seek out and commission the authors to write the work, pay substantial advances to finance their efforts, and actively participate in the shaping and editing of the work. The lead time between concept and publication may be five, six, seven or more years; the investment before the first dollar of return may be and frequently is very substantial.

It does not appear to be fully understood that the make-ready cost of producing a given work is fixed regardless of the number of copies sold. The size of the market in relation to the size of the make-ready investment therefore determines whether the work is accepted for publication.

For the most part the market to which publishing is geared is a market for books in the traditional format, to be read in volume form. Another way to say this is to say that a book's price is fixed in the light of the publisher's estimates of the number of copies that will be purchased for reading in volume form. There is, of course, a difference between the number of readers of a book and the number of copies sold because many books are purchased for multi-person use. But this is a factor that the publisher can measure and take into account when he makes his market estimate.

Suppose that the textual content of a book for computer use may drastically shrink that market. The effect will be different for different kinds of input. The input of the contents of a general purpose desk dictionary or of a summer novel may have no noticeable consequences, but input of a technical encyclopedia or a text-book may have a devastating effect on the number of copies sold.

An example may be helpful. A publisher believes that a full-size computer book on an advanced subject if acceptedly priced will have a world-wide market of 4500 copies. He estimates that after such a change in statute the 100 libraries making up the Educat system, instead of purchasing 100 copies, together purchasing only one, that he will sell 2500 copies to librarians and institutions and the remainder to miscellaneous purchasers. His break-even point may be well above what he expects. He needs to publish, trusting that his market estimate is correct.

Suppose, however, that the copyright statute is changed, as some suggest, to permit computer storage and use of the text of the work at an initial cost to the system no greater than the single copy price of the book. Suppose also that after such a change in statute the 100 libraries making up the Educat system, instead of purchasing 100 copies, together purchasing only one, that he will sell 2500 copies to librarians and institutions and the remainder to miscellaneous purchasers. His break-even point may be well above what he expects. He needs to publish, trusting that his market estimate is correct.

The publishers now faces a substantially reduced market. What will he do? Can he publish the work? In a classroom marketing exercise one thinks that the systems comprising the smaller market will pay more for the work, he will raise the per copy price sufficiently, instead of planning to sell 4500 copies at $10 per copy, he may now plan to sell 100 copies at $40 per copy. But this will not be the same. Furthermore, the royalty will be the same, too. Society will be the loser. The individual desiring to read the work in volume form will be unable to do so. He will have been priced out of the market by a misuse and malfunctioning of the distribution system. This would ill usure social, politically and philosophically.

And what of the educational program prepared specifically for computerized instruction systems? If the publishers sells the program on one school district will schools in other districts be free to use it merely by obtaining a printout? Will the publisher then feel impelled to raise his prices? Will he restrict a sufficiently high price to enable him to recoup his entire cost and provide him with a profit? If he does so is it not likely that the systems comprising the smaller market will not have a sufficiently high price to enable him to recoup his entire cost and provide him with a profit? If he does so is it not likely that the systems comprising the smaller market will decline to use the program. By what may flow from the broad computer use under a variable pricing system. No one need fear, however, that the prices will be different. The nature and the value of their use is different and there is no reason, equitably or logically, why their cost should not be different.

We shall have problems, of course, in determining the price to be charged for system use under a variable pricing system. No one need fear, however, that the prices will be different. Pricing is a competitive business, and no one publisher can monopolize the body of knowledge in any field. If one publisher's price is too high, it will not be long before normal competition brings it down. The price that the systems will be charged may be in the form of a single payment. The nature and the value of their use may be different and there is no reason, equitably or logically, why their cost should not be different.

Let me turn to our hypothetical example of the reference book again to see how the variable pricing system might operate. We assume that the competing publisher estimates a sale of 4500 copies. Now let us look at the same publisher contemplating publication of the same kind of work. Perhaps he has a problem. We assume that during the ten-year interval he has been publishing under the variable pricing system. The sale of his book at 1000 copies for sale for traditional use (much below his former break-even point) and 80 copies (perhaps in mainframe mode) to systems for educational use.

Because of years of experience in publishing for this dual market, pricing has become a routine affair. The probable return from sale for traditional use and from systems is

"Economics, Automation and Copyright" by Charles H. Lieb, Paikus, Gordon & Hyman
reasonably ascertainable. The work is published, it is circulated in volume form, and it is stored and used in the computer systems. All are satisfied; the reader has his volume, system users have the work available in the systems, and the author and publisher, enjoying their normal return, are encouraged to create and distribute more of their intellectual work product.

Accepting the projection as fact, how then during the transitional period can we make published work accessible for computer use, protect copyright owners against loss of their incentive to publish, and at the same time build the body of experience upon which a variable pricing system can be based?

RECOMMENDATIONS

An approach of gradualism—one which will encourage the parties themselves to work out solutions as best they can and at the same time assure them of government help when needed, would appear to be indicated. Such an approach would encompass the following steps:

1. The prompt enactment of S. 597, the copyright revision bill. Too much time and effort have been spent to permit further delay. Exemptions which would enlarge the rights of computer users should be avoided. No matter how well intended, they may weaken or destroy the incentive to create and publish. It would be a Pyrrhic victory if computers gain free access to works in print only to lose future works which because of lack of economic incentive might never be produced.

2. Publishers and interested computer users should cooperate in experimenting on an informal and ad hoc basis in each of the various segments of publishing that are of mutual interest. First steps have already been taken along these lines. Federal agencies, including not only those that are information producers and users but the Department of Justice and the Federal Trade Commission as well should encourage and assist these efforts. In this manner the necessary body of experience can be acquired in judging the interaction between the needs of advancing computer technologies and those of the producers and publishers of intellectual work.

3. A Study Commission should be established to keep in touch with the experimentation and should from time to time make recommendations to Congress for needed changes in the law. This would assure all interests of a ready forum for redress of inequities as they develop.

This kind of program would permit experimentation by educators, librarians, equipment manufacturers, and others, and at the same time preserve the economic underpinnings of the publishers and authors who produce the material that the educators, librarians, and equipment manufacturers need for their experiments.

Some have expressed the fear that publishers will not cooperate in this effort. This is hardly reasonable. Publishers today are offering their cooperation to government and private systems. They do it not only in the public interest but in their own self-interest. It would be a short-sighted industry which would refuse cooperation if the alternative were likely to be unpalatable legislation.

Some have expressed concern about the delays that may result from the need to negotiate with publishers for system rights to particular works. This seems a needless fear for the immediate future. It will be years, we are told, before large amounts of text will be stored in automated systems for general use. Certainly the minor delays that may result from the need to negotiate input agreements are a small price for the preservation in the public interest of the economic viability of authorship and private publishing during this transition period.

There is a kind of unreality to the pleas we hear from some for the right to take copyrighted works preemptively for computer use. I say "unreality" because we live in a society in which much of the published material that the pleaders desire to use is produced and published for a profit incentive which would be destroyed by the taking. In approaching the problem before us, then, we must consider not only the needs of the users but those of the producers. Sound solutions can be found, but only if they satisfy the needs of all.
Electronic Computers: Storage and Retrieval

by Mervin E. Muller, University of Wisconsin

Following is a brief perspective of a few of the main arteries of a broad map to view the use of electronic computers in the storage and processing of intellectual information in the next few years. It may appear somewhat negative, but I want to be sure we recognize that many problems are still in need of answers if computers are to fulfill their promise in this application.

To interpret what follows, the meaning of computer storage and processing of intellectual information must be clear. Intellectual information is in computer storage if it resides on some medium which can be accessed and used (directly manipulated) by the computer. Computer processing of intellectual information implies that the information can be analyzed or compared within the computer for logical relevance. Thus, one could imagine storage and processing of information separately.

<table>
<thead>
<tr>
<th>Legend P—possible; m—may be possible; N—not possible</th>
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<tbody>
<tr>
<td>Outside computer Storage Processing</td>
</tr>
<tr>
<td>of computer (manual)</td>
</tr>
<tr>
<td>Index or reference pointers...</td>
</tr>
<tr>
<td>Access and inventory control</td>
</tr>
<tr>
<td>Intellectual information: Noncomputer usable...</td>
</tr>
<tr>
<td>Computer usable...</td>
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</tbody>
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The cost implications of storage and processing of information is a complex topic. I will explain a few of the reasons why it is difficult to determine costs: the hope, be sufficient to justify the real need to question some of the claims made that computers are a threat to authors and publishers. One of the great contributions that John von Neumann made to the development of digital computers was to recognize and exploit the fact that computer instructions and data in machine sensible form could be treated together. However, for large scale information handling systems involving many users simultaneously, the cost of user access is a major consideration. The reasons for this separation are economic—large files of information are expensive to create and maintain within computer storage if one is to have computer access to the information quickly.

The potential for computers to aid in the storage and processing of large volumes of intellectual information is limited not only by current technology and their economics, but also by social, environmental, legal, and psychological components. I will indicate why these components are relevant.

A classical approach to the economic component would be to try to measure the cost per bit or cost per character of information for the storage and processing of the information. This approach is difficult to carry out if multiple users and multiple machine activities can take place all at once. Certainly one of the fears of the threat of computers to authors and publishers become real only if multiple users can share a computer for economical use.

Furthermore, this approach which provides a low cost per bit or character of information may not be as reliable, or it may require use of the computer's central processor, or it may require greater implementation costs than another device. I have ignored the cost of converting the non-machine created information in terms of the computer, keeping in mind needed distinction between storage and processing capabilities. This approach can also help to avoid the pitfalls of pricing storage devices simply in terms of the cost per bit. While this can be a technical difficulty, it can be avoided or at least reduced by the “economy of size” argument may be a deceptive view of the economic component. Especially since much intellectual information is not in a computer usable form. However, historically, in general, an increase in computational and data processing productivity related to an economy of size.

This apparent increase in productivity and capability has encouraged many to consider digital computers as information handling machines. For information handling, the "economy of size" argument may be a deceptive view of the economic component, especially since much intellectual information is not in a computer usable form. However, historically, in general, an increase in computer installation cost more for the user interface to the computer, that is, how many other users can be served at the same time, and whether there is a single service line or more than one. Size of the computer information files is also important. The possibility of such services today is summarized below, where Y implies Yes it is possible today, M implies maybe, and N implies No.

<table>
<thead>
<tr>
<th>USER INTERFACE TO COMPUTER</th>
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<tbody>
<tr>
<td>One user at a time...</td>
</tr>
<tr>
<td>Multiple users (simultaneous)...</td>
</tr>
<tr>
<td>Single application...</td>
</tr>
<tr>
<td>Multiple applications...</td>
</tr>
</tbody>
</table>

The organization of files of information affects whether or not each item must be examined in order in a serial file or whether one can get directly to the information in a random file, or some compromise between the extremes of serial access and random access, identified here as hierarchical. These implications are summarized below:

<table>
<thead>
<tr>
<th>FILE ORGANIZATION—ACCESS (READ/WRITE OR BOTH) RANKINGS FROM 1 THROUGH 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease of use</td>
</tr>
<tr>
<td>Random...</td>
</tr>
<tr>
<td>Block random/serial without block...</td>
</tr>
<tr>
<td>Hierarchical...</td>
</tr>
</tbody>
</table>

| Cost | G | T | D | C | D |
|---|
| Serial (with or without useful ordering of data)... | 1 | 1 | 4 | 1 | 1 |
| Random... | 1 | 4 | 1 | 1 |
| Block random/serial without block... | 3 | 3 | 2 | 2 | 3 |
| Hierarchical... | 2 | 2 | 1 | 4 |

1 The organization of files of information affects whether or not each item must be examined in order in a serial file or whether one can get directly to the information in a random file, or some compromise between the extremes of serial access and random access, identified here as hierarchical. These implications are summarized below:


1 Not available.

There are several other important aspects which will be mentioned briefly. One is the question of security of the information, that is, the control of access for reading or writing of information, or both. This in turn depends upon such factors as (1) mode and number of
of users, (2) file organization, (3) use of removable or non-removable storage, (4) media (digital, analog), graphical, pictorial, audio, and (5) back-up need in case of machine failures.

Other cost factors that need to be taken into account include the number and types of data channels for getting information between various types of storage. They play an important role in determining costs. However, the amount of channel use is usually inversely related to the amount of available computer memory for a specific user's task. Cost of access involves not only channel cost and cost per bit per time interval of storage, but such factors as central processor time, memory size needed, safety/reliability factors, and software cost for level of performance. The cost of handling intellectual information. Also, it is determined on the relative size of main memory and auxiliary memory.

This is reflected both in CPU utilization and channel utilization as well as programming complexity.

In summary, the economical use of computers appears to require a number of users and a number of different applications. This type of environment raises many legal questions of access and protection; such as—what can be stored about individuals. The cost aspects include a psychological factor—what is really needed on demand. (Information from poison centers, yes, but prior election results?)

I do not have a simple solution to a complex problem. I have tried to indicate why the determination of costs are complex and why computers today cannot pose a real threat to the publishers or authors. It is my hope that multi-media information systems will be encouraged by the establishment of permisive and flexible legislation which is adaptable and which recognizes the need to encourage research and education.

REFERENCES
A. On Cost of Storage:
1. David C. Evans, Scientific American, September 1966, especially page 82.
3. Legal and Educational Implications of Proposed Legislation. See May 1967 issue of Communications of the ACM.
5. A. G. Oettinger, pp. 315–317
The problems which have been etched into stark visibility by the reaction between the application of a proposed revision of the copyright law and the growth patterns of data processing arise from the fact that modern technology has dissolved the tie that once inseparably bound information to its more or less perishable carrier. Three circumstances arising therefrom stand as a threat to further growth of the publishing industry in the non-entertainment field:

1. Unlimited parallel access to works.
2. The durability of modern information carriers.
3. The ease of information entry into a new carrier.

In the past, the book on the library shelf was the broadest access interface to a published work. But suppose 5,000 people want to consult a book. Of course, if they can't all get even into a single library room, and if they were there, they couldn't look at the book for even a short time, because it was only available in line and consulted the book one by one, the book would be worn out long before it reached the last reader. So the simple physical problems of indivisibility, access in a reasonable time and the attrition of wear fixed the size of the initial and replacement market.

Modern communication technology can readily bring 5,000 wire channels to the library, make individual pages available to one or many readers, each at his own pace, and the information carrier serving the purpose of the book will be as sound at the end of 5,000 consultations as at the beginning. In the era preceding the flowering of this new technology, the publisher sold paper, glue and binder thread with value added only through the affixed intelligence in a process requiring such a large initial capital investment as to make any attempt at reproduction of a substantial portion of the individual work uneconomic to the small scale user. Reproduction with systems requiring small start-up investment, such as photostating at from 20¢ to 50¢ per page would bring the cost of a 500 page book to $9. Considering the cost of time and acquisition, even the reproduction of an entire book is not unreasonable.

There are further facts, however, which bear consideration, growing out of the nature of the work and the nature of its use. In this aspect, works may be regarded as members of the following classes representing the predominant mode of utilization:

1. The invariable integral work
2. The divisible work
3. The entry divisible work

The entertainment oriented work, such as the novel or play, represents a good example of the indivisible work. Reading such a work, the reader follows the characters and the denouement. In the event of reproduction, there would be either full production or no reproduction, so that the hurdle is at its highest, being the total page count multiplied by the per page reproduction cost. Furthermore, access at the moment of desire is not essential. A day, or even several days, of delay can be tolerated. The amount of the work to be reproduced re-bound re-course to the book-shop, library or publisher is practical. The Reproduction Impediment is not a maximum. As a rough measure of this Reproduction Impediment (R), we might take:

\[ R = \frac{n \times c \times v}{t} \]

\[ n = \text{page count of portion of work needed (here, the entire work)} \]
\[ c = \text{reproduction cost per page} \]
\[ t = \text{permitted access waiting time} \]
\[ v = \text{value lost using existing time} \]

Economical and reference works, such as encyclopedias, and scientific journals are good examples of the sector divisible work. Here, any portion of interest might be from 1% to 10%, and the acceptable access waiting time becomes from several hours to a day. This is the type of activity in which the immediate relevance is so primary as to make waiting as an orderly, but not particularly brisk pace, and not rigidly linked to the completion of a function in real time or within a closely interlinked general time-frame, involving the actions of many others as conditions precedent or conditions subsequent. Thus, the Reproduction Impediment to be encountered in the reproduction of an entire book, is not a maximum, but might be 1% and 10% of that in the case of the integral work.

Lastly, there is the directly operational work, such as compilations of tables, addresses, or other look-up activities followed by immediate utilization, all of the above the representative of the class of entry divisible works. As examples, we might have the typist, addressing an order, or the computer, human or machine, forming a complete sentence from a string of characters and the denouement.

The amount of the work to be reproduced lies at a cost of $0.001 to $0.0025 per page, and the value of access waiting time is very high.

All these combine to reduce the Reproduction Impediment to, perhaps, 0.001% of that for the integral work. Here there is almost instinctive and immediate resort to reproduction.

It is evident that none of the above classes is or can be sharply defined. Indeed, in a given environment at a given time a work may serve in one capacity or another, and the works themselves may center in different regions of this spectrum of major characteristics.

The foregoing has expressed, in somewhat abstruse terms, the problems of time and availability. It comes more clearly into focus when we consider the probable magnitude of the portions of information embraced in 5 or 10 pages of a reference work, (on which he may wish to enter supplemental notes relevant to his individual project). His buy-or-copy decision is made after an unconscious comparison of the relative merits of availability in ½ h. to 11/2 h. to 20 h. to 200 h.

Beyond this, technology has advanced even further along three different, but mutually cooperative lines: the achievement of tremendous density of information entry on the gross carriers, bringing reproduction costs of the reduced copy down to less than $0.10 per 100 pages of $0.01 per page, at the same time permitting the accumulation of very large data stores in volumes of modest proportion; the ready availability of a medium of information to either single-use or reusable carriers in which the incremental cost of the equipment required to make entries over that required for the perception or reproduction of entries in reconstituted size is negligible; and, thirdly, the complete indefatigability of the reproduction of a reference or technical author or editorial group as at present becomes an unworkable algorithm unless shielded from the impact of alternative solutions.

One must further take account of the burgeoning expansion of the gross (although not, perhaps, the net) information store, exponentially manifesting the problem of retrieving relevant data, especially when new interdisciplinary linkages are involved. The dynamics of such a situation make it inevitable that the prevailing at the time of, and governing, storage, will be different from those existing at the time of, and governing, now-novel retrieval. Only at least a modicum of intelligent, now within the grasp of machine achievement can extend the powers of man in penetrating this luxuriating jungle of raw data.

It is fundamental in examining reactions, be they chemical, social or intellectual, that the greater the surface of the interface through which the reacting agencies can act, the more rapid the reaction, hence the need for burning of liquid gasoline in contrast to its explosive combustion when dispersed as vapor.

One of the principal objectives should be to achieve the broadest possible interaction area between the minds, the problems, and the data, and to settle within the social structure with a time of availability so short that the data purchase will require an account and project number that he may not have at hand. The nature of his decision is almost fore-ordained.

It is evident that none of the above classes is or can be sharply defined. Indeed, in a given environment at a given time a work may serve in one capacity or another, and the works themselves may center in different regions of this spectrum of major characteristics.
resulting from the query generated by a nascent thought is available within a time interval so short that the query generated response influences the development and formation of that nascent thought before it has attained that level of fixation requiring further work to dissolve and reshape its fixed structure. For this, it is submitted that the ephemeral, a real time display has the essential attributes of communication as an agency of the mind-problem-data interaction, not at the same time creating permanent reference works for the more thoughtful, contemplative processes. Freedom of the ephemeral display would thus seem the recommended avenue of compromise between the progressive social need and the legitimate claims of publisher and author. Under the foregoing view, introduction of a work into the data processing system would not be an action violating the constraint of the copyright law. Hard copy would presumably be desired only where more extended periods of study are demanded, and in this case, if the burden of preparing and sending or storing of the hard copy were acceptable, certainly, the further burden of the clearinghouse approach to compensation should be acceptable. The functional and rate structuring of the clearinghouse would necessarily be such as to accommodate the very real and different problems of widely different situations. It is hard to imagine that the same rates should be applicable in each of the following instances:
(a) Yesterday's newspaper.
(b) The current issue of an encyclopedia.
(c) An encyclopedia issue ten years old.
(d) An entry in a table of sines and cosines.

Two final, but fundamental points are worthy of the most careful consideration on the basis of the copyright law revision as now present in draft form. First, it has been tacitly accepted that until now, the copyright has not extended protection to the ideas themselves. According to the present proposal, the copyright owner has the exclusive right to make derivative works and copies. This includes all expressions in any tangible medium. A monopoly of this extent can scarcely be distinguished, save by the skilled theologian, from a monopoly on the ideas themselves. It is evident that some restraint is needed.

Until now, the copyright has not extended the power of monopoly to products deriving from the copyrighted work, that is, the home built from a set of copyrighted plans, the television receiver built from schematic diagrams appearing in a copyrighted manual. The new proposal, particularly in its definition of copies and derivative works runs to structures shaped by and thus embodying the information content of the copyrighted work. It is on this premise that one finds the assertion that the reading of a copyrighted work into a data processing system constitutes an infringement the claim being made that there is simply a translation into another medium or structure. The rationale, however, would extend the copyright monopoly to utilitarian products and thwart entirely the policy of free competition to which the nation has, thus far, been committed. For example, we now have machine tool controls capable of producing the most intricate objects from a series of numbers or other symbols, such sequence, according to the present draft of the copyright revision, being subject to copyright protection. Under the draft law, the product of such a machine tool, so controlled, is a copy, constituting an infringement, unless licensed by the copyright owner. Given such a product in commerce, however, a competitor could not offer competition effective in supplying the same thing by making a copy of the product, for this would be copyright infringement. According to the United States Supreme Court in the decision of Sears v. Stiffel, 376 US 225; and Compco v. Daybright, 376 US 234; the right to compete in this manner is firmly established, and it is submitted that it cannot and should not be eliminated as a secondary effect of any revision of the copyright law.

15
Ray Bradbury's Fahrenheit 451 describes a society in which books have been banned and firemen no longer put out fires. Trademark law is to burn books hidden away by the few lawbreakers who cling to antiquated customs. Bradbury's Chief Fireman explains the new society's philosophy of communication: "All knowledge and entertainment in the best Mullahmud tradition. One more note from the world of fiction, by way of Professor Commager's Saturday Review article "On the Way to 1984." Professor Commager reminds us that: "George Orwell's Oceania had a vast and efficient information agency; Its name was the Ministry of Truth; its purpose was to make every citizen of Oceania think the right thoughts. The past is whatever the records agree upon; It was in motion and it wrote, or rewrote, the records."

We are discussing permissions and payments for the use of books and other intellectual property in automated systems of communication. In other words, what kind of permission will be required, what type of consideration will be paid, with what storage and retrieval systems ingest the information and cultural output of our society, manipulate it and disseminate it by wire and satellite through display and hard-copy print-out to millions of users. Naturally, these questions concern authors. But I believe the new media poses questions of equally great concern to all of us, author and reader, who value independent, Intellectual and artistic creativity and freedom of expression, and who realize the importance of preserving institutions and procedures that permit that creativity and free expression to survive. What about books and authors who have in an automated, storage-and-retrieval system of communications? Is the Bradbury-Orwell nightmare just a nightmare? Is it unrealistic to be concerned that the technological explosion may threaten loss of individual creativity and freedom of expression? Or, as they so often have in the past, do the prophets of the novelists hold more than a glimmer of reality? I suggest that in seeking to identify the various computer-copyright problems and in considering solutions, we will be compelled to consider these dark premonitions.

What will be the dimensions of the automated systems? I borrow some quotations from Professor Julius J. Markes's "Copyright and Intellectual Property": "What will be the future, as it is visualized at MIT, the library will be the central facility of an information-transfer network that will extend throughout the academic community."

"We believe that the total library holdings of all of our 66 campuses (State University of New York) can one day be made available to every faculty and to every student on every campus (through the communications sciences)."

"You must imagine, at the eventual heart of things to come, linked or integrated systems of networks of computers, capable of accommodating man's entire storehouse of the accumulated knowledge and artistic and artistic production of past ages, and of taking into the store new intelligence of all sorts as produced. The systems will have a unique capacity for manipulating the store in useful ways, for selecting portions of it upon call and transmitting them at any distance, where they will be converted as desired to forms, directly or indirectly cognizable."

"Discussing the role of the "library" of the future, Professor Markes notes that "its collection remains intact because the computer, in essence, assumes the role of a duplicating factory for circulating library. One copy of a book fed into such a system can service all simultaneous demands for it; of course, this substitution for additional copies will vitally affect the public information society."

Dr. James Miller, in an article on EDUCOM (Science, October 28, 1986) points out that "the new computerized communications network EDUCOM is considering could disperse and disseminate information "throughout the country or the world."

"In considering the impact of the new media on authors and communication, and the possible arrangements for permissions and payments, it must be remembered that there are different and quite distinct categories of authors, books and readers. I believe that much of the confusion derives from the fact that some of the problem-solvers are trying to fit all of the bodies of literary and intellectual creativity onto the same sized (computerized) bed. This may make for a superficial neatness; but to allow a uniform fit, a lot of heads and feet would have to be cut off."

"One measure of the stress in the copyright-computer discussion has been the need for rapid transmission and manipulation of current scientific and technical information—a considerable portion of which is not even copyrighted. But the new computerized communications systems also will be able to accommodate novels, poetry, and history, sociology, economics and political commentary and criticism. And some of the proposed solutions for computer-copyright problems take no account of the distinctions between the various scientific, literature and artistic disciplines, or the social implications, and dangers, involved in attempting to deal in an undiscriminating manner with the problems of communication in these disparate areas."

I would like to mention one of the more intriguing consequences of automated systems, foreseen by Professor Markes. He says: "As to the authors' incentive to create, it is possible that computerized authors will make their own contracts with the authors and ask them to prepare their works specifically for the automated system, through the computer. Most of the materials will probably be developed through team effort, a method of researching and writing that will change the technological need to identify with his work and to promote his professional image."

"I am not suggesting that we destroy the I am not suggesting that we destroy the
computers, deny them access to literature and art, or turn back the tide of progress. But to recognize that new machines and technologies have great potential in themselves is not to suppose that the healthy and appetites must be satisfied, or satisfied in precisely the way their creators and managers demand. The gasoline engine was a marvelous invention, the epitome of progress. The automobile could go everywhere that roads could be built and roads built everywhere in the United States were built everywhere and the automobile went everywhere; and as a result cities strangled in traffic, were a huge bonanza from the point of view of those who made and sold them, and that would not be the case if all of us were not careful to preserve freedom of creation, communication and discussion.

Our experience with the automobile and other great technological developments, like the factory, the oil refinery and the jet plane, which have also polluted the air and water, ..ing us so that we recognize that progress does not always lie in allowing the machine to have its way and its untrammeled way; and that those who manufacture the machine are not the wisest judges of their best uses or after-effects. Books should go into computerized storage and retrieval systems; they should be communicated by national information grids. But in deciding what and how, on what terms and conditions, others should consider carefully all of the social consequences—not merely readiness of access, or cost-saving to the systems of communication there to be funded and knowledge to fully recognize all of the problems, no less to formulate final solutions, which is the reason why they are here. I urge the Senate Committee considering the Copyright Revision Bill, the appointment of a study panel to conduct an exploration in depth.

I believe that some of the potential problems can be foreseen. Foremost among these is the computer's impact on publishing institutions that now help insure freedom of expression, creativity, communication and discussion.

As Dr. Miller, Professor Marke, and other commentators have stated, the current management networks are likely to be national in scope. It seems obvious there will be centralization: not thousands of systems, but a hundred or a few, perhaps a very few, serving the entire country. This would pose for authors the obvious problems of how to get one's work before the public. The traditional royalty on the few copies purchased by the few systems (one copy serving the needs of an entire system—a few hundred or a few thousand users) would be meaningless. Obviously, new methods could only be developed if the Copyright Act continued to secure for the author the exclusive right to use his work by whatever means technology makes available—printing press, records, radio, television, or computer. Nor would new electronic methods of compensation, for this would not eliminate other serious problems that would arise if information transmission systems, operating under compulsory exceptions or compulsory license provisions, displaced or severely restricted the institutions of trade publishing.

Publishing does more than furnish the free lance author with an economic return for his labors. It also performs two of the functions that the Copyright Act was intended to protect: to secure for the author the excluelion rights over his work, and to hold the book before the public by advertisement, by review, by display in book stores, by making it available to the public. We must be careful not to destroy institutions of publication that would be developed if the Copyright Act continued to be an obstacle to the economic return of the author for his labors. It also performs two other functions: to publish books, Trade publishing has functioned in a few, perhaps a very few, serving the entire country. This would pose for authors the obvious problems of how to get one's work before the public. The traditional royalty on the few copies purchased by the few systems (one copy serving the needs of an entire system—a few hundred or a few thousand users) would be meaningless. Obviously, new methods could only be developed if the Copyright Act continued to secure for the author the exclusive right to use his work by whatever means technology makes available—printing press, records, radio, television, or computer. Nor would new electronic methods of compensation, for this would not eliminate other serious problems that would arise if information transmission systems, operating under compulsory exceptions or compulsory license provisions, displaced or severely restricted the institutions of trade publishing. The paperback book was also the result of a technological revolution in communication which made available information at lower cost and in lower price. The paperback book is a minor example is the view expressed by some advocates (including public employees) of computer networks that the Copyright Act itself should be revised, perhaps, if not to provide a right to use copyrighted works, or should not be put to the cost of acquiring copyrights. The cost of using copyrighted material will be a drop in the ocean compared to the billions to be spent on building, installing and operating the systems. Or, as one of the best known university libraries, none of the public servants or representatives of private industry (including computer manufacturers) who have an interest in the development of copyright law. If the protection of national information networks is vital to the public interest and freedom of expression, for creativity which are of far greater importance than anything else that may be done by the present Copyright Act or the Revision Bill.

A minor example is the view expressed by some advocates (including public employees) of computer networks that the Copyright Act itself should be revised, perhaps, if not to provide a right to use copyrighted works, or should not be put to the cost of acquiring copyrights. The cost of using copyrighted material will be a drop in the ocean compared to the billions to be spent on building, installing and operating the systems. Or, as one of the best known university libraries, none of the public servants or representatives of private industry (including computer manufacturers) who have an interest in the development of copyright law. If the protection of national information networks is vital to the public interest and freedom of expression, for creativity which are of far greater importance than anything else that may be done by the present Copyright Act or the Revision Bill.

And there are other problems also of vital concern to a society whose very existence depends on freedom of speech and expression; to the people who will control the information networks; who will be responsible for their operation? Obviously, technology is bringing into being one of the greatest changes and perhaps the most powerful of all public utilities. This one will not merely carry and sell
water or electricity. It will collect into itself, manipulate, transmit and sell the entire knowledge of our society. It seems evident that one of the paramount questions, which deserves prompt and thorough study, is how such a powerful instrumentality will be organized and controlled. But many who should be concerned by this problem seem to find it more comfortable to debate the far less significant question of whether this burgeoning giant should be free to appropriate the works of authors and publishers.

There is also the serious question of how access to the vast collections of knowledge in the large storage and retrieval systems will be assured to all who seek to use them, and to the smaller and less affluent systems that will try to compete with them. Here again, some of the computer-copyright debaters who purport to see copyright as a threat to access, carry on their arguments in the shadow of far greater threats to freedom of access to information.

The Copyright Act imposes only limited restrictions on use of the work an author creates, and no restrictions on the use of the ideas and information he sets forth in it. Moreover, once a book is published—an act which copyright encourages and is designed to encourage—all of the information and ideas it contains are placed before the public and are thereafter available for inspection, selection and use. And it can never be withdrawn by the author.

By contrast, unpublished material stored in a computerized information system, will never be available to the public—only to those who subscribe to the system; and then only on a piecemeal basis. It can never be inspected in full as can a published book. Moreover, the dissemination of information in a system can be controlled by its administrators and it can be withdrawn or suppressed. Far more urgent than any compulsory licensing plan allowing computers to make use of published copyrighted works, are safeguards assuring that other systems, publishers and the public will have access to undisclosed information locked into such information systems.

Indeed, as computerized information systems grow, they may increasingly displace the trade publisher as the employer or patron of authors who will do their writing for input into the storage system rather than book publication. In the end the great irony may be that unless the Copyright Act preserves the rights of authors and publishers vis-a-vis the "computer", we may yet evolve into a Bradburyian society, one without books—not because books are burned, but because it would be too uneconomical and risky to publish them. Without adequate copyright protection, it would be far more sensible, safe and profitable to deposit works of authorship directly into an information system, dole it out piecemeal, and never expose the whole of it (by publication) for copyright-exempt copying by other "computer" systems.

I doubt that this will give us the freedoms of creativity and speech, and the concomitant freedoms to read and to make independent enquiry, which are now made possible by the institutions of free-lance authorship and private publishing, institutions which exist by virtue of the protection granted works of authorship by the Copyright Act.
Permissions and Payments in Automated Systems

by Harold E. Wieren, National Education Association

INTRODUCTION

There are many points of issue which might be discussed in the context of this nature regarding education's concerns in the revision of the copyright law, but I want to zero in on what has become the most fundamental issue of all—the need for teachers and learners to be able to use the new educational technology in their teaching and learning. Because this also is the major issue being discussed at this conference, it is appropriate that I give most of my time to this aspect.

The only precise and specific provision in the new copyright bill that has to do with the newer educational media and technology (computers, dial access, information retrieval systems) is Section 110(2) (D). Other provisions apply because of their broad language but this particular section is the one which is most disturbing, annoying, and intolerable for education to live with in order to do its job.

THE CHANGING CHARACTER OF TEACHING AND ITS RELATION TO THE PROPOSED COPYRIGHT BILL

During the past several years there has been a perceptible change in the nature and character of teaching in the classrooms of America, and in the way materials of instruction are utilized. There is decreasing emphasis on the teaching of small groups and more on the teaching of small groups and the "individual child." Much of school work is on an individualized basis, and teachers want and need materials available for individual children whether presented by the teachers themselves or in a tutorial situation over a listening center or over an audio or video-retrieval system. Increasingly, there is a trend toward having the student take more and more responsibility for his own learning and toward the student instructing himself. No longer do we consider the teacher as the mediator of all learning. With the gigantic problems facing education today—with increasing enrollments and the explosion of knowledge—teaching is no longer a "stuffed" operation (a "teacher-instructing-the-pupils") but one of encouraging pupils, where students are provided an opportunity through use of materials to discover, make generalizations on their own, and to think critically. The growing emphasis today is on self-directed, unstructured learning activities, rather than "systematic, instructional teaching activities."1

Consequently, we in education are greatly concerned that Section 110(2) (D) rules out individualized and independent uses of materials. Dial or remote access, computer assisted instruction and language laboratories are only aspects of the broader topic of individualized instruction at all educational levels today. We must be equally (or even more) concerned with student uses of books and instructional materials that we are with teacher uses of instructional materials.

Record players and tape recorders with sets of earphones are becoming common in elementary, secondary, and college and university settings. Records are being moved to where the learners and equipment are, but rather the recorded messages are being moved to where the learners are. Often the rapidly growing developments are the audio-remote-access system, sometimes known as dial-access. A few video-remote-access systems have also appeared. The proposed Copyright Law makes use of such modern information delivery systems, for, although materials illegal in the transmission is controlled by students, rather than by the teacher, on the basis that use by individual students when they are moving away from the instruction, most instances no copying is done, and there is no substance whatsoever to the argument that this affects sales. In fact, the opposite is true. The provisions of S. 267 will require us to use horse-and-buggy methods of performance and display with new technological developments. Let me again put out that in most instances we are not talking about copying but merely the manner in which copyrighted material, which has been purchased for the purpose of being performed or displayed, can be performed or displayed in the process of teaching and learning.

EDUCATION'S NEEDS

The needs of education are summarized in the following statements:

1. That's the new copyright law support, rather than thwart, the use of the new technology in the schools.
2. That we not freeze the new technology before we have the opportunity to know what patterns of uses will evolve eventually, particularly in the area of computer uses.
3. That we not make decisions or clearances for purchase of copyrighted material on the basis that use by individual students substitutes for purchase of the material.
4. That the doctrine of fair use be extended to computer uses by educational institutions.
5. That the "not for profit" principle be applied to the computer output of educational institution.
6. That teachers who innocently infringe should not be subject to copyright proceedings.
A Code for The Unique Identification of Recorded Knowledge and Information

by Howard J. Hilton, Pennsylvania State University

A universal code for the identification of recorded knowledge and information can perform an essential function both in new and established systems for the storage and retrieval of information and in the traditional field of library science. The problems presented by the flood of publications and the cost of providing essential information to those who need a solution which will

1. eliminate delay, uncertainty, and frustration encountered by librarians, organizations, and individuals in obtaining material cited in books, periodicals, bibliographies or in indexes of various types;
2. reduce costs to libraries and information services for storage, indexing, handling, reproduction and distribution of books, journals, and reports;
3. provide adequate compensation to those engaged in the production and distribution of works, providing knowledge and information;
4. establish a means of identifying knowledge and information designed to promote compatibility among automatic data processing and other types of information systems for exchanging information throughout the world; and
5. support the efforts of libraries, educational institutions, professional societies, government, business, research organizations, and individuals seeking specific items of knowledge and information by providing the means for improved indexing, citation, storage and retrieval of recorded knowledge and information.

Although knowledge and information are synonymous to the extent that material in one is identical to material in another, neither is all inclusive. Knowledge covers the realm of ideas and implies originalр, whereas information may be reduced to the spectrum of single, isolated facts but also includes reports, data, or pictures such as astronomical observations. Information can be anything that provides a clue to man's behavior such as notes, letters, records, and even fingerprints that help to describe the physical and social environment. Together these terms include everything which can be reduced to a written or pictorial record.

If a code is to contribute to the solution of problems created by the increasing complexity of society and the resulting information explosion, it must do more than uniquely identify recorded knowledge and information. It must identify...individuals and organizations having right to compensation for reproduction of material and for its use in information storage and retrieval systems.

In addition it should provide information about the material which would help researchers decide from the identification number alone, whether it is ordered for personal use. This is important in a retrieval system that may produce citations in the thousands in response to a given query. The additional information is helpful to librarians in organizing and searching material to meet special needs.

The code number should be universally accepted and administered by an international public.

A universal code number facilitates this by permitting computers in different countries to identify and communicate with each other and also provide the researcher with a means of performing a query of much of the time and effort now spent in locating material that can be devoted to improving the quality and increasing the contribution of research. Imagine, for example, the problem of locating the citations under present research conditions of such works as The State of the Library Art edited by Ralph Shaw, Schumpeter's History of Economic Analysis, or D'Arey Thompson's book On Growth and Form. With code number citations and the availability of microfiche in a central file such material could be at hand for research in any part of the globe. A code number citation is a help to authors as well as those interested in following an author's thought or conclusions. More writers hate the thought of spending time to the obvious, and references to well-known journals, and those not so well known, fall into this category. As a result the different abbreviations used for periodicals would be eliminated by the reader.

The use of microfiche would also facilitate the checking of quotations and would assure the accuracy of citations at the time of publication.

With this system national and international exchange and use of information would be greatly facilitated. The code number by itself, would improve the use of material and greater efficiency derived from new information systems, the microfiche can be expected to be multiplied by many orders of magnitude.

There are three important aspects to copyright: the moral rights of the author to protect his name and reputation and the political interests of the member states. At the same time, the revenue from the sale of microfiche and from the fees collected by the national libraries for the use of microfiche. A portion of the fees collected would be paid to the publisher or copyright holder. The microfiche would carry the holder's number.

With this national and international system for exchanging and use of information, the researcher requesting a number of citations in an article would only have to wait a few moments at a reader desk while the numbers of the citations are tapped out on a keyboard of a microfiche storage console.

The microfiche instantly appear, or the machine automatically orders those that are not in the collection. The researcher looks at the microfiche, selects, and copies those desired for further study and makes an addition to his own collection. The machine which copies the microfiche automatically records the code number for each tape, on a tape.

When it is full, the tape is taken to the computer service center where the entries are correlated. The computer draws checks in favor of publishers indicating on each check the number of microfiche reproduced for each author. The library receives one bill for reproduction by the central computer or the microfiche reproducing machines are paid by the visitors to the library, then there is no charge to the library account.

The code number serves as a short citation, an accounting device, a Wink 'number for in-

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mon language permitting computers in different countries to identify and to communicate with each other and also provide the researcher with a means of performing a query of much of the time and effort now spent in locating material that can be devoted to improving the quality and increasing the contribution of research. Imagine, for example, the problem of locating the citations under present research conditions of such works as The State of the Library Art edited by Ralph Shaw, Schumpeter's History of Economic Analysis, or D'Arey Thompson's book On Growth and Form.
permitting the development of accounting techniques that impose the minimum requirements on users and providers of accounting services for the compensation due publishers and authors.

Because a universal code uniquely identifies all knowledge and information in accordance with certain principles, it can be used as a means of ordering both large and small collections. This is particularly true if the material is reduced to microfiche meeting accepted international standards. The use of such microfiche identified by a universal code would be of immense value to libraries.

It would greatly reduce the proportion of the total expenditure of libraries and information services devoted to the administrative costs of acquisition, shelving, storage, handling, reproduction, and distribution of the knowledge and information contained in books, journals, and reports. By providing book numbers as well as microfiche numbers, a universal code would reduce the costs of ordering and following up on new material in form of hard copy. With the availability of microfiche, the costs of locating and obtaining out-of-print material would be replaced by the much lower costs of ordering microfiche. Since all microfiche would be identified by the universal code, the cataloging costs would be largely eliminated. The shelving, storage, handling, and reproduction costs of microfiche is much less than for books.

Circulation would be replaced to a considerable extent by the copying of microfiche by library users. The low cost of microfiche and the elimination of the home or office storage problem would encourage readers to add to their own collection anything that they felt worth reading. The code number would provide both libraries and readers with different fields of information by which the microfiche could be filed. The reduction of administrative costs and of personnel required to collect and shelve books would permit libraries to devote more time and effort to their primary function of searching and organizing material to meet the specific needs of their clientele.

With a universal code number, which publishing companies could in most cases assign, changes could be introduced into the production and distribution of knowledge and information that would tap additional sources of revenue for authors and publishers. The code number on each page of a book or magazine, publishers could improve permissions procedures and arrangements for compensation for reproduction of hard copy. Companies which set type by tape could sell copies of the tape to information services and receive continuing return according to the frequency of reference and use of the material in an information system. Publishers can include microfiche copies of their books and periodicals as part of the original sale to libraries and information services and receive reimbursement for copies made.

While making material more readily available for research, a universal code and accounting system could be used to help select the wheat from the chaff. The search techniques for achieving this are under constant study, but the lack of comparability in identifying the material in the data base of different systems complicates the task. Not only would the code introduce uniformity in identifying the material in the data base, but it would also provide a wealth of material of high frequency of use, in what locations, and in some cases the search path leading to use. The universal code suggested in this study is designed to organize and to identify material, so computers, as well as humans, can reduce the margin for error in identifying specific items of knowledge and information.

The HUC, as it is termed here to distinguish it from other possible codes, is structured to provide a maximum of information in a minimum number of alpha-numeral characters. It is designed to assure that, given a source number and a coding manual, different persons throughout the world would assign the same number to an identical document. Since most material would have a source number, the HUC number could be readily applied, either by the source or a publisher, to documents and publications without the time consuming requirement of a central source query.

The HUC is a compressible code. It is divided into two parts. The first part, they say, can identify 12 fields of information. The first part, consisting of the first 5 fields, serves, in most cases, to provide unique identification of a work or item of information. The exceptional cases are sources with large daily output. The second provides supplementary useful information such as subject classification, language, document or patent numbers, copyright status, person or organization to whom copyright fees should be paid, distribution status and other items of information. The HUC in its entirety comprises 35 characters, but it is a variable length code which, under present circumstances would never use all characters available. Some of the characters are a reserve which cover possibilities up to the next couple of centuries. In most cases the citation or identification number would consist of 12 to 18 characters.

The 12 fields of the code are as follows:

1. Type of material—1 digit.
2. Source—5 letters and 6 digits.
3. Year and date, by month and day, or edition—4 letters.
4. Form and availability of material from publisher—1 digit.
5. Unit identification number, microfiche, etc.—3 letters.
6. Copyright status or security classification—1 digit.
7. Publisher or payee—3 letters and 2 digits.
8. Original language or by major group—1 letter.
9. Translated language, if any—1 letter.
10. Status of material (revised, amendment, reprint)—1 digit.
11. Subject or document identification code number—1 digit.
12. Subject classification or document numbers—3 letters and 4 digits.

The HUC number actually used to identify a specific work or item of information would range from a minimum of 8 characters to a theoretical maximum of 35. The flexibility of the code is achieved by alternating letters and digits, so that computers can be programmed to search by the location of letters or digits in the code. The variable length of the code is an important consideration when code numbers up to the billions have to be recorded and when daily citations and references are taken into account.

The letters are supplemented by 9 symbols, asterisk, dagger, double dagger, section, parallels, paragraph, and capital delta, sigma, and omega. These are used to provide a single character for the days of the month, for the additional letters required to transliterate Cyrillic and other alphabets, and for double letter equivalents from 0 to 999. The equivalent of these symbols in the American Standard Code for Information Interchange (ASCII) would be as follows:

* = asterisk
( = dagger
( = double dagger
% = section
I = parallels
? = paragraph
@ = capital delta
( = capital sigma
1 = capital omega

The equivalent values of the letters and symbols to numbers up to 1,000 and to the characters in the Cyrillic alphabet are given in Appendix A. The use of a letter for each day of the month greatly increases the efficiency of the third field of the code. The possibility of using a single letter to equate to numerals from 0 to 999 means that the twelfth field of the code can carry the Universal Decimal Classification or the Dewey Decimal to four decimal places and can identify individually up to 10 million documents in a single series.

(Notes—The above extract constitutes the first six pages of the completed document as described in the Bibliography.)
The Publishers’ Rumplestiltskin:
Copyright Revision

by Kirby B. Westheimer, Learning Development Corporation

During the time that John F. Kennedy was still the junior Senator from Massachusetts, he was riding one day on the New York Central Railroad. The conductor came by and asked for his ticket. Kennedy foraged through his pockets and briefcase, but unfortunately, Moments turned to minutes, and the passenger conductor began to wonder if he did not recognize his attractive young passenger. Finally, the conductor suggested, “Senator Kennedy, there’s no need for you to worry, sir. If you can’t find your ticket, we’ll trust you to mail us the money later.”

It was with some chagrin that the young Kennedy looked up at the conductor and said, “The problem, dear man, is not where is my ticket. The problem is, where am I going?”

This is also the basic problem of the publishers in the Sixties—what direction to take?

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right clearing house should do and how it should be done.

Unfortunately, a clearing house has been envisioned as solving most, if not all, copyright dilemmas with a single solution. As has been pointed out, there is no one copyright problem. There are many distinct problems, and the clearing house is a generally recognized solution to permission and payment systems. Publishers can solve many of their problems independently. For a clearing system to be successful, they must cooperate.

Experienced publishers know that there is no easy way to establish a copyright clearing house. Had the intense and intelligent discussions to date about clearing houses approached the subject at a business rather than a confederation of interests, progress might have been made by now. A copyright clearing house must be a business for the profit of authors and publishers. If it is not conceived of as such, it will fail before it has ever been born. And this is exactly what has happened.

No single publisher, with the possible exception of the few giants of the field, could afford to support an effective clearing house alone. In fact, because significant trial litigations will quite probably be necessary to establish the right of the clearing house to license and the obligation of copyright users to pay licensing fees, no single publisher would want to bring his name to the clearing house. Single publisher wants to lose his markets in the hopes of saving them. Yet, a clearing house is clearly a necessity for many publishers whose markets are threatened by the easy access of the new republishing technologies.

There are four requisites to establish a clearing house to license the use of copyright materials in computers, information storage and retrieval systems, microcassettes and photocopying machines:

1. The cooperation and support of a significant number of publishers who grant the clearing house non-exclusive rights to represent them in licensing for the uses cited above.
2. A realistic attitude toward the length of time and investment required to establish the clearing house and make it profitable.
3. Outstanding legal guidance to work within the structure of the law, establish the legal position of the clearing house, and prosecute violators of the various licensing systems.
4. A plan of action to make the clearing house effective and profitable.

A cooperation and support of a significant number of publishers is essential. A copyright clearing house can become reality only when publishers allow the clearing house to represent them on a non-exclusive basis. It is also imperative that the clearing house be organized, not as a committee, investigating group, government agency or trade association. It must be organized as a business for the benefit of the publishers, who deposit their copyrights as a part of the initial capitalization. The balance of the capitalization would take the form of a cash investment to be regarded as the publisher’s advance against license fees.

A realistic attitude toward the length of time and investment required to establish a profitable copyright clearing house must be taken for granted. The first two to four years of operations may turn no profit at all because expenses of collection may equal or exceed total licensing fees. Yet, without these two to four years, there will never be a profit because no licensing system will have been established. The return on investment will be substantial because of the fixed nature of the investment and the practically limitless use of the materials, we would permit unlimited use of copyrighted materials within and between school districts. Usage would be monitored and fees collected according to actual use on a per-student basis. Sampling techniques would be used to determine the value of the various samples and fees based on the results.

Legal guidance for the clearing house has already been offered by the copyright attorneys, so it appears that a plan of action is all that is needed.

We believe that a blanket licensing system for an ever-expanding catalog of copyrighted materials provides a practical solution for most works of most publishers. Considering the textbook publishers and their academic markets, we would permit unlimited use of copyrighted materials within and between school districts. Usage would be monitored and fees collected according to actual use on a per-student basis. Sampling techniques would be used to determine the value of the various samples and fees based on the results.

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Summary and Analysis

by Lowell H. Hatter and George P. Bush, The American University

The purpose of this chapter is threefold: 1. To comment briefly on papers presented at the symposium. 2. To summarize symposium discussion based on editors' notes and on materials furnished by symposium members during or subsequent to the symposium. 3. To offer analysis preliminary to editors' conclusions and recommendations.

Commentary on Papers Presented

The papers in most cases represented highly condensed statements of complex solenida. Only selected highlights are reported here.

After a review of legislative history of copyright law and related technology by Barbara A. Ringer, the state-of-the-art of electronic copyright systems relevant to copyright law matters was reported by Mervin Muller. Dr. Muller emphasized limitations of computer systems for storage and retrieval of "intellectual information." He believes that such equipment faces the next generation of unreliable, impractical and uneconomical "bulk storage." This does not belittle the usefulness of computers for text manipulation. George Elgitrof applied concepts of systems analysis to the problems of copyright and changing technology.

Communication technology was reviewed by James F. Holmes. Microform storage and automatic retrieval of film was reported by A. Kenneth Shorpe. He described the film technology which permits 300 x 1 linear reduction with the capacity of 6000 pages of 12" x 15" text in a 4" x 5" microfiche which can be searched by an electronic retrieval system. The technology and economics of high density film and other microform storage including videotapes seem to have special significance for the copyright problem.

Julius Marko deduced the probability of changing patterns of research due to the "information explosion and new technology." He stated, "Not only will collaboration become characteristic of intellectual research, but in all probability there will be a greater dependence on the artifacts spawned out by computer programs." Professor Marko foresees the search for and retrieval of information rather than documents. "Inasmuch as it appears to me that in the future information retrieval will be the point of departure in automated systems, rather than document retrieval, especially as the rate of obsolescence of information becomes more rapid, it is my thought that sophisticated and complicated information programs fed into computers, the technology will dominate the research world. Such programs in turn will be extravagantly employed to develop and create new information systems."

Statutory licensing systems providing pricing structures whereby copyright owners may compete for patronage were discussed by Norton Goodwin. Some elements of a clearinghouse were presented by Kirby Westheimer. Howard Hilton suggested a universal document identification system and described a model system. He pointed out the great need for a code which would identify documents of various kinds, worldwide, and for a period to the year 2560. He explained the resolving of copyright problems in the area of permissions and payments. These specifics for such identification are stated.


Judge Goodwin attempted to classify "the only wide world with which one bears familiar are the Dewey Decimal System, the Library of Congress system, and Universal Decimal Classification (UDC) used in Europe especially. In contrast to these and other classification systems, the Hilton proposal (HITp) is a code identification which uniquely designates each individual item and which incorporates, within itself a large number of choices for systems, thus facilitating its introduction and usefulness."

Norton Goodwin has offered a numerical document identification system for control and accounting purposes which has the quality of uniqueness and simplicity. It does not depend on the complexity and unavailability of microfiche. It is a system of active identification elements. The system is described in his statement before the Senate Subcommittee in April 1967. Mr. Goodwin also discussed the design characteristics of such a system at the American University Institute on Management of Automation in Printing and Publishing in January 1967.

In drafting an automation-oriented statute, Professor Marko proposed he must be preplanned to use operational instructions can be executed on the computer. Julius Marko points out that a code identification number is one which uniquely designates each individual item and which incorporates within itself a large number of choices for systems. Similarly, the format for the identification must be specified with such a code identification number. For example, in drafting an automation-oriented statute, Professor Marko proposed that: (1) A code for identifying the copyowner should be given. To be efficient, the format must recognize that payee and expiration date are part of, and constitute, a public policy concerning new technologies for storing and accessing the contents of published documents. For the full paper see U.S. Senate. Hearings before the Subcommittee on Patents, Trademarks, and Copyrights of the Committee on the Judiciary, 90th Congress, 1st Session. Pursuant to S. Res. 57 on S. 597. Part 3, April 6, 11, and 12, 1967. Washington, D.C.: U.S. Government Printing Office, 1967. pp. 787 ff.

1. Ibid., p. 746.
2. Ibid., p. 760-765.
3. Ibid., p. 762.
computer input, and is against the proposals to base royalties on use of copies rather than on sale.

Dr. Counsel reports that the American Library Association supports the proposal for a National Commission. The Association, however, adopted a resolution calling for a copyright recommendtion bill be amended to provide that such of its terms as relate to any copyright usage under study by the Commission shall not become effective until the Commission has made its reports and the recommendations contained therein have been acted upon.

Arthur J. Greenbaum argued for copyright protection against conversion into machine-readable form. He maintained that such a bill would be effective only, but many of its terms or referring to what they intended to cover.

Bella Linden outlined the requirements to protect the publishing industry in the application of the new information technology for creative, packaging and marketing functions. She endorsed the idea of a study commission, and presented the following statement of position:

1. The proposed copyright bill in no way changes the present law with respect to computerized uses of copyrighted material.
2. It is not yet known as to which terms 'programs,' 'input' and 'output' will encompass as computer technology develops. Therefore, it is advisable at this time to draft language which will leave ample leeway for future changes in terms referring to what they intend to cover.
3. At the present time there is no evidence whatsoever that publishers and authors' rights systems will not be able to negotiate and work out reasonable contractual arrangements.
4. It is not in the public interest to take away authors' and publishers' private property. This would lead to a generalized suppression of publishing. This is contrary to the cultural and economic good as well as political philosophy of the United States.

Irwin Karp pointed out the importance and creativity of the writer. He endorsed the idea of a Federal Study Commission, probably appointed by the Congress.

Harold Sffen reviewed trends in educational methods and the requirements he sees as necessary to the fulfillment of those methods. Among these he pointed out that a great deal of pedantry be removed. A participant cited an example: "An input into computers should be exempt from copyright."

Dr. Wigren reported further that the Ad Hoc Committee of Educational Organizations and Institutions on Copyright Law Revision proposes a statutory Federal Study Commission which would make recommendations in 8 to 6 years.

Dr. Wigren also said, "Some type of statutory procedure is urgently needed to keep the definitions of the copyright questions under the control of the computer."

Although no one spoke specifically for journal publishers, one panel member, the President of the American Chemical Society, Charles G. Overberger, to Senator John L. McClellan (the ACS public libraries 18 Journal of Chemical Abstracts). The statement expressed concern that the unauthorized use of materials under an increasingly liberal interpretation of copyright law may impinge on our ability to generate, publish and disseminate such scientific information in the future. Some steps need to be taken to reorient either the learning process or the use of technological developments and equipment needed to improve the exchange of literature..."
but he cannot perform the play commercially unless the copyright proprietor's consent is obtained and perhaps a considerable royalty paid." He concluded, "In short, use of a copyrighted work in a computer program contributes a different and higher quality of use which cannot be equated with a single or multiple use of a single work in print form."

Manifestly, pricing has been solved in past years by bargaining in the market place. The advancements in technology, it was argued, would not greatly affect pricing practices in the publishing field. On the other hand, the pricing practices might greatly affect the payments practices.

It was noted that Chemical Abstracts, Inc. had considerable success with standardized contracts. The system leases microfilm and tape replicas, and varies the price based upon the number of users at any given facility. The annual subscription price for computer tape data consisting of a file of abstracts is $1,300, plus $50 for each tape 25 or fewer calculate. (The abstract service also provides a computer program and documentation for file searching.)

This latter practice evoked a comment that the public interest must be reflected in the pricing structure. For example, students in the law schools. The warehouses of a clearinghouse would be substantial. Few copyright owners would, on the other hand, like to see a school teach a course. Library, copyright owners may not prevent interlibrary loans from infringing, and the procedures for securing payment under Sec. 1406(b) of Title 28 is cumbersome. Some have pointed out that to be efficient, the system must perform the duties of the Register of Copyrights, Selection of these duties is the problem of the New York State system, which to date has functioned for many years. The reliability of a computer in any system of pricing payments either now or in the future was questioned. It was pointed out that such reliability depends upon the soundness with which such a system is designed and controlled. The reliability of a computer in any system of payments either now or in the future was questioned. It was pointed out that such reliability depends upon the soundness with which such a system is designed and controlled.

Discussions turned from larger producers and users of copyrighted materials to individual users—a shut-in child, for example. We are moving in the direction of little-long, for example, the application not only to schools but to home use via telephone circuitry. In both cases pricing can be based upon use because the computer users are not in an inter-library loan or its equivalent.

It was suggested by a publisher representative that there should be willingness on the part of users to bid down costs or authors to negotiate a fee system for any one specific use.

Pricing in the future will be further affected by the newer technology and its applications; for example, the application not only to computers but to home use and the like. In both cases pricing can be based upon use because the computer users are not in an inter-library loan or its equivalent.

Another element in the problem of fixed prices is the difference in costs of developing and marketing different forms of publications. One report noted the difficulties of producing a clearhouse operation, which might uniformly exercise a monopoly control. There are variations in which a clearhouse could violate U.S. antitrust law. This principle is a limited monopoly as is a patent. In the previously mentioned mergers between publishers, one can see the possibilities for problems due to refused access to intellectual property, or in the event a special treatment of preferred customers.

Another participant described the economics of pricing, particularly differential pricing based on quantity or any other factor. The same approach applied to a clearinghouse operation, which might uniformly exercise a monopoly control. There are variations in which a clearhouse could violate U.S. antitrust law. This principle is a limited monopoly as is a patent. In the previously mentioned mergers between publishers, one can see the possibilities for problems due to refused access to intellectual property, or in the event a special treatment of preferred customers.

A more specific suggestion was offered for the creation of a national study commission funded by Congress; its membership should comprise persons from Congress, the Department of Justice, the publishing community, authors' interests, educators, librarians and other user groups. The congressional report would be to the Register of Copyrights. Selection of these commission members would be delegated to whatever branch of the Government. The report would be to the Congress. A voluntary committee would be established by the Congress. Previous mention has been made of the (CIOP) Committee to Investigate Copyright Problems. This unit is sponsored by the House and the Senate which were considering Copyright revision legislation.

The discussions of economics and pricing lead to a consideration of the desirability of copyright clearinghouses to administer permissions and payments for the use of copyrighted materials. Although the ideas of a clearhouse had been considered for years, some persons present had vague notions as to what functions it should have and which duties should occupy it in the administrative hierarchy. Views ranged along a continuum from "do nothing" as one extreme to, "transfer the Copyright Office to the Executive Branch and give it regulatory powers somewhat similar to the Patent Office." Another extreme was the creation of a clearinghouse through a federal agency. The Congress would be the only body to which this concept would be transferred. The Congress would be the only body to which this concept would be transferred. There were comments regarding analogies such as the analogy of the submission of forms, Authors and Publishers, 1914, and (BMI) Book Manufacturers Institute, 1932, which would be industry-controlled regulations, but no system of bodies which had functioned for many years. It was pointed out that the analogy to the
remarked that attorneys who practiced in copyright cases also frequently served in patent and trademark cases.

Reflecting the vested economics in the present media, there were those who wanted a clearinghouse control to be in the hands of the copyright proprietors but others preferred user control. Some preferred a combination of both. Still others advocated participation and control by members of the public. Beyond the differences of opinion as to control the discussion touched on the threat of antitrust action, the just regulation of rates, and access to store—whether it is to be negotiable or compulsory.

Related issues were raised, such as individual licensing of permissions versus blanket licensing and the concomitant matter of payments; their basis, their measuring, their collection, etc. Also important to the discussion was the point of determining where accounting takes place: on input, on output, or perhaps both. This matter has been discussed under the topic Input and Output.

The organization of a clearinghouse system was discussed. Should it be located at one central point, or should it be sliced up one way or another with responsibility assigned to separate branches for music, pictures, science, education, CATV, etc. Another issue concerned the supplying of hard copies of enrolled works as a function of the clearinghouse. In this instance reference was made to the Clearinghouse for Federal Scientific and Technical Information at Springfield, Va., an agency of the Department of Commerce operated by the U.S. National Bureau of Standards.

Concern was expressed for the integrity of intellectual property. The question was raised but not answered.

Systems for numerical and alphaneumerical identification of documents were proposed by both Goodwin and Hilton, who argued that this was a core requirement in an efficient clearinghouse system. It was stated that the Union of Soviet Socialist Republics (U.S.S.R.) was sponsoring a standardized numbering system for suggested use in all of Europe.

A voluntary clearinghouse, in the opinion of a Justice Department official, raises difficult problems insofar as it eliminates competition between owners of copyrighted material to sell that material to the user. Such a system provides ready access to material and the convenience of bargaining with only one person, but it gives that one person the power to set a monopoly price. For that reason, if such a system is not specifically sanctioned by law, it is probably illegal under the antitrust laws.

The monopoly problem of a clearinghouse arrangement is mitigated to the extent that it is required to charge a reasonable royalty, as for example the ASCAP decree, which requires reasonable royalties to be set. It is difficult to determine what constitutes a reasonable royalty and there are further difficulties in collecting such fees.

SOMEONE FOR LEGISLATION AND STUDY

There were two schools of thought concerning priority of action. One school believes we should study first, then legislate. The preponderance of opinion seemed to favor action on the legislation pending before the Congress with simultaneous action to establish a study commission which might recommend further legislation at the completion of its work.

There is a concern about this procedure however, lest present restrictions on input into automated systems impede progress in research and education. At the same time, commercial producers of computer assisted instruction (CAI) tapes are concerned about immediate protection.

Some of the licensing which lies behind these two principal legislative options follows. For example, one participant preferred passage of the pending bill and stated: "My prediction is that the publishers will do an excellent job of handling the new technology and there will be no need to make any major revisions in the future. The publishers will not be able to sit back and do nothing (as predicted by some) because there will always be at least one publisher (or the fear that there will be one) in the vanguard and he will force the others as a matter of competitive necessity to find the best ways to utilize the computer and related new fangled devices. No publisher will want to concede the new technology to his competitors."

Another participant offered this comment: "I believe that the passage of the new law is the stronger, particularly in view of all the momentum that has built up. The study group is regarded in some quarters as a political requirement for accommodating dissidents and securing passage. The new familiar point of opposition persists, and any new law will not be totally welcomed." Early enactment is favored in the following comment:

"It is commonly believed that large-scale dissemination and use of data in memory banks is some years off. It is also generally agreed that educators, librarians, and equipment manufacturers should be free in the public interest to experiment with the possibilities inherent in electronic data processing. My suggestions are as follows:"

"(1) To enact the copyright bill into law, eliminating exemptions which, no matter how well intentioned, may have the effect of destroying certain sectors of private publishing;"

"(2) To encourage cooperative experimentation between publishers and interested organizations on an informal ad hoc basis in each of the various fields of publishing which are of mutual interest;"

"(3) . . . creation of an Advisory Council . . ."

**FIXED VERSUS EPHEMERAL IMAGE**

The status of an ephemeral image as a copy was mentioned but not discussed fully. It seems likely that this issue will receive adequate attention in the future as (a) retrieval systems emphasize the retrieval of selected passages rather than entire documents and (b) the use of displays is extended. One person commented: "The ephemeral, real-time display has the essential attributes of communication as an agency of the mind-body interaction, not at the same time creating permanent reference works for the more thoughtful, contemplative processes."
Conclusions and Recommendations

by Lowell H. Batten and George P. Bush, The American University

The sponsors of this symposium here offer their own conclusions. This is a time for needed action and for mutual understanding and conciliation of opposing viewpoints.

1. Current Legislation: The language of the Copyright Revision bill now pending does not provide for the right to make an end that no charge be made for these materials while they are in a computer or other machine use.

2. Economics and Pricing: Pricing should continue to be done in the market place. Contracts should continue as a convenient method of arriving at pricing agreements. Differential pricing should be encouraged and regulated, preferably through a clearinghouse, whose officers would include a member of the Department of Justice. The permutations and combinations in the problem of pricing will last a few years become so complex that the independent agency would do well, if established, to give high priority to this issue.

3. Moratorium: It has been proposed by some of the users of copyrightable materials that there be declared by the Congress a moratorium on certain uses of materials to the end that no charge be made for these materials while they are in a computer or other machine use.

4. The Ad Hoc Study Commission: In furtherance of Par. 3 above it is desirable to establish some form of an administrative body, preferably on a continuing basis. The Copyright Law as it now stands is based upon the Act of 1891, but has been amended in minor degrees since that date, a period of 59 years. It has been the thinking of many that a revision of the Copyright Law might remain essentially undisturbed for a future period of 20 years or more.

5. Such an assumption seems to be unjustified primarily because of the effects of technology and automation. Neither effect has been the subject of a study by the Register of Copyright or by the Congress.

In view of the foregoing it is concluded that amendments made at this time or in the future be deemed to be more transient than has been the case in the past.

We suggest that the Copyright Office be made an independent agency and expanded to include quasi-legislative, quasi-judicial and administrative powers.

Such agency should conduct continuing studies and suggest appropriate legislation to the appropriate Committees of the Congress.

6. The Independent agency proposal obviates the necessity for an ad hoc study commission.

7. Code for Unique Identification: Legislation for the revision of the Copyright Law should provide for the unique identification of a document in order (1) to facilitate access to the world's knowledge and (2) to facilitate the processing of permissions and payments for copyrighted materials. (For example see Professor Howard J. Hilbon's proposal in Chapter 9 and the editors' discussion in Chapter 11.)

In due course the code should be suggested for international adoption. Early adoption is desirable because it is preferable, all things considered, to have a code identification rather than a possibly less efficient system initiated elsewhere. It is desirable that an agreement be reached between east and west to accept the same coding system.

8. Input-Output: A dilemma exists regarding the issue of whether it is an infringement of copyrighted material to transcribe it for input into an electronic computer in machine-readable form or to print it out. There appears to be a conflict in securing socially desirable access through technology beyond control of either author or publisher—copyright owner. The problem goes far beyond the purview of a study commission. Fundamental questions of public policy are involved.

9. Fair Use: The concept of "fair use" is so difficult to define, control and adjudicate in a dynamically changing environment that it is not feasible to incorporate it into statute law.

Therefore, it should be assigned to the proposed independent agency referred to above for rule-making, administration and adjudication, responsive to changing needs, interests and technologies.

10. Microforms: The medium of microforms and associated technology has received less attention than computer systems. Nevertheless we foresee that for the next few years microimage systems will constitute a more severe problem. Hybrid systems, comprised of both computer and microfilm are already in operation and can be expected to proliferate after 1968.

11. Exclusive Rights: The sponsors' concept favors continued copyright protection in the form of exclusive rights. In our opinion such incentives best serve the long-run interests of both creators and users of intellectual property.

Finally, we are aware that many divergent interests require resolution, such as:

a. different technologies for storing and assessing the written and spoken word;

b. the psychology of learning;

c. the identification of intellectual property, its documentation, and permissions and payments for its different uses.

Resolution of all the foregoing will require a sense of balance; a sense of trade-offs; an understanding of what is both technically and politically feasible; an awareness of the actual cost to society of furnishing access to knowledge in traditional imprint documents; all this in the interests of a free society.
Selected Bibliography
(Note on the Bibliography: The bibliography is included to provide additional background and guidance. The endeavor has been made to provide the interested reader with optimum information sources, covering much of the broad spectrum of the subject. The reference is followed in most cases by a brief commentary, frequently a quoted paragraph or sentence from the text or editor's commentary. Most of the items cited are dated in 1966 and 1967.)


The application of computers to library operations is discussed in broad terms; the need to stay in business during conversion; the demonstration in advance of the economic advantages of conversion; the difficulty of proving in advance that conversion will meet real user needs; and solving standardization and compatibility problems to use one another’s services.


Includes such topics as keyboard design, input equipment, editing systems, software, hardware, and paper. The publication is recommended for computer and library school libraries.


This report concerns the classification aspect of a proposed national information system for physics. Computerized information, when produced, will produce the AIP journals. "The requisite computer tape furnishes, as a byproduct, the input to a computer stored as a species of the AIP-generated physics literature." Other byproducts can be generated.


"The American Society for Testing Materials respectfully submits that the formation of the proposed Commission would duplicate work already done by the American Institute of Physics and would cost public funds. In order to expedite the work, it is suggested that the Commission might be established as a sub-committee of this Association." This study is not available.

Summary of main findings: 1. Computer information processing is of growing importance and in a multitude of ways involves dealing with thoughts, copyrights, material components, and legal problems. 2. The copyright revision bill does not deal directly with many vital aspects of computer information processing. We feel that existing problems and questions in the current legal form could lead to difficulties of interpretation. 3. We recommend further study of the copyright issues and support in general the proposal to create a study commission on copyright law. We find that the Panel is divided on the advisability of enacting the present bill in its current form, pending the outcome of the Committee on Copyrights: Alan B. Burg, Robert V. Crowe--chairman, Robert M. Hayes, Benjamin Kaplan, William F. Miller, Charles G. Rosen, John T. Rowell, Charles K. Wollenhaupt, and Charles P. Borden--executive director.


(Submitted by Mark Carroll, Lambert Davis, Philip Lillenthal and Gordon Hube.)

Summary report on photocopying and the use of computers in copying within the United States. Discussion includes "fair use," permissions to copy, input and output, and relationships of AUP to other interested groups.


Under the heading: Status of Copyright Revision, the following paragraph is noted:

"Considering these pressures to limit copyright, Mr. [Lee] Deighton continued, educational publishers might well consider making this the present law to operating under a new law whose meaning is unclear. This position, when it has been suggested, has surprised certain educators, groups, who think of the current revision as a 'publishers bill,' Mr. Deighton said."


A brief statement related to H.R. 4347, 90th Congress and the impact of the developing new technology on the creators, publishers, and users of copyrighted works.


Discusses the Copyright Act now in process of revision: "A governmental publication: research results, federal and state records, resulting in publications, including textbooks.


"The aim is rather to produce a coherent analytic presentation of the ideas expressed [at the Summer Study], or some reliable facsimile thereof, always in the context of the goal of the study, which was to provide, if possible, a basis for the preparation of network proposals." Edunet is a revolutionary, elaborate, complex plan for a new network to develop in the future. In The Network is headquartered in New York, John Wiley & Sons, Inc. 1967, 440 p.


The purpose of this article is to describe the present state of the development of the SUNY Biomedical Communication Network. The Network is headquartered in Syracuse, New York, on the campus of the Upstate Medical Center where a full-time staff of 30 is working. Cemral computing facilities for the Network will also be at that location. The Network has been designed as the pilot project for university-wide system linking all 58 libraries.


New advances for the graphic industry are presented through various composition techniques that combine the speed of electronics, the image-making abilities of television, and the flexibility of computer control. A simplified explanation of BCA'S Videocomp.

Carter, Launor F., Gordon Centley; John T. Rowell, Louise Schults, Herbert R. Seiden, Everett Wallace, Richard Watson, and Ron-
...
"The real subject of my talk is statutory systems of deterrents to unauthorized cópymaking. It is a subject of major significance and commercial publishing activity on the one hand is to be reconciled with the public interest in getting automated access to published information on the other." 


A discussion of certain proposals for revision of the copyright law, particularly those relating to copying and methods for paying royalties for copying.


"In a library, the relation between the storage and retrieval system hardware and the meaning of text on the shelves is essentially mechanical. The same principles are applicable in the automation of the various activities of business and libraries. .." Charles F. 1966. The Copyright Grab-Bag. Observations on the New Copyright Legislation. ALA Bull. Jan. 1966, p. 48-50.

"These reflections by the chairman of the American Library Association Committee on Copyrights illustrate the substance of some of his testimony before congressional committees which are working on the present legislation, Mr. Gossen. " "I am not a New York University Librarian." Topics include: History of copyright; What actually is copyrighted; Photocopying; Fair use; Current efforts for revision of the copyright law; The ALA Committee on Copyright Issues. The bills as they stand are essentially good and fair. We advocate some changes while we would strongly oppose amendments that others might urge:" 


"Reference is made to a previous article (ALA Bull. Jan. 1966, p. 46-55.) "Since then, several copyright bills have been considered in both the House and the Senate, together with a substantial report by the House Committee on the Judiciary. " "In considering the above, we believe that they stand essentially good and fair. We advocate some changes while we would strongly oppose amendments that others might urge:" 


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These international carriers are IT&T World Communications, RCA Communications Inc., and Western Union International, Inc.


An exploration of Coas's relationship to the proposed National Document Handling System's Network.


A short review of three topics: Implications for world security; Implications for individuality; and, Implications for democracy. The answer to the last is meant to suggest that a monopoly of data means a monopoly of power.


This proposal is a system under which authors and publishers will have a means of searching for and selling copies of their works on microform.


A discussion of the basic problem of whether copyright law can respond to the new methods of reproduction and distribution of written material, as well as the additional problems of standardization and reproduction of materials in a form different from that in which they were created.


Institutions have joined forces to foster application to higher education of the new technologies. A brief account of the founding, the objectives, and the current (October 1966) operations of the Inter-University Communications Council is made (p. 486) of the establishment of a Committee on Copyright with Benjamin Kaplan of Harvard Law School as chairman and Arthur Miller of Michigan Law School as co-chairman.


The print medium is neglecting content in that it is failing to take as much advantage as possible of its natural strengths. For one thing, the medium has more time and more space in which to work than television does. Its people can write the script, rewrite it and present it so that those who see it can ponder it at their leisure.

"Where the print media is behind the scenes following up the lead that television turned up and anticipating the next move, the print media is in the modern information scheme of things."


A discussion of the legal suscepts of computer programs. In that the computer program is not protected by copyright law, "Science has created a new tool in the modern world and now the legal field must come face to face with its new importance."


A study of the effect of the lice of photocopying equipment on average daily public use of a public library.


"How much legal protection of "property rights" in ideas is desirable? A discussion of problems relative to the factors which bear upon the setting of rates for photocopying materials in that library. They seem to be relevant to other library situations.

To Davis, Cal. Quality is adequate when the machines are functioning properly.


"How much legal protection of "property rights" in ideas is desirable? A discussion of problems relative to the factors which bear upon the setting of rates for photocopying materials in that library. They seem to be relevant to other library situations.


A brief report on the rebulld testimony regarding five copyright laws which have developed concerning the general copyright revision bill, S. 697 (April 23, 1967). The Special Committee on the Copyright Act in the United States revises the laws on copyright in the United States and to a lesser extent the administrative costs and content of related systems. The report includes a tabulation of Copyright Law Revision Studies.

This book includes chapters on: (1) The Proposed Copyright Law - a new approach to studying human learning phenomena by introducing the computer as a tool for helping them to understand the state of the art in automation and the pitfalls of the future; (2) A Prognosis on the Effect of Copyright Clearances on the Protection of the Library and the Pitfalls Referenced in Copyright Clearances; (3) A Profession in Change; (4) Impact of Copyright Clearances on the Protection of Copyright Clearances.

Provides a new approach to studying human learning phenomena by introducing the concept and methods of the closed-loop help system as a generalized computer interface in cybernetic research.

Ways in which publishers and librarians argue over copyright.

For the proposed copyright law will have a far reaching effect upon the organization and character of the educational system. This section will discuss the concept of the computer as a powerful and powerful tool for helping them to teach their students more effectively.

Speakers at a recent meeting in Boston analyzed the threat of photocopying and duplication in the school to conventional graphic arts techniques. Mr. Richard S. Gladstone of Houghton Mifflin Company, the final speaker, is quoted as saying: "Before almost any major instructional innovation can establish itself in these [State] sections of the country, change must take place not only in our exemplars for school and public libraries and substitute exemptions for computer operations with copyrighted works that are nominal rather than real."


This report explains the 1966 bill in detail, namely H.R. 2512 and S. 597, issued by the House Judiciary Committee in 1967.


A favorable report on H.R. 2512 for the general revision of the copyright laws, title 17 of the United States Code with a recommendation that the bill be passed. The first 144 pages are devoted to a summary of the principal provisions. Pages 145 to 251 are tabulations of the proposed changes in existing law. The last two pages state dis sen ts.


Principal interest concerns Sec. 306, "Grants for Establishment of Regional Medical libraries"—and (1) Sec. 316, "Regional Branches of the National Library of Medicine."


The Subcommittee on Patents, Trademarks and Copyrights held public hearings in connection with the bill on April 8, 1965, Washington, D.C. The hearing was abolished by S. 988.

The bill had just been approved by the House Judiciary Committee on April 22, 1965. Senators, did not vote on the bill until June 22, 1965, when it was sent to the Senate Committee on the Judiciary.

The Senate Committee met on May 15, 1965, to consider the bill. The Senate Committee approved the bill on May 22, 1965. The Senate passed the bill on May 28, 1965, and sent it back to the Senate Committee on the Judiciary.

The Senate Committee on the Judiciary held public hearings on the bill on April 8, 1965, in connection with the bill on April 22, 1965. The Senate Committee approved the bill on May 15, 1965, and sent it to the Senate Committee on the Judiciary.

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144 pages are devoted to a summary of the bill. The first 17 of the United States Code with a recommendation that the bill be passed. The last two pages state dis sen ts.

"Why new technology not only represents no basic threat to print media, but may be its long-term benefactor."

"For the book audience, the new technology can be expected to make better books, at lower prices, to be distributed to readers far more efficiently than is possible today."

Titus, James P. 1967. Copyright Revision: A Brief Explanation of the Copyright Revision Bill as it Came from the House Judiciary Committee in the closing days of the 89th Congress. In School and Society 95:60-65, Jan. 21, 1967.

A brief explanation of the copyright revision bill as it came from the House Judiciary Committee in the closing days of the 89th Congress. The new language of 'fair use', the nature of the copyrighted work; the effect of the use on the potential market for or value of the work.


"I intend in this paper to draw attention to microform developments likely to have a substantial influence on library and communication technology in the near future. The major microforms at present in use, or coming into use, and their areas of application are as follows: 16 mm roll, . . ., 35 mm roll, . . ., microfiche, . . ., microopaque . . ., POM . . ., 8 mm roll . . ., magnetic tape . . ."