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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)

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AUTOMATED INFORMATION SYSTEMS AND COPYRIGHT LAW

A SYMPOSIUM OF THE AMERICAN UNIVERSITY

Edited by Lowell H. Hattery and George P. Bush

SPEECH OF

HON. ROBERT W. KASTENMEIER

OF WISCONSIN

IN THE HOUSE OF REPRESENTATIVES

Tuesday, June 11, 1968

Mr. KASTENMEIER. Mr. Speaker, this body considered and passed a major copyright revision bill—H.R. 2512—last year. Shortly after passage of that bill, the American University, Washington, D.C., held a symposium in April 1967 on automated information systems and copyright law. Its purpose was to develop a dialog among many parties concerned with computers, other new communications media, and the copyright law.

Technical and position papers were presented. From these papers, free discussion of them by invited experts, and subsequent statements by interested parties, a report was prepared by Profs. Lowell H. Hattery and George P. Bush of the American University.

I was pleased to know of this effort, to encourage participation in it, and to now have available to me not only copies of the papers prepared for it, but also the summary and comments of Professors Hattery and Bush on the 2 days of discussion.

Copyright legislation is pending on both sides of the Capitol. The revision bill is now before the Senate, and the Senate-passed bill, S. 2216, to establish a National Commission on New Technological Uses of Copyrighted Works, is before the House. Regardless of the action taken on these bills in this Congress, the matters and issues discussed in this symposium will continue to be of interest and concern to Congress in legislating on copyright and information policies now and in the future.

Accordingly, I include the report on the symposium in the RECORD so as to be readily available to Members and others interested in this subject matter. It is my intention to submit portions of the report on subsequent days. Accordingly, the following material represents only the first installment. A table of contents is provided also to provide you with some indication of the material to be included in subsequent installments.

The material follows:

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, outlook 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. Ringer, *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[1] had passed the House of Representatives the week before with a majority of 379 votes to 29,[2] and hearings were nearing completion in the Senate.[3] 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 exclusive 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, and two years from now there may well be whole new industries whose future will be directly affected by the copyright law. This accelerating process make 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.[5] It is essentially a Nineteenth Century copyright law, based on assumptions concerning the creation and dissemination of author's works that have been completely overturned in the past fifty years.[6] 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 complete revision gives way to concrete disagreement on particular provisions to appear in the new statute. As time goes on the problems become increasingly complex, the economic and political power of the special interests becomes greater, and the conflicts on particular issues become more intense. Major groups 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 would prefer the 1909 statute to some of the changes that have been proopsed. Copyright law revision demands of any proponent 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.[7] The program for general revision of the copyright law actually got underway 43 years ago, in 1924, and produced four distinct legislative efforts before World War II: The Dallinger, Perkins, and Vestal Bills in 1924–1931,[8] the Sirovich Bill in 1932,[9] the Duffy Bill in 1934–1936,[10] and the "Shotwell" Bill in 1939.[11] One of these measures passed the House,[12] and a later one passed the Senate,[13] but in every case the revision program ultimately failed of enactment because of fierce opposition to particular provisions by certain groups. The history of U.S. copyright law revision in the 1920's and 1930's teaches a basic lesson: the need to work out accommodations on the critical issues in an atmosphere of good will and give and take. It is a great deal easier to recognize the validity of this proposition than to put it into practice.

The failure of the earlier efforts at general revision of the copyright law has been blamed on one group or another, and on the face of it there does appear to be quite a bit of blame to go around. At the same time it is important not to forget that the main purpose behind some of the revision bills was to permit U.S. adherence to the International Convention of Berne.[14] There can be little doubt that some of the Congressional opposition to copyright law revision stemmed from basic objections to U.S. acceptance of foreign principles of copyright jurisprudence and to U.S. assumption of the international obligations involved in becoming a member of the Berne Union.

After World War II the proponents of copyright law reform adopted a new approach. It was assumed, on the basis of past experience, that efforts to revise the copyright law in a way that would permit adherence to the Berne Convention would continue to be futile. It was also recognized that the emergence of the United States as a major exporter of cultural materials made our adherence to a multilateral convention essential. Thus, efforts to secure general revision of the copyright law were temporarily deferred in favor of a major program aimed at developing and implementing a new international copyright convention to which the United States could adhere without major changes in our law. These efforts, under the leadership of Register of Copyrights Arthur Fisher, achieved success in 1952 with the signing at Geneva of the Universal Copyright Convention,[15] followed in 1954 by the enactment of revisions to the 1909 statute permitting U.S. adherence to the U.C.C.,[16] and by the coming into force of the Convention in 1955.

Noteworthy as it was, the achievement of bringing the United States into the international copyright community also served to dramatize once more how archaic and inadequate the U.S. copyright statute of 1909 had become. The autumn of 1955, which saw the coming into force of the Universal Copyright Convention and the inauguration of the current program for general revision of the copyright law, marked the end of one epoch and the beginning of another. In August 1955, Congress authorized the formation of a Panel of Consultants on General Revision of the Copyright Law[17] under the chairmanship of the Register of Copyrights, and the Copyright Office undertook a series of basic studies of the major substantive issues involved in revision. At the same time began what has become a seemingly endless series of meetings and discussions with representatives of virtually every interest group affected by the copyright law. By now these discussions, which have been as valuable as they have been time-consuming, must literally run into the thousands.

Like the ages of man, the present general revision program seems to fall roughly into seven periods:

(1) 1955–1961: study and analysis of issues; publication of studies and comments

(2) 1961–1962: publication of Register's Report and debate of its recommendations

(3) 1962–1964: preliminary drafting; review of draft language; redrafting

(4) 1964–1965: first introduction of bill; further review and redrafting

(5) 1965: publication of Register's Supplementary Report and introduction of redrafted bill; House hearings completed and Senate hearings started.

(6) 1966: Bill considered, redrafted, and reported by House Judiciary Committee; Senate hearings on CATV.

(7) 1967: Bill again considered and reported by House Judiciary Committee; debated and passed with amendments in House; Senate hearings completed. This dull recital hardly suggests the ups and downs, the fits and starts, the joys and sorrows, and the scars and trophies that general revision encountered over the past twelve years. Arthur Fisher, whose untimely death in late 1960 robbed the revision program of its architect, would not be likely to recognize the edifice that has been built from his original plans, but knowing him I know he would approve of the accomplishment.

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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 published studies covering most of what we thought then were the important substantive issues in copyright law revision,[19] a body of comments from members of the Panel of Consultants published with each of the studies and the 1961 Report of the Register of Copyrights on General Revision of the Copyright Law.[20] The Register's Report, was the first of many major contributions to the general revision program by Abraham L. Kamenstein, Mr. Fisher's successor as Register of Copyrights. The purpose of the Report, as Mr. Kaminstein said in his 1962 Annual Report, "was to furnish a tangible core around which opinions and conclusions could crystallize—to achieve the widest possible agreement on basic principles before proceeding to draft a revised copyright law." [21] The Report attempted to pinpoint the major issues in revision, summarize the present law with respect to each of them, analyze alternative solutions, and present specific recommendations.

The Register's Report succeeded very well in clarifying the issues and in focusing the discussions on them, but some of its most fundamental recommendations proved more controversial than anyone in the Copyright Office had expected. In particular, the Register's proposal for copyright to begin with "public dissemination" and to last for a first term of 28 years, renewable for a second term of 48 years, provoked a flood of opposition; there was strong support for a single Federal copyright system with protection commencing upon the creation of a work and ending 50 years after the author's death.

A series of four meetings of the Panel of Consultants on General Revision was held between September 1961, and March 1962, at which all of the Report's recommendations were discussed in an increasingly tense atmosphere.[22] The heated arguments at these and other meetings actually stalled the revision program for several months and brought it to a genuine crisis in the late summer and fall of 1962. 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 1962, the Register announced that the Copyright Office was prepared to change its position on some debatable questions and to draft alternative language on others.[23] He indicated that the Office was prepared to revise its recommendations concerning "public dissemination" and the retention of common law protections, and that "at least one alternative version of our draft bill will adopt the life-plus basis for computing the term—in conjunction with a system of notice, deposit, and registration that we consider essential." The Register also announced that he would send preliminary drafts of statutory language to the members of an expanded Panel of Consultants on General Revision for their comments, and that he would convene another series of meetings on the preliminary draft. The process of preparing draft language for circulation occupied practically all of 1963, and included a total of eight meetings of the Panel of Consultants.[24]

The development of this preliminary draft proved to be a difficult but enormously productive phase of the program. The procedure adopted provided a motive and a forum for detailed, critical scrutiny of the language and substance of a new copyright statute by representatives of nearly all of the groups affected. It also created an atmosphere of cooperative effort that has survived various stresses and strains and has continued to grow in breadth and depth.

The preliminary draft of the general revision bill that had reached completion at the beginning of 1964 was never intended to be a final product. The next six months were devoted to compiling, analyzing, and synthesizing all of the comments received on the draft, to making substantive decisions and changes on the basis of these comments, and to preparing a complete, section-by-section revision of the bill. The draft of the bill that emerged from this process was prepared entirely within the Copyright Office without collaboration or consultation with any private groups or individuals. The introduction of the 1964 draft in July and August of 1964 [25] marked the end of the drafting phase of the revision program and the opening of the legislative phase.

Like the preliminary draft on which it was based, the 1964 bill was not intended as a finished product, but as a focal point for further comments and suggestions. In August 1964, a full week of detailed discussions of the bill showed that a great deal of progress had been made, but that still further revisions would be necessary before legislative hearings could profitably begin. During the fall and winter of 1964–1965 the Copyright Office reviewed and analyzed the many oral and written comments on the bill [26] and prepared another complete revision.

At the beginning of the 89th Congress, on February 4, 1965, Senator McClellan and Representative Celler introduced the 1965 general revision bill [27] and the Copyright Office spent the next three months preparing a supplement to the 1961 Register's Report. The Supplementary Report of the Register of Copyrights on the General Revision of the U.S. Copyright Law: 1965 Revision Bill [28] which was published in May 1965, set forth the reasons for changing a number of recommendations in the 1961 report and clarified the meaning of the provisions of the 1965 bill.

Publication of the Supplementary Report coincided with the opening of Congressional hearings on the bill. Between May 26, 1965 and September 2, 1965, 22 days of public hearings were held before Subcommittee No. 3 on Patents, Trademarks, and Copyrights of the House Committee on the Judiciary. A total of 163 witnesses, representing an extraordinarily wide range of public and private interests, appeared before the subcommittee chaired by Representative Robert W. Kastenmeier of Wisconsin. The record of the 1965 House hearings,[29] which comprises nearly 2,000 pages of printed text, includes not only the oral transcript but also more than 150 written statements. The Senate Judiciary Subcommittee under the chairmanship of Senator John L. McClellan of Arkansas, held brief hearings on the revision bill in August 1965 [30] but delayed a full series pending the conclusion of the intense activity in the House subcommittee.

Several significant factors with respect to the general revision program emerged from the 1965 hearings. Most obvious were the sharp controversies remaining to be settled on some old issues (such as the jukebox exemption, the royalty rate to be paid under the compulsory license for recording music, and the manufacturing requirement with respect to English-language books and periodicals), and on some relatively new issues (such as fair use, and the reproduction of copyrighted works for educational and research purposes, the liability of educational broadcasters and similar transmitters, and the status of community antenna television systems under the copyright law). Less readily apparent, but equally real and significant, was the enormous progress toward general revision that had already been made before the hearings started, and that resulted in a body of testimony remarkably intelligent, constructive, and germane.

Aside from the need to work out further accommodations on several crucial issues, the most serious problem arising from the 1965 hearings was how to organize the massive contents of the record in a way that would overlook no significant comment or suggestion but that still would form a comprehensible basis for decision-making. Working in close collaboration, the Copyright Office and the House Judiciary Committee counsel prepared summaries of every statement that had been made, and then divided the entire corpus of the hearings into 10 general areas: subject matter of copyright, ownership, duration, notice and registration, manufacturing and importation requirements, community antenna systems and other secondary transmissions, jukebox performances, compulsory license for phonorecords, educational copying and fair use, and educational broadcasting and other performing rights. Each subject was then divided into subtopics, under which were listed every issue raised at the hearings.

This "experiment in legislative technique," as it has been called, proved effective. It enabled the House Judiciary Subcommittee, in its deliberations on the bill, to consider each issue in context, to weigh the arguments for and against it, and to arrive at reasoned decisions. Meeting regularly, usually twice a week, from February through September 1966, the subcommittee held 51 executive sessions, all of which were attended by representatives of the Copyright Office. Examining each issue in depth and then redrafting the pertinent section of the bill as they went along, the subcommittee produced an entirely revised bill in an atmosphere of informal, bipartisan discussions that could well serve as a model for similar legislative projects.

The bill, as revised by the subcommittee, was reported unanimously to the full House Judiciary Committee on September 21, 1966, and was reported without amendment by the full Judiciary Committee on October 12, 1966. The House Report,[31] which comprises a total of 278 pages, including 141 pages of explanatory text, is an unusually 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.

The bill was reported too late in the 89th Congress for further legislative action, and indeed none had been expected in 1966. In the revised form reported by the House, it was introduced by Senator McClellan and Representative Celler [32] in the 90th Congress, and was considered by the newly-constituted membership of Subcommittee 3, again chaired by Representative Kastenmeier on February 20, 24, and 27, 1967. It was reported to the full Committee on the last of these dates and, after rather heated debates in the full committee on February 28 and March 2, 1967, was again reported to the House.[33] [This time, however, the report included minority views by Representatives Byron G. Rogers of Colorado and Basil L. Whitener of North Carolina, devoted to the jukebox issue, and additional dissent by Mr. Whitener on the bill's treatment of CATV.]

It was becoming increasingly apparent, as the bill moved toward the House floor, that extremely sharp and unreconciled conflicts on the issues of jukebox performances and CATV transmissions remained, and that there was a serious danger that one or both of these issues could defeat the bill. The bill was considered by the House Rules Committee on March 8, 1967, and the rather acrimonious arguments in the Committee before it took action authorizing full debate on the House floor were another danger signal.

Consideration by the House of Representatives of H.R. 2512 started at 10:00 a.m. on Thursday, April 6, 1967 [34] a day which, as Roland Young said in the old Katherine Hepburn version of *The Philadelphia Story*, the pages of history teach us is best spent in bed. The difficulties were subtle and interrelated, but underlying the painful charges and countercharges, the endless quorum calls, and the increasingly bitter exchanges was one fundamental lesson: it is a mistake to take a long, complex, technical, and specialized bill to the floor of Congress if the opposing sides on an important economic issue are in sharp and active conflict with each other. We had not one but two unresolved issues of that type: jukeboxes and community antenna systems. The combina-

tion was very nearly fatal to the revision program.

When the House finally recessed after 7:00 p.m. on April 6, it was apparent that a rescue operation was essential if an urgently needed legislative reform was not to be delayed for years or even decades to come. Over the next four days, in an atmosphere of intense crisis, several crucial compromises were achieved, and on Tuesday, April 11, an amended bill was passed by the House after mild debate with the extraordinary vote of 379 yeas to 29 nays.[35] Fairly radical changes were made in three areas: there were drastic revisions in the provisions establishing copyright liability for jukebox performances; the provisions dealing with community antenna transmission were dropped entirely (theoretically leaving CATV systems fully liable for copyright infringement); and the exemptions for instructional broadcasting were considerably broadened. On the other hand, the structure and content of the bill itself has remained substantially intact, and the successful achievement of compromise solutions in a febrile and politically-explosive atmosphere indicates to some of us that, despite all the problems, the bill would ultimately be enacted.

The Senate Judiciary Subcommittee, which had opened hearings in 1965 and had had a short series of hearings on the CATV problem in 1966,[36] resumed full-scale consideration of the bill, under the joint chairmanship of Senators McClellan and Burdick, on March 15, 1967. Indeed, the Senate hearings were in full swing during the crisis in the House, and for a time the general revision program resembled a two-ring circus in more ways than one. To everyone's surprise the record of the Senate hearings, which lasted 10 days and ended on April 28, 1967, very nearly equals that of the House hearings in size and content. At present the transcript of the Senate hearings is still being printed, and it seems unlikely that the subcommittee will take action on the bill this year.

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 automatic information storage and retrieval systems. This issue could well turn out to be the most important issue in the history of the copyright law, but it seems clear that any attempt at a definitive solution as part of the present bill for general revision would not only fail to solve the computer issue but could kill off the revision program itself. Experimentation with the use of copyrighted material in data banks and information transfer devices has hardly begun, and what is needed now is the kind of meaningful study under objective auspices contemplated in S. 2216,[37] a bill introduced by Senator McClellan on August 2, 1967 "to establish a National Commission on New Technological Uses of Copyrighted Works."

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 statue to all producers and users of intellectual property 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 necessary studies have been 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.

FOOTNOTES

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

[35] H.R. 2512, 90th Cong., 1st Sess. (1967). 113 Cong. Rec. H3888 (daily ed., April 11, 1957).

[36] Hearings on S. 597 before the Senate Judiciary Committee Subcommittee on Patents, Trademarks and Copyrights, Mar. 15–17 and 20–21, Apr. 4, 6, 11–12, and 28, 1967.

[37] Act of March 4, 1909, 35 Stat. 1075, 17 U.S.C. (1964).

[38] In 1947, the Copyright Law was codified and enacted into positive law by the Act of July 30, 1947, 61 Stat. 652, as amended by the Act of April 27, 1948, 62 Stat. 202 [increase in registration fees]; the Act of June 25, 1948, 62 Stat. 869 [to conform to Title 28 U.S.C. on the judiciary which was codified and enacted]; the Act of June 3, 1949, 63 Stat. 153 [giving foreign authors the option of submitting an additional copy and catalog card in lieu of the registration fee; extending the period to register for ad interim copyright and the ad interim term and allowing importation of 1500 copies of editions manufactured abroad]; the Act of October 31, 1951, 65 Stat. 710 [technical changes]; the Act of July 17, 1952, 66 Stat. 752 [to recognize recording and performance rights in nondramatic works]; the Act of April 13, 1954, 68 Stat. 52 [technical changes]; the Act of August 31, 1954, 68 Stat. 1030 [to implement ratification of the Universal Copyright Convention]; the Act of March 29, 1956, 70 Stat. 63 [amending 17 U.S.C. § 13 to authorize the Register to accept photographs in lieu of copies in some classes where deposit of copies is impractical]; the Act of September 7, 1957, 71 Stat. 633 [setting a statute of limitations for civil actions]; the Act of September 7, 1962, 76 Stat. 442 [technical amendment to 17 U.S.C. § 8 governing copyright in Government publications]; the Act of October 27, 1965, 79 Stat. 1072 [increase in registration fees]. Pending general revision, two acts have extended the duration of copyright protection for works in renewal copyright—the Act of September 19, 1962, 76 Stat. 555 and the Act of August 28, 1965, 79 Stat. 581.

[39] Knoll, *Our "Model T" Copyright Law*, The Reporter, vol. 34, no. 5 at 39 (Mar. 10, 1966); Finkelstein, *What's Wrong with Our Copyright Laws?*, Variety, vol. 234, no. 5 at 58 (Mar. 25, 1964). *See also* Finkelstein, *Copyright Law—A reappraisal*, 104 U. Pa. L. Rev. 1025 (1956); Colby, *Copyright Formalities and Copyright Revision*, 2 Publishing, Entertainment, Advertising and Allied Fields L. Q. 275 (1962); Goldberg, *Promoting the Progress of Science and the Useful Arts*, 47 Cornell L. Q. 549 (1962); Schulman, *Road to Progress in Revising the Copyright Law*, 9 Bull. Cr. Soc. 433 (1962); Tannenbaum, *The U.S. Copyright Statute: An Analysis of its Major Aspects and Shortcomings*, 10 N.Y.L. Forum 12 (1964); Kaplan, *Unhurried View of Copyright: Proposals and Prospects*, 66 Colum. L. Rev. 831 (1966).

[40] Goldman, *A History of U.S.A. Copyright Law Revision From 1901 to 1954*, Copyright Law Revision Study 1, prepared for the Senate Judiciary Committee Subcommittee on Patents, Trademarks, and Copyrights, 86th Cong., 1st Sess. (Comm. Print 1960). *See also* Studies 2–34.

[41] H.R. 9137, 68th Cong., 1st Sess. (1924); H.R. 11258, S. 4355, 68th Cong., 2d Sess. (1925); H.R. 5841, 69th Cong., 1st Sess. (1925); H.R. 10434, 69th Cong., 1st Sess. (1926); H.R. 1012, 70th Cong., 1st Sess. (1928); H.R. 6990, 71st Cong., 2d Sess. (1929); H.R. 12549, 71st Cong., 2d Sess. (1930); H.R. 139, S. 176, 72d Cong., 1st Sess. (1931). Brief hearings were held in the House on the Dallinger bill in 1924; House hearings in 1925 considered the Perkins bill; and extensive House hearings were held in 1926 on the Vestal bill. The Vestal bill was also the subject of hearings in both the House and Senate in 1930–31; it passed the House, Jan. 13, 1931 but died in the Senate.

[42] H.R. 10364, 72d Cong., 1st Sess. (1932). Throughout extensive hearings, Representative Sirovich introduced various revised versions of his bill: H.R. 10740, H.R. 10976 (reported by the Committee on Patents, Apr. 5, 1931), H.R. 11948, H.R. 12094 [reported by the committee, May 18, 1931], and H.R. 12425.

[43] S. 2465, 74th Cong., 1st Sess. (1935). A revised version, S. 3047, was reported by the Senate Committee on Patents and passed by the Senate, August 7, 1935.

[44] S. 3043, 76th Cong., 3d Sess. (1940).

[45] H.R. 12549, 71st Cong., 2d Sess. (1931).

[46] S. 2465, 74th Cong., 1st Sess. (1935).

[47] Berne Convention concerning the Creation of an International Union for the Protection of Literary and Artistic Works of 1886 and the revisions adopted at Paris in 1896, at Berlin in 1908, at Rome in 1928, at Brussels in 1948, and at Stockholm in 1967. The 1967 Intellectual Property Conference of Stockholm adopted administrative and structural changes that transformed the Union into an organization. For an article analyzing U.S. revision efforts in relation to ability to adhere to the Berne Convention, *see* Solberg, *The International Copyright Union*, 36 Yale L. J. 68 (1926).

[48] *See, e.g.*, Bogsch, The Law of Copyright under the Universal Copyright Convention (1964); Universal Copyright Convention Analyzed (Kupferman and Foner ed. 1955).

[49] Act of August 31, 1954, 68 Stat. 1030.

[50] The 55 nations that have ratified or acceded to the U.C.C. include all the major English-speaking states except Australia.

[51] Legislative Appropriation Act of 1956, 69 Stat. 499 (1955). In approving the annual appropriation for salaries and expenses, of the Copyright Office, Congress authorized $20,000 to enable the Office to initiate studies. *See also Annual Report of the Librarian of Congress for the Fiscal Year Ending June 30, 1955* at 45 (1956).

[52] In addition to the historical survey of revision efforts, *supra* note 7, the subjects included: Size of the Copyright Industries, The Meaning of "Writings" in the Copyright Clause of the Constitution, The Moral Right of the Author, The Compulsory License Provisions of the U.S. Copyright Law, The Economic Aspects of the Compulsory License, Notice of Copyright, Commercial Use of the Copyright Notice, Use of the Copyright Notice by Libraries, False Use of Copyright Notice, Divisibility of Copyrights, Joint Ownership of Copyrights, Works Made for Hire and on Commission, Fair Use of Copyrighted Works, Photoduplication of Copyrighted Material by Libraries, Limitations on Performing Rights, The Registration of Copyright, the Authority of the Register of Copyrights to Reject Applications for Registration, The Recordation of Copyright Assignments and Licenses, Deposit of Copyrighted Works, The Catalog of Copyright Entries, The Damage Provisions of the Copyright Law, The Operation of the Damage Provisions of the Copyright Law, Remedies other than Damages for Copyright Infringement, Liability of Innocent Infringers of Copyright, The Unauthorized Duplication of Sound Recordings, 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 Government Publications and Copyright in Territories and Possessions of the U.S.

No separate studies were prepared on several of the issues that subsequently proved to be most important in general revision; the jukebox exemption (which was then regarded as a problem outside the scope of general revision), community antenna television, educational photocopying and broadcasting, and computer uses (some of which had yet not emerged as major issues).

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

[20] Report on Copyright Law Revision, House Committee on the Judiciary, 87th Cong., 1st Sess. (1961).

[21] *Annual Report of the Librarian of Congress for the Fiscal Year Ending June 30, 1962* at 70.

[22] Copyright Law Revision, Part 2, Discussion and Comments on the Report of the Register of Copyrights on the General Revision of the U.S. Copyright Law, House Committee on the Judiciary, 88th Cong., 1st Sess. (1963).

[23] Kaminstein, The General Revision Program, 10 Bull. Cr. Soc. 81 (1962).

[24] Copyright Law Revision, Parts 3 and 4, House Committee on the Judiciary, 88th Cong., 2d Sess. (1964).

[25] S. 3008, H.R. 11947 and H.R. 12354, 88th Cong., 2d Sess. (1964).

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[30] Hearings on S. 1006 Before the Subcommittee on Patents, Trademarks, and Copyrights of the Senate Committee on the Judiciary, 89th Cong., 1st Sess. (1965).

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[33] H. Rep. No. 83, 90th Cong., 1st Sess. (1967).

[34] 113 Cong. Rec. H3606–H3647 (daily ed., Apr. 6, 1957).

[35] 113 Cong. Rec. H3888 (daily ed. April 11, 1957).

[36] Hearings on S. 1006 Before the Subcommittee on Patents, Trademarks, and Copyrights of the Senate Judiciary Committee, 89th Cong., 2d Sess. (1966).

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Post-Gutenberg Copyright Concepts

by Paul G. Zurkowski, *legislative assistant to Congressman R. W. Kastenmeier*

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 exposition. 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 in how to utilize the greater copying, storing, manipulating and retrieving capabilities we have today without eroding the incentives to authors and publishers to release their works of authorship to the public generally.

The dilemma is not easily resolved. In every walk of life document copying, regardless of and indifferent to copyright, has increased fantastically. Can we really expect to find a solution when almost every segment of our society, educators, legislators, bankers, and businessmen, industry, scientists, librarians and housewives, has nearly a vested right in copying what it pleases, when it pleases for the simple cost of a xerox copy?

When common practice ignores the law, a lag in social institutions is indicated. Thus, a social invention, of 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 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, are 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 preoccupied and largely unaware of the fact that Congress and the Copyright Office have been engaged in a massive revision effort that impinges directly on them and their usefulness now and in the future.

Few people seem perplexed by the reticence 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 better selective access to documents.

Yet it is this reticence 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 contributed to making. Solutions to problems that inhibit their use in meeting the demands of the information explosion will vastly enlarge their market.

GUTENBERG COPYRIGHT

Gutenberg's invention made possible the production and wide dissemination of ideas in printed form. Indeed, moveable type is the basis for our present copyright concept.

As long as creating a copy or duplicate was costly and essentially involved duplicating the costs of the initial publisher, the threat posed by a copyright infringement law suit, though cumbersome to employ, was sufficient to prevent wholesale copying. A potential infringer knew the copyright owner could afford a law suit that would stop the sale of the competing and infringing work before the infringer's costs could be recovered, much less a profit made.

Thus, in an age when publisher and infringer were tied to the Gutenberg technology the present copyright law served the purpose of protecting the copyright owner. He was quite ready to make the investment in mass production of works of authorship and in making them available and accessible to the public by sale of copies.

POST-GUTENBERG ERA

We obviously are no longer in an age where the Gutenberg technology controls both publisher and copier. Copying no longer involves a great initial investment comparable to that of the initial publisher. Coins in the slot of a machine present in most libraries enables anyone to copy page by page almost anything published today.

Infringement suits against individuals who copy and reduce the market for copyrighted works are much too costly to stem nickle and dime copying. In addition such suits would in many cases have to be directed against a publisher's primary market for hard copy sales.

Thus, our present transition phase is characterized by a predominance of the Gutenberg technology in publishing while copiers enjoy the advantages of xerography, and other new media forms ranging from photo-offset speed printing to microforms and computers. Initial publishing still is primarily in hardcopy, but public access is no longer restricted to sale or loan of hard copy originals.

While copying has proliferated greatly in the recent past, the publishing industry on the whole has not been losing ground because of the greatly increased flow of information in document form. Copying itself is fairly primitive and is used primarily to provide hard copy copies of selected material in more manipuable forms. Meanwhile works of authorship in hard copy originals and duplicates are inundating us. Efforts to use this material effectively are thwarted by considerations of quantity alone.

Various other copying technologies are appearing which not only greatly reduce the cost of copying, but also provide the promise of more rapid access to the original material, thus saving increasingly valuable research time.

At this stage of the Post Gutenberg Era we seem stymied by the proliferation of hard-copy documents and our inability, under existing law, to apply the capabilities of the emerging new media and their storage and retrieval capabilities.

Three changes in existing copyright law concepts could be made that would stimulate the application of the new media technologies, continue protection for rights of authors and copyright owners, and provide the means for accounting for copying.

I. Format copyright

Under existing law, whether the Gutenberg documents are copyrighted or in the public domain, there are no economic incentives to convert the contents of documents to forms for public access through the new technologies. What industry or enterprise can undertake the investment in re-editing, re-processing, re-setting and generally reformating and promoting new means for opening this vast hard-copy literature? None; for there is no protection for such efforts under present copyright concepts.

The first of three changes, thus, is a relatively simple one and it already exists in some other countries. Some rights, perhaps in the form of a limited monopoly over the use of materials converted to a particular new format, would be appropriate and could easily be established in law.

This new class of rights would parallel rights in the existing copyright obtained under present law. For example, if the text of the XYZ Journal articles were to be reformated from their original hardcopy format into microfiche, those creating the particular format would be provided the exclusive right for a limited period of time to duplicate the text in that exact format. If a later innovator, believing he had a better, more readable, more accessible and more manipuable format wished to invest in reducing the same documents to what he believed was a better format, he would have the right to do so and the right to the same kind of limited protection as the first to reformat the document, in the case of this example in microfiche.

The intellectual property in the original text would continue to be in the public domain or protected by the original copyright, whichever is the case. The investment required to convert the text to a new format would be protected by this means. A tremendous incentive would be created to reformat the great body of knowledge contained in Gutenberg documents, some of which are out of print and many of which are in the public domain.

II. Statutory copyright licensing

Obviously, these two rights, present copyright which enables copyright owners to deny copying privileges at any price, reasonable or exorbitant, and the proposed new format copyright must be reconciled. There does not appear to be any constitutional way to compel owners of vested copyrights who are satisfied with Gutenberg technology to license their works for non-Gutenberg publication. There does, however, appear to be a way to encourage owners of vested copyrights to utilize the new media in disseminating their works of authorship and at the same time to provide them protection from the erosion of their rights current copying practices involve.

The problem is illustrated by the experience of a number of microform publishers when confronted by exclusive licensing arrangements with University Microfilms, Inc. A number of years ago, University Microfilms, Inc. began persuading periodical publishers that it was desirable for archival purposes to authorize the making of microfilms of their journals. University Microfilms, Inc., which has since been acquired by Xerox Corporation, has over the years been offering to pay journal publishers a royalty on sales of microfilm copies formated without cost to the journal publishers in return for an exclusive license to do so. Until recently the exclusivity of the University Microfilms arrangement has appeared to be benign and as one generally serving the public interest. This was so because the University Micro-

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films format (images of pages serially arranged on 35-mm film) was accepted as normal and as affording as convenient access as one could expect from micrographic storage. This is no longer the case.

Formats 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 with exclusive contracts or 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 soon 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 part from 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 be co-terminus. 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 could be established by law as a fixed percentage of the market price of the copy for each copying privilege. Price would be affected by format and the format's content 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 search for such 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 centralized accounting procedures and enable information (document copying) centers to organize literature for quick access in the specific format desired.

It is further noted that British book publishers have created a system of unique numbering for all books published in Great Britain. This was found to be necessary because the computer had become engaged in the processing of accounts of ever-increasing numbers of books throughout the country. The numbering system was created to facilitate the marketing of books, down to individual book store sales. It takes no magnificent leap in logic to conclude that a similar system would be very feasible for accounting for the sale of copies, made to order at the point of sale, regardless of format.

It is possible to foresee, under appropriate copyright arrangements, a time when publishing will function on the economic theory of abundance rather than scarcity, and when the publisher will seek to make all materials available as widely as possible through a plurality of media formats. This will permit him to obtain numerous small royalties for use of parts of his works in addition to hardcopy sales of entire volumes.

The object of these three changes is to promote copying rather than to thwart it; to stimulate the application of new media technologies to the information explosion rather than merely tolerating and delaying it.

In seeking to assess the effectiveness of these proposals one needs only to assess their effect on individual copyright owners. Once the copyright owner has acquired some right in the new media, either through mixed-media publishing initially or through subsequent licensing revenues, he will have incentive to promote copying rather than oppose it. Thus, what appears to be repugnant to a copyright owner of Gutenberg copyrights is not only palatable, but desirable to the multi-media copyright owner.

MULTIMEDIA PUBLISHING ERA

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 multi-media formats in making documented information readily accessible to as many users as possible.

In the Multi-Media Era, presumably interest profiles for each of us could be maintained at our request at the future equivalent of our public library. Such an institution could periodically direct to us on a subscription basis copies in our preferred format of those documents of direct interest to us. Illicit copying would be far more expensive in terms of the search time required to locate the document desired and in terms of conforming the pirated copy to our preferred format.

To what extent and when we reach the multi-media era will depend largely on our success in developing the system of incentives required to bridge . . . the present, largely transitional phase, and to develop experience in managing multi-media publishing formats and licensing arrangements. Our experience in this process will certainly better equip us to deal with the problems of this final stage than the Gutenberg Era has equipped us for today's problems. Without the changes in copyright concept suggested here, however, the Gutenberg Era and its copyright concepts will be able to provide little or no basis for evaluating the new Multi-Media Publishing Era toward which we are, nonetheless, rushing.

Society needs the new media technologies to cope with the vastly expanded information explosion, but it also badly needs the participation of these technologies in developing the rules for their use in the present Post Gutenberg Era and the future Multi-Media Era.

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 works into machine-readable form for use as computer input should be considered copyright infringement.

First some 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) transferring text to punch cards, magnetic tapes, disks, or related information storage vehicles, or directly transferring the information into the computer in some electronic form, so that the printed words can be utilized by the computer, and (b) the further duplication of materials which are already in the machine readable form defined in (a).

The value to the computer user of copyrighted works which have been copied for use as computer input can be considerable. The computer is a remarkable tool that can be used, for example, to disseminate all or part of the copyrighted material throughout the nation or to utilize it within the computer operator's own area or organization in various ways which are not feasible with printed works. This value to the operator can perhaps be measured partly by what it would cost him to accumulate independently the information which he feeds into the computer, costs which the copyright proprietor had to bear. The value of a copyrighted work when utilized with the powerful assistance of a computer may bear no relationship to the value of the work when utilized by a single individual or institution in the usual ways that printed materials are used.

The idea of different values attaching to different types of uses is not new. To cite just one example: an individual might spend $3.50 to buy a printed copy of *My Fair Lady* in order to read it, but he cannot perform the play commercially unless the copyright proprietor's consent is obtained and a substantial royalty paid.

In short, use of a copyrighted work in a computer operation constitutes a different and higher quality of use which cannot be equated with a single or multiple use of a single work in print form. The mere purchase of the printed work for ordinary use was not intended by the publisher to permit use of the material as input in the computer—a truly extraordinary use with possibly devastating consequences to the copyright proprietor. It takes little imagination to foresee the impact on the publishing industry if a printed work, such as, the recently published Random House dictionary, were converted into machine readable form without payment to or editorial control by the publisher for use in a nation-wide computer network with innumerable outlets in libraries, industry, and homes.

The above discussion illustrates that information produced in print form has value to a computer user far over and above the value to the ordinary purchaser or user of a copyrighted work in print form. In view of the possibly enormous value of this copyrighted material to the computer user he naturally wishes to utilize it and should recognize that the copyright proprietor is entitled to compensation. My personal opinion is that the question of the amount of compensation can be best solved as similar problems have been in the past, by having the various interests work out their own solutions in the competitive milieu.

Most people would agree that the copyright proprietor should be compensated for his efforts. In addition to the question of how much the payment should be there is the important question of determining the point in time that this payment should accrue. This question is crucial because its answer determines the control which the copyright proprietor has over each individual work. In many instances, particularly in the case of fact works such as dictionaries, encyclopedias, legal digests, statistical tables, directories, etc., if this control cannot be exercised effectively the proprietor cannot profitably conduct his business and therefore will not produce the work.

In order to protect the copyright proprietors and to provide a fair system, I urge that proprietors be able to control the use of their material 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 uses involve the manipulation or scanning of a considerable amount of input derived from copyright works, yet the output may, for example consist only of a solution which appears for a few moments on a screen or of 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 copying into machine readable form is not 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 materially diminished. Such a result hardly seems just in view of the considerable benefit obtained by computer users.

One example of manipulation without output would be the use of a copyrighted book of mathematical computations to determine steel stress. These printed calculations would be converted into computer input with no payment made to the proprietor. The computer user would wish to know if his particular construction was feasible and the answer would be either "yes" or "no." Again the copyright proprietor would receive no payment no matter how adversely sales of the admittedly useful work were affected.

Similarly, copyrighted statistical materials could be manipulated to determine such things as the projected price of a stock on the New York Stock Exchange, production schedules, the length of women's skirts for next season, wage scales, or tomorrow's weather. In each of these instances, and there are innumerable examples, the compiler of the statistics, would receive no compensation for his considerable efforts, except possibly for the sale of the initial copyrighted volume.

In each case of such manipulation of the copyrighted mathematical or statistical data, the copyright proprietor would be reasonably compensated only if it were infringement to convert his work into machine readable form. If this is not the law, then he receives little or nothing for his labors while others benefit.

The uses to which other forms of fact works can be put provide examples of the extreme importance of properly setting the point at which copyright infringement occurs. For example, the *Encyclopedia Brittanica* can be converted into machine readable form and used as the input of a computer. If this conversion does not constitute infringement at this point no payment need be made to the copyright proprietor or permission obtained. Now if someone in the great public with access to this computer input desires information in the encyclopedia he can retrieve it and have the pertinent material flashed on a screen for him to read and, if desired, the image on the screen can be converted into hard copy, i.e., can be reproduced in print form on paper. Of course, in addition to this one encyclopedia, the computer proprietor might utilize the other nine leading encyclopedias so as to provide better service to the computer users. If the law is that only if the end use is an infringement can the various copyright proprietors object to the use of their works, all of the proprietors may collect exactly nothing because any one use of the input by an individual would very likely be considered a fair use and, therefore, a non-infringing use. Accordingly, each of the encyclopedia publishers would obtain no revenue from and have no control over the use of its copyrighted publication, even though such use could destroy the salability of the work which it produced at enormous expense.

The point of this discussion is that if input does not constitute infringement, and if the manipulation does not constitute infringement, and if the output happens not to be 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 or seriously impair the market for the copyrighted work.

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 characteristics of each retailer, such as location of principal office, number of employees, annual sales, names of the proprietors or principal officers, non-drug products carried, etc. The directory is available in either printed form or in punched cards or tape for use as computer input. It is certainly easy to see that if a competitor also markets the same information, taken free of charge from the original printed work or a duplication of the punched cards or tape, that the original publisher cannot compete because the second comer has avoided the tremendous expense of gathering the information.

The copyright proprietor cannot enjoin such blatant copying or collect damages from the one who copied the materials unless conversion of copyrighted material into machine readable form for eventual use as computer input and the duplication of copyrighted materials already in machine readable form

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 nation-wide 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 originator's 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, *Paskus, Gordon & Hyman*

Most people agree that full use should be made of the burgeoning computer technology—for education, for information storage and dissemination 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 generate and to distribute their intellectual work product to all within reach and the broader their reach, the greater their satisfaction.

The perplexing problem, however, is how to accomplish these imaginatively useful purposes and at the same time assure the producers adequate reward and recognition and protection 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.

Publishing profits depend on sales, 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 market.

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 to 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 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 estimate 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.

The appropriation of the textual content of a book for computer use may drastically shrink that market. The effect will be different for different kinds of publishing. Computer 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 textbook may have a devastating effect on the number of copies sold.

An example may be helpful. A publisher believes that a reference book on an advanced subject if acceptably priced will have a worldwide market of 4500 copies. He estimates on the basis of past experience that he will sell 2500 copies to librarians and institutions and the remainder to miscellaneous purchasers. His break-even point may be half of what he hopes to sell. He proceeds 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 190 libraries making up the Edunet system, instead of purchasing 190 copies, together purchase only one; that the libraries serviced by the New York State library system together purchase only one; that government agencies instead of purchasing 100 or 200 copies as before, also purchase only one, and that industrial institutions with multiple branch libraries follow the same practice.

The publisher now faces a substantially reduced market. What will he do? Can he publish the work? In a classroom marketing exercise the answer would be easy. If he thinks that the systems composing the smaller market will pay more for the work, he will raise the per copy price sufficiently to assure the needed return. Instead of planning to sell 4500 copies at $10 per copy, he may now plan to sell 100 copies at $450 per copy. His return and the author's royalty will be the same. But 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 be undesirable socially, politically and philosophically.

And what of the educational program prepared specifically for computerized instruction systems? If the publisher sells the program to 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 charge the first school district 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 district, no matter how much it desires the program, will decide that it cannot afford to pay such a price? Those, it seems to me, are not unfair examples of what may flow from the broad computer exemptions from copyright protection so earnestly but misguidedly requested by some of those participating in the copyright revision debate.

Uncontrolled input subject to royalty payment on printout would not seem to be a solution. It would be difficult and expensive to monitor the use of printout and to charge, collect, and pay (how much?) for such use. It might be difficult in the context of free input to determine the parameters of fair use. But even more importantly such a system of uncontrolled input subject to payment on printout would not help the publisher with his pre-publication problem. Certainly he could make no market estimate under conditions as they exist today, with no experience on which to base his judgment and, indeed, with only the barest prototype of a computerized information system market in existence. If because of computer input without arrangement for payment, the publisher is unable to make a reliable pre-publication market estimate, he may lose his ability to publish the very works which the computer system will need.

It may indeed be argued that protection against free input will be more important to the publisher in the years immediately ahead when the marketing experience is being built up, than later when the extent of computer use and its effect on the market for works in their traditional form will be better known.

VARIABLE PRICING SYSTEM

One approach, however, appears to meet all needs. This is to retain copyright protection against unauthorized computer input and to adopt what I will call for the purpose of this paper a variable pricing system, a system under which one price will be paid for the work in traditional format and a higher price for system use. The systems should not feel aggrieved about the price difference. 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 unreasonable. Publishing 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, a series of payments in the nature of royalties, or a combination of both. Possibly the charge may vary from system to system, depending on the size of the system, the number of locations served, the number of uses, and the quantity of information used. But in any case it will be arranged in advance of input and use so that the publisher can estimate his return.

Let me turn to our hypothetical example of the reference book again to see how the variable pricing system might operate. We assumed that in today's market, the publisher estimates a sale of 4500 copies. Now let us look at the same publisher contemplating publication of the same kind of work ten years hence, and let us suppose that during the ten-year interval he has been publishing under the variable pricing system. He may at that future time estimate his market at 1000 copies for sale for traditional use (much below his former break-even point) and 50 copies (perhaps in machine-readable form) for sale to systems. 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

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 gained 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 manufactures 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 road 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 can make a distinction between processing information about information (something which computers can do today—for example indexes) and actually processing the information. Thus, one could imagine storage and processing of information separately.

[Legend: P—possible; M—may be possible; N—not possible]

	Outside of computer (manual)	Within computer	
		Storage	Processing
Index or reference pointers	P	P	P
Access and inventory control	P	P	P
Intellectual information:			
Noncomputer usable	P	N	N
Computer usable	N	M	P

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, which will, I 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 executive different functions it now appears to be essential to keep in mind the differences between the storage of information and the processing of instructions or information, especially if all of the intellectual information is desired to be in computer usable form. 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 try to 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 simultaneously. Certainly most 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, a device 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.[1] I have ignored the cost of converting the non-machine created information into machine usable information. Finally, in addition to cost there is need to consider aspects such as space and durability. Historically, since the introduction of digital computers (1951), we have been viewing, 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 computer 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, the curve is correct, although usually as computers got bigger and faster, one tried to do more, with the end result that the total computer installation cost more. To get at the various components of the problem, one needs to look at them collectively and in terms of the functions of the computer, keeping in mind needed distinctions between storage and processing capabilities. This approach can also help one avoid the pitfall of pricing a storage device simply in terms of the cost per bit. While this can be a very technical matter, I will not indulge in technical details but indicate the need to look at the factors together. Surprisingly, this includes a psychological component.

The psychological component which is relevant here includes one's insistance on information availability when it is needed. From the viewpoint of the computer, this could mean to perform either processing or storage in one of three time modes as follows:

1. When convenient for the machine.
2. At pre-specified time points.
3. On demand.

These three time modes of computer operation can be conflicting and can cause a price/performance analysis to be very difficult to derive, if not impossible with today's equipemnt and knowledge, if simultaneous operations are occurring. Of course, these problems are solvable by at least fair approximations.

To realize the economy of size and increase in computing power, one can imagine many users having access to a facility at the same time. This possibility arises because of fantastic accomplishments in memory speeds during the past 15 years—from 10^{-3} seconds, to 10^{-6} seconds to 10^{-9} seconds; comparable improvements in input or output have been by a factor of 10 to 30 instead of 10^6.

Thus it appears that because of this imbalance many users could have simultaneous access—the concept of time sharing. However, this ignores the time mode of operation or media mode of the intellectual materials. Furthermore, current high speed memories are exceedingly small when compared to the needs of information handling systems (32 to 256) x 48 x 10^3 bits compared to storage currently estimated to be somewhere between 10^9 to 10^{14} bits for a large library.

However, all is not bleak, by the early 1970's we may have nano-second speeds for large and fast access storage, for example: BORAM-Block oriented random access memory; SONIC-Film memory; and laser beam techniques associated with photo disc storage.

With this in mind, let us consider other components of the feasibility and cost aspects. If one could preclude the need to update files of information (insert, delete, modify, send to history) and imagine only adding information—namely books, or images of them—then the economic and technical questions are considerably simplified.

It is important to keep in mind the user interface to the computer, that is, how many other users can be served at the same time, and whether or not there is a single service line or more than one—the size of the information files is also important. The possibility of such services today are summarized below, where Y implies Yes it is possible today, M implies maybe, and N implies No.

The organization of files influences the ease of use and cost and both depend on the mode of use (C–covenent, T–time initiated, D–demand initiated).

USER INTERFACE TO COMPUTER

Mode	Service line					
	Single			Multiple		
	C	T	D	C	T	D
One user at a time	Y	M	M	Y	M	N
Multiple users at a time:						
Single application	N	N	N	Y	M	Y
Multiple applications	N	N	N	Y	M	M

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:

FILE ORGANIZATION—ACCESS (READ/WRITE OR BOTH) RANKINGS FROM 1 THROUGH 4

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

[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

[1] David C. Evans, *Scientific American*, September 1966, especially p. 82.

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 permissive and flexible legislation which is adaptable and which recognizes the need to encourage research and education.

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Technology and The Copyright Law: The Systems Approach

by George V. Eltgroth, *General Electric Co.*

The problems which have been etched into stark visibility by the reaction between the application of the 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. Obviously, they can't all even get into a single library room, and if they were there, they couldn't look at the book over each other's shoulder. If they waited 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 individual 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 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 300 page reproduced book to $60 or $150. Reproduction costs are still on their way down at $.03 per life size page, bringing the reproduction of a 300 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 inviolate integral work
2. The sector divisible work
3. The entry divisible work

The entertainment oriented work, such as the novel or play, represents a good example of the inviolate integral work, losing its value when all of the work is not present. If the beginning is missing one would not recognize the characters and their relationships. If the end is missing, one does not know how the plot comes out. If the middle is missing, there is no connection between the characters and the denouement. In the event of reproduction, there would be either full reproduction 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. There is no real-time access pressure, recourse to the book-shop, library or publisher is practical. The Reproduction Impediment is at its maximum. As a rough measure of this Reproduction Impediment (*R*) we might take:

$$R = n \times c \times \frac{t}{v}$$

n = page count of portion of work needed (here, the entire work).
c = reproduction cost per page.
t = permitted access waiting time.
v = value loss per unit waiting time.

Educational and reference works, such as encyclopedias, and scientific journals are good examples of the sector divisible work. Here, the 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 scholar or researcher is engaged, moving at 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 declines to between 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 being representative of the class of entry divisible works. As examples, we might have the typist, addressing an order, or the computer, human or machine, performing a computation needing a value from a trigonometric table or a steam table.

The amount of the work to be reproduced is a miniscule, the need is immediate and the value of access waiting time is very high. All these combine to reduce the Reproduction Impediment to, perhaps, 0.01% 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 abstract terms, the problems of time and availability. It comes more clearly into focus when we consider the probable conduct of the researcher who has a need for 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 hr. to 1½ hrs. at a cost of $0.30 to $0.60 following a few words to his secretary or assistant, or availability in two or more days at $15.00 following the ceremony of filling out a battery of procurement forms and launching them on their functional trajectory. As a further impediment, the operation of the reproducing machine is probably carried in general overhead, while the book purchase will require an account and project number that he may not have at hand. The nature of his decision is almost fore-ordained. This is the point to which modern hard copy reproduction methods have brought us, still requiring dispersion of a given work on a scale so that there will be a copy of it within, say, 20 miles of each individual wishing to make reference to it, rather than one copy for each such person. It is the first step away from the book-on-the-library shelf and, if the reading library reduced the potential market by a factor of ten, the reproducing library worked a further tenfold reduction.

Beyond this, technology has advanced even further along three different, but mutually cooperative lines: the achievement of tremendously greater density of information entry on the gross carrier, bringing reproduction costs of the reduced copy down to less than $.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 bond dissolution and re-bonding 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 independence of information from commitment to a dedicated carrier conferring upon it mobility at the speed of light over chosen pathways leading to requesting users.

One now foresees practical data stores of massive information content and reasonable physical dimensions serving even more remotely dispersed potential users, raising the possibility through what might be called a communicating library, of a further tenfold, or even hundredfold reduction in the numeric count of the market served by the publishers through shipment of blocks of paper sheets secured to each other along one edge. At this point, the sale of paper as a device to compensate and encourage the activity of the 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 manifolding the problem of retrieving relevant data, especially when new interdisciplinary linkages are involved. The dynamics of such a situation make it inevitable that the rules prevailing at the time of, and governing, storage, will be different from those existing at the time of, and governing, retrieval. Only at least a moderately educable intelligence, 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 quiet burning of liquid gasoline in contrast to its explosive combustion when dispersed as vapor or droplets in air. Our social objective should be to achieve the broadest possible interaction area between the minds, the problems, and the data pent up within the social structure, in essentially real time, that is, with a time of availability so short that the data

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 needs 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 decisions 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.

Authors' Rights

by Irwin Karp, *Authors League of America*

Ray Bradbury's *Fahrenheit 451* describes a society in which books have been banned and firemen no longer put out fires. Instead, their task 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: "Cram them (the public) full of noncombustible data, chock them so damned full of 'facts' they feel stuffed, but absolutely 'brilliant' with information . . . they'll be happy . . . Don't give them any slippery stuff like philosophy or sociology to tie things up with. That way lies melancholy."

And in Bradbury's "new society" a respectable electronic medium—television—communicates all knowledge and entertainment in the best McLuhanian 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 and its purpose was to make every citizen of Oceania think the right thoughts. 'The past is whatever the records agree upon,' was its motto 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 when 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 pose questions of equally great concern to all of us, authors and readers, 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 place will books and authors 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 prophecies 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. Marke's "Copyright and Intellectual Property":

"In the university of the future, as it is visualized at M.I.T., 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 58 campuses (State University of New York) can one day be made available to every faculty member and to every student on every campus (through the communication sciences)."

* * * * *

"You must imagine, at the eventual heart of things to come, linked or integrated systems of networks of computers, capable of storing faithful simulacra of the entire treasure of the accumulated knowledge and artistic production of past ages, and of taking into the store new intelligence of all sorts as produced. The systems will have a prodigious 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 Marke notes that its "collection remains intact because the computer, in essence, assumes the role of a duplicating rather than a 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 publishers' traditional market."

Dr. James Miller, in an article on EDUCOM (Science, October 28, 1966) points out that the kind of computerized communications network EDUCOM is considering could 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 payment, 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 for a uniform fit, a lot of heads and feet would have to be cut off.

Thus, much of the stress in the copyright-computer discussion has been placed on the need for rapid transmission and manipuation 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, literary 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 Marke. He says:

"As to the authors' incentive to create, it is possible that information-system operators will make their own contracts with the authors and ask them to prepare their works especially for dissemination through the computer. Most of the materials will probably be developed through team effort, a method of researching and writing that will change the author's psychological need to identify with his work and to promote his professional image."

I am not sure whether he foresees this erosion of individual creativity hopefully, regretfully, or apprehensively. Like a good researcher should, he has kept his tone muted and his sympathies well veiled. So it is not clear whether he anticipates the submergence of individual authorship and identity as a blessing or a disaster.

But I think some of us, probably including Professor Marke, would feel that in many areas of cultural and intellectual acitvity—in fiction, poetry, drama and music, in biography, history and social commentary and criticism—it is essential to preserve individual creativity and expression. Many works of aesthetic and social value cannot be created by "teams," or by authors working for hire, as employees of national information systems.

What then should the author, the publisher, the scientist, the scholar, the librarian, the teacher and the administrator be concerned with, as they consider the problems of permissions and payments for the use of intellectual property in automated systems?

I have heard some members of the scientific community express their concern that copyright should not hamper the use of storage and retrieval systems in classifying, manipulating and disseminating current scientific and technological information. But I sincerely believe that there is no real "copyright" problem in this area, particularly since most spokesmen for the scientific community have repeatedly affirmed that the creators should be paid for such uses. This type of information—and these systems of dissemination—are obviously going to become more and more compatible and interdependent. The basic need is study and experimentation in creating licensing systems suitable to the materials and the medium.

Similarly, I submit there has been great over-emphasis on the "copyright problem" in the area of computer assisted instruction. It is becoming apparent that the materials for successful instructional programs will have to be specially created, and carefully tailored for the new systems. They cannot be provided by gouging out exceptions to the protection of existing works. Indeed, such exceptions could have devastating effects on the development of these new materials.

I believe that ultimately the most important social consequences and problems arising from the use of intellectual material in automated systems will involve neither current scientific data, nor materials for computer-assisted instruction programs. Rather, I believe, the problem areas will be literature, the arts, political and economic analysis and criticism, economics, biography—in other words, the many disciplines in which creative works has been done by individuals, and protected by copyright.

In these areas, I submit that all of us should recognize certain basic criteria, in approaching the problems of permissions and payments for the use of such intellectual property in automated information systems: *first*, that authors—free lance authors as distinguished from members of a team or establishment—be enabled to receive adequate compensation for their creative work and talent; *second*, that they be enabled to preserve the integrity of their work, and their own integrity and identity; *third*, that society preserve institutions and procedures of communication which assure that individuals will be able to create, that their works will have real and unrestrained access to the public, and that the public will have a meaningful right to know of them, choose among them, and read them.

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 is not to assume that their every demand and appetite must be satisfied, or satisfied in precisely the way their creators and managers demand. The gasoline engine was a marvelous and revolutionary invention, the epitomy of progress. The automobile could go everywhere that roads could be built and roads could be built everywhere. So the roads were built everywhere and the automobile went everywhere; and as a result cities strangle in traffic, we die a little quicker from air pollution, and we set about at great cost to reinvent the railroad. We must be careful not to destroy institutions of publication that would also have to be reinvented if we wish 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, bring us slowly to recognize that progress does not always lie in allowing the machine to have its head and its untrammeled way; and that those who manufacture and manage the machines are not always the wisest judges of their best social uses or after-effects.

Books should go into computerized storage and retrieval systems; they should be communicated by national information grids. But in deciding when and how, on what terms and conditions, I think we must consider carefully all of the social consequences—not merely rapidity of access, or cost-saving to the systems operator. I do not believe we have enough knowledge to fully recognize all of the problems, no less to formulate final solutions, which is the reason why the Authors League urged, before the Senate Committee considering the Copyright Revision Bill, the appointment of a study panel to conduct an exploration in depth.

However, I do 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 creativity, expression and communication.

As Dr. Miller, Professor Marke, and other commentators have stated, the new communication networks are likely to be national in scope. It seems obvious there will be centralization: not thousands of systems, not hundreds, but more likely a comparative few, perhaps a very few, serving the entire country. This would pose for authors the obvious problem of finding new methods of compensation—the traditional royalty on the few copies purchased by the few systems (one copy serving the needs of an entire system and innumerable users) would be meaningless. Obviously, new methods could only be developed if the Copyright Act continued to secure for the author the exclusion rights to use his work by whatever means technology makes available—printing press, records, radio, television, or computer.

However, even if authors could negotiate new arrangements for compensation, this would not eliminate other serious problems that would arise if information transmission systems, operating under copyright exemptions or compulsory license provisions, displaced or severely restricted the institution of trade publishing.

Trade publishing does more than furnish the free lance author with an economic return for his labors. It also performs two other vital social functions. *First*, it gives access to the public for innumerable works of social, literary and artistic value. *Second*, it is one of the few remaining media of communication which provides true freedom of expression for a great diversity of viewpoints, some highly controversial and unpopular. Much more than broadcasting, motion pictures, even the daily press, trade publishing, as now constituted, is the great bastion of freedom of the press in the United States.

As to the first function: trade publishing does more than simply communicate the author's work in a particular physical form (packaged in individual copies) for which the new electronic networks might substitute other forms. To "publish", in both its dictionary sense and in the practical sense, means to "make a book publicly known, to announce it to the public"—in other words, to hold the book before the public by advertisement, by review, by display in book stores, by making it available in physical form and thus to attract public interest and attention to the work.

Dr. Surrency, testifying on behalf of the Joint Libraries Committee in the Senate Copyright hearings, recognized the importance of this function: "Libraries," he said, "in a sense are salesmen of the published work . . . all libraries have an interest in promoting literary works . . . ." But as valuable as the libraries' contribution may be, for most works in the fields of literature and history, biography and social sciences, it is in and through the process of trade publication that the book becomes known, that the public becomes attracted to it. Those who view the copyright-computer problem from the viewpoint of the scientist and researcher sometimes overlook this factor. A scientist working in a given field actively searches for material related to his problem; for him, the computer is a tool to find what he is constantly seeking.

But for the independently created work of literary or social value—the novel or social commentary on a controversial issue there is not a ready audience seeking to find the work. On the contrary, what the author needs desperately is the process of publication, the process by which his work is brought to the attention of an audience, the process which helps create an audience.

The material which Ralph Nader presented in Unsafe at any Speed could be stored and disseminated in a computerized information network; it is likely that much of the data was thus available and that scientists had "quick access" to it. But all of that information, stored and available, could not produce the interest, excitement and stimulus for social change that the *publication* of Nader's book did. Indeed, if the book were made available only through an information grid, it would have probably attracted as little attention as did the data *before* it was brought to the public attention through the trade publication of the book.

It cannot be over-emphasized that trade publishing provides this access to the public for a great diversity of works and viewpoints. Even its most caustic critics must admit that were profit the only motive, trade publishers would publish only a few of the novels, none of the poetry, less of the biography, and other social commentary and criticism they now issue. If profit were their only motive, trade publishers would stick to cook books, bibles and text books. Trade publishers publish books they expect to lose money, books that they do not agree with, books that they know will be unpopular because they feel that the author has said something that should be brought to a public audience.

In performing this function, trade publishing also fulfill a second, and perhaps even more vital, public service. It is without doubt one of the remaining guarantors of free speech and press in this country. Trade publishing contains a diversity of editorial viewpoints and the courage and tolerance to communicate to the public a great range of ideas and expression, often unpopular, frequently controversial, sometimes bitterly resisted by the majority. It is unrealistic to assume that national information systems would tolerate, no less actively sponsor or promote, the number of controversial and dissenting works issued regularly by trade publishers. And it would be equally unrealistic to ignore the fact that trade publishing derives the strength to perform both of these functions from the fact that it is privately operated for profit and that its opportunity to earn profits depends completely and entirely on the protection afforded authors by the Copyright Act.

If national computerized information systems were to displace or substantially injure the present process of trade publishing, a substitute would have to be found. Indeed, if such nationalized systems do develop, it would become all the more essential to preserve a system of independent publishers providing, as trade publishers now do, the opportunity for independent authors to reach the public, and freedom of expression. Without this essential safeguard, the information networks would become the primary method of publication as well as communication, and freedom of creativity and expression would be severely restricted.

All of these factors must be taken into account in determining what types of permission for use should be developed with respect to "automated systems", and what types of compensation (and freedom to negotiate compensation) authors and publishers should have. Instant access by the computer to certain types of works for certain purposes may be socially desirable. But it is equally in the social interest to preserve for authors and publishers of certain types of work the freedom to first publish and disseminate their works in one medium before making them available to the other media, such as the computer-communications networks. An analogy, perhaps rough, but illustrative, and is the arrangements which developed *voluntarily* between hardcover book publishers and paperback publishers. The paperback book was also the result of a technological revolution in communication which made available to millions of Americans, quickly, and at low prices, all manner of literary and artistic works. Yet paperback publishing has functioned in a way that is compatible with conventional trade publishing. Of course, similar, voluntary arrangements between copyright owners and users have accompanied previous technological revolutions (motion pictures, radio and television) that created new methods of bringing copyrighted literary, dramatic and musical works to the public.

One of the most ironic aspects of the copyright-computer debate, is that the development of storage and retrieval and information systems obviously pose problems for society, for freedom of expression, for creativity which are of far greater importance than any—if there are any—created by the present Copyright Act or the Revision Bill.

A minor example is the view expressed by some advocates (including public employees) of computer-copyright-exemptions that these computerized systems should not have to pay for the right to use copyrighted works, or should not be put to the cost of acquiring permissions. The cost of using copyrighted material will be a drop in the ocean compared to the billions to be spent on building, installing and maintaining these systems. To my knowledge, not one of the public servants or representatives of private industry (including computer manufacturers) who have argued so strenuously for copyright exemption "in the public interest" has yet applied the same logic and principles to advocate, as such logic and principles dictate, that computer manufacturers be subjected to price fixing or compusory patent licensing; or that those who operate the systems be deprived of the right to bargain freely for their services.

And there are other problems also of vital concern to a society whose very existence depends on freedom of creativity and expression. For example: who will control the information networks; who will be responsible for their operation? Obviously, technology is bringing into being one of the greatest and perhaps the most potent of all public utilities. This one will not merely carry and sell

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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 uses 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 in 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. Wigren, *National Education Association*

INTRODUCTION

There are many points of issue which might be discussed at a conference 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 and learning in the classrooms of America, and in the way materials of instruction are utilized. There is decreasing emphasis on the teaching of "a class" 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 "stuffing" operation (a "teacher instructing" the pupils) but an endeavor in which 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, informal, unsystematic *learning* activities, rather than "systematic, instructional *teaching* activities."

Consequently, we in education are greatly concerned that Section 110(2)(D) rules out individualized and independent uses of materials. Dial or remote access and 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 as we are with *teacher* uses of these materials.

Record players and tape recorders with sets of earphones are becoming common in elementary, secondary, and college and university settings. Increasingly, students are *not* being moved to where the materials and equipment are, but rather the recorded messages are being moved to where the learners are. One of the most rapidly growing developments is 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 copyrighted materials illegal because the transmission is controlled by students, rather than by the teacher, on the basis that use by individual students substitutes for purchase of copies. In most instances no copying is done, and there is no substance whatever to the argument that this affects sales. In fact, the opposite is true. The provisions of S. 597 will require us to use horse-and-buggy methods of performance and display with new technological developments. Let me again point 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 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.
3. That *students* be enabled to use the new technology as freely as *teachers,* inasmuch as this is the direction in which education is moving. Section 110(2)(D) has an internal inconsistency. When the teacher uses the materials, no clearance is necessary but when the same materials are used by pupils, then clearances *are* necessary! Section 110(2)(D) makes no inhibition if controlled by the teacher, but only if controlled by the student. In other words, if the *teacher* pushes the button, copyrighted materials are allowable. If the *pupil* pushes the button, they are not allowable.
4. That materials be readily accessible without unnecessary delays or cumbersome clearance procedures. Improved access is imperative.
5. That teachers have reasonable certainty that a given use of a copyrighted work is permissable. Under-the-table uses must be eliminated.
6. That teachers who innocently infringe the law be protected.
7. That teachers be allowed to teach as creatively as they know how.
8. That the doctrine of fair use be extended to the use of computers and automated systems.
9. That the "not for profit" principle as now embodied in the copyright law be endorsed.

COMPUTER USES

Our position concerning computer uses is summarized in the following statements:

1. Computer input is not a "use" at all. It is no different from arranging books on the shelf of a library for subsequent use. Therefore, input should be exempt from copyright.
2. A computer program (i.e., the instruction to the computer as distinguished from the substantative data stored in the computer) should not be subject to copyright. The set of instructions or set of commands to the computer must not be copyrightable. Copyright should not embrace the process or scheme embodied in the program but must be limited to a prohibition against the program's improper duplication.
3. Computer output may or may not be fair use or other exempted use. When *not* fair use, we *expect to pay* and to have the materials subject to clearances. For this we eventually will need some organized means of access and/or payment.
4. The Ad Hoc Committee (of Educational Organizations and Institutions) on Copyright Law Revision says, "Study first, legislate later." We propose a statutory Federal Study Commission be created under the copyright act with a charge to make recommendations within a specific period (i.e., 3 or 5 years). The real difference between our point of view and that of the publishers is what happens in the interim. We say input is *not* an infringement; they say input *is* an infringement. Some type of statutory procedure is urgently needed for the periodic reassessment of the copyright questions generated by the computer.
5. The basic difficulty we have with Section 110(2) is that its practical effect is to destroy any exemption for computer-assisted instruction. It prevents individualization—use of the computer by school children at their own speeds—which is the essence of Computer Assisted Instruction (CAI) and its primary advantage. The restriction to use in a classroom runs contrary to the healthy trend of modern education to eliminate the confining limitations imposed by classroom walls.
6. The language of 110(2)(D) completely destroys the ability of the nation's schools to use computers.

CLEARINGHOUSE OR STATUTORY LICENSING SYSTEMS

Educators have certain fears regarding a clearinghouse:

1. It will tend to erode fair use.
2. It will not be mandatory on all copyright owners.
3. It will be subject to escalating fees.
4. It will not cover all types of materials.
5. It would be difficult to administer.
6. The only plans we've heard discussed thus far exclude representation of user interests in the control of the systems.

To be acceptable a clearinghouse must meet several criteria:

1. It must be over and above fair use—not in lieu of fair use.
2. It must be mandatory on all copyright proprietors.
3. It must cover all types of materials.
4. It must be free from "administrivia."

Let's have a law first, then work out a system of clearances and royalty payments on those uses which are over and above fair and exempted (110(1)) uses in the law. Do first things first.

It doesn't matter what the present law permits or does not permit. The thing that does matter is what the new law *should permit.*

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 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 it demand a solution which will

1. eliminate delay, uncertainty, and frustration encountered by libraries, organizations, and individuals in obtaining material cited in books, journals, reports, bibliographies or in indexes of various types;

2. reduce costs to libraries and information services for acquisition, shelving, storage, 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, citing, storage and retrieval of recorded knowledge and information.

Although knowledge and information are synonymous terms for a substantial amount of material, neither is all inclusive. Knowledge covers the realm of ideas and implies organized, synthesized and analyzed information. Information covers the other end of 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 or that helps 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 those 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 they wish it retrieved for perusal. 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.

If the code were to be universally accepted and administered by an international public-private corporation, this would have great significance for study, research, communication, business, government and for international relations. Identical material would bear the same identification number in libraries of all types or in electronic data processing systems. This is in contrast to the present situation in which identical works may be identified by the call number of the Library of Congress or in the case of microcopy by the Library of Congress card number, by some other subject classification, by accession number, by some bibliographic abbreviation, or by some source identification number as employed by the Government Printing Office. Since the effectiveness of such a system depends upon the centralized maintenance of source and copyright owner identification numbers, some institution has to be created or entrusted with this task and also with the function of maintaining a complete file of all material for which code numbers have been assigned except classified government material or documents and manuscripts of limited distribution. A public-private corporation would seem to offer the most satisfactory and flexible arrangement.

An international public-private corporation serves both to project and to protect the public interest and the political interests of the member states. At the same time, it does not subordinate the interests of authors, publishers, professional groups and others with vital economic interests in knowledge and information to an international bureaucracy run by governments and serving only political ends. A corporation having obligations to its stockholders, both governments and individuals, would be in a better position to achieve an economic balance among interested groups than would an existing international organization. Its revenue would come from the sale of microfiche and from the fees collected for the reproduction of microfiche. A portion of the fees collected would be paid to the publisher or copyright holder for every microfiche reproduction made of a microfiche bearing the holder's number.

With this system national and international exchange and use of information would be facilitated. Libraries could supplement their book collection with microfiche, so that a researcher requesting a number of citations in an article would only have to wait a few moments at a libary 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 in a reader, selects and copies those desired for further study and as an addition to his own collection. The machine which copies the microfiche automatically records the code number on a tape When it is full, the tape is taken to a computer service center where the entries are cumulated. 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 and copyright payments. If the reproducing machines are coin operated 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 filing number for individuals as well as for libraries and institutions with large collections, and as a common language permitting computers in different countries to identify and to communicate with each other about material contained in their programs. A short citation is important to research. When coupled with the prompt availability of microfiche copy much of the time and effort now spent in locating material can be devoted to improving the quality and to 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'Arcy 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 to his conclusions. Most writers hate to devote valuable 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 some journals would fill a page. Such abbreviations followed by a code number, or the code number by itself, would improve use of citations and rapid retrieval 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 development of citation indexing, citations would occupy a more important role as a search device.

The heart of a system for providing compensation for the reproduction and use of literary material is the method of maintaining accounts. If much manual effort is involved, the system quickly becomes one of spending dimes to collect pennies. A system such as the one outlined here would spend mills to collect nickels for those having the right to compensation for the reproduction and use of their product. Although a nickel may not sound impressive, it represents a return, without additional cost, on the use of material now represented by library lending. With the expanding use of material and greater efficiency derived from new information systems, the nickels 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 in the use of his work; the right of the author and publisher to compensation both for the use of a work and for access to it; and, finally there is the right of all the people to access to knowledge and information that has been made available to some of the people through publication. It is in the area of access and compensation that many of the daily violations of copyright law occur. It is not that people are unwilling to pay in money for access to published material provided by inexpensive copying devices, but they are unwilling to pay in time, trouble, and energy demanded by the existing permissions procedures which are really designed to protect the moral rights of authors and to assure adequate compensation for further published use of material. In the interest of maintaining the sanctity of the law and of promoting the public interest, it is time to distinguish between compensation for published use and compensation for access. A universal code number facilitates this by

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permitting the development of accounting techniques that impose the minimum requirements on users and provide accurate accounting of 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. By including 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 comparibility 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 on 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-numeric characters. It is designed to assure that, given a source and publisher number and a coding manual, different persons throughout the world would all 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. Taken together, they 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 but 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 to cover needs extending into 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 5 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 groups—1 letter.
9. Translated language, if any—1 letter.
10. Status of material (revision, amendment, reprint)—1 digit.
11. Subject or document identification code number—1 digit.
12. Subject classification or document numbers—2 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.
!=parallels.
?=paragraph.
@=capital delta.
{=capital sigma.
}=capital omega.

The equivalents 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 1 or 2 letters 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.

(NOTE—The above extract constitutes the first six pages of the completed document as described in the Bibliography.)

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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 unsuccessfully. Moments turned to minutes, and the patient 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 in an era when technology appears to erode rights and revenues, earnings, markets and importance. Technology includes microform, photocopying, broadcasting and other non-book media. The copyright problems posed by these media perplex publishers because they exclude the business they know so well, the book business.

The purpose of this paper is to suggest specific steps to be taken by book publishers to control non-book media and the new technologies.

ROLE OF PUBLISHERS

The new non-book technologies seem to benefit students, industry, and the consumer, but they are a bewilderment to most publishers. Reprography, microform (encompassing microfiche, microfilm and aperture cards with microchips), and computers in their myriad applications are a few of the new media that threaten the publishers, basically because the publishers do not control them. This is one of the major problems of copyright revision. Who is to control the new non-book technologies, the publishers or others?

Publishers are in the book business, non-book technology threatens them, and copyright revision is called on to protect them. Control of the new technologies has been abdicated to copyright revision, the publishers' Rumpelstiltskin. A change in the laws is sought to legislate the publishers out of predicaments that the publishers never envisioned, much like Rumpelstiltskin who became responsible for the salvation of his mistress. The story of Rumpelstiltskin is a pleasant fable, however, while the publishers are completely in earnest about copyright revision.

The copyright laws must be changed, but laws alone cannot solve the publishers' copyright problems.

Rarely has a more articulate or engaging group convened to argue its cause than the copyright counsels. But attorneys are not publishers, and legal definitions cannot resolve marketing and managerial problems. The law cannot define the publishers' business policy for them. Publishers must do it for themselves.

Will publishers be successful in demonstrating their own capability to harness the new technologies? As they begin their inquiry into the copyright problems that confront them, they might ask of each if it is a problem at all and if so, if it is a legal, marketing or business policy problem.

FORMATION OF PUBLISHER POLICY

For instance, the textbook publishers might inquire if demand publishing on Xerox and other machines reduces textbook markets. It is a reasonable question to ask because there is the constant specter of its occurrence. It would seem that the cost characteristics of reprography are so punishing that it is more economical to buy than to reproduce on-site anything other than a few pages. For instance, if the publishers knew which pages were most useful to teachers and students, they could provide copies at a fraction of the cost of in-school duplication. Does this situation resemble a copyright problem or a problem for market research?

Simon & Shuster's Associated Educational Services has developed a simple and absolutely powerful concept in Papertexts. Teachers can literally create their own anthologies and textbooks by ordering from the dozens of printed selections available to them. It is more economical to buy these learning materials from Simon & Shuster than to violate the copyright laws. This is one publisher's response to the needs of his market. Such action clears a wide swath in the harvest of similar copyright problems.

This does not dispose of the problem of reprography for publishers, but places one copyright problem in context and illustrates one way that a publisher is meeting the needs of his market. There are also other answers. They come to light as copyright problems are defined in terms that admit rational analysis.

The copyright problems of the textbook publisher cannot be equated with those of the periodical publisher, the tradebook publisher, the newsletter publisher, the newspaper publisher, the electronics company that just acquired a publishing concern, the scientific publisher, the children's publisher, or the music publisher. No one problem affects them. No one solution will help them. *Each copyright problem must be defined in terms which permit analysis, understanding, the development of alternate courses of action, and reasoned decisions.*

The need for educators and their publishers to learn how to program instructional materials for the computer is an obligation largely unassumed. Who then is to create the "computer texts?" Computer companies and outsiders to the world of formal education must inquire into scholastic problems to discover ways to utilize the computer to solve them. The well developed problem-solving capabilities of the electronic, industrial and communications interests threaten the publishers far more than computer technology and copyright weaknesses.

Computer programs for computer-aided instruction can be included in the price of the computer itself, sold outright, leased, or charged for each time students use that particular program at the time of output. The publishing companies can create instructional programs for computers or the computer companies will do it for themselves. Is this a problem of copyright or initiative?

Publishers can as easily seek out the computer manufacturers for joint ventures and associations as wait for them to initiate such moves. Harcourt Brace & World and RCA have reached an agreement regarding "computer texts" developed by the publisher for the electronics equipment of RCA. The assumption cannot be made, however, that the computer is always appropriate for student use. It has its place, although as yet undefined, along with the other tools of learning. Nothing currently proves that the computer in schools is anything more than an elaborate and expensive toy or as effective as a motivated student, a well-written book, an empathic teacher, an exciting course of study, a sequence of programmed instruction, an educational film, television program, instructional tape or other learning materials. However, the publishers could determine the role of the computer and "computer texts" in association with computer manufacturers and in cooperative efforts with the schools.

It is predictable that non-book technology will force publishers to take a more expensive view of their business. Even now, many are calling themselves "multi-media" companies and distributing filmstrips, study prints, kits of instructional materials, and other non-book items which (while not exactly representative of the new technologies) are not traditional hard and soft cover items either.

We can expect the unusually capable copyright counsels to win their battle for the preservation of the concept and legality of copyright. We can expect the industrial, electronics and communications companies to take an ever-increasing share of the publishers' traditional markets. Can we also expect that publishers will cooperate in the formation of their own systems of permissions and payments to make immediately available copyrighted materials for which there are recognized and felt needs?

THE CLEARING HOUSE CONCEPT

Publishers, their authors, students, teachers and the public would benefit significantly if there were non-exclusive clearing houses. One is desperately needed for the textbook publishers, another for the publishers of periodicals and journals, and a third for the publishers of trade books. Administrative costs could be significantly reduced by combining all three clearing houses.

The notion of a copyright clearing house is certainly not new. It has been suggested, studied, researched and recommended by some of the most brilliant minds in publishing as well as those deeply concerned with copyright law. Why then is there no copyright clearing house?

Several factors have retarded its formation. Namely:

1. Uncertainty about the legality of copyright clearing houses.
2. Problems of organization and administration.
3. Problems of collection and distribution of license fees.

These are difficult problems to be sure, but similar problems are encountered in every business. There is nothing unique or insurmountable about them. The non-exclusivity of licensing should largely eliminate the question of legality. Sound business management can resolve problems of organization, administration, collection and distribution of fees. The biggest stumbling block in the creation of a copyright clearing house has always been the definition of what a copy-

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

Unfortunately, a clearing house has been envisoned 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 as a business rather than a confederation of interests, however, 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 clients to court. No 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, microcameras 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.

The cooperation and support of a significant number of publishers is essential. A copyright clearing house can become a 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 publisher-stockholders, 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 that will be made of copyrighted works, once restrictions are lifted.

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 the basis of regular random samples. The fees would be set at a rate consistent with the value derived so as to encourage maximum use. Costs of administration would be reduced through the use of the new technologies, in particular computer accounting systems.

Sampling techniques would be determined in a two-year test in several major school systems. During this period, the nuclear group of publishers—stockholder founders of the clearing house would give completely free access to their works without charge through the clearing house. Teachers and students would be encouraged to make whatever use served their best interests without regard to existing copyright laws or payments. On the basis of research results, random sampling techniques would be established, fees determined and collected for future use. Similar research would be conducted in non-textbook markets.

Publishers would be able to establish a profit-making system for permissions and payments through their clearing house. In addition they would be able to offer a feasible alternative to any less than satisfactory solutions proposed by the National Study Commission that will investigate copyright revision.

The National Study Commission is welcome, needed, and promises some useful solutions. Publishers, however, will have lost the initiative of organizing their own clearing house as soon as the Commission announces that it will study the clearing problem and begins to do so. This announcement is inevitable. It is possible that the publishers want the National Study Commission to organize a clearing house for them, but surely the Commission would welcome independent research and development. After all, it is research and development that have catapulted most of the industrial, electronics and communications companies to the positions of prominence they enjoy today. The publishers can do at least as much for themselves, if they want to.

IN THE LAST ANALYSIS

Publishers are in far greater control of their destinies than it might seem. They can resolve a large number of the problems posed by the present copyright law through their own problem-solving capabilities and innovative management. A major challenge confronts them now: Who is to take the initiative for a comprehensive system of permissions and payments, especially in the formal school markets? It is now time that the publishers cooperate and support such a clearing house that represents their interests. If they do not, the government will surely define their interests for them, and the publishers will lose still more control of their own revenues, earnings, markets, and importance. We propose to organize and administer a copyright clearing house based on a system of equitable license fees that will profit the stockholder-publishers and their authors, the intellectual community and the public.

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Summary and Analysis

by Lowell H. Hattery and George P. Bush,
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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 recommends.

COMMENTARY ON PAPERS PRESENTED

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

After a review of legislative history of copyright law revision by Barbara A. Ringer, the state-of-the-art of electronic computing 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 for the next 10 years will be "unreliable, impractical and uneconomical for bulk storage." This does not belie the usefulness of computers for text manipulation. George Eltgroth applied concepts of systems analysis to the problems of copyright and changing technology.

Communications technology was reviewed by James F. Holmes.

Microform storage and automatic retrieval of film was reported by A. Kenneth Showalter. 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 video techniques seem to have special significance for the copyright problem.

Julius Marke posed 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 Marke 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 and related technology will dominate the research world, and these 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 can uniquely identify documents of various kinds, worldwide, and for a period to the year 2500. He explained the need for a universal system particularly in the resolving of copyright problems in the area of permissions and payments. The specifics for such identification are stated.

A briefer presentation by Hilton appeared as a paper in a recent book: *Proceedings of the American Documentation Institute. Annual Meeting. Vol. 4. 1967*, entitled: "A Method for Organizing Information by Uniquely Identifying All Recorded Knowledge" (p. 119–123). He stressed the necessity for early adoption of such a system and its important relationship to any sort of clearinghouse for permission and payments for copyrighted materials.

Numerous attempts have been made to classify "the literature". Those attempts in the western world with which one is most 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 (HUC) is a code identification which uniquely designates each individual item and which can incorporate within itself a large number of lesser numbering systems, thus facilitating its introduction and usefulness.

Norton Goodwin has offered a numerical document identification system for control and accounting purposes which has the qualities of uniqueness and simplicity. It does not include any subject or other non-objective classification elements. The system is described in his statement before the Senate Subcommittee in April 1967.[1]

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. He said in part: [2]

"In drafting an automation-oriented statute designed to deter unauthorized copymaking, care must be taken that all operational instructions can be executed on the basis of data in hand. This calls for specification of an efficient format for the notice of copyright in which the unique identity of each work, the identity of the payee, and the expiration date is to be given. To be efficient, the format must recognize that payee and expiration information are part of, and not additions to, the identification of the work.

"Similarly, the format for the authorization entry must be specified with a view to storage economy. In addition to the identity of the work, the authorization entry must include fields for the identity of the authorized copy-maker, the execution date, and for the serial number, should more than one copy of the work be executed on that day.

"Record-keeping cost considerations require that the requisite fields be kept as few and as small as practical."

In view of the fact that permissions and payments are dependent upon unique identification of copyrightable materials, it is obvious that a code identification is part and parcel of the copyright revision problem. In further studies, symposia, or Congressional hearings, Professor Hilton, Mr. Goodwin and others should be heard on this subject and its related aspects.

On adoption of an official document identification system, the following steps should be taken:

a. A manual should be prepared for the use of publishers, librarians, educators, Federal contractors, Federal offices—all sources which generate "literature". Such a manual should explain the steps in selecting appropriate code identification numbers.

b. Literature dated after September 1, 1968 (or other specified deadline) presented to the Copyright Office for copyright should bear a code number on the application and the same number should appear on the verso of the title page of the book or on the title page of monographs, U.S. government publications, reports and other "literature". After the deadline date no copyright would be issued without such code number.

c. Literature dated prior to September 1, 1968 (or other deadline) should be identified by a code numbering system as rapidly as possible.

d. Universal application. Steps should be taken to suggest to the members of the Berne Convention that they adopt the code identification system.

The organization of an operational clearinghouse to provide systematic access to the contents of published works that will at the same time secure incentives to intellectual creativity and formal organization was considered but not in detail. In his paper on "Systems of Permissions and Payments" Norton Goodwin commented on the matter of securing a competitive market for intellectual property in a made-to-order information copy technology.[3]

Of the thirteen study areas suggested by Goodwin [4] the question of alternative methods of pricing was the only one on which a detailed position was reported. Review of the complete list of study areas identified further topics for serious study in the formulation of a public policy concerning new technologies for storing and accessing the contents of published documents.

Paul G. Zurkowski, in a paper analyzing the unique elements of the post Gutenberg era, suggests three specific changes in existing copyright law concepts "to continue protection for rights of authors and copyright owners and to provide the means for accounting for copying." These changes are: (1) Provision for a "format copyright"; (2) provision for statutory copyright licensing; and (3) a unique identification numbering system for accounting purposes.

Several papers reported the interests of special groups. Charles F. Gosnell discussed the interests of librarians. Dr. Gosnell is chairman of the Committee on Copyright Issues of the American Library Association. He takes the position that copying as practiced in libraries, is a time honored custom that does not affect sales of books and periodicals seriously, if at all. He raises strenuous objections to actual and proposed invasions of the public domain, such as extension of duration of copyright, development of the "lending right" or royalties on loans of books from libraries, the proposal to establish clearing houses for collecting royalties from libraries, the restriction of

[1] 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. 37 on S. 597. Part 3, April 6, 11, and 12, 1967. Washington, D.C.: U.S. Government Printing Office, 1967, pp. 737 ff.

[2] *Ibid.*, p. 746.

[3] *Ibid.*, pp. 760–765.

[4] *Ibid.*, p. 762.

computer input, and is against the proposals to base royalities on use of copies rather than on sale.

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

Arthur J. Greenbaum argued for copyright protection against conversion into machine readable form. Charles H. Lieb discussed the problem of adequate rewards for producers of intellectual works.

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 what the terms 'programs,' 'input' and 'output' will encompass as computer technology develops. Therefore it is not advisable at this time to draft language for a statute using these terms or referring to what they intend to cover.

"3. At the present time there is no evidence whatsoever that publishers, authors, owners and users of computerized information 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 government supported and administered publishing industry. 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 V. Wigren reviewed trends in educational methods and the requirements he sees as necessary to the fulfillment of those methods. Among requirements are:

1. Input into computers should be exempt from copyright.

2. The doctrine of "fair use" should be extended to the use of computers and automated systems.

3. Students should be enabled to use the new technology as freely as teachers.

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 3 to 5 years.

Dr. Wigren also said, "Some type of statutory procedure is urgently needed for the periodic reassessment of the copyright questions generated by the computer."

Although no one spoke specifically for journal publishers, one participant provided the statement of the President of the American Chemical Society, Charles G. Overberger, to Senator John L. McClellan (the ACS publishes 18 journals and *Chemical Abstracts*). The statement expressed concern "that the unauthorized use of materials under an increasingly liberalized 'fair use' doctrine could impair or even destroy our ability to generate, publish and disseminate such scientific information in the future. While the Society in no way seeks to hamper or restrict either the learning process or the use of technological developments and equipment needed to improve the exchange of information, it cannot be oblivious to the effects of these developments on the essential financial support needed to continue the publishing function which generates the basic materials." [5]

DISCUSSION AND PRINCIPAL ISSUES

Discussion following symposium papers was full, vigorous and issue-related. A wide range of interests and background was represented. To some the stakes were high and the issues critical. It shold be recalled that the House of Representatives had passed a controversial revision bill just four weeks earlier and that the Senate had held hearings.

Bearing in mind that this group of persons represented several disciplines, there was some groping toward a statement of the problem. But it soon developed that there was not one central problem only, but many interrelated problems—legal, procedural, legislative, cultural, technological and time-related. Principal interest in the debate concerned these topics: Input and Output, Economics and Pricing, Clearinghouse, Author-Publisher-Educator-Researcher, Study Commission, Fixed versus Ephemeral Image, Pending Legislative Action. Interdependency of some of these topics results in some redundancy in reporting.

INPUT-OUTPUT ISSUE

This issue is complex and critical. In general, producers of information feel they will be served better with copyright protection at input to an automated systems; users feel they will be served better with protection at output only.

Within this general division there are variables. The use to which information is to be put may be recognized as a significant variable at either input or output. For example, the privilege to input copyrighted materials for experimental, resarch purposes might be differentiated from input for general retrieval purposes. On the other hand the concept of "fair use" is a variable applied at output. (The same concept *could* be applied at input also.)

The issue was debated vigorously. Polar positions were expressed. However, there was a significant voice expressing the view that neither polar position was realistic. The voice seemed to favor protection at input with exceptions which in general would be determined on the basis of use.

The input-output issue might well have been the focal subject for the full symposium, or a similar symposium in the future. Appraisal of the situation, now and in the future, requires a hard look at several technologies—computer memories and tapes, line communication, facsimile, ephemeral visual display, microprint, microfilm and coupling one or more of these technologies into automated systems. Such a prospective review assumes study of the economic benefit derived from the file organization as distinct from the value of the information contained in the file.

As to input, it was pointed out that there should not be too great rigidity of policy because the copyrighted materials vary greatly even within educational materials. It is also possible that some materials should be controlled at input, others at the output stage. A representative of education believed that at this point in time we know very little about the economics of this question, the size of the data base, and the definition of input and output. He thought it abundantly clear that this topic needs further study and that this is not the time to take a hard position in terms of legislative language. In this same vein, he called attention to Sections 108 and 110 of H.R. 2512, with the suggestion that prejudice against the computer should be removed.

At this juncture it was noted that H.R. 2512 makes no reference to input, whereas output is frequently mentioned or implied. Also noted was the act of infringement in the making of a microform. An attorney who represents publishers suggested that the lack of protective security is the reason for controlling input rather than output.

An attorney for educational interests expressed the hope that out of Congressional debates the educational community would get a bill favorable to its interests. For example, in the matter of input and output, both should be exempted. As to the point of payment, he indicated that agreement could be made at any point in the output process. Implicit to the interests of the educational community was the issue which emerged during the course of the symposium: the public's interest versus the owner's interest in the free dissemination and accessibility of ideas, particularly in the three areas of research, development, and education. A new phenomenon is apparent as one notes the merger activities between publishers and the electronic hardware, software and reprographic machine corporations. This matter is being watched with interest by the Department of Justice, which was represented by attorneys at the symposium.

A Federal official reported a movement to set up an interagency Ad Hoc Task Group on Legal Aspects Involved in National Information Systems. Its function would be to consider the relationship between scientific communication and property rights, including the implications of proposed general revision of the copyright law. This appeared to be a positive step by the Executive Branch, which heretofore had not taken much action in the revision process.

Control by copyright owner at input was deemed essential by a publisher representative, as otherwise instructional materials are likely to be severely discouraged, and, furthermore, protection against misuse cannot be adequately safeguarded. It was also pointed out that there is nothing inherently wrong with the input into the information storage and retrieval system. What is wrong is that the user who makes the multiple use does so at the cost of a single hard copy instead of a cost realistically determined with relation to the cost of publishing, on the one hand, and the nature of the user on the other. To insist in these circumstances on free input and the equivalent broad educational exemption is an "exercise in futility," in the opinion of this participant.

Another counsel for publishers urged that proprietors should be able to control the use of their material at the point where it is converted into machine-readable form for use as computer input. This kind of transcribing should constitute copyright infringement.

As a practical matter, it was pointed out, it is difficult or impossible to measure the extent of output of copyrighted material or the extent of internal manipulation of such material. Therefore, controls have to be placed at the input stage. A differing view was presented for the special case of ephemeral display. It was suggested that the introduction of a work into the data processing system for ephemeral display purposes should not be considered as violating the constraint of the copyright law.

ECONOMICS AND PRICING

Most of the byways of discussion finally lead back to central issues of economics and pricing. Users claim they are not seeking something for nothing and producers claim they are simply protecting viability. The problems about which it is difficult to agree, even within producer groups and within user groups, include:

(1) Compulsory vs. voluntary licensing;
(2) Fixed vs. variable fees;
(3) Antitrust considerations;
(4) Agent for collection of fees;
(5) Accounting for usage.

There is precedent for applying different fees to different kinds and frequency of use. A participant cited an example: "An individual might spend $3.50 to buy a printed copy of *My Fair Lady* in order to read it,

[5] Letter dated May 3, 1967, published in *Chemical and Engineering News*, July 31, 1967, p. 59.

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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 operation 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 advent of automation and the new technology, it was argued, would not greatly affect pricing practices in the publishing field. On the other hand it might greatly affect the payments practices.

It was noted that Chemical Abstracts, Inc. had considerable success with standardized contracts for its informational services. CA 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 group of 25 or fewer scientists. (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 United States have free access to books within a library. Should there be a charge to him for remote access, when a book or an article is secured for him through interlibrary loan or its equivalent?

It was suggested by a publisher representative that there should be willingness on the part of users to sit down with publishers 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 schoolhouse education, but to home use via telephone circuitry. In both cases pricing can be based upon use because the computer can maintain auditable records. It was urged that pricing based upon user frequency not be written into the language of the copyright law.

Discussion 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 life-long, de-institutionalized learning. Therefore there is little data upon which to base a pricing policy.

Another element in the problem of fixed prices is the difference in costs of developing and marketing different kinds of publications. One participant said, "Consider, for example, the different factors involved in the publication of a directory, of an encyclopedia, or a reference work, or a text book, or a work of belles-lettres."

It seems obvious that a statutory fixed fee is impractical. On the other hand there are legal questions associated with a private clearinghouse pricing system. This issue was discussed by a participant in the following statement:

"A voluntary clearinghouse with which each user would bargain in order to secure permission to use whole batches of copyrighted material raises difficult problems insofar as it eliminates competition between owners of copyrighted material to sell that material to a 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. And, for that reason, if such a system is not specifically sanctioned by law, it is probably illegal under the antitrust laws."

The participant added these comments on a "reasonable royalty" approach by a clearinghouse:

"The monopoly problem of a clearinghouse arrangement is mitigated to the extent that the clearinghouse is required to charge a reasonable royalty. The major problem is that of determining the amount of reasonable royalty. This might be a) set by a governmental representative on the clearinghouse staff, b) set by a court, or c) set by the private parties, but with penalties provided if a court later determines that the royalties were not reasonable (like the CATV compromise in the proposed revision). This last proposal sounds the most practical, for it will eliminate much of the burden thrown upon the courts by, for example, the ASCAP decree, which requires them to set reasonable royalties. (It would also be possible to have the statute provide for compulsory licensing at a reasonable royalty without a clearinghouse.)"

Related to the topic of pricing is that of payments, and closely related to payments is that of permissions. There is great divergence of views on both permissions and payments. There are many who would prefer not to recognize the problem because of time and effort to seek out the copyright owner. Furthermore, there is the problem of negotiation on price and formalities of payment. As a consequence, there is more and more copying, as the mechanism and associated materials become cheaper.

Against the kind of activity, few copyright owners have asserted their rights. To justify the cost of a suit for infringement the prospective damages and certainty of relief must be substantial. Few copyright owners would, on the other hand, like to sue a school teacher, or a library. Copyright owners may not prevent the Federal government from infringing, and the procedure for securing payment under Sec. 1498(b) of Title 28 is clumsy. What is needed is an efficient, workable, relatively inexpensive system of permissions and pricing; and accounting, collecting, and billing for use of copyrighted materials. Some have pointed out that to be efficient the system must assume a predetermined price and a compulsory license.

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.

Discussion arose regarding the antitrust aspects of pricing, particularly differential pricing based on quantity or any other factor. The same argument applies to a clearinghouse operation, which might unlawfully exercise a monopoly control. There are various ways in which a clearinghouse could violate U.S. antitrust laws. After all, a copyright is a limited monopoly as is a patent. In the previously mentioned mergers between publishers and communicators, one can foresee the possibilities for problems due to refused access to intellectual property, or in the event of flagrant special treatment of preferred customers.

Another participant described the economics issues: If the economics of publishing is recognized as a basic factor in the discussion, then consideration must be given to the market for which the published information is prepared and this, in turn, requires not an examination of publishing in general, but inquiry into the economic aspects of the many and varying segments of the publishing industry. As another example of economic issues, he cited the many libraries of the New York State system, which together might purchase but one copy of a given book. The same action may be taken by large industrial companies. Under such circumstances, the work will not be published—unless the purchasers of single copies for multiple use pay the publisher more than the cost of a single hard bound copy.

The economic issue was capsulized by one participant: Regardless of the legalisms or the technology of computerized systems, the important question concerning the rights of the copyright proprietor is whether he is being hurt in the pocketbook. To the extent that the availability of the work in a system substitutes for the purchase of multiple copies from the copyright proprietor, he is being hurt.

STUDY COMMISSION

The concept of a national study commission was discussed at some length in the symposium and in supplementary statements submitted by the participants.

Sponsorship. Many suggested establishment by the Congress. A voluntary private commission to parallel an official commission was suggested. It was pointed out also that the already-existing Committee to Investigate Copyright Problems (CICP) and other groups could provide this unofficial parallel to a Federal Commission, to serve as supplementary and checking agents.

Composition. There are several issues of commission membership—e.g., size, source of appointments, and representation. One participant said it should be "large enough to include all significant groups of creators, transmitters, conservators and other users and small enough to be workable—no more than twenty persons."

Life. Recommended lifetimes of 3, 5, and 7 years were suggested, in most cases assuming a terminal report with recommendations. A continuing, indefinite term was also suggested.

Powers. There was little discussion of powers. A difference of opinion was expressed about subpoena power.

Reporting. A terminal report embodying findings and recommendations to the Congress was assumed by most who expressed themselves. Others suggested reports from time to time.

A publisher representative said that an impartial study is desirable, but during the study period the present law should remain as it is, so the rights of authors and publishers may be protected; furthermore, that an Advisory Council be established to keep the computer subject under consideration, study the problems as they come up, and report to a joint Congressional committee; and that the committee then make proposals for consideration by Congress.

A more specific suggestion was offered for 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 chairman should be the Register of Copyrights. Selection of these commission members would be delegated to whoever at the time were chairmen of the sub-committees of the House and the Senate which were considering Copyright revision legislation.

CLEARINGHOUSE

The discussions of economics and pricing lead to a consideration of the desirability of some sort of clearinghouse, through which to administer permissions and payments for the use of copyrighted materials. Although the ideas of a clearinghouse had been considered for years, some persons present had vague notions as to what functions it should have and which niche it should occupy in the administrative hierarchy. Views ranged along a continuum from: "do nothing," as one extreme to, "transfer the Copyright Office from the Legislative Branch to the Executive Branch and give it regulative powers somewhat similar to the Patent Office."

Between these extremes are many variants. Previous mention has been made of the (CICP) Committee to Investigate Copyright Problems Affecting Communication in Science and Education, which concerned itself with this concept of a clearinghouse. It will be noted that CICP has a limited focus, confined to science and education. Thus, fiction and a host of other copyrightable materials are unaffected.

There were comments regarding analogies such as (ASCAP) American Society of Composers, Authors and Publishers, 1914, and (BMI) Book Manufacturers Institute, 1932, which were industry-controlled regulative bodies which had functioned for many years. It was pointed out that the analogy to the

problem at hand did not fit. Several comments concerned the Patent Office and it was 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 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 alphanumerical 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.

SCHEDULE 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 reasoning 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 pass-now group 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 now familiar points 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 users 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 more attention in the future as (a) retrieval systems emphasize the retrieval of selected passages rather than entire documents and (b) the use of display is extended. One person commented: "the ephemeral, 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."

Conclusions and Recommendations

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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 please all parties at interest and it may be difficult to secure its passage as a unit. Nevertheless, several portions of the bill are in need of early passage and may well be offered piecemeal as amendments to existing law. Care should be taken that interrelated topics are carefully explored.

2. *Future Legislation:* Because of the the rapidity of evolution of information technology and media, educational needs and methodology, any legislation affecting copyright must be subject to continuous review and periodic amendment.

3. *Problems Are Interrelated:* The impact of automated information systems upon the copyright law appears to have created not just one problem, but rather many interrelated problems: legal, procedural, legislative, cultural, technological, and time-related. It is unrealistic to approach one aspect without due consideration of many other aspects.

4. *The Ad Hoc Study Commission:* In furtherance of Par. 2 above it is desirable to establish some form of administrative body, preferably on a continuing basis. The Copyright Law as it now stands is based upon the Act of 1909, 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.

Such an assumption seems to be unjustified primarily because of the effects of technology and automation. Neither effect has been made 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.

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

5. *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 clearing-house, whose officers would include a member of the Department of Justice. The permutations and combinations in the problem of pricing will in a few years become so complex that the independent agency would do well, if established, to give high priority to this issue.

6. *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.

It has been suggested to the contrary that the rights to enter any intellectual property into a computer be compensated for by traditional bargaining in the open market.

The mechanism for achieving the latter objective does not exist at present. It appears to be imperative that a body be constituted for administering the function of permissions and payments. Whether such a body should be a public agency or a private corporation, such as ASCAP, presents a major problem in public policy, requiring further study and debate.

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. Hilton'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 adopt the same coding system.

8. *Input-Output:* A dilemma exists regarding the issue of whether it be 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 incentives for creativity of authors and the distributing functions of their publishers, and at the same time 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. Fundametal 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 have 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' posture 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

SELECTED BIBLIOGRAPHY

(*Note on the Bibliography:* The bibliography is included to provide additional background and guidance. An 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 comment. Most of the items cited are dated in 1966 and 1967.)

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Summary of main findings: 1. Computer information processing is of growing importance, and in a multitude of ways involves dealing with what is copyrightable material. 2. The copyright revision bill does not deal directly with many vital aspects of computer information processing. We feel that enacting it into law in its current form could lead to difficulties of interpretation. 3. We recommend further study of the copyright issue, and support in general the proposal to create a study commission on copyright law. We find the Panel is divided on the advisability of enacting the present bill in its current form, pending the outcome of the Commission's study. Panel participants: Albert V. Crewe—chairman, Robert M. Hayes, Benjamin Kaplan, William F. Miller, Charles G. Overberger, W. B. Wiley, F. Karl Willenbrock and Charles P. Bourne—executive director.

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This address concerns the emerging problem of computer uses of copyrighted materials. Topics include: Permissions and payments; Input—output; Clearinghouse; EDUCOM, ERIC. "So I can heartily endorse the widely favored suggestion that Congress should enact the present copyright bills without more specific legislation on computer uses, but with a provision for the appointment of a study commission to investigate the impact of the developing new technology on the creators, publishers, and users of copyrighted works."

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"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 system through which colleges and universities of all sizes and in all parts of the country can have quick access to information and can share library and computer resources. The impact upon the copyright laws, while mentioned briefly, was not explored. (Charts, diagrams, tables, glossary and index)

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"It is the purpose of this article to briefly examine the background of that revolution, some cases which illustrate the need for a change, and the innovation brought about by the new bill.

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* * * * *

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"Tomorrow's computers will revolutionize business, education, communications, science—in ways only dimly foreseen.

* * * * *

"If there is one salient fact about information technology, it is that it is going to produce enormous social change. As the quality of life is changed, as the rate of learning, information, travel, and communications all change, we will see a major change in living patterns, in hopes and desires. In short, a complete new environment will exist."

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Examples of computer-extended instruction, the teaching of a discipline using a computer, which is contrasted with a computer science course.

Drury, Harold F. 1967. The Printing and Publishing Industry: Where Is It Headed in 1967? In *Inland Printer*, Jan. 1967. p. 35–37.

A statement by the Director, Printing and Publishing Industries Division, U.S. Department of Commerce, covering the several aspects of the twenty billion dollar per annum business. "Several factors are at work transforming the printing and publishing industries from a trade of craftsmen into units of broadly-based communication facilities. Advances in technology, computer-assisted graphic techniques, and mergers with nongraphic arts companies have created substantial pressures on industry management."

Fanwick, Charles. 1967. Computer Safeguards: How Safe Are They? *SDC Magazine* 10: 26–28, July–Aug. 1967.

The limitations on use of a given information retrieval system cannot be assigned exclusively to the hardware. "Few technological bars exist today which in themselves preclude retrieval of any data from a data bank. . . . That which man has programmed, man can also unprogram. . . . Only when suitable secure hardware is combined with intelligent construction of the data base; legal threats against divulgence; high cost of time, effort and money to obtain access; and suitable screening and proof of the ethical qualifications of authorized users can we hope to offer an operational system which is present as being capable of protecting the privacy of the individual."

Fedde, George A. 1967. Plated Wire Memories: Univac's Bet to Replace Torroidal Ferrite Cores. In *Electronics* 40:101–109. May 15, 1967.

Thin films on wire substrates form stores that are fast, cheap, yet easy to make; memories of 100 million bits are feasible. "Neither intentional nor accidental power shutdown affects information stored in a plated-wire memory."

Garfield, Eugene. 1967. In *Science* 156: 1398–1401. June 9, 1967.

A report on a symposium: "The place of information retrieval and scientific communication in the education of the scientist," held at the 133rd American Association for the Advancement of Science Meeting, Washington, D.C., December 27, 1966.

One speaker, Alvin Weinberg, is quoted: "The information center . . . is proving to be a dominant element in the new information system. The information center will surely continue to proliferate and develop as science and scientific information increase. . . . The education of every scientist will have to include instruction in handling the new and ingenious tools of information retrieval."

Gipe, George A. 1967. *Nearer to the Dust:* Copyright and the Machine. Baltimore, Md. Williams & Wilkins Co. 1967. 290 p.

"The purpose of this book is to describe, in layman's language these basic unsolved problems [subsequent to the expected passage of a revision of the copyright law in 1967] and their relevance to the average person in our society."

Chapter 4 is concerned with the invention of xerography and its impact upon the office copier field. Chapter 5 is concerned with "fair use" of copiers by students and librarians. Chapter 6 is a discussion of several aspects of the concept of "fair use." Chapter 12 expresses views of various interested parties in the conflict between copyright and computerized storage, retrieval, and dissemination of information. Chapters 12, 13 and 14 discuss the efforts toward revision of the copyright law. Chapter 15 discusses permissions and payments, as related to some type of clearinghouse. Three appendices relate to Chapter 15. Index.

Goldberg, Morton David. 1966. Recent Judicial Developments in Copyright Law. In *Bull. Copyright Soc.* 13:378–401. Aug. 1966.

Originally a paper delivered before the Section of Patent, Trademark and Copyright Law of the American Bar Association at Montreal, Canada, Aug. 10, 1966. Mr. Goldberg discusses the CATV case: United Artists Television, Inc. v. Fortnightly Corp. and comments briefly upon three scores of lesser cases.

Goodwin, Norton. 1967. *Automated Information Storage and Retrieval: Permissions and Payments.* Text of an address at Institute on Printing and Publishing: Management of Automation, The American University. Washington. January 16, 1967. 9 p.

"The real subject of my talk is statutory systems of deterrents to unauthorized copymaking. It is a subject of major significance if the public interest in sustaining 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."

Goodwin, Norton. 1965. *Information Processing Systems and Copyright Legislation.* A paper presented at the Society of Photographic Scientists and Engineers' 1965 Symposium on Photography in Information Storage and Retrieval. Washington. October 21–23, 1965. 14 p.

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

Goodwin, Norton. 1967. *Intellectual Property in Automated Information Systems.* Remarks to members of the Patent and Proprietary Information Committee, Electronic Industries Association, Washington, March 14, 1967, 5 p.

"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 is true of an automated library, but the results of going to electronics, in terms of reduced access time and lower copy costs, represent a major break-through in human communications."

Gosnell, Charles F. 1966. The Copyright Grab-bag. Observations on the New Copyright Legislation. *ALA Bull.* Jan. 1966, p. 46–55.

"These reflections by the chairman of the American Library Association Committee on Copyright Issues incorporate the substance of some of his testimony before congressional committees which are working on the legislation. Mr. Gosnell is director of the New York University Libraries." Topics include: History of copyright; What actually is copyrighted; Photocopying; Fair use; Joint committee on 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."

Gosnell, Charles F. 1967. The Copyright Grab Bag, II. A New Kind of Lend-Lease. *ALA Bull.* June 1967, p. 707–712.

Reference is made to a previous article (ALA Bull. Jan. 1966, p. 46–55.) "Since then, several copyright bills have been introduced in both the House and the Senate, together with a substantial report by the House Committee on the Judiciary. It is now appropriate to assess the current trend and to issue a warning accordingly." Topics include: Fair use; Duration; Not-for-profit; Proposals for a clearinghouse and a regulatory commission.

Grossman, Alvin. 1967. The California Educational Information System. In *Datamation* 13:32–37. Mar. 1967. Diagrams.

A general description of the evolving California information system for centralizing data processing at regional centers. Such facilities could be utilized part-time for instructional purposes.

Hattery, Lowell H. 1966. Computers, Typesetting, Printing and Publishing. In *Computer Yearbook and Directory.* Detroit, Mich. American Data Processing, Inc. 1966. p. 196–206.

In this chapter is discussed the state of the related arts of printing, publishing, typesetting, and electronic computers, as of 1965, their interrelationships, problems, and outlook. "The total system of the printing process, tied together and driven by computer control seems to be the inevitable direction for automation of the future." Illustrated. Bibliography.

Hattery, Lowell H. 1966. Federal Programs and Commercial Book Publishing. In *An Economic-Media Study of Book Publishing.* New York. American Textbook Publishers Institute. 1966. p. 31–118.

"The objective of this study is to identify and assess current policies, practices, and trends in the legislative and executive branches of the federal government in the perspective of present and potential impact on commercial book publishing. Includes a bibliography and three appendices.

Hattery, Lowell H. 1966. Microfiche Comes of Age as a Publishing Medium. In *Book Production Industry* 42:46–49. Dec. 1966.

Easy handling and excellent page storage capacity are creating a mushrooming growth market for these 4x6" film sheets. Prices for microfiche copies are dropping sharply—sometimes to a small fraction of the cost of the same publication in conventional printed form.

Hattery, Lowell H. and George P. Bush (eds.). 1965. *Automation and Electronics in Publishing.* Washington. Spartan Books. 1965. 206 p.

This book is derived from a symposium in 1965 sponsored by the Center for Technology and Administration of The American University, which explored the electronic printing automation problem, its various technologies, viewpoints, proposed solutions, and outlook. In addition to reporting the symposium the book includes a summary chapter and a selected bibliography.

Hattery, Lowell H. and George P. Bush (eds). 1964. *Reprography and Copyright Law.* Washington. American Institute of Biological Sciences. 1964. 204 p.

This book is derived from presentations at symposium in 1963 sponsored by The American University, which explored the reprography-copyright problem, its varied interests, and viewpoints, proposed solutions, and outlook. It included a summary chapter, three appendices, and a selected bibliography.

Heilprin, Laurence B. 1967. Technology and the Future of the Copyright Principle. In *Phi Delta Kappan*: 220–225. Jan. 1967.

The background of copyright. New need for copyright revision. Technology and copyright control. Users' need of new technology. Conflicting valid principles. Possible solutions.

Hilton, Howard J. 1967. A Method for Organizing Information by Uniquely Identifying All Recorded Knowledge. In *Proceedings of the American Documentation Institute. Annual Meeting. Vol. 4.* Levels of Interaction between Man and Information. Washington. Thompson Book Co. p. 119–123.

The author presents the case for the adoption of an identifying symbol for each item of recorded knowledge and explains the need therefore and the mechanics thereof. The necessity for early adoption of some such method is stressed, particularly as it affects a proposed clearing house system for copyrighted materials.

Hilton, Howard J. *A Code for the Unique Identification of Recorded Knowledge and Information.* To be cited as HUC No. 7HIL–NTC2A–2. Obtainable from the author at the Pennsylvania State University, Middletown, Pa. 17 p. with appendices.

This paper explains the need for a system which will uniquely identify recorded knowledge and information by means of a universal code. An application to the processing of permissions and payment of copyrighted materials is set forth. Another application concerns the identification of materials in automated information systems. The first six pages of this document appear in the author's chapter in this book. The balance of the paper consists primarily of the specifics in applying the code.

Hoshovsky, A. G. and H. H. Album. 1965. Toward A National Information System. In *American Documentation* 16:313–322. Oct. 1965.

"Our objective is to offer a general plan for the construction of a comprehensive national technical information system. The system we will consider will deal exclusively with the published scientific literature."

Howe, Harold, II. 1967. Realities of the Learning Market. In *Library J.* 92:297–301. Jan. 15, 1967.

"The business firm able to make something that would be in a school library is clearly in the wave of the future, for the library is the fastest growing element in the modern school."

This article was originally a speech given before the American Management Association's First Practicum in Educational Technology in New York on Aug. 9, 1966. "No matter how effectively computers are used in the classroom, they do not really teach anything. It is the program that teaches—a program designed by a teacher."

Information Dissemination by Decentralized Data Center System Becoming Widespread in Both Government and Private Sectors. 1967. In *Scientific Information Notes* 9:1–2. April–May 1967.

"The bill to provide for the collection, compilation, critical evaluation, publication, and sale of standard reference data at present in Congress formalizes the National Standard Reference Data System (NSRDS) of the National Bureau of Standards (NBS), with its dispersed activities and central administration. Decentralization of information and data compilation and dissemination, coupled with centralized coordination, seems to constitute the prevalent pattern of information handling in the physical, biological, and medical sciences."

Janning, Tom. 1967. Optical Scanners Come of Age! In *Graphic Arts Mo.* 39:50–55. Apr. 1967.

A report on the current status of optical character reading in electronic data processing—types of equipment, capabilities, applications, form design, paper and printing requirements, and levels of practicality. "At present, a theoretical break-even point in terms of volume is 10,000 documents per day in industrial applications. At this level—or higher—optical scanning is a time and money saver . . . high volume is not absolutely necessary if speed and accuracy are the primary requirements."

Kaplan, Benjamin. 1967. *An Unhurried View of Copyright.* New York. Columbia University Press. 1967. 142 p.

The James S. Carpentier Lectures delivered by Professor Kaplan at the Columbia University School of Law in March 1966. "His counsel that greater emphasis should be placed on the public's interest in the free accessibility of ideas is particularly appropriate in an era when freedom of expression is frequently under attack and when the means of dissemination of ideas are increasingly concentrated in fewer hands." Of particular interest at this time is Chap. III. Proposals and Prospects.

Karp, Irwin, 1955. A "Statutory" Licensing System for the Limited Copying of Copyrighted Works. In *Bull. Copyright Soc.* Feb. 1965. p. 203–204.

Misgivings regarding possible application of ASCAP procedures to a clearinghouse.

Kastenmeier, Robert W. 1967. Information Explosion and Copyright Law Revision. In *Bull. Copyright Soc.* 14:195–204. Feb. 1967. (Originally an address before the American Patent Law Association, Washington, January 24, 1967.)

A commentary on H.R. 4347 as it progressed through the House Judiciary Committee during 1966. Includes some reference to computer applications.

Keppel, Francis. 1967. The Computer and the Structure of Education. In *Educational Technology* 7(3):1–8. Feb. 14, 1967.

". . . it is likely that without new scientific aids to learning the school and the college will be hard put to it to make more economic use of human and physical resources and at the same time show greater individual concern with the student.

". . . it is computer technology, uniquely, that realizes its power *only* as it helps *individual* students to learn."

Klein, Peter J. 1967. International Telex Service through Computerized Line Switching. In *Western Union Tech. Rev.* 21:14–22. Jan. 1967. (Five figures)

Western Union connects to three international Telex carriers, thus providing Telex communications to all parts of the world.

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

Knox, William T. 1965. *Planning for National Information Networks.* A talk given at a meeting of the Federal Science Trends Committee of the Industrial Research Institute and the U.S. Chamber of Commerce Science and Technology Committee, Denver, Colorado, Oct. 14, 1965.

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

Lasswell, Harold D. 1966. Policy Problems of a Data-Rich Civilization. In *Wilson Library Bull.* 41:58–65. Sept. 1966.

A short discussion on various topics: Implications for world security; Implications for individuality, and; Implications for democracy. "Shared data means shared power; a monopoly of data means a monopoly of power."

A Licensing System; a Proposal by the Author's League of America, Inc. In *Library J.* 91(4):892–3. Feb. 15, 1966.

This proposal is a system under which authors and publishers would license the making of copies and material from books and periodicals on a royalty basis.

Marke, Julius J. 1967. Copyright Revisited. *Wilson Library Bull.* Sept. 1967. p. 35–45.

A discussion of the basic problem of whether copyright law can respond to the new techniques of electronic document-storage and computerized information, as well as the emerging possibilities of miniaturization and remote transmission of data. All this in relation to the current thrust of the current copyright revision activities.

Marke, Julius J. 1967. *Copyright and Intellectual Property.* New York. Fund for the Advancement of Education. 1967. 103 p.

A study of the public domain issue as raised by the U.S. Office of Education policy with related matters such as government-financed research and its accessibility, and copyright and reprography. Of particular interest is the last chapter: The Information Explosion and the New Technology, pp. 28–105.

Markham, Jesse W. 1967. *A presentation to the Subcommittee on Patents, Trademarks, and Copyrights of the United States Senate on March 15, 1967.* 12 p.

A discussion of the more important findings of the document: An Economic-Media Study of Book Publishing as prepared for the American Book Publishers Council and the American Textbook Institute during the late 1965 and early 1966.

Marron, Harvey and L. G. Burchinal, 1967. ERIC—A Novel Concept in Information Management. IN *Proceedings of the American Documentation Institute Annual Meeting. Vol. 4.* Levels of Interaction between Man and Information. Washington, Thompson Book Co. pp. 268–272.

ERIC refers to the Educational Resources Information Center which is a national information system dedicated to the progress of education through the dissemination of educational research results and research related materials. This article describes the overall concept, a system description, the clearinghouse, research in education, lexicography, copyright considerations, and future plans.

A McLuhan Montage. 1967. In *Library J.*: 2:1701–1703. Apr. 15, 1967.

This article is comprised of quotations from various sources related to publications upon the writings of Marshall McLuhan. "The future of the book is huge, because as it weds other media, including xerox, it takes on vast new dimensions of persuasiveness. The printed book is going to become an information service rather than a package on bookshelves. But it's going to acquire far greater circulation and usefulness than ever before. The people who are in charge of it, the people who write for it and distribute it and so on, will all be different. But its sheer usefulness is going to increase enormously with the wedding of these electric media. . . ."

Menkhaus, Edward J. 1966. The Many New Images of Microfilm. In *Business Automation:* 32–58. Oct. 1966.

"Long accepted as a storage medium, microforms are now assuming an important role in the development of modern information systems." In-line and some on-line (to computer) film systems are already in existence. Microfilm is complementary to computers. The optimum system involves the use of both computers and microfilm. Graphics are stored best on film. It is less expensive to distribute information on film than with on-line computer equipment.

Miller, James G. 1966. EDUCOM: Interuniversity Communications Council. In *Science* 154: 483–488. Oct. 28, 1966.

Institutions have joined forces to foster application to higher education of the burgeoning information sciences. A brief account of the founding, the objectives, and the current [October 1966] operations of the Interuniversity Communications Council. Mention 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.

Miller, Arthur R. 1967. The Copyright Revision Bill in Relation to Computers. A statement approved by the Board of Trustees and the Task Force on Legal and Related Matter of the Interuniversity Communications Council (EDUCOM). In *Communications of the ACM* 10:318–321. May 1967.

This statement refers to Senate Bill 597, which would generally revise the copyright law of the United States. "It is submitted that these provisions in their present form will seriously hamper the educational programs of the nation. The following statement examines the impact of the bill upon the development of the use of computers in instruction and research and suggests measures and means which will fairly protect authors and publishers and which will at the same time permit the full application of the genius of the computer to the advancement of the nation's educational program.

Mohrhardt, Foster E. and Blanche L. Oliveria. 1967. A National Network of Biological-Agricultural Libraries. In *College and Research Libraries* 28: 9–16. Jan. 1967.

Efforts to gain systematic control of the entire range of biological and agricultural literature are reviewed. In view of the need manifested therein, an efficient network of biological-agricultural libraries is being developed to serve the communities in those fields. Problems are discussed, and the elements of such a system are enumerated.

Moore, J. Kenneth and John F. Cavanaugh. 1967. A Picture Worth a Thousand Words. In *Electronics* 40:113–121. Apr. 3, 1967. Charts and diagrams.

Using new character-generating tube and a crt, photocomposition system for printing is capable of setting type at speeds of 1000 to 10,000 characters per second while making up the page in the same process. A description of the Linotron typesetter to be installed at the U.S. Government Printing Office in Washington. A joint effort by Mergenthaler Linotype Corp. and Columbia Broadcasting System Inc., CBS Laboratories Divn. Mention is made of the Lexical Graphical Composer Printer, being built for the Air Force Logistics Command.

Morehouse, H. G. 1966. *Telefacsimile Services Between Libraries With the Magnavox Telecopier.* A study prepared for Council on Library Resources, Inc. (CLR–314). Reno, Nevada. University of Nevada Library. Dec. 20, 1966, 54 p.

A 30-day test of the Xerox Magnavox Telecopier was conducted in order to evaluate its feasibility as a means of transmitting printed pages between libraries, primarily as a faster alternative to the usual method of mailing a Xerox copy of a journal article from one library to another in response to a mailed request. Cost about $9.85 for a 10-page transmission from Reno and Las Vegas to Davis, Cal. Quality is adequate *when the machines are functioning* properly.

Munster, J. H., Jr. and Justin C. Smith, 1965. The Care and Feeding of Intellectual Property. In *Science* 148: 739–743, May 7, 1965.

How much legal protection of "property rights" in ideas is desirable? A discussion of protection under these categories: patents, copyrights, trade secrets and ideas. The means and methods of protection may vary with the type of property, and protection under one category may well destroy protection which might exist under another.

Murphy, Arthur R., Jr. 1967. Communications—Mass without meaning. In *Educational Technology* 7(7):1–5. Apr. 15, 1967.

"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 story down and rework it and present it so that those who receive it can ponder it at their leisure.

"Where the print men really belong is behind the scenes following up the lead that television turned up and anticipating the next lead. This is the new role of the print media in the modern information scheme of things."

Nelson, Greg J. 1966. The Copyrightability of Computer Programs. In *Arizona Law Review* 7:204–218. Spring 1966.

A discussion of the legal aspects of computer programs with reference to copyright law. "Science has created a new tool in the computer, and now the legal field must come to grips with the accompanying legal problems . . . It [the program] cannot be made to fit the patent notch and thus copyright law is the only remaining statutory protection for the proprietary rights therein."

Overhage, Carl F. J. and R. Joyce Harman (eds.) *INTREX.* Report of a Planning Conference on Information Transfer Experiments. Cambridge, Mass. MIT Press. 1965. 276 p.

The object of those experiments is to provide a design for evolution of a large university library into a new information transfer system that could become operational in the decade beginning in 1970. Such a system will result from a confluence of three streams. (a) The modernization of current library practices. (b) A national network of libraries and other information centers. (c) The extension of on-line, interactive computer communities into domains of libraries and other information centers.

Park, Ford. 1967. The Printed Word. In *Int'l Science & Tech.* No. 61: 24–36. Jan. 1967.

"High technology has begun to remake the ways we shape ideas into patterns on the printed page. The result is new vitality in a stodgy industry . . . New plastics, adhesives, coatings, metal laminates, controls, photographic typesetters, computers, scanners, electronic character generators, video tubes, all these and more are having their impact. In short, a revolution in printing is in the making.

Passano, William M. 1967. The Photocopying Menace. *Johns Hopkins Magazine* 18:30–33. Fall 1967.

"Many academic journals may be doomed to extinction by the widespread, illegal use of photocopying machines, says a prominent medical publisher." The gist of this article concerns payments and permissions for copying copyright materials, particularly on the part of libraries and educators. Suggestions are made for resolving the dilemma.

Phelps, Ralph H. 1967. Factors Affecting the Costs of Library Photocopying. In *Special Libraries* 58:113. Feb. 1967.

The Director, Engineering Societies Library, New York City, answers some questions 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.

The Photographic Reproduction of Protected Works by or on Behalf of Libraries, Documentation Centers and Scientific Institutions. Permanent Committee of the International Union for the Protection of Literary and Artistic Works. Intergovernmental Copyright Committee, Geneva, Switzerland, Dec. 12–15, 1967. 2 p. with Annex A, 9 p; and Annex B, 93 p.

Annex A. Study of existing practice in the Federal Republic of Germany in regard to reproduction by photography or similar processes of copyrighted works and to the reproduction of such works by commercial firms or for commercial purposes.—Annex B. A study of photocopying practices in the United Kingdom.

Publishers Study the Management of Change (1). 1967. In *Publishers' Weekly* 191:18:22–27. May 1, 1967.

This was the topic of a two-day seminar, April 4–5, at Tarrytown, N. Y., held for members of the American Book Publishers Council. The topic: "The Forces of Change" was presented by Putney Westerfield, who "foresaw that, by 1980, most major commercial printing will be from 'digital storage' and that document storage on film will also play a dominant role . . . computer-based systems for each major discipline are in prospect by 1980. . . . The new world of information . . . will mean 'instantaneous, simultaneous involvement' of the individual—and there will be a problem of information overload . . ."

Recommendations for National Document Handling Systems in Science and Technology. Washington. Committee on Scientific and Technical Information (COSATI), Federal Council for Science and Technology. November 1965. In three parts: "The Committee Report," 20 p.; Appendix A, "A Background Study by System Development Corporation, September 1965," constituting Vol. I, 155 p.; Vol. II, 277 p.; with a glossary, a bibliography, and an index. (PB 168 267 is the Clearinghouse identification number.)

These three documents represent a comprehensive attempt to develop guidelines for planning at a high level in the federal government, so that the information activities within each department and agency as well as nongovernmental components may be knit into a national network. (See also Carter, Launor F. et al. 1967 National Document-Handling Systems for Science and Technology. New York. John Wiley & Sons, Inc. 344 p.)

Ringer, Barbara A. and Paul Gitlin. 1965. *Copyrights.* Rev. ed. New York. Practicing Law Institute. 1965. 185 p.

This book accents the legal aspects of copyright in the United States and to a lesser extent the administrative aspects. It is heavily documented and should prove useful not only to the legal profession, but also to publishers and authors who are in need of the facts about copyright. Appendix B comprises a tabulation of Copyright Law Revision Studies.

Root, Augustin A. 1967. Programmed Learning. The ASEE Programmed Learning Project, 1965–1967. In *J. of Engineering Education* 57: 428–432. Feb. 1967.

". . . during the last two years it has been found that engineering professors can learn to prepare programmed materials that are unusually effective in accomplishing the technical goals of engineering education."

Selden, M. H. & Associates, Inc. 1967. *The Economic Impact of the Proposed Copyright Law upon Educational Television Broadcasters.* A report to Educational Television Stations, a division of the National Association of Educational Broadcasters. Washington. April 1967. 20 p.

"The proposed copyright law will have a far reaching effect upon the organization and character of educational broadcasting. This effect will flow from the costs of copyright clearance and the effect which these costs will have upon the sources and content of educational programs." Includes: cost components; administrative costs; the process of copyright clearance; copyright fees; summary of costs; structural impact of proposed law. Eight tables.

Senate Copyright Hearings Study Fair Use and Education, Computers, ETV. 1967. In *Publishers' Weekly.* 191:19:34–35. May 8, 1967.

A brief report on the rebuttal testimony regarding five major controversial issues which have developed concerning the general copyright revision bill, S. 597 (April 28, 1967). Speakers mentioned are: Harry Rosenfield, Horace Manges, Mrs. Bella Linden, Irwin Karp, W. Brown Morton, Jr., Charles Stewart and Norman Jorgenson.

Sheers, Edward H. and Frederick L. Enke. 1967. Copyrights of Patents for Computer Programs. In *J. Patent Office Soc.* 49:323–327. May 1967.

A brief review of case law in this area. ". . . patenting is the only logical choice for the protection of computer programs." (See item: Jacobs, Morton C.)

Shera, Jesse H. 1967. Librarians against Machines. In *Science* 156:746–750. May 12, 1967.

Librarians are having difficulty adopting the new technology because they have no professional philosophy. Four topics: (1) The Library Problem: Not Storage But Retrieval; (2) Librarianship as a Profession; (3) A Profession in Change; (4) Impact of Technological Change. "If librarians, then, are to take advantage of the new technology they must first extend the boundaries of their thinking which has been channeled and confined for so many generations, and accept into the body of their professional knowledge ideas that at first may seem alien, if not hostile."

Shera, Jesse. 1967. Without Reserve: The Trickster in Library Research. In *Wilson Library Bull.* 41:521, 533. Jan. 1967.

" 'Reading maketh a full man,' is accepted without questioning the nature of that which the man is filled. Yet no one has ever really established scientifically the relationship between reading and behavior, or the social effects of the book." A short feature related to automation of the library and the pitfalls related to systems applications.

Siebert, Fred S. 1964. *Copyrights, Clearances, and Rights of Teachers in the New Educational Media.* Washington. American Council on Education. 1964. 62 p.

The purpose of this study is to explore and, wherever possible, recommend solutions for three groups of problems growing out of the use of the new instructional media in American education: (1) methods of protecting educational material through copyright; (2) identifying materials which may infringe the rights of others; and (3) analysis and evaluation of compensation policies in the new media and teacher relationships.

Smith, Karl U. and Margaret F. Smith. 1967. *Cybernetic Principles of Learning and Educational Design.* New York. Holt. 1967. 529 p. (Illus.)

Provides a new approach to studying human learning phenomena by introducing the concepts and methods of the closed-loop hybrid analog-digital computer system as a generalized laboratory instrument in cybernetic research.

Smith, R. H. 1966. Comment by D. M. Lacy. In *Publishers' Weekly* 190(6): 22–23. Aug. 15, 1966.

Ways in which publishers and librarians agree on copyright.

Sophar, Gerald J. and Laurence B. Heilprin. 1967. *The Determination of Legal Facts and Economic Guideposts with Respect to the Dissemination of Scientific and Educational Information As It Is Affected by Copyright—A Status Report.* Washington. U.S. Department of Health, Education, and Welfare, Office of Education, Bureau of Research. 88 p. +5 App. (Project No. 7 0793).

This report is "organized by chapters of which the first four are introductory of the fifth, which contains the substance of the report and conclusions." Chapter 5—Findings and Analysis: Analysis of Current Practices of Libraries and Information Centers and the Resulting Size of the Problem Due to these Practices. Section One treats such subjects as "Fair Use"; Aborted or Curtailed Library Services Due to Action of Copyright Owner; ERIC; Do Libraries Profit from Copying Facilities and Services?; Inter-library and Intra-library Networks; Clearinghouse System Question; National Commission on New Technological Uses of Copyrighted Works. Section Two. Economics of Copying of Copyrighted Works.

Springer, C. H. 1967. The "Systems" Approach. In *Saturday Rev.*, Jan. 14, 1967, p. 56–58.

". . . I can foresee four major activities for the computer in the educational system of today and tomorrow.

* * * * *

"Finally—and this is by far the most exciting innovation of all—computers can substantially enhance the learning process. . . . computer based systems will strengthen the teacher-learner relationship. . . ."

Stabler, Charles N. 1967. Copiers and Copyrights: Growing Reproduction of Books, Periodicals Is Worrying Publishers. In *Wall Street J.*: 1, 12, May 2, 1967.

A popularly written piece about the dilemma of permissions and payments, all this against a background of automation, technology, and electronics.

Stafford, George F. 1967. Yesterday Fax Transmission—Today Graphic Communications. In *Signal* 21 (5):50–53. Jan. 1967.

"Secured transmissions over 3,000 miles of line have demonstrated excellent operation at 17 db Signal-to-Noise and interestingly demonstrated a high tolerance to error with 7db Signal-to-Noise ratio having measured error rates up to 10% showing no serious degradation of typed copy intelligence. . . . Digital facsimile techniques combined with Alden All Speed facsimile characteristics open new horizons for new low cost facsimile distribution networks."

Stedman, John C. 1967. Statement on Copyright Law Revision. *AAUP Bull.*, Summer 1967, p. 127–132.

The author is Chairman of the Special Committee on Copyright Law Revision of the American Association of University Professors. The other members of the Committee are: Ralph S. Brown, Jr., Fritz Machlup, James E. Miller, Glen E. Weston. The statement refers to Senate Bill 597. Topics include: Traditional Education-Copyright Relationship, and Modern Developments Affecting This Relationship; Provisions of S. 597 Relating to Education—and the Premises that Underlie Them; Summary and Conclusions; Specific Recommendations.

Stevens, Mary Elizabeth and John L. Little. 1967. *Automatic Typographic-Quality Typesetting Techniques: A State of the Art Review. (National Bureau of Standards Monograph No. 99)* Washington (GPO). April 7, 1967. 98 p.

This report describes the current [April 1967] state of the art in automation of graphic arts composition starting from either one of two sources—keyboard entry of manuscript material or mechanized input in the form of available tapes or magnetic tapes.

Subsisting Copyrights and Innocent Infringement. 1966 In *U. Penna. Law Rev.* 115: 129–137. Nov. 1966.

A discussion of Section 404(a) of the proposed revision (H.R. 4347, 89th Congress, 1st Sess. (1965)).

Suppes, Patrick. 1967. The Teacher and Computer-Assisted Instruction. In *NEA Journal* 56:15–17. Feb. 1967.

"The purpose of this article is to acquaint the reader with some of the ways that computers can be used for instruction, and to answer, at least briefly, some of the questions that are frequently asked about computer-assisted teaching.

". . . Teachers will look on computers as a new and powerful tool for helping them to teach their students more effectively."

Teaching Machines: the impact of new devices on educational publishing. In *Publishers' Weekly* 189:10:103–105, 108, 109. Mar. 7, 1966.

Speakers at a recent meeting in Boston analyzed the threat of photocopying and duplicating machines in the school to conventional graphic arts techniques. Mr. Richard B. 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 custom but in law. . . . I foresee little change for some time to come and books should continue to rule the roost indefinitely."

Tebbel, John. 1966. Book Publishers' Salvation? in *Saturday Rev.*, July 23, 1966, p. 32–33.

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

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

Titus, James P. 1967. Copyright Revision Legislation. *Communications of the ACM* 10:314–15. May 1967.

This is a brief commentary upon the state of legislation in the Spring of 1967. H.R. 2512 had just been approved by the House Judiciary Committee. It was noted that S. 597 "does not specially mention computers, but it refers to them in several sections." Section 110(2) was controversial as it "eliminates the traditional exemption for schools and libraries and substitutes exemptions for computer operations with copyrighted works that are nominal rather than real."

U.S. Congress. House. *Copyright Law Revision, Part 6.* Supplementary Report of the Register of Copyrights on the General Revision of the U.S. Copyright Law. 1965 Revision Bill. May 1965. Washington (GPO). 1965. 338 p.

This report explains the 1965 bill in detail, namely H.R. 4347 and S. 1006, 89th Congress. In this connection see a later report, No. 83, issued by the House Judiciary Committee in 1967.

U.S. Congress. House. Judiciary Committee. 1967. *Copyright Law Revision: Report No. 83.* Washington (GPO). 1967. 253 p. (90th Congress. 1st Session)

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 dissents.

U.S. Congress. Senate 1965. *An Act to Amend the Public Health Service Act to Provide for a Program of Grants to Assist in Meeting the Need for Adequate Medical Library Services and Facilities.* Cited as: the Medical Library Assistance Act of 1965. Public Law 89–291. S. 597. October 22, 1965. Washington (GPO). 1965. 9 p.

Principal interest concerns Sec. 398, "Grants for Establishment of Regional Medical Libraries," and Sec. 378, "Regional Branches of the National Library of Medicine."

U.S. Congress. Senate. Judiciary Committee. 1967. *Copyright Law Revision.* Hearings on S. 597 in four parts. March 15–April 28, 1967. Part 1, 320 p.; Part 2, p. 321–663; Part 3, P. 664–1042 and Part 4, p. 1042–1383, Washington (GPO), 1967, (90th Congress, 1st Session).

The Subcommittee on Patents, Trademarks and Copyrights resumed the public hearing on legislation to provide for a general revision of the copyright law. It considered all sections of S. 597 with the exception of CATV.

U.S. Congress. Senate, 90th, 1st Session. 1967. *National Commission on New Technological Uses of Copyrighted Works.* S. 2216. Aug. 2, 1967. Washington. (GPO). Committee on the Judiciary, 5 p.

Section 1. Establishment and Purpose of Commission; Sect. 2. Membership; 3. Compensation; 4. Staff; 5. Expenses; 6. Reports; 7. Powers; 8. Termination. The purpose of the Commission is to study and compile data on the reproduction and use of copyrighted works of authorship (1) in automatic systems capable of storing, processing, retrieving, and transferring information, and (2) by various forms of machine reproduction.

van der Wolk, L. J. 1966. Teletype and the Telecode for Libraries. In *Unesco Bull. Libr.* 20:170–176. July-Aug. 1966.

This article concerns library cooperation through union catalogs, teletype systems, and reprography. "Libraries nowadays can buy only a small segment of the literature collection they should have to satisfy really all the demands of the clientele by themselves. Consequently, they need a fast and reliable means of communication in order to continue their good service to their clients. It is here that teletype in combination with reproduction methods, especially with microfiche (which can be sent in an airmail envelope) offers a solution."

Warren, Albert. 1966. The Coming Cable TV War. In *Saturday Rev.*, June 11, 1966. p. 90, 93, 101.

"But CATV has possibilities that make AT&T uncomfortable. With its potentially unlimited access to homes, what's to stop CATV from providing many services other than TV? Facsimile newspapers? Shopping from the home? Library references? Channels of background music? Telegrams? Mail delivery? Maybe—who knows—telephone service itself, not only aural, but visual?

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"Presumably, copyright holder [of TV programs] could expect powerful forces on the development of CATV—granting or withholding distribution rights."

Weinstock, Melvin. 1967. Network Concepts in Scientific and Technical Libraries. In *Special Libraries* 58:328–334. May-June 1967.

"National information networks of the future will formalize and by augmentation and expansion of existing facilities will strengthen the existing fabric of interrelationship between central national libraries and the technical library community. Computers will play an important role in such networks to the extent that they are used in document retrieval systems, and give users access to the total resources of the national document handling system. . . ."

Wessler, John. 1967. EDP Typesetting Shows Sharp 12 Months Gain. Electronic News. Dec. 11, 1967. p. 28.

"Computerized typesetting is beginning to live up to its advance billing, with a 70 per cent increase in installations in the last 12 months. . . . Speed is essentially all the computer is bringing to typesetting. . . . There's just no way of getting copy into the computer untouched by human hands. Output is a similar situation. Plate preparation is still a manual process.

Wigren, Harold E. 1967. New Copyright Law for the New Congress. In *School and Society* 95:50–51. 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.

Williams, Bernard J. S. 1967. Microforms in Information Retrieval and Communications Systems. In *Aslib Proc.* 19:223–231. July 1967.

"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 . . ., aperture cards . . ., microfiches . . ., micro opaques . . ., PCMI . . ., 8 mm roll . . ., 70 mm roll . . ., magnetic tape . . . ."

Woledge, G. 1967. Copyright and Library Photocopying: The Practical Problems. In *Aslib Proc.* 19:217–222. July 1967.

"The present paper, based on an address to an Aslib Winter Meeting and on the very useful discussion which followed it, concentrates on the kinds of cases that trouble the librarian most frequently, and approaches them practically rather than theoretically." Topics treated: Periodical articles: single copies; Books: single copies; Interlibrary copying; Copying by individuals; Multiple copies; and The influence of xerography.

Wolfe, Dael. 1967. Copyright and Computers. In *Science* 156:319. Apr. 21, 1967.

An editorial summarizing the situation at the time the House of Representatives adopted the revised copyright bill on April 11, 1967. "The computer-use problems is the only major area not resolved between publishers and the scholarly community."