

The Photocopying Revolution and the Copyright Crisis

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Until the 1930's in this country the ancient and necessary task of hand copying in libraries was viewed—quite properly—as beyond the scope of the copyright laws. But with the advent of the first primitive methods of photographic reproduction, which notably enhanced the ease of interlibrary “loans” by the furnishing of copies, copyright owners manifested a degree of concern. In 1935, the National Association of Book Publishers (now defunct) met for a series of conferences with an organization representing library and educational interests, the Joint Committee on Materials for Research. The book publishers argued that, whatever the state of the law, multiple copies of entire works ought not to be distributed without fair compensation to the copyright owner. Their view apparently prevailed and was embodied in a joint statement, which came to be variously known as the “Gentlemen’s Agreement,” or the Interlibrary Loan Code of 1935. The Code, although without legal force or effect, has probably guided most large libraries in this country from that time to this. Under the Code, it was agreed that only single copies of copyrighted materials could be furnished by libraries, in lieu of loans; warnings concerning copyright violation (should further copies be made) *100 would be given the copy recipients; and copies could be made only without profit to the libraries making them.

But by the early 1960's the introduction of the Xerox photocopier had begun to make the old accommodation seem unsatisfactory to publishers. During the past decade the propriety of library photocopying practices has become the focus of increasing controversy. The fact that under the Gentleman’s Agreement libraries are doling out copies singly and with circumspection is not viewed by copyright owners as conclusive in view of the huge amount of material now being distributed in this way.

The photocopying explosion

Although there is surprisingly little precise information,¹ one may estimate that in the United States today Xerox-type photocopying alone produces some 50 billion pages of copy annually.² Costs vary with allocation of staff, space, and equipment per photocopy made, but are said to be theoretically reducible to less than half a cent per materials to consumers. Almost half of

¹ Surveys of copying practices appear inconclusive. The celebrated 1962 report, *Survey of Copyrighted Material Reproduction Practices in Scientific and Technical Fields*, commissioned by the National Science Foundation from George Fry and Associates, is now generally considered to be obsolete. The most prestigious study, a 1967 report of the Committee to Investigate Copyright Problems, commissioned by the United States Office of Education, supplies some still useful information and indicates the scope of the problem. For a survey of literature in the field, see N. Henry, “Copyright, Public Policy, and Information Technology,” *Science*, vol. 183 (1974), p. 384.

² In L. Hattery and G. Bush, eds., *Reprogram and Copyright Law* (Baltimore, Port City Press, 1964), p. 50, J. Koepke reports that in 1962, 3.6 billion copies were being made annually. In his *Establish a Select Senate Committee on Technology and the Human Environment*, J. Dessauer (a corporate officer of Xerox) reports that by 1967 the figure was 27.5 billion.

all photocopying takes place in the course of business or public or educational administration, and thus rarely intersects with copyright interests. Surprisingly, however, over 50 percent of photocopying is thought to be of copyrighted materials.³ Although some of this is done in store-front photocopying centers, most copying of copyrighted materials can fairly be assumed to take place where those materials are stored—at libraries, public and private, independent and in-house.

Three distinct sorts of copying activity in libraries seem to be important. First, there are photocopiers located in or near some libraries for the individual reader or researcher to use. Payment is made either by inserting a coin or by making charges to a contract account. In order to make copies the user usually borrows from the library the original published material. Thus this activity has not been of great concern to copyright proprietors.

Second, libraries themselves may staff photocopying centers, where for a modest fee to cover costs copies are distributed to requesting readers in lieu of loans. Where hundreds of readers may seek copies, but the library purchases or subscribes to no more than one or two originals, copyright owners have expressed great concern.

Finally, partly because of mounting costs and higher prices of ***101** copyrighted materials, libraries are increasingly dependent upon interlibrary loan systems, typically administered through delivery of inexpensively reproduced copies via the mails. Because of the Gentleman's Agreement, the number of entire journals or whole books "borrowed" in this way has probably not been great; however, increasingly sophisticated technologies are evolving for the transfer of such materials, and it is becoming feasible that a single central computer with library terminals will be able to deliver print-outs of articles or of whole books. A recent study of the interlibrary loan activities of academic libraries estimates that nearly two million loan requests were received by the interlibrary loan departments of academic libraries alone in 1970.⁴ Recently the *New York Times* reported the formation of a consortium of the libraries of Columbia, Yale, and Harvard Universities, together with the New York Public Library, to conserve resources by purchase of single copies among them of expensive sets or little-used journals; plans were also reported for expansion to include other libraries.⁵ The National Science Foundation has announced a grant of \$368,000 for the establishment at Wellesley College of an academic science information center designed to serve all of the Northeastern states, and it is feared that operators of this center will arrange to have single copies of scientific journals serve the needs of the whole region.⁶ Copyright owners have expressed considerable concern over photocopying for interlibrary loans.

It is estimated that what is copied in libraries typically is a journal article rather than a book (in a ratio of 9:1) and is overwhelmingly of a scientific or technical nature.⁷ It is also believed that most articles copied from scientific, technical, or other learned journals are less than five years old.

An extreme example of large-scale library photocopying of scientific journal articles is the subject of a case currently before the Supreme Court, *The Williams & Wilkins Company v. The United States*. The plaintiff in that case is the publisher of a string of proprietary and semi-

³ G. Sophar and L. Heilprin, *The Determination of Legal Facts and Economic Guidelines with Respect to the Dissemination of Scientific and Educational Information as it is Affected by Copyright—A Status Report* (Washington D.C., Bureau of Research, Office of Education, Department of Health, Education and Welfare, 1967), p. 7.

⁴ V. Plamour, E. Bryant, N. Caldwell, and L. Gray, *A Study of the Characteristics, Costs, and Magnitude of Interlibrary Loans in Academic Libraries* (Westport, Greenwood, 1972).

⁵ E. Pace, *New York Times*, section 1, part 2 (March 24, 1974), p. 59.

⁶ C. Benjamin, *Science*, vol. 184 (1974), p. 610.

⁷ Henry, *op. cit.*, p. 388.

proprietary bio-medical journals. The defendants are the National Library of Medicine (NLM) and the library of the National Institutes of Health (NIH), who between them were at the time of suit filling requests for 213,000 photocopies a year, at a cost to the government of about \$1.00 for each article copied. NIH was making 127,000 copies annually, largely for distribution to sister libraries; in fiscal 1969 its budget for its interlibrary loan department was \$166,000. The NIH library, serving only in-house staff, approximately 6,000 of whom were regular users, was filling *102 requests for 86,000 copies a year; its photocopying budget was at the time of the suit \$85,000. No charge was made by these libraries to recipients of photocopies. (Other regional libraries in the East have since that case taken over some of NLM's interlibrary lending functions, and some of these regionals do make modest charges for photocopies to sister libraries). Both NLM and NIH library have Xerox equipment utilizing microfilm input in large photocopying centers staffed by full-time employees. The equipment at NLM is particularly sophisticated; there, mobile camera units suspended from ceiling tracks are trolleyed to the stored volumes, where the requested articles are microfilmed at the shelf.

In November 1973, the Court of Claims, in an unusual reversal of its trial commissioner's ruling, held that the defendant libraries' photocopying activities did not infringe the copyrights of the plaintiffs. The Court found that such copying amounted merely to "fair use." In May 1974, the Supreme Court granted *certiorari*. Widespread attention has been attracted by the case; in the Court of Claims, briefs amicus were filed by numerous owner and user interests. And at the time of this writing, journal publishers are advancing financial support to the publishing company for the final leg of the litigation.

The "secondary services"

An important cause of the photocopying revolution, quite apart from advances in copying technology, is the advent and proliferation of so-called "secondary services," sophisticated new aids to information distribution increasingly familiar to workers in almost every research field. At their simplest, secondary services are periodicals consisting of photocopied tables of contents of other periodicals. These are sent, unlike the cumulative indexing services of yesterday, at manageable cost to large numbers of individuals rather than to libraries alone. These publications are furnished to the individual or his library *at the time of publication* of the primary journals whose tables of contents they reproduce. Thus there is no longer any need to browse through the journals themselves, or to wait weeks or months for the periodical indices to catch up with the literature. Readers may already be familiar with tables of contents distributed to them weekly by the libraries of institutions for which they work. At the Harvard Law School, for example, a publication entitled "Tables of Contents" is distributed weekly to members of the faculty. (The publications office of the library has thus far held back from *103 distributing it beyond the faculty.) "Tables of Contents," which often appears prior to appearance of the original publication on the library shelves, is an informal, stapled collection of 12 to 20 photocopied pages of contents as they appear in the original law reviews. The selection from the more than 130 law journals now published appears to be fairly random. Nevertheless, "Tables of Contents" is useful to copies of articles first brought to readers' attention through that medium.

The most effective and widely-known secondary service publication in the sciences is probably the periodical *Current Contents*, a publication of the Institute of Scientific Information in Philadelphia. *Current Contents*, which costs \$120 a year for individual subscribers but is available at a reduced rate to libraries, appears every week in convenient pocket-sized form. It is published

in separate, quarter-inch-thick editions for Environmental Sciences; Life Sciences; Medicine; Pharmacology and Medicinal Chemistry; Chemistry; Physics; Agricultural, Food, and Veterinary Sciences; Engineering and Technology; and Social and Behavioral Sciences. Each edition contains reproductions of nearly every relevant table of contents from journals appearing that week, and the editors boast that these tables of contents often appear in advance of journal availability. This writer's experience is that virtually every bio-medical scientist interviewed confesses a degree of dependence upon *Current Contents*; there is a diminished impact in other research fields, probably depending upon the number of journals in each field requiring continual scanning.

For a fee, *Current Contents* can also run literature searches, its so-called "Ascotopics" service. This service saves researchers the trouble of browsing through back issues of *Current Contents*. A similar service is available at the National Library of Medicine, where titles of all articles from over 1,000 bio-medical journals are stored on magnetic typewriter tape. Scholars can work with NLM's giant MEDLARS computer at telephone-linked terminals in some 200 remote libraries to direct their own programming for literature searches; this is the "on-line" information retrieval system NLM calls MEDLINE. A data base of three years is maintained, current data are added monthly, and an average of 450,000 citations is made available. Sophisticated additions to the system are made from time to time, including a serial title searching system, SERLINE. These systems print out information well beyond the simple article citation, and always include the publisher's identity. *104 MEDLARS II, an improved system with even greater capability, is expected to be operational soon.

Augmenting the scope of the secondary services is the appearance of publications containing current abstracts of journal articles, rather than simple citations or tables of contents. The American Institute of Physics, for example, owns and publishes *Current Physics Abstracts*; subscriptions are also available for the same publisher's microfilm abstracts, *Current Physics Microform*. A late development is the appearance, for leasing or licensing, of computer-tape-stored abstracts such as *Chemical Abstracts Service*. The National Science Foundation has been funding projects for the computerization of scientific information, and computer tapes of abstracts of science articles are stored and shared, with NSF assistance by major abstracting and indexing services, such as Searchable Physics Information Notices (SPIN).

The new market for copies

Although these new secondary services facilitate browsing through the literature, they ultimately encourage shopping for copies rather than for original journals. Many of the journals are available only by subscription, and can be purchased as single back issues only at great delay and inconvenience. Thus the underlying assumption of these secondary services is that their users will be able to obtain photocopies from libraries. The services also make it very easy to order reprints from authors: *Current Contents* carefully furnishes an address index of all cited authors in the back of each issue. The inevitable result of this new information distribution system is the creation of a huge demand both for reprints and for photocopies of articles. With these resources readily available, the new system can create only negligible additional circulation for the original journals. Presumably new circulation is generated only when it is perceived from use of the secondary services that one particular journal is repeatedly helpful to the reader.

The new demand for reprints and copies differs from the response of the reader group which the journals would have reached in any event with the aid of the old-style cumulative indices. There is a new group of readers whose demand has been stimulated—who, like other consumers,

are responding to advertising rather than primary need. This business is obviously profitable to “advertisers” like *Current Contents*; but it is only a negligible source of profit to the original publications. Only after an author’s gratis stock of *105 reprints is exhausted are reprints purchased from the publisher by authors or readers, and there comes a point where reprint requests are in lieu of subscriptions. Although the market for copies which this new business stimulates is not the creation of original publishers, who probably could not have reached such a market themselves, it is, or course, a business wholly dependent on the existence of the original publications.

Publishers have not been entirely quiescent about the secondary services. There is the initial problem—of greatest interest to authors—of insuring accuracy of titles and of abstracts, and the attempt to bring copyright law to bear on that problem.⁸ In addition, there is increasing recognition that the mushrooming demand for photocopies and reprints is attributable to the influence of the secondary services. *Scientific American* has advised some authors not to fill reprint requests coming from readers clearly in unrelated fields, on the grounds that these requests are generated by the distribution of secondary service information, do not represent primary research needs or interests, and therefore are in lieu of subscriptions, since theirs is a general readership magazine. The publishers of *Health Devices* has refused to sell subscriptions to the *Williams & Wilkins* defendants, NIH and NLM through the Government Printing Office (GPO), which contains citations to over 2,500 bio-medical journals. *Index Medicus* is expensive, at \$155 a year; subscribers in the main are libraries. However, *Abridged Index Medicus*, also a GPO publication, is readily available to individuals at \$22 a year. It is ordered from the GPO like any other government publication, and is one of a group of similar NLM publications available to the bio-medical professions. It reportedly enjoys a circulation of almost a quarter of a million copies monthly; subscribers range from dental hygienists and pharmacists through workers on the forefront of medical research.

At the same time that a huge market for copies has been created, scientific publishing, a marginal operation at best, has fallen on hard times.⁹ It is difficult to generalize over the range of journals from proprietary through semi-proprietary and non-profit publications, but the situation is probably critical for many. A non-profit journal is typically produced in affiliation with a professional society. Dues to the society include the cost of a subscription to the *106 journal. Little advertising, if any, is accepted; the journal relies for support ultimately upon the financial health of the sponsoring society, but immediately upon the subscription fees subsumed under society dues and upon “page charges” (Fees per page paid by contributing authors to the journal for the privilege of being published). Subscription charges and page charges are all underwritten by institutions employing journal readers and authors, and ultimately are funded by contracts and grants, for the most part from the federal government. The profit-making journals, and those under independent contract with learned societies, tend to be more dependent upon advertising and subscription fees than are the institutionalized journals. Many in both categories also make higher subscription charges to libraries, which are increasingly seen as an important source of support.

⁸ See H. Koch, *Copyright of Author Prepared Abstracts* (Berlin, Proceedings of the International Council of Scientific Unions Abstracting Board, July 10, 1974), and “Copyrighting Physics Journals,” *Physics Today* (February 1974), p. 23. The author is the director of the American Institute of Physics.

⁹ According to the Library of Congress, three technical journals are born and one dies each day. See also G. Gipe, *Nearer to the Dust: Copyright and the Machine* (Baltimore, Williams and Wilkins, 1967), p. 94.

Recent cutbacks in public funding and contracting, combined with a trend toward increasing numbers of low-circulation specialists' journals, as well as the general problem of inflation-driven costs and supply shortages, have brought the scientific publishing industry to a kind of crisis.¹⁰ At the same time, mounting library subscriptions charges and other costs have increased interlibrary dependence upon shared subscriptions and photocopying. Although the problem of copying had existed in large-scale form since the invention of the Xerox machine, and had been aggravated by the growth of the secondary services, the new demand for royalties for photocopying seems to have been precipitated by a rapid deterioration in the economic position of scientific publishers, related to external economic forces. Demands began to be made upon such large institutionalized photocopying services as the defendant libraries in *Williams & Wilkins*; the copyright flag was waved; Congress was approached to include a compulsory photocopying license provision in the latest version of the copyright revision bill.¹¹ But the publishers have never been able to make a persuasive case that copying is destroying the journals. The point appears to be, rather, that *licensed photocopying could save them*.

The inadequacies of copyright law

In their attempts to obtain relief scientific publishers have looked largely to copyright law. Yet existing copyright law appears inadequate to deal with the issues raised by the current controversy. The first and most obvious difficulty is the archaism of old law; whether judicially evolved doctrine or statutory language, when *107 brought to bear upon unforeseen new information technology. Deciding cases in such a context is an awkward business. A comment of Joseph Story, the great 19th-century Justice of the Supreme Court is often quoted:

[Copyright cases] approach, nearer than any other class of cases belonging to forensic discussions, to what may be called the metaphysics of the law, where the distinctions are, or at least may be, very subtle and refined, and sometimes almost evanescent.

A feeling for the abstruseness of copyright law in its response to new technology may be conveyed by quick reference to the kinds of questions our courts have struggled with under the existing Copyright Act since its enactment in 1909:

Whether a phonograph recording of a musical composition is a "copy" of the sheet music, for purposes of a finding of infringement;

Whether public sale of a sound recording is a "publication" of the underlying composition (throwing the work into the public domain);

Whether performance of a sound recording for profit infringes any copyright in the recording or in the underlying composition;

¹⁰ J. Walsh, "Journals: Photocopying is Not the Only Problem," *Science*, vol. 183 (1974), p. 1274; P. Abelson, "Troublesome Portents for Scientific Journals," *Science*, vol. 186 (197), p. 693.

¹¹ *Hearings*, Subcommittee on Patents, Trademarks, and Copyrights, Senate Judiciary Committee, 93rd Congress, 2nd Session (July 31 and August 1, 1973).

Whether cable television relay of a broadcast performance of a sound recording is an infringing public performance for profit on the one hand, or a mere transmission or reception on the other;

Whether piracy by taping phonograph records of musical compositions and re-recording them for sale constitutes “copying” for purposes of a finding of infringement;

Whether an individual’s private tape recording of a broadcast performance of a sound recording is an infringing copy of the recorded work on the one hand, or a “fair use” on the other.

The existing Copyright Act gives a copyright proprietor the “exclusive right” to “copy” the protected work, but as the last of the above quoted examples illustrates, advances in copying technology render the claim to such an absolute right all but untenable. Therefore the judge-made doctrine of “fair use”¹² has been spun out to avoid the impropriety of penalizing as infringement uses which ought to be freely permitted. But where does “fair use” end and infringement begin?

A fair restatement of the considerations courts weigh in characterizing a particular use of copyrighted work as “fair” rather than infringing can be found in the proposed copyright revision bill now before Congress:

In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include: (1) the purpose and character of the use; (2) the nature of the copyrighted work; (3) *108 the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work.¹³

Yet in the case of library photocopying these considerations can advance the inquiry only so far. We have come a long way from the case of the monk copying painfully in his cell in order that future ages might read. Copyright proprietors claim that even if each individual act of library photocopying constitutes a “fair use,” the problem is so great in the aggregate as to effect a shift from fair use to infringement. But why should a use that is fair in an individual case be held unfair simply because so many individuals make the use? This was a stumbling block for the Court of Claims in the *Williams & Wilkins* controversy.

The proposed copyright revision bill currently before Congress also appears to approach the problem from a predisposition to treat fair use as “fair” without regard to how often such use occurs:

[T]he fair use of a copyrighted work, . . . for purposes such as teaching, scholarship, or research, is not an infringement of copyright.

¹² Fair use may be an illustration of the maxim, *De minimis non curat lex*. A critic may quote a few lines in the course of a review, or a lexicographer may build upon prior dictionaries. But one cannot say with assurance that these examples illustrate a popular work by making a parody of it, and—somewhat more understandably—cartographers are required to go again and again to the terrain, and not to each other, to make a map.

¹³ S. 1361, 93rd Congress, 2nd Session (1974). One or another version of the bill has been before Congress for nine years, stalled by disputes between interest groups. The bill would totally review copyright law.

But the proposed language appears to beg the question by beginning with the conclusion to be reached: The use of a work for research is a fair use. The language cannot mean that photocopying for the enumerated purposes can never be infringement, in view of obvious contingencies which would require a contrary interpretation: the wholesale reprogram of textbooks for distribution to schoolchildren, for example. Thus, the proposed enactment does little more than set the state for judicial analysis. The fundamental difficulty remains: What may be fair use in the individual case may seem less so when advanced technology can multiply the transaction endlessly.

Moreover, there is the problem of the secondary services. Old understandings of fair use in the context of library photocopying may have been helpful when applied to the struggle of a single industrious researcher to wrest from great libraries some few paragraphs of which he has urgent need. But they do not seem to fit the new system. What is really happening is that libraries are reaching out to scientists with the suggestion, "Perhaps you might like to try this one?" The dissemination of copies this engenders is a colossal unauthorized use of the intellectual property upon which the whole system rests.

Lawyers may find themselves reminded of the notorious 1966 *Ginzburg* obscenity case in the Supreme Court, in which the Court took an exceptionally restrictive view of Ginzburg's rights under *109 the First Amendment—justifying its probably unjustifiable ruling by referring to the fact that Ginzburg was not only furnishing pornography to an eager market, he was selling it aggressively, or pandering. While it is doubtful that this consideration ought to have made a difference in *Ginzburg*, perhaps in the case of library photocopying the secondary services—*Current Contents*, MEDLINE, *Index Medicus*, and the rest *should* make a difference. But under current notions of "fair use" and in the absence of remedial legislation, this factor would seem to be without legal impact.

Apparently recognizing the inadequacy of the "fair use" doctrine to deal with large-scale library photocopying, the Senate has added a controversial new section to its version of the copyright revision bill. Under its terms, libraries might become liable even for making single copies, if the copying is "systematic." The language seems intended to remove photocopying on the *Williams & Wilkins* scale from the category of "fair use." But even if it were possible to say what would be "systematic" and what would remain "fair use," this concession to owner interest would still not empower courts to give to scientific publishers the kind of relief they may require. This is, as we shall see, because of other, equally fundamental inadequacies in existing copyright law, which the proposed revision bill would not remedy.

Intellectual "property" and the dissemination of ideas

Underlying the tension between fair use and infringement is another, far more fundamental tension in copyright law, emanating neither from the courts nor Congress, but from the Constitution of the United States. All the power Congress has to legislate the rights of authors and readers flows from the Copyright Clause of the Constitution:

The Congress shall have power . . . to promote the progress of science . . . by securing for limited times to authors . . . the exclusive right to their writings . . .

It will be seen that Congress is given this power not for the benefit of authors at all, but "to promote the progress of science." Writings are given by the Clause to the public, and save for the power to grant authors some property in them for limited times, Congress lacks power to prevent

anyone from copying anything. This is what we mean, of course, when we speak of *the public domain*.

The framers may have felt it undesirable to give greater scope to a monopoly of any kind. But implicit in the chariness of the grant of *110 copyright power is the even more fundamental policy of our Constitution in favor of dissemination of ideas, a policy that is also reflected in the First Amendment. We are a people who believe in a very free marketplace of ideas.

What this means for the progress of science is that scientists must be free to use and to build upon past work. How, then, can the authorization of even a limited monopoly in an idea “promote” its “progress”? It was the insight of the framers, as it has been of writers and thinkers before and after them, that the fragility of the marketplace in ideas is such that to allow free piracy, plagiarism, or counterfeiting of writings would, although seeming to broaden dissemination in the short term, have the unhappy effect of discouraging production of writings in the long term. Thus the measure of the monopoly Congress could have granted in the 1909 Copyright Act, and the measure of the monopoly the courts can enforce under the Act, is just so much as will promote the flow of ideas, but no more.

So uses of copyrighted work may be thought to be fair uses when they do not discourage production and dissemination of writings. And so the twin concerns, for the public first, but in that interest also for the copyright proprietor, explains why courts characteristically embark in copyright cases upon economic analyses: “In what ways might the alleged infringement have hurt the plaintiff’s market?” Such probings are not simply judicial weighings of equities or computings of damages. They are compelled by the fact that the Constitution does not give Congress the power to grant authors compensations except where failure to do so would discourage the production of writings.

It may be advisable to consider briefly at this point why publishers have always been permitted to assert copyright. The same considerations in the public interest which favor the grant of a limited monopoly to authors favor transferability of the right to publishers. The crucial role of publishers in bringing ideas to the market warrants that their economic interest in freedom from unauthorized copying be protected. Publishers who become proprietors of copyright have therefore always been permitted to assert all the rights the author could have. The Constitutional use of the work “authors” is not troublesome since it is generally to the benefit of authors to be able to sell outright, as well as to license, their work.

If an economic analysis is compelled in copyright cases, and economic injury must be shown before courts can vindicate copyright *111 interests, how does this affect the lawsuits of scientific publishers? The plaintiff in *Williams & Wilkins* was, in fact, unable to demonstrate persuasively that photocopying was harming scientific journals economically. It is true that each of the two great government libraries involved takes only one or two subscriptions to each of the 3,000 domestic and foreign bio-medical journals published. Yet it would simply not be feasible for even the largest libraries to increase the number of subscriptions to meet the demand of many users for current materials by actual loan of such materials, even were they not circulated beyond the library reading room. Whole additional libraries of space would be required, as each additional set of 3,000 journals (or whatever the relevant figure happened to be) was accumulated. Moreover, individual researchers cannot subscribe to all of the journals from which they seek copies of articles. But if broad distribution of copies does not seem to impinge upon a publisher’s market, can a finding of infringement be made, consistent with the policies underlying the Copyright Clause?

Of course, owners and users are free to contract, and the courts will enforce a reasonable licensing agreement. But libraries have categorically refused to remit royalties to scientific publishers.

The unavailability of appropriate relief

There are further difficulties. Copyright law is a creature of common lawyers, who think in common-law terms. Remedies must fit the injuries, and a defendant's conduct must be casually related to those injuries. Even if the case could be made that scientific publishers need, perhaps for their very survival, the royalties that licensed photocopying could give them, there is nothing in that need to compel a finding that current photocopying practices infringe copyrights on scientific journals.

There is also the not inconsiderable difficulty under current copyright law of framing appropriate relief in a particular case. The remedies available where infringement is found may not at all be what the plaintiff requires. Damages, if proved, can be recovered, but in the case of library photocopying actual harm to publishers cannot persuasively be shown. All the profits the infringer has made from his infringement could be awarded to the copyright owner, but again in the case of library photocopying, there is no profit to the infringer. Where neither damages nor profits can be demonstrated, the statute provides for awards from a schedule of minimum damages (not inconsiderable in the aggregate). In the case of *112 library photocopying however, a huge award of statutory damages against a particular library would injure the library to the ultimate disadvantage of a publisher, while a small award would constitute only a cheap license to go on infringing.

The ultimate remedies of copyright proprietors—injunction, impoundment, and destruction—may seem so extreme as to deter a finding of infringement. The 1710 Statute of Anne giving copyright to English publishers provided as ultimate remedy for infringement the right to “damask and make waste paper of” the offending copies.¹⁴ But to Americans such confiscatory power conjures up dark visions of book burning. In the case of library photocopying, the ultimate weapon appears to be the injunction against all library photocopying practices. Inevitably, the existence of such power casts a pall over discussion. Courts as well as commentators tend to proceed in their analysis from the stark question: “What would be the effect on science if photocopying were stopped?” But in the case of library photocopying, all the publishers, all the publishers have been after is a simple award of royalties. With all the panoply of their powers, our courts seem helpless to grant this obvious relief. If the case does not come under the statutory compulsory licensing provision for phonograph recordings, or if the parties have been unwilling or unable to set up a private licensing arrangement, there seems to be no suitable remedy. Now, an imaginative court with injunctive power probably has all it needs in the way of authorization to require parties to come to terms; but courts seem not to exercise these powers in the copyright context.

Finally, direct approaches to the secondary services for compensation—a step currently contemplated by scientific publishers—do not seem promising. The position of the publishers appears to be even weaker as against the services than it is as against photocopiers. There is no copyright in titles, and there is little protection for writings which in any event can be stated in only a limited number of ways, like tables of contents. Revision of article abstracts (with

¹⁴ See generally B. Kaplan, *An Unhurried View of Copyright* (New York, Columbia University Press, 1967), p. 7.

proportionately decreased accuracy) is being resorted to by abstracting services to avoid remaining copyright problems. The primary publishers, in sum, have been searching for copyright infringements from which to extract some compensation from the secondaries; but the latter, although so dependent upon the continued existence of the primaries, do not compensate them in any way. Copyright law is perceived to be inadequate to deal directly with the question whether the secondary services ought to make some contribution to the continued survival of the learned journals, *113 and meanwhile the photocopying explosion continues without any sign of abatement.

If copyright law is to serve as an effective mechanism for the implementation of information policy, it would appear that only Congress can make it so. It is also possible that remedial legislation beyond the scope of the copyright laws may be required.

Remedial legislation

Much of the commentary on the problem of the learned journals has focused on the inadvisability of permitting copyright owners to block photocopying or to require advance permissions for photocopying. to quote variously from the opinion in *Williams & Wilkins* in the Court of Claims:

There is no doubt in our minds that medical science would be seriously hurt if such library photocopying were stopped. . . In the absence of photocopying, the financial, time-wasting, and other difficulties of obtaining the material would well lead . . . to a simple but drastic reduction in the use of . . . many articles. . . The probable effect on scientific progress goes without saying.

The important desideratum appears to be the protection of the familiar system whereby individual researchers may readily obtain copies of scholarly journal articles from libraries. No degree of proprietorship out to authorize interference with this demonstrably valuable dissemination of ideas. But what has been generally overlooked is that no one, least of all the publishers, is interested in injunctions or the extraction of prior permissions. Photocopying practices have always been encouraged by the scientific publishing industry, and the halting or slowing of photocopying cannot possibly contribute to the well-being of that industry. What the publishers want is a simple licensing arrangement which will provide a reliable source of income. As the chairman of the board of *Williams & Wilkins Company* testified at Congressional hearings in 1967:

We feel that it is unrealistic and not in the public interest to consider restricting in any way the use of photocopying devices. They serve a useful purpose in the dissemination of knowledge. Since we, as publishers, are in that business, we certainly don't want to see the spread of knowledge curtailed . . . To us the only solution to the problem is a simple system of royalty payments with a minimum of red tape.

Again, in the brief for the plaintiff in the Court of Claims case, the publishers stated, "The only way to save private limited circulation technical journals from extinction is to broaden the income base." *114

In spite, or perhaps because, of the fact that so much attention has been focused upon the question of the effect upon science if photocopying were stopped, there has been little or no consideration of what would be the effect upon science of the imposition of licensing fees on copying costs. Some work has been done, however, on copying, particularly on the subject of transaction costs incurred in collecting the fees and remitting them to publishers.¹⁵ Libraries have refused to negotiate licensing agreements with publishers because—although the amounts under discussion are quite agreeable to the libraries—the accounting problems presented seem insuperable. As the libraries put it, they would be spending dimes to collect nickels.

Even if courts begin to see their way clear to awarding a fixed royalty to publishers under the Copyright Act (no doubt by requiring the parties to file an agreement¹⁶), it is extremely unlikely that they would do so in the face of affirmative arguments about the injury that imposition of royalties would inflict upon libraries. Similarly, in considering the possibility of drafting a compulsory licensing provision for photocopying in the revision bill, legislators have been deterred by the problem of transaction costs. Senator McClellan, Chairman of the Senate Judiciary Committee's Subcommittee on Patents, Trademarks and Copyrights, commented during hearings on library photocopying in the summer of 1973:

Well, I am not going to get into the business . . . I think I have a full measure of sympathy for all interests; I mean, I would like to see the publisher and author and so forth compensated, and at the same time, I don't know how you could base it on this five per cent rate paid by whoever gets a copy, and make this thing work.

Can compulsory licensing work?

But would there be any impracticality, or injury to libraries, in the imposition of a licensing arrangement upon photocopying? Libraries argue that the task of collecting and redistributing the modest royalty demanded would take the resources of a scholars' version of ASCAP—the American Society of Composers, Authors and Publishers, which since 1914 has operated as a non-profit clearinghouse collecting and distributing royalties due composers, lyricists, and publishers under licensing agreements and compulsory license law. ASCAP's transactions costs are high, reportedly exceeding 18 per cent. But the libraries' fears about bookkeeping do not *115 seem convincing. Even if a version of ASCAP were needed, publishers argue, there is nothing inherently difficult or expensive in establishing one. Other commentators suggest that modern computer technology could be utilized to minimize the complexity of administering royalties, with or without the need for a central clearinghouse. It is possible that the alleged difficulty has been blown out of proportion, for the technical publishing industry is not Tin Pan Alley. Directly negotiated payments to each of the 50 publishers responsible for 95 per cent of scientific publishing would hardly require anything like the services of an ASCAP. The cheapest and simplest way of handling the problem would seem to be through private negotiation, without the intervention of courts or

¹⁵ The argument based upon transaction costs is emphatically stated in S. Breyer, "The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs," *Harvard Law Review*, vol. 84 (1970), pp. 331ff.

¹⁶ Federal trial courts have great powers, frequently exercised in antitrust, desegregation, and similar cases, to require the parties themselves to come to terms—to file proposed plans and consent decrees for court approval. Thus the court is spared the unseemly task of "legislating" for the case or of drafting a contract for the parties.

Congress, leading to payment of a flat fee at the time of annual library subscription to the particular journals. The flat fee charged could be based upon the publisher's estimate of copying practice, and the library would be free to protest if its experience of copying practice with the particular journal did not warrant the charge.

The price libraries pay for subscriptions should not be raised for this purpose, since libraries would then be able to evade the obligation by use of shared subscriptions. Photocopying practices should be monitored separately. In any event, there is a limit to how high subscription prices may be raised, as they are not ordinarily passed on to consumers of copies. But a licensing fee, together with the minimum transaction cost involved, could fairly be passed on to individual researchers and eventually to the institutions and contracts supporting them. Where distributors of photocopies customarily make no charges, of course, they would have to assume a new burden of making photocopying charges, or absorbed the licensing fee themselves. Thus the mechanics of working out private payments of royalties would not be insurmountable.

No one has argued that passing on such costs would be harmful to science, in the way that passing on such costs would be harmful to science, in the way that stoppage or imposition of a permissions requirement would. In the *Williams & Wilkins* case, the libraries failed to demonstrate in the interest of science that a modest charge per page or per copy, in addition to charges already paid by researchers requesting photocopies, would place an undue burden upon science, or upon supporting institutions. At NIH and NLM, of course, no charge was made for photocopies; the government supported the research directly at the point of information distribution, rather than by means of contract support. But the government did sustain copying costs, and an addition to such costs reflecting royalties would simply represent another application of the same principle *116 by which users could be required to pay somewhat greater than usual charges for copies.

But of course the libraries have refused to negotiate. Could Congress, consistent with the policies underlying the Copyright Clause, provide royalties to certain publishers for photocopying? Such copyright protection as scientific publishers now enjoy seems ineffective to provide the kind of relief they need. What they want to assert, however, is not a property right in the ultimate sense of a right to exclude, but in the limited sense of a right to collect a rent, a toll, or a fare. What they attach is not the use of their property as such—to prevent such use could not serve their own interest or the public interest—but only the users' free ride. To "promote the progress of science" Congress could reinforce the limited copyright protection already given scientific publishers by supplementing the existing arsenal of court remedies with an authorization to courts to award reasonable royalties for photocopying.

Redress and responsibility

Congress has already provided similar relief for an area of the publishing industry in which it would not be in the public interest to allow copyright owners to block the making of copies. In the case of sound recordings, it is provided that once a copyright proprietor of a musical composition allows one recording to be made, anyone else may record the price. But since it would be inequitable to allow such use without compensation to the copyright owner, a statutory royalty of two cents per side is enacted. The described provision is spoken of as a compulsory license. It is true that to administer this statutory arrangement, ASCAP has become a necessary feature of the industry. But given ASCAP, the system has become so successful that despite serious debate the various recent copyright revisions bills have retained compulsory licensing of sound recordings.

Could Congress enact a compulsory photocopying license for learned journals which would not, in its specificity, require the services of a clearinghouse like ASCAP? One answer might lie in the granting of a blanket authorization to photocopy, accompanied by an authorization to federal courts to award reasonable royalties for photocopying in the event of failure by an institution providing photocopies to negotiate a satisfactory royalty with a copyright owner upon appropriate request. Congress could require that court-awarded royalties take the form of an annual flat fee (in any event *117 not to exceed so many cents per page copied, based on a showing of copies made from the plaintiff's publications within some fixed period). The point would be to avoid court imposition of detailed bookkeeping upon a library, but to allow the court to render the kind of award it has heretofore felt unauthorized to make.

Such a provision would not affect publishers who are not concerned enough about a copying problem to make the demand, or libraries so small as to not warrant the demand. It would also leave unchanged the situation of the individual researcher at the coin-operated machine. With an actual original in his hand, he cannot be said to be photocopying to the great prejudice to anyone's interest. In addition, the obligation to negotiate could also be placed upon other agencies contributing to copyright infringement and able to offset some of the difficulties scientific publishers currently struggle with unaided. If the secondary services and the manufacturers of computer and photocopying equipment could also be made vulnerable to royalty demands, some of the burden would be shifted from libraries.

But it may be thought that copyright is too clumsy and indirect a mechanism for the provision of what, after all, appears to be a subsidy. Instead of setting up a scheme in which the federal government pays researchers to pay libraries for copies, requiring libraries in turn to remit some portion of these fees to publishers, one might consider the advisability of a more direct subsidy. There are sound reasons, however, for not allowing any degree of direct dependence of scientific publishing upon the government. On the other hand, tax and postage remissions might be appropriate. Although such legislation is beyond the scope of the power given to Congress by the Copyright Clause, it would be consistent with the policy to "promote the progress of science," and could doubtless be justified under the commerce power. Despite the attractiveness of the expedient, such a remedy is inferior to one under the copyright laws because it cannot compensate the journals in direct proportion to the now unauthorized uses being made of the. It would not enable them to enjoy the fruits of the photocopying revolution.

But whether or not Congress or the courts act to redress the imbalances in the scientific information industry, it is time for the various segments of the industry to reassess their responsibilities. These services and their users should recognize an obligation to make a fair contribution to the continued survival of scientific publishing, for that continued survival is of overriding importance to the public, to the progress of science, and not least of all to themselves.

Schwab goes on to describe several crises facing humanity, including rising government debt, unemployment, and increasing social unrest. Combined with COVID-19, these crises will leave the world less sustainable, less equal and more fragile. "We must build entirely new foundations for our economic and social systems," Schwab writes. He details the 3 main components of TGR agenda, specifically fairer market outcomes, investments in "equality and sustainability," and harnessing the innovations of the Fourth Industrial Revolution. When it comes to producing "fairer market outcomes," Schwab calls If there is a silver lining to the Covid-19 crisis, it is the remarkable creativity shown by the many businesses that have thrived by transforming themselves.Â Yes, bricks and mortar retail is still lagging, and the travel and tourism industry may never be what it once was. But areas like ecommerce, fintech and healthcare are positively booming. This kind of Schumpeterian creative destruction is just what you want at a time like this. But the rise of entirely new kinds of businesses also creates new challenges for both capital and labour. Iâ€™d point to three particularly pressing issues that will require more attention from policymakers. First is the question of how to value and protect intangible assets, which will probably double as a percentage of Even before the current crisis, countries were having trouble reconciling the rights of users, the rights of copyright holders, and the obligations of platforms into workable law. The United Kingdom took Brexit as a chance not to implement it. And requiring automated filters in the EU runs into the problem that the EU has recognized the danger of algorithms by giving users the right not to be subject to decisions made by automated tools.