FEATURE ARTICLES

Copyright Basics and Consequences

BEN H. WEIL*
Ben H. Weil, Inc., Warren, New Jersey 07060

BARBARA FRIEDMAN POLANSKY
American Chemical Society, Washington, DC 20036

Received February 20, 1984

The U.S. Copyright Statute has complexities that affect the well being of the scientific and engineering communities, among others, and that are often not fully understood by them. To provide a better background for future consideration of specific copyright issues, this feature article reviews the basics of the current copyright statute and then interprets these in terms of such business, professional, emotional, and ethical aspects as print publications, library photocopying, videodiscs, downloading from bibliographic databases, and videotape recording off the air.

In recent years, literally thousands of articles have appeared that attempt to explain, interpret, or comment on the Copyright Statute of 1976, which became effective on January 1, 1978, and which culminated well over 20 years of legislative study and debate on how best to modify and update the Copyright Law of 1909. Because the new law—as for all copyright laws—is complex and far from unambiguous, it provides a veritable feast of opportunity for lawyers and for the pleaders of special causes, legitimate or sometimes less so.

Although only 7 years have passed since the statute was enacted, many questions have already been posed as to its adequacy to protect the more technological forms of expression. Depending on who is speaking, copyright can be rated on a scale ranging from a boon for "authors" to a barrier to communication.

Many articles and books on copyright rush quickly from references to its origins to details on its functions or malfunctions, presuming—probably incorrectly—that everyone knows what the Copyright Law is all about and what it actually says that gives rise to such a myriad of interpretations. Actually, it is important to be *certain* that readers know the basics of copyright if they are to really understand the more complicated issues in which copyright protection or the use of copyrighted material are involved. Accordingly, in this feature article we will review the fundamentals of copyright and will then discuss their impacts on uses and users—"copyright consequences".

GENERAL BACKGROUND

Two important U.S. laws—the copyright law and the patent law—are based on the same brief portion of the Constitution of the United States (Article I, Section 8):

> "The Congress shall have the Power...to Promote the Progress of Science and the Useful Arts, by securing for limited Times to Authors and Inventors the exclusive Rights to their respective Writings and Discoveries..."

This passage has been subject to many shadings of interpretation. To those to whom monopolies of any type or degree are anathema, emphasis is always placed on the public-welfare implications and on diminishing rights for authors and inventors. However, for those to whom creative entrepreneurship within the free-enterprise system is a way of life, it is clear that the exclusive rights granted are proper business awards.

Moreover, while the Constitution speaks of "Authors", in modern terminology this term has been broadened to include composers, artists, and even computer programmers, as well as employers. In our capitalistic society, relatively few of these creators of "intellectual property" can actually produce, reproduce, adapt, or perform their works to optimal economic advantage, so they usually assign (or are required to assign) such rights to publishers, recording firms, and similar enterprises, thereby providing these organizations with the requisite economic incentive.

The original U.S. copyright statute was patterned after the 1710 British law known as the Statute of Anne, which was an "Act for the Encouragement of Learning by Vesting the Copies of Printed Books in Authors of Such Copies During the Times Therein Mentioned". Protection for the author had by then succeeded the original British purpose for statutory copyright, which was the stifling of religious heresy. To achieve the latter, a royal decree in 1556 had given the Stationers' Company (an organization of the leading London publishers) a monopoly over all printing.

In 1790, 3 years after the U.S. Constitution was approved, Congress enacted its first copyright statute. This protected books, maps, and charts, but subsequent 19th Century versions broadened the areas of protection to include prints, musical compositions, photographs, works of fine art, translation rights, public performance (first for drama, then for musical compositions), and the right to dramatize nondramatic literary works. Thus, Congress did not restrict "writings" to the printed word (Gutenberg technology) and laid the groundwork for such later, esoteric compositions as computer software.

To receive copyright protection, a "writing" must be a fixed product of original or creative thought and work; unlike for a patentable invention, it need not be novel. "To be eligible for protection, however, the work must take some tangible

0095-2338/84/1624-0043$01.50/0

form; ideas, plans, methods, and systems, as such, are not copyrightable, although the writing that expresses or describes them is subject to copyright. At present, words, names, titles, and slogans are also not eligible for copyright, but Congress probably has the Constitutional authority to extend protection to these 'writings' if it should so elect. Facts, news, and other commonly held information are not protectable, since they do not meet the requirement of 'originality'."[1]

Further history and background on copyright is available in numerous books and articles, including the above-referenced work[1] in whose preparation B.H.W. played a major role on behalf of the American Chemical Society and several other scientific and engineering societies.

THE LAW ITSELF

To understand copyright, nothing is as important as the 1976 Copyright Statute itself. While available space obviously does not permit us to reproduce this here, we strongly urge serious scholars to obtain a copy of this statute, in addition to copies of the forms, regulations, and circulars that are part of the Copyright Office Information Kit available from the Copyright Office, Library of Congress, Washington, DC 20559.

The copyright statute, which is Title 17 of the U.S. Code, is divided into eight chapters, each of which has numbered sections and further subdivisions. Chapters include:

1. Subject matter and scope of copyright.
2. Copyright ownership and transfer.
3. Duration of copyright.
4. Copyright notice, deposit, and registration.
5. Copyright infringement and remedies.
6. Manufacturing requirements and importation.
7. Copyright Office.
8. Copyright Royalty Tribunal.

We will concentrate on the first four of these chapters, but will touch briefly on the others, as appropriate. Our emphasis in this article will be on matters of direct importance to scientists and engineers as authors and users of copyrighted works, but not so much on copyright formalities.

Subject Matter and Scope. Almost half of the copyright statute is concerned with Chapter 1, which is subdivided into 18 sections that address the subject matter and scope of copyright:

101. Definitions.
102. Subject matter of copyright: In general.
103. Subject matter of copyright: Compilations and derivative works.
104. Subject matter of copyright: National origin.
105. Subject matter of copyright: United States Government works.
106. Exclusive rights in copyrighted works.
107. Limitations on exclusive rights: Fair use.
108. Limitations on exclusive rights: Reproduction by libraries and archives.
109. Limitations on exclusive rights: Effect of transfer of particular copy or phonorecord.
110. Limitations on exclusive rights: Exemption of certain performances and displays.
111. Limitations on exclusive rights: Secondary transmissions.
112. Limitations on exclusive rights: Ephemeral recordings.
113. Scope of exclusive rights in pictorial, graphic, and sculptural works.
114. Scope of exclusive rights in sound recordings.
115. Scope of exclusive rights in nondramatic musical works: Compulsory license for making and distributing phonorecords.
116. Scope of exclusive rights in nondramatic musical works: Public performances by means of coin-operated phonorecord players.
117. Scope of exclusive rights: Use in conjunction with computers and similar information systems.
118. Scope of exclusive rights: Use of certain works in conjunction with noncommercial broadcasting.

Definitions. Section 101 contains many definitions that are vital to a clear understanding of the statute, but it is too lengthy to include here. A few examples must suffice to depict its importance:

> A "collective work" is a work, such as a periodical issue, anthology, or encyclopedia, in which a number of contributions, constituting separate and independent works in themselves, are assembled into a collective whole.
>
> A "compilation" is a work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes a work of authorship. The term "compilation" includes collective works.
>
> "Copies" are material objects, other than phonorecords, in which a work is fixed by any method now known or later developed, and from which the work can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device. The term "copies" includes the material object, other than a phonorecord, in which the work was first fixed.
>
> A "derivative work" is a work based on one or more preexisting works, such as a translation, musical arrangement, dramatization, fictionalization, motion picture version, sound recording, art reproduction, abridgement, condensation, or any other form in which a work may be recast, transformed, or adapted. A work consisting of editorial revisions, annotations, elaborations, or other modifications which, as a whole, represent an original work of authorship, is a "derivative work".
>
> A work is "fixed" in a tangible medium of expression when its embodiment in a copy or phonorecord, by or under the authority of the author, is sufficiently permanent or stable to be perceived, reproduced, or otherwise communicated for a period of more than transitory duration. A work consisting of sounds, images, or both that are being transmitted, is "fixed" ... if a fixation of the work is being made simultaneously with its transmission.
>
> "Literary works" are works, other than audiovisual works, expressed in words, numbers, or other verbal or numerical symbols or indicia, regardless of the nature of the material objects, such as books, periodicals, manuscripts, phonorecords, film, tapes, disks, or cards, in which they are embodied.
>
> "Publication" is the distribution of copies or phonorecords of a work to the public by sale or other transfer of ownership, or by rental, lease, or lending. The offering to distribute copies or phonorecords to a group of persons for purposes of further distribution, public performance, or public display, constitutes publication. A public performance or display of a work does not of itself constitute publication.

Other pertinent terms defined include "display", "joint work", "perform", "transfer of copyright ownership", "transmit", "work of the United States Government", and "work made for hire".

Subject Matter in General. Section 102 states that "copyright protection subsists ... in original works of authorship fixed in any tangible medium of expression, now known or later developed, from which they can be perceived, later reproduced, or otherwise communicated, either directly or with the aid of a machine or device". Works of authorship include (1) literary

works; (2) musical works, including any accompanying words; (3) dramatic works, including any accompanying music; (4) pantomimes and choreographic works; (5) pictorial, graphic, and sculptural works; (6) motion pictures and other audiovisual works; (7) sound recordings.

However, copyright protection does not extend to "any idea, procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such works".

Other Subject Matter. Section 103 extends the specification of subject matter eligible for copyright to compilations and derivative works, including preexisting copyrighted material as long as it has been used lawfully. Section 104 extends copyright protection to unpublished works without regard to nationality or domicile; however, protection of published works is limited to U.S. citizens and those of countries that are members of the Universal Copyright Convention (UCC) or other copyright treaties to which the U.S. is a party. Also, the work must be published in the U.S., in a country that is party to the UCC, by the United Nations or any of its agencies, or by the Organization of American States.

Section 105 denies copyright protection to "any work of the United States Government", which "is a work prepared by an officer or employee of the United States Government as part of that person's official duties". However, this does not preclude a U.S. Government employee from holding copyright if the work was not prepared as part of his or her official duties. Also, the U.S. Government may receive and hold copyrights that might be transferred to it by assignment, bequest, or otherwise.

Exclusive Rights. Subject to limitations expressed in the remaining sections of Chapter 1, Section 106 states that the copyright owner "has the exclusive rights to do and to authorize any of the following:

(1) to reproduce the copyrighted work in copies or phonorecords;

(2) to prepare derivative works based upon the copyrighted work;

(3) to distribute copies or phonorecords of the copyrighted work by sale or other transfer of ownership, or by rental, lease, or lending;

(4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly; and

(5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly."

Fair Use Exceptions. Section 107, which concerns "fair use" exceptions to the aforementioned exclusive rights, codifies what had previously been judicial doctrine. It was not intended to change, narrow, or enlarge it in any way. According to Section 107, "the fair use of a copyrighted work, including such use by reproduction in copies or purposes such as criticism, comment, new reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include: (1) the purpose and character of the use, including whether such is of a commercial nature or is for nonprofit educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work."

These criteria are not necessarily the sole ones to consider in determining fair use. Some examples of fair use that appear on page 65 of House of Representatives Report 94-1476, dated September 3, 1976, include "quotation of excerpts in a review or criticism for purposes of illustration or comment; quotation of short passages in a scholarly or technical work, for illustration or clarification of the author's observation; summary of an...article, with brief quotations, in a news report; and reproduction by a teacher or student of a small part of a work to illustrate a lesson".

The courts have found it quite difficult to state a concise definition of fair use. To quote again from the above-mentioned House Report, "since the doctrine is an equitable rule of reason, no generally applicable definition is possible, and each case raising the question must be decided on its own facts". Taking this statement into consideration, some groups that were particularly concerned with copying for teacher and classroom use and with photocopying of music, tried to work out some compromises. As a result of their successful efforts, guidelines for such uses were accepted by both the House and the Senate. Although these guidelines are not included in the copyright statute, they were published in the aforementioned House Report.

Reproduction by Libraries and Archives. In the years preceding the passage of the 1976 law, Congress also paid considerable attention to balancing the rights of authors and publishers with the needs of libraries for the benefit of users. Previously, most libraries had depended for their photocopying on an interpretation of "fair use" that permitted them to provide a "single copy" of a portion of a copyrighted work (including an entire article) to any user, locally or through "interlibrary loan". Congress agreed that "reproduction by libraries and archives" warranted some amplification and definition over "simple" fair use, including definition of limitations.

Accordingly, Section 108 permits a library or archives to produce or distribute a single copy of a work in its collection if this is done "without any purpose of direct or indirect commercial advantage", if its collections are "open to the public" or available "to persons doing research in a specialized field" as well as to affiliated researchers, and if the copy "includes a notice of copyright". A damaged, lost, or stolen copy may be duplicated in facsimile form "if the library or archives has, after a reasonable effort, determined that an unused replacement cannot be obtained at a fair price".

Under Section 108, a library or archives may make for a user, or may request in his or her behalf from another library or archives, "no more than one article or other contribution to a copyrighted collection or periodical issue...or a small part of any other copyrighted work". However, the copy must become the property of the user, and the library or archives may prepare or obtain it only when it "has had no notice that the copy or phonorecord would be used for any other purpose than private study, scholarship, or research" and when "a warning of copyright", as prescribed by the Register of Copyrights, is displayed "where orders are accepted" and is included on the library's order form. Moreover, with the same provisos, a copy of an entire work or a substantial portion of it may be requested "if the library or archives has first determined, on the basis of a reasonable investigation, that a copy or photorecord of the copyrighted work cannot be obtained at a fair price".

A library or archives is not liable for what is done at unsupervised reproducing equipment located on its premises, provided that a notice is posted "to the effect that the making of a copy may be subject to the copyright law". An individual using such equipment or requesting a photocopy from the library or archives can be held liable "for copyright in-

fringement if his act...or later use...exceeds fair use as provided in Section 107".

Library copying under Section 108 is further restricted to "isolated and unrelated reproduction of a single copy or phonorecord of the same material on separate occasions". The right to do such copying "does not extend to cases where the library...or its employee—(1) is aware or has substantial reason to believe that it is engaging in related or concerted reproduction or distribution of multiple copies or phonorecords of the same material, whether made on one occasion or over a period of time, and whether intended for aggregate use by one or more individuals or for separate use by the individual members of a group; or (2) engages in the systematic reproduction or distribution of single or multiple copies or phonorecords...: *Provided*, That nothing in this clause prevents a library or archive from participating in interlibrary arrangements that do not have, as their purpose or effect, that the library or archives receiving such copies or phonorecords for distribution does so in such aggregate quantities as to substitute for a subscription to or purchase of such work."

Under guidelines on "Photocopying—Interlibrary Arrangements" developed in 1976 by the National Commission on New Technological Uses for Copyrighted Works (CONTU), just in time to be included by the House and Senate in their (copyright statute) "Conference Report" (H.R. 94-1733, dated September 29, 1976), libraries or archives are permitted to request from other libraries or archives up to five copies of articles published in the last 5 years in a given periodical, as long as they maintain proper records of such requests.

The Conference Report, in interpreting "indirect commercial advantage"—mentioned earlier as one barrier to library eligibility for Section 108 privileges—went on to say that if other criteria in Section 108(a) were met, "the conferees consider that the isolated, spontaneous making of single photocopies by a library or archives in a for-profit organization without any commercial motivation, or participation by such a library or archives in interlibrary arrangements, would come within the scope of Section 108". However, the Association of American Publishers believes that such private-library copying is very strictly limited, because of examples of violations included in the earlier Senate Report (94-473, dated November 20, 1975), basing the priority for this report on the fact that neither the House nor the Conference Committee made any changes in the related wording of the statute.

Section 108 also states that its provisions do not apply to musical works, graphic works, motion pictures, etc. It concludes with a provision that, every 5 years after 1978, the Register of Copyrights shall prepare and submit to Congress a report on the extent to which Section 108 "has achieved the intended statutory balancing of the rights of the creators and the needs of users" and that this report should also include recommendations for any legislative changes needed to solve any problems that may exist. The Register's report submitted in 1983 noted an apparent lack of library clarity on the stringencies in Section 108 and a need for further studies. The Register recommended a few statutory changes, including addition of an "umbrella statute" to limit statutory damages, for users complying with certain requirements, for the copying of technical or business periodicals beyond fair use or Section 108; this limitation would apply only for publishers who have not registered their periodicals with the Copyright Clearance Center or otherwise specified payments for such copying.

Other Exceptions and Statements of Scope. Section 109 makes it lawful for the owner of a copy of a copyrighted work to sell or otherwise dispose of that copy without the authority of the copyright owner, or similarly to display it publicly (including projection of one image at a time) or to authorize someone else to do the same. Such rights do not extend, without the permission of the copyright owner, to those who rent, lease, or borrow the copy without actually owning it.

Sections 110–116 and 118 do not often relate directly to scientists and engineers as authors or users, although Section 110 does permit certain performances and displays for classroom purposes.

Section 117, which was amended in 1980, relates importantly to the limitations on exclusive rights concerning computer programs and use. The original Section 117 mentioned that the copyright owner was not afforded any "greater or lesser rights with respect to the use of the [copyrighted] work in conjunction with automatic systems capable of storing, processing, retrieving, or transferring information, or in conjunction with any similar device, machine, or process, than those afforded to works under the law...in effect on December 31, 1977, ..." The amended Section 117 allows "the owner of a copy of a computer program to make or authorize the making of another copy or adaptation...", provided that such action is essential to use of the computer program and that the new copy is not used in any other manner or that the making of the new copy or adaptation is for archival purposes only; when the owner of the computer program no longer has the right to possess it, all archival copies must be destroyed.

Copyright Ownership and Transfer. Chapter 2 of the 1976 copyright statute deals with copyright ownership and transfer; it contains five sections:

201. Ownership of copyright.
202. Ownership of copyright as distinct from ownership of material object.
203. Termination of transfers and licenses granted by the author.
204. Execution of transfers of copyright ownership.
205. Recordation of transfers and other documents.

Section 201 makes it clear that the author of a work eligible for copyright is the initial owner of it, with the authors of a joint work coowners of it. However, in the case of a "work made for hire, the employer or other person for whom the work was prepared is considered the author...[and] owns all of the rights...unless the parties have explicitly agreed otherwise" in writing.

Authors of scientific and engineering books have long been accustomed to assigning the ownership of copyright in their books to publishers as part of their book contracts, although not always for subsidiary rights in the case of works of fiction, where authors more generally hold their own copyrights. However, prior to the 1976 copyright statute, there was usually little in writing between publishers and the authors of journal articles beyond (in some cases) statements in society bylaws and on reprint order forms that papers published in a given journal were the property of the given society or other publisher. It was normally assumed that copyright transfer took place upon publication in the case of papers in journals and other collective works. It was also assumed that the copyright of the collective work also held for the individual papers.

Now, however, the copyright in each paper "is distinct from copyright in the collective work as a whole, and [not only] vests initially in the author of the [separate] contribution", but also continues to be his or hers "in the absence of express transfer [in writing] of the copyright or of any of the rights under it". Without such written transfer, the copyright owner of the collective work—usually a publisher—is "presumed to have acquired only the privilege of reproducing and distributing the contribution as part of that particular collective work, any revision of that collective work, and any later collective work in the same series".

Accordingly, most publishers of scientific and engineering books, journals, and proceedings (the American Chemical Society was a leader here) now require written copyright

transfers before publication, "to protect their reputations, and ours as authors, against misuse of our writings, and centrally to represent authors in a variety of ways"; without such transfers, these publishers "are unable to grant even royalty-free permissions, much less licenses, for anyone to make photocopies of their papers, and they cannot make their papers available in digital form for [on-line, full-text] searching".[2] Actually, "it goes without saying that you must be the copyright owner of requested material in order to grant... permissions".[3] On the other side of the coin, requestors find it easier to obtain permissions from a publisher rather than from a multiplicity of individual authors.

Chapter 2 of the statute also contains sections on the recordation of transfers and other documents in the U.S. Copyright Office and the termination of transfers and licenses granted by authors. As provided for in Section 203, "in the case of any work other than a work made for hire...", termination of the transfer may be made at any time in years 36–41 from the data of the original transfer.

Duration of Copyright. Chapter 3 of the copyright statute contains five sections, as follow:

301. Preemption with respect to other laws.
302. Duration of copyright: Works created on or after January 1, 1978.
303. Duration of copyright: Works created but not published or copyrighted before January 1, 1978.
304. Duration of copyright: Subsisting copyrights.
305. Duration of copyright: Terminal data.

To align U.S. practice with that in most countries, the term of copyright for works created on or after January 1, 1978, is generally the life of the author plus 50 years. In the case of joint works prepared by two or more authors, the copyright term is 50 years after the death of the last surviving author. For anonymous works, pseudonymous works, and works made for hire, copyright endures for a term of 75 years from first publication or 100 years from the work's creation, whichever expires first.

Works only in their (old law) first term of copyright on January 1, 1978, continue in copyright for the balance of this original term of 28 years; they are then eligible, upon application, for a renewal term of 47 years. The duration of copyright for works already in their renewal term on January 1, 1978, was automatically extended to 75 years from their original date of copyright.

Copyright Notice, Deposit, and Registration. Chapter 4 of the copyright statute has 12 sections, as follow:

401. Notice of copyright: Visually perceptible copies.
402. Notice of copyright: Phonorecords of sound recordings.
403. Notice of copyright: Publications incorporating United States Government works.
404. Notice of copyright: Contributions to collective works.
405. Notice of copyright: Omission of notice.
406. Notice of copyright: Error in name or date.
407. Deposit of copies or phonorecords for Library of Congress.
408. Copyright registration in general.
409. Application for copyright registration.
410. Registration of claim and issuance of certificate.
411. Registration as prerequisite to infringement suit.
412. Registration as prerequisite to certain remedies for infringement.

Whenever a work that is eligible for copyright protection is published, a copyright notice as provided by Section 401 "shall be placed on all publicly distributed copies from which the work can be visually perceived...". The notice consists of three elements: "(1) the symbol © (the letter C in a circle), or the word 'Copyright', or the abbreviation 'Copr.'; (2) the year of first publication of the work;...and (3) the name of the the owner of copyright in the work...", e.g.

Copyright © 1984 American Chemical Society

Phonorecords must show a similar notice, except that the letter P is used instead of C.

A separate contribution to a collective work may bear its own notice of copyright, if permitted by the publisher. However, "a single notice applicable to the collective work as a whole is sufficient to satisfy the requirements...with respect to the separate contributions it contains..., regardless of the ownership of copyright in the contributions and whether or not they have been previously published" (Section 404).

Section 407 requires the copyright owner to deposit within 3 months, for use by the Library of Congress, two complete copies of the best edition of the published work or phonorecord. Certain exceptions are or may be made, such as for motion pictures and very limited editions ("less than five copies"). Fines may be levied if the deposit copies are not delivered after they are requested in writing by the Register of Copyrights.

Copyright registration, *which is not required for copyright ownership*, may be obtained from the Copyright Office when delivering the deposit copies "if they are accompanied by the prescribed application and fee, and by any additional identifying material that the Register may, by regulation, require". Registration may also be obtained after the 3-month deadline for deposit of copies. However, according to Section 407, "the certificate of registration made before or within five years after first publication of the work shall constitute prima facie evidence of the validity of the copyright and of the facts stated in the certificate. The evidentiary weight to be accorded the certificate of registration made thereafter shall be within the discretion of the court."

Registration is a prerequisite to infringement suits. According to Section 411, "no action for infringement of copyright in any work shall be instituted until registration of the copyright claim has been made". Section 412 states that "no award of statutory damages or of attorney's fees, as provided in Sections 504 and 505, shall be made for any infringement of copyright...commenced before the effective data of its registration", unless in the case of a published work, "such registration is made within three months after the first publication of the work".

Other Chapters. While important, the remaining chapters of the copyright statute are not usually the concern of individual scientists and engineers—unless, indeed, they have innocently or willfully violated the law.

One pertinent exception to the imposition of statutory damages (which can be as high as $50 000) occurs in Section 504(c) (2), where "the court shall remit statutory damages in any case where an infringer believed and has reasonable grounds for believing that his or her use of the copyrighted work was a fair use under Section 107, if the infringer was...an employee or agent of a nonprofit educational institution, library, or archives acting within the scope of his or her employment who, or such institution, library, or archives itself, which infringed by reproducing the work in copies or phonorecords; ...". As an attorney for a publisher's association has put it, however, this exception allows "only one free bite".

Chapter 6, as amended in 1982, protects domestic printers and publishers by prohibiting, prior to July 1, 1986, importation into the U.S. of nondramatic literary works in the English language unless manufactured in the U.S. or Canada. This chapter also prohibits (as an infringement of copyright) the unauthorized importation of copies or phonorecords. However, importation of such copies is not actionable where "an organization operated for scholarly, educational, or religious purposes and not for private gain [imports] no more than one copy of an audiovisual work solely for its archival purposes, and no more than five copies or phonorecords of any work for

its library lending or archival purposes, unless the importation of such copies or phonorecords is part of an activity consisting of systematic reproduction or distribution, engaged in by such organization in violation of Section 108(g) (2)". Systematic importation of photocopies from the British Library Lending Division without payment of copy fees may presently fall into the latter category.

Chapter 8 describes the establishment, purpose, and procedures of the Copyright Royalty Tribunal, which was created to determine reasonable royalty rates concerned with the compulsory licensing of the use of phonorecords and remote TV signals. If the statute is changed, this Tribunal may eventually be concerned with copyright areas that more directly affect scientists and engineers, as such.

COPYRIGHT CONSEQUENCES

By now, if you are new to copyright, you probably feel that we have told you everything you ever wanted to know about copyright, and much more. You have probably been amazed at the detailed, complex, and convoluted phraseology and have gained a glimmer of what we meant earlier by "feast for lawyers". But if you are not new to copyright, the personal and professional emotions that this subject always evokes have probably long since started your adrenalin flowing in disagreement with some of our comments to date, and in anticipation of what you fear we have yet to say. The significance—consequences—of this statute is/are such that few people ever agree completely on many points or, if they do, at least one will want a statutory change.

Business, Professional, Emotional, and Ethical Aspects. Neither of us is an economist, sociologist, psychologist, or attorney, but both of us have long been aware that copyright has many of the aspects that are studied by such professionals. We are also aware that copyright is unique, because the creative "writings" it protects are not used up by either fair or unfair use, although awareness of possible losses from the latter may discourage or prevent publication–"distribution". Even not-for-profit organizations such as scientific and engineering societies need break-even revenues from marketing their publications to support their efforts to disseminate information, and such revenues may not be sufficiently forthcoming if they are circumvented by too many for-free channels.

What is really important is that users of information, who are also often its creators, make certain that decision makers in their management chains, including information managers and corporate counsel, understand clearly the consequences to communications if every loophole in the copyright law is fully exploited. A dollar saved may not be a dollar earned if creative authors are no longer able to publish new, useful information because publishers no longer receive sufficient revenues from organizational subscriptions, page charges, or copyright copying fees to continue operations. Enlightened managements know this, but rapidly advancing technology often obscures what is going on.

In addition, many of us have professional drives that hide such facts even from ourselves. As scientists and engineers, we are strongly motivated to share our findings with colleagues, in order to be properly evaluated by them and to spur both our and their work. We want to communicate, and we really do not worry about the communication channels unless they become clogged. So strong is this drive that we sometimes even have trouble in observing proprietary niceties.

Moreover, many of our information managers, including librarians, are so well indoctrinated in the service ethic that they rebel instinctively against anything (especially legal artificialities) that could impede their ability to serve their individual clients optimally. Beginning—decades ago—with photocopying, they have become increasingly alert to technological developments, such as on-line computer networks and (soon) electronic copy delivery, that will expedite their services. Moreover, acute budgetary stringencies have reduced their ability to subscribe to publications (now more numerous and more expensive than ever) and have made them instinctively unsympathetic to new charges such as copyright royalty fees for copying.

B.H.W. has written before on the need for empathy and ethics in areas of information such as this,[4] and we will not belabor the subject further here. In regard to the copyright area, we can but laud such corporate policies as those that call for *strict* compliance with the law—all laws—as being most in keeping with the public welfare. And we hope that the philosophical points we have raised here will serve as minimum background to the discussions that follow.

Print Publications and Related Technological Developments. The copyright law is still the principal foundation upon which rests the protection of print publications. It establishes basic author rights. When copyright ownership is transferred to publishers, it gives them a legal basis from which to proceed against print piracy and other nonfair uses. Until photocopying became inexpensive—"single copy publishing" as some publishers call it—the copyright law provided a good set of rules for most of the print-publishing businesses. Lately, however, other technological challenges have arisen, as we have indicated, and revisions to the law or agreement on what the revisions mean seem not to have kept pace.

Except (for now) for long, entire works, users are turning increasingly to "document-delivery services"—libraries and information businesses—for copies of even current short documents—articles and the like. More and more, they are identifying the pertinent documents by on-line computer searching of bibliographic databases or computerized full-text versions of the documents themselves and less and less by subscribing to current issues of the printed publications. Not all of these new channels contribute presently or potentially to publishing revenues.

As we have seen, Sections 107 and 108 govern most of the print-publication copying and permit a considerable amount of it "for free" for classroom use and by/in libraries, especially where profit is not involved. Availability, convenience, and speed of delivery are the chief driving forces for users; real costs for the copies are considerable, although royalty fees—when paid—are seldom a major portion, at least so far.

To make it possible for users to legally make or obtain copies when these would otherwise fall outside of Section 107 and 108 privileges, the Association Publishers (AAP), jointly with certain users, helped to establish the Copyright Clearance Center, Inc. (CCC), in 1977. Under the CCC's "transactional" system, users may copy articles or chapters from publications that are registered with the CCC, provided that they report their copying to the CCC and, when billed by it, pay the per-copy fees that have been preset by each publisher. Under the CCC's Annualized Authorization Service, an industrial organization may sign a license agreement and pay a lump sum, based on a 90-day survey of its copying, for the right to copy from all CCC-registered publications. Because of the convenience of this latter program, and perhaps spurred by AAP litigation against some large companies, use of the CCC is increasing rapidly, and significant revenue for journal publishers is projected for 1985.

For-profit suppliers of copyrighted-document copies can either pay copying royalty fees through the CCC or, like others, they can attempt to negotiate copying licences with publishers. For copying billed as CCC-fee paid, the CCC has a monitoring program based on user-assisted sampling.

The library-copying program is considerably more confusing. The aforementioned 1983 5-year report of the Register of

Copyrights indicated that a considerable amount of library copying exceeded statutory fair use and exempted library use, especially the nearly 30% that were multiple copies. Less than 1% of total library copying was copy-fee paid. The Register's 1982 attempt to have representatives of the library and publishing communities resolve some of their disagreements and arrive at some definitions was unsuccessful.

Indeed, organized consultation between these communities is at a low ebb concerning copyright, especially in the area of photocopying. In 1979, librarians and publishers did meet to discuss the prospect of a National Periodicals Center that would have provided fee payments to publishers for its copying; however, somewhat premature legislation to establish it thereupon foundered, at least partially because of poor communications and a lack of mutual trust.

Both communities and some information businesses are now interested in document storage and supply on videodiscs, which can hold digitalized images of as many as 20 000 pages each. Several European groups have separately been studying this media, including a combine of five private publishers that considered the British Library Lending Division as the operator. This latter group, which also had at one stage proposed to transmit images to the U.S. by satellite for printout and mailing of copies from regional stations, has suspended its efforts because of technical and economic difficulties.

In the U.S., interest has centered on an "experimental" videodisc project of the Library of Congress, which has asked a number of publishers for permission to put a few years of their most recent issues on videodiscs; the experiment would be limited to local (Washington, DC) Library of Congress users. Copying charges were not initially proposed, nor were royalty fees; the stated purpose of the project centers around document preservation. However, the data to be collected will be pertinent for the copying of recent publications. Separate advisory groups of librarians and publishers (including information businesses) have been appointed.

Would-be producers of videodiscs, including customized ones, were very much in evidence at the November 1983 conference of the Information Industry Association. What was emphasized was direct, local use of videodiscs instead of microfiche, microfilm, or paper copies; on-line transmission was not mentioned. Copyright aspects were hardly touched on, but were implied.

Meanwhile, an on-line interlibrary loan network is being centralized by OCLC, the Online Computer Library Service, Inc. Also, on-line ordering (from designated document suppliers) of desired documents identified in on-line searching is currently available from some vendors of bibliographic databases.

In the meantime, the increasing electronic composition of print media is yielding digitalized versions that are in some cases being put on-line for searching and printout. In other cases, "electronic publishing" yields the latter type of product exclusively.

The copyright law is very much involved in all this. Technology is advancing so quickly here, however, that some people question whether copyright can protect the proprietary works involved. We will touch on this again later.

Bibliographic Databases; "Downloading". As we have mentioned, bibliographic databases—sometimes known as "secondary publications" or access services—are increasingly being used to identify pertinent documents, copies of which are then obtained by/for the individuals desiring information. Prior to the advent of on-line, remote computer searching of these databases in the 1970s—until lately almost entirely through "database vendors" ("on-line services")—such searching was exclusively done through printed publications (hence the phrase, "secondary publications"). However, by the mid 1960s, the advent of computer typesetting for these had permitted computer searching of new-issue tapes to identify references pertinent to the interests of individuals or groups ("SDI", or "selective dissemination of information").

Under the 1909 copyright law, relatively little attention was given to the copyright status of bibliographic databases and their constituent references and abstracts. In 1973, however, this subject was reviewed as part of the background for a study on impacts of the proposed new law.[1] By then, dissension had arisen in one scientific community (physics) as to whether an unaffiliated service could extensively use the "author abstracts" from another organization's primary-journal articles without a license. The unaffiliated service had then shifted to its own writing of "original abstracts" for these papers.

No legal challenge occurred. Moreover, the aforementioned study of proposed copyright-law changes[1] held essentially that, beyond some limited fair use, the copyright of "author abstracts" was probably the property of the primary journals in which they first appeared (although their free use by secondary journals was almost universally encouraged and permitted). The study also held that original abstracts could probably be written without the permission of the primary journals (and could be copyrighted themselves) as long as they did not become "derivative works"; in other words, if they were not so long and so comprehensive that their use could be substituted for the original works.

These conclusions still hold for the copyright status of abstracts under the 1976 statute, according to a recent study made by representatives of the Information Industry Association (IIA) and the National Federation of Abstracting and Information Services (NFAIS).[5] However, a strong dissent to these conclusions, especially in regard to the copyrightability of abstracts, has been expressed by the head of a major scientific-abstracting service.

In regard to original abstracts, the IIA/NFAIS study[5] differentiated between the typical 100–250-word abstracts of 5000–8000-word articles, which can seldom be derivative works, and the short "news" abstracts of newspaper and similar stories, which can sometimes contain all of the information in these items and, hence, might be derivative works. However, for these short-item abstracts, attention was called to the fair-use privileges afforded to "news stories" in Section 107 of the copyright statute.

There seems to be general agreement that the elements of bibliographic references, including document titles, are not copyrightable but that copyright protection extends to "compilations" of data (such as directories and, by inference, bibliographic databases) that contain such data in meaningful arrangements.[6] If so, this compilation protection would seem to be particularly strong for databases that contain copyrighted abstracts.

Under these circumstances, there would seem to be little question as to the copyright status of and protection afforded to bibliographic databases when they are made accessible via on-line computers. In addition to copyright protection, database information is usually further protected by limitations that are spelled out in contracts between database suppliers and on-line customers. Nevertheless, technology has put a strain on both copyright and contract protection. It is now possible for on-line users to easily "download" extensive portions of databases digitally, for later internal, payment-free use, without detection by the database suppliers. While some users have been asking for permission to download, others have even frankly admitted to what may amount to database misappropriation.

Nevertheless, recent studies indicate that unauthorized downloading is not as widespread as had been feared. Moreover, some of the major bibliographic-database

services—such as Chemical Abstracts Service and BIOSIS—have announced licensing programs that permit such reuse in a controlled manner. Continued attention to downloading seems warranted, however, because it adds to the economic impact of the on-line databases on subscriptions to the printed versions.

It is too early to tell if and/or in what areas the use of on-line searching of full-text databases will seriously impact on (replace rather than augment) the use of the bibliographic databases. Unfair copyright use of full-text databases appears less attractive, because whole articles would have to be downloaded. Public vendors of full-text databases would certainly have to operate under licenses from the primary publishers if, indeed, the primary publishers do not have their own full-text on-line services.

Other Aspects. The recent decision of the Supreme Court on the "Betamax" case will probably have wide repercussions. As most of us know, this was a case in which a motion picture studio sued a Japanese manufacturer of TV videotape recorders, claiming that their sale (and home use of) for off-the-air taping of its copyrighted movies constituted contributory copyright infringement. The Supreme Court disagreed. However, it was widely believed that, regardless of the outcome of the case, Congress might counteract the decision, such as by exempting videotape recorder sale and use if the motion picture producer had won or by levying a sales charge on the recorders to compensate the copyright owners for compulsory use if—as happened—the manufacturer of videotape recorders was held noninfringing.

The Supreme Court's decision, with or without modification by Congress, is almost certain to have significant copyright consequences in other areas of application. Copyright protection in general may well have been weakened by such broadening of public rights at the expense of the copyright owners. It was always inconceivable that the public use of such appliances would be blocked, nor were the copyright owners really seeking that, but even legislated compulsory licensing does not strengthen copyright in general.

So rapidly is technology developing—so broad are its applications—that we could go on almost indefinitely in discussing the resulting copyright consequences. We must content ourselves and readers by mentioning only one more consequence—the recent amendment to Section 117 under which it became clear that computer programs could be protected by copyright. This was an uneasy choice; indeed, a minority opinion in CONTU held that neither copyright nor patenting was applicable and that a new type of protection was needed. As mentioned, copyright normally protects the expression, not the contents, of writings.

Those who are really uneasy about this are further concerned about pending legislation that would make it possible to copyright the screens used to produce computer "chips", contending that this would further distort the copyright concept. It will be interesting to see how this comes out; apparently, U.S. manufacturers of computer chips need some protection against unfair foreign competition. Hopefully, the form of this protection will not be to the detriment of the copyright system.

CONCLUSIONS

So there you have it—our review on copyright basics and consequences. Frankly, this field is so complex that we see no other mechanism that presently could work better. We can only urge patience, good ethical practices, and cooperation instead of confrontation. If these can prevail, perhaps we can all withstand—to coin a phrase—the temptations of technology.

REFERENCES AND NOTES

(1) Cambridge Research Institute "Omnibus Copyright Revision: Comparative Analysis of the Issues"; ASIS: Washington, DC, 1973.
(2) Weil, Ben H. "Why Should Chemists Care about Copyright?" *J. Chem. Inf. Comput. Sci.* **1982**, *22*, 61–63.
(3) Friedman, Barbara A. "Copyright from a Permissions Person's Point of View". *J. Chem. Inf. Comput. Sci.* **1982**, *22*, 70–72.
(4) Weil, Ben H. "Information Transfer in a Time of Transition: The Need for Community, Organizational, and Individual Empathy and Ethics". In "Abstracting and Indexing Services in Perspective: Miles Conrad Memorial Lectures 1969–1983"; Neufeld, M. Lynne; Cornog, Martha; Sperr, Inez L., Eds.; Information Resources Press: Arlington, VA, 1983.
(5) Weil, Ben H.; Steele, Kurt D.; Goldberg, Morton David; Neufeld, M. Lynne; Granick, Lois W. "Proprietary Aspects of Abstracts". *ASIS Bull.* **1983**, *9* (Apr), 18–21; *9* (June), 25–27.