

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Science serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in *Science*—including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by the AAAS or the institutions with which the authors are affiliated.

Editorial Board

ROBERT L. BOWMAN	EVERETT I. MENDELSON
JOSEPH W. CHAMBERLAIN	NEAL E. MILLER
JOHN T. EDSALL	JOHN R. PIERCE
EMIL HAURY	KENNETH S. PITZER
ALEXANDER HOLLAENDER	ALEXANDER RICH
WILLARD F. LIBBY	DEWITT STETTEN, JR.
GORDON J. F. MACDONALD	CLARENCE M. ZENER

Editorial Staff

Editor

PHILIP H. ABELSON

Publisher

DAEL WOLFE

Business Manager

HANS NUSSBAUM

Managing Editor: ROBERT V. ORMES

Assistant Editors: ELLEN E. MURPHY, JOHN E. RINGLE

Assistant to the Editor: NANCY TEIMOURIAN

News Editor: DANIEL S. GREENBERG

News and Comment: JOHN WALSH,* ELINOR LANGER, LUTHER J. CARTER, BRYCE NELSON, GILIAN PARRILLO, JOAN ANDERSON

Book Reviews: SYLVIA EBERHART

Editorial Assistants: JOANNE BELK, ISABELLA BOULDIN, ELEANORE BUTZ, BEN CARLIN, CAROLYN CLARK, JANE COLE, GRAYCE FINGER, NANCY HAMILTON, OLIVER HEATWOLE, ANNE HOLDSWORTH, KONSLYNNIETTA HUTCHINSON, ELEANOR JOHNSON, KATHERINE LIVINGSTON, BARBARA SHEFFER

*European Office: Lime Tree Farm, East Hagbourne, Berkshire, England. Telephone Didcot 3317

Advertising Staff

Director

EARL J. SCHERAGO

Production Manager

ROSE MARIE ROMAGNOLLO

Advertising Sales Manager: RICHARD L. CHARLES

Sales: New York, N.Y., 11 W. 42 St. (212-PE-6-1858): ROBERT S. BUGBEE

Scotch Plains, N.J., 12 Unami Lane (201-889-4873): C. RICHARD CALLIS

Medfield, Mass. 02052, 4 Rolling Lane (617-359-2370): RICHARD M. EZEQUELLE

Chicago, Ill. 60611, 919 N. Michigan Ave., Room 426 (312-DE-7-4973): HERBERT L. BURKLUND

Los Angeles 45, Calif., 8255 Beverly Blvd. (213-653-9817): WINN NANCE

EDITORIAL CORRESPONDENCE: 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Phone: 202-387-7171. Cable: Advancesci, Washington. Copies of "Instructions for Contributors" can be obtained from the editorial office. ADVERTISING CORRESPONDENCE: Rm. 1740, 11 W. 42 St., New York, N.Y. 10036. Phone: 212-PE 6-1858.

Copyright and Computers

United States copyright law is undergoing its first thorough revision since 1909, and its fourth since the original copyright act of 1790. The effort leading to the revision offers an outstanding example of thorough, conscientious legislative work. The Copyright Office started detailed studies in 1955 and reported to Congress in 1961. A draft bill—for discussion only—was introduced in the 88th Congress. A second bill was introduced in 1965. The House Committee on the Judiciary listened to more than 150 witnesses during 22 days of public hearings, devoted 54 committee meetings to revision, and then introduced a revised bill which, with some amendments, was adopted by the House of Representatives on 11 April. Merely listing some of the issues involved indicates the complexity of the task: phonorecords, derivative works, foreign manufacture, jukeboxes, fair use, ephemeral recordings, infringement, licensing, community antenna television, collective works, computer storage and retrieval, and so on and on.

The purpose of copyright, the committee has explained, is "to insure that authors receive the encouragement they need to create and the remuneration they fairly deserve for their creations." The creations must be distributed, however, if the authors are to be remunerated; thus distributors have an interest. So does the consuming public. There have been many disagreements, many compromises, and much discussion of what constitutes fair use of copyrighted material, of what constitutes infringement, and of who has what rights in literary, musical, dramatic, artistic, and other works under various conditions of display, presentation, or reproduction.

The extensive legal talent involved in copyright matters is largely employed by producers and distributors. It is therefore not surprising that the rights of authors, composers, and publishers are well protected in the bill. Major opposition came from jukebox owners, community-antenna-television operators, and educational television interests.

The committee considered adopting special exemptions for computer use or a special definition of fair use, but decided that computer use should be subject, as are other uses, to the general principle that "where the unauthorized copying displaces what realistically might have been a sale, no matter how minor the amount of money involved, the interests of the copyright owner need protection." As a result, except when the doctrine of fair use applies, input to a computer of all or a substantial part of any copyrighted material will be an infringement. So will computer-mediated transmission, output, or display, or the preparation of an abstract or index sufficiently detailed to be considered a derivative of the original work. A reason for these restrictions is that a single computer-stored "copy" of a copyrighted work can be retrieved by many users at different times and places.

The computer-use problem is the only major area not resolved between publishers and the scholarly community. The committee has recommended that interested parties get together for further discussions. More than this may be necessary, however, and a continuing statutory body has been proposed to work out adjustments concerning rights for computer use without waiting for the next general revision of copyright law. That revision may be a long time away; widespread computer use for educational and similar purposes will require input of much copyrighted material; individualized use requires the timing of computer output to be at the user's option. An equitable means of satisfying users' as well as authors' interests will have to be developed.—DAEL WOLFE