

AMERICAN GEOPHYSICAL UNION v. TEXACO INC., 60 F.3d 913 (2nd Cir. 1994)

Before: NEWMAN, Chief Judge, [n*] WINTER and JACOBS, Circuit Judges.

JON O. NEWMAN, Chief Judge:

[1] This interlocutory appeal presents the issue of whether, under the particular circumstances of this case, the fair use defense to copyright infringement applies to the photocopying of articles in a scientific journal. This issue arises on the appeal of defendant Texaco Inc. from the July 23, 1992, order of the United States District Court for the Southern District of New York (Pierre N. Leval, Judge) holding, after a limited-issue bench trial, that the photocopying of eight articles from the *Journal of Catalysis* for use by one of Texaco's researchers was not fair use. See *American Geophysical Union v. Texaco Inc.*, 802 F. Supp. 1 (S.D.N.Y. 1992). Though not for precisely the same reasons, we agree with the District Court's conclusion that this particular copying was not fair use and therefore affirm.

[2] Background

[3] *The District Court Proceedings.* Plaintiffs American Geophysical Union and 82 other publishers of scientific and technical journals (the "publishers") brought a class action claiming that Texaco's unauthorized photocopying of articles from their journals constituted copyright infringement. Among other defenses, Texaco claimed that its copying was fair use under section 107 of the Copyright Act, [17 U.S.C. § 107](#) (1988). Since it appeared likely that the litigation could be resolved once the fair use defense was adjudicated, the parties agreed that an initial trial should be limited to whether Texaco's copying was fair use, and further agreed that this issue would be submitted for decision on a written record.

[4] Although Texaco employs 400 to 500 research scientists, of whom all or most presumably photocopy scientific journal articles to support their Texaco research, the parties stipulated - in order to spare the enormous expense of exploring the photocopying practices of each of them - that one scientist would be chosen at random as the representative of the entire group. The scientist chosen was Dr. Donald H. Chickering, II, a scientist at Texaco's research center in Beacon, New York. For consideration at trial, the publishers selected from Chickering's files photocopies of eight particular articles from the *Journal of Catalysis*.

[5] In a comprehensive opinion, reported at 802 F. Supp. 1, the District Court considered the statutory fair use factors identified in section 107, weighed other equitable considerations, and held that Texaco's photocopying, as represented by Chickering's copying of these eight articles did not constitute fair use. The District Court certified its ruling for interlocutory appeal under [28 U.S.C. § 1292\(b\)](#) (1988).

[6] *Essential Facts.* Employing between 400 and 500 researchers nationwide, Texaco conducts considerable scientific research seeking to develop new products and technology primarily to improve its commercial performance in the petroleum industry. As part of its substantial expenditures in support of research activities at its Beacon facility, Texaco subscribes to many scientific and technical journals and maintains a sizable library with these materials. Among the periodicals that Texaco receives at its Beacon research facility is the *Journal of Catalysis*

("Catalysis"), a monthly publication produced by Academic Press, Inc., a major publisher of scholarly journals and one of the plaintiffs in this litigation. Texaco had initially purchased one subscription to *Catalysis* for its Beacon facility, and increased its total subscriptions to two in 1983. Since 1988, Texaco has maintained three subscriptions to *Catalysis*.

[7] Each issue of *Catalysis* contains articles, notes, and letters (collectively "articles"), ranging in length from two to twenty pages. All of the articles are received by the journal's editors through unsolicited submission by various authors. Authors are informed that they must transfer the copyright in their writings to Academic Press if one of their articles is accepted for publication, and no form of money payment is ever provided to authors whose works are published. Academic Press typically owns the copyright for each individual article published in *Catalysis*, and every issue of the journal includes a general statement that no part of the publication is to be reproduced without permission from the copyright owner. The average monthly issue of *Catalysis* runs approximately 200 pages and comprises 20 to 25 articles.

[8] Chickering, a chemical engineer at the Beacon research facility, has worked for Texaco since 1981 conducting research in the field of catalysis, which concerns changes in the rates of chemical reactions. To keep abreast of developments in his field, Chickering must review works published in various scientific and technical journals related to his area of research. Texaco assists in this endeavor by having its library circulate current issues of relevant journals to Chickering when he places his name on the appropriate routing list.

[9] The copies of the eight articles from *Catalysis* found in Chickering's files that the parties have made the exclusive focus of the fair use trial were photocopied in their entirety by Chickering or by other Texaco employees at Chickering's request. Chickering apparently believed that the material and data found within these articles would facilitate his current or future professional research. The evidence developed at trial indicated that Chickering did not generally use the *Catalysis* articles in his research immediately upon copying, but placed the photocopied articles in his files to have them available for later reference as needed. Chickering became aware of six of the photocopied articles when the original issues of *Catalysis* containing the articles were circulated to him. He learned of the other two articles upon seeing a reference to them in another published article. As it turned out, Chickering did not have occasion to make use of five of the articles that were copied.

[10] Discussion

[11] I. The Nature of the Dispute

[12] The parties and many of the *amici curiae* have approached this case as if it concerns the broad issue of whether photocopying of scientific articles is fair use, or at least the only slightly more limited issue of whether photocopying of such articles is fair use when undertaken by a research scientist engaged in his own research. Such broad issues are not before us. Rather, we consider whether Texaco's photocopying by 400 or 500 scientists, as represented by Chickering's example, is a fair use. This includes the question whether such institutional, systematic copying increases the number of copies available to scientists while avoiding the necessity of paying for license fees or for additional subscriptions. We do not deal with the question of copying by an individual, for personal use in research or otherwise (not for resale), recognizing that under the fair use doctrine or the *de minimis* doctrine, such a practice by an individual might well not constitute an infringement. In other words, our opinion does not decide the case that would arise if Chickering were a professor or an independent scientist engaged in copying and creating files for independent research, as opposed to being employed by an institution in the pursuit of his research on the institution's behalf.

[13] Fair use is a doctrine the application of which always depends on consideration of the precise facts at hand, *see Campbell v. Acuff-Rose Music, Inc.*, ___ U.S. ___, ___, 114 S.Ct. 1164, 1170, 127 L.Ed.2d 500 (1994); *Harper & Row, Publishers, Inc. v. Nation Enterprises*, [471 U.S. 539](#), 549, 105 S.Ct. 2218, 2225, 85 L.Ed.2d 588 (1985); *Wright v. Warner Books, Inc.*, 953 F.2d 731, 740 (2d Cir. 1991); H.R.Rep. No. 1476, 94th Cong., 2d Sess. 65-66 (1976) ("no generally applicable definition [of fair use] is possible, and each case raising the question must be decided on its own facts"), and in this case the parties have helpfully circumscribed the scope of the issue to be decided by tendering for the District Court's decision the facts concerning the copying of eight particular articles. Our concern is whether the copying of these eight articles, as representative of the systematic copying that Texaco encouraged, was properly determined not to be fair use. Thus, the many background details stressed by each side are of only limited relevance in resolving this specific case. [\[n1\]](#)

[14] A. Fair Use and Photocopying

[15] We consider initially the doctrine of fair use and its application to photocopying of documents. Seeking "to motivate the creative activity of authors . . . by the provision of a special reward," *Sony Corporation of America v. Universal City Studios, Inc.*, [464 U.S. 417](#), 429, 104 S.Ct. 774, 782, 78 L.Ed.2d 574 (1984), copyright law grants certain exclusive rights in original works to authors, *see* 17 U.S.C. §§ 102(a), 106, 201(a). However, the fair use doctrine "tempers the protection of copyright by allowing . . . [the] use [of] a limited amount of copyrighted material under some circumstances." *Twin Peaks Productions, Inc. v. Publications International, Ltd.*, 996 F.2d 1366, 1373 (2d Cir. 1993). Traditionally conceived as based on authors' implied consent to reasonable uses of their works, *see Harper & Row*, 471 U.S. at 549-50, 105 S.Ct. at 2224-25, or on an exception to authors' monopoly privileges needed in order to fulfill copyright's purpose to promote the arts and sciences, *see Campbell*, ___ U.S. at ___, 114 S.Ct. at 1169, the fair use doctrine has a lengthy and rich common-law history, *see* William F. Patry, *The Fair Use Privilege in Copyright Law* 1-63 (1985) [hereinafter Patry, *The Fair Use Privilege*], and is now codified in section 107 of the Copyright Act, [17 U.S.C. § 107](#). [\[n2\]](#)

[16] As with the development of other easy and accessible means of mechanical reproduction of documents, the invention and widespread availability of photocopying technology threatens to disrupt the delicate balances established by the Copyright Act. *See* 3 Melville B. Nimmer & David Nimmer, *Nimmer on Copyright* § 13.05[E][1], at 13-225 to 13-226 (1994) [hereinafter *Nimmer on Copyright*] (noting that "unrestricted photocopying practices could largely undercut the entire law of copyright"); *see also Sony*, 464 U.S. at 467-68 n. 16, 104 S.Ct. at 801-02 n. 16 (Blackmun, J., dissenting) (recognizing that the "advent of inexpensive and readily available copying machines . . . has changed the dimensions" of the legal issues concerning the practice of making personal copies of copyrighted materials). As a leading commentator astutely notes, the advent of modern photocopying technology creates a pressing need for the law "to strike an appropriate balance between the authors' interest in preserving the integrity of copyright, and the public's right to enjoy the benefits that photocopying technology offers." 3 *Nimmer on Copyright* § 13.05[E][1], at 13-226.

[17] Indeed, if the issue were open, we would seriously question whether the fair use analysis that has developed with respect to works of authorship alleged to use portions of copyrighted material is precisely applicable to copies produced by mechanical means. The traditional fair use analysis, now codified in section 107, developed in an effort to adjust the competing interests of authors - the author of the original copyrighted work and the author of the secondary work that "copies" a portion of the original work in the course of producing what is claimed to be a new work. Mechanical "copying" of an entire document, made readily feasible and economical by the advent of xerography, *see SCM Corp. v. Xerox Corp.*, 463 F. Supp. 983, 991-94 (D.Conn. 1978), *aff'd*,

645 F.2d 1195 (2d Cir. 1981), *cert. denied*, 455 U.S. 1016, 102 S.Ct. 1708, 72 L.Ed.2d 132 (1982), is obviously an activity entirely different from creating a work of authorship. Whatever social utility copying of this sort achieves, it is not concerned with creative authorship.

[18] Though we have been instructed to defer to Congress "when major technological innovations alter the market for copyrighted materials," *Sony*, 464 U.S. at 431, 104 S.Ct. at 783, Congress has thus far provided scant guidance for resolving fair use issues involving photocopying, legislating specifically only as to library copying, *see* [17 U.S.C. § 108](#), and providing indirect advice concerning classroom copying.^[n3] *See generally* 3 *Nimmer on Copyright* § 13.05[E]. However, we learn from the Supreme Court's consideration of copying achieved by use of a videotape recorder that mechanical copying is to be assessed for fair use purposes under the traditional mode of analysis, including the four statutory factors of section 107. *See Sony*, 464 U.S. at 447-56, 104 S.Ct. at 791-96. We therefore are obliged to apply that analysis to the photocopying that occurred in this case.

[19] B. The Precise Copyrights at Issue

[20] We must first identify precisely the copyrighted works alleged to be infringed, since certain arguments made on appeal seem to focus on different works. The publishers typically hold two separate sets of copyrights in their journal publications. As a consequence of the publishers' requirement that authors transfer their copyrights when their articles are accepted for publication, the publishers usually possess the copyrights that subsist in each individual article appearing within their journals.^[n4] Moreover, to the extent that the compilation of a journal issue involves an original work of authorship, the publishers possess a distinct copyright in each journal issue as a collective work, *see* [17 U.S.C. § 103](#); *see also* [17 U.S.C. § 101](#) (defining "compilation" and "collective work"). *See generally* *Feist Publications, Inc. v. Rural Telephone Service Co.*, [499 U.S. 340](#), 356-1, 111 S.Ct. 1282, 1293-96, 113 L.Ed.2d 358 (1991) (discussing extent of copyright protection in compilations and collective works).

[21] From the outset, this lawsuit concerned alleged infringement of the copyrights in individual journal articles, copyrights assigned by the authors to the publishers. More specifically, by virtue of the parties' stipulation, this case now concerns the copyrights in the eight articles from *Catalysis* found in Chickering's files, copyrights now owned by Academic Press. There are no allegations that raise questions concerning Academic Press's potential copyrights in whole issues or annual volumes of *Catalysis* as collective works.

[22] C. Burdens of Proof and Standard of Review

[23] Fair use serves as an affirmative defense to a claim of copyright infringement, and thus the party claiming that its secondary use of the original copyrighted work constitutes a fair use typically carries the burden of proof as to all issues in the dispute. *See Campbell*, ___ U.S. at ___, 114 S.Ct. at 1177. Moreover, since fair use is a "mixed question of law and fact," *Harper & Row*, 471 U.S. at 560, 105 S.Ct. at 2230, we review the District Court's conclusions on this issue *de novo*, though we accept its subsidiary findings of fact unless clearly erroneous, *see Twin Peaks*, 996 F.2d at 1374.

[24] II. The Enumerated Fair Use Factors of Section 107

[25] Section 107 of the Copyright Act identifies four non-exclusive factors that a court is to consider when making its fair use assessment, *see* [17 U.S.C. § 107\(1\)-\(4\)](#). The District Court concluded that three of the four statutory factors favor the publishers. As detailed below, our

analysis of certain statutory factors differs somewhat from that of the District Court, though we are in agreement on the ultimate determination. Our differences stem primarily from the fact that, unlike the District Court, we have had the benefit of the Supreme Court's important decision in *Campbell*, decided after Judge Leval issued his opinion.

[26] A. First Factor: Purpose and Character of Use

[27] The first factor listed in section 107 is "the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes." [17 U.S.C. § 107\(1\)](#). Especially pertinent to an assessment of the first fair use factor are the precise circumstances under which copies of the eight *Catalysis* articles were made. After noticing six of these articles when the original copy of the journal issue containing each of them was circulated to him, Chickering had them photocopied, at least initially, for the same basic purpose that one would normally seek to obtain the original - to have it available on his shelf for ready reference if and when he needed to look at it. The library circulated one copy and invited all the researchers to make their own photocopies. It is a reasonable inference that the library staff wanted each journal issue moved around the building quickly and returned to the library so that it would be available for others to look at. Making copies enabled all researchers who might one day be interested in examining the contents of an article in the issue to have the article readily available in their own offices. In Chickering's own words, the copies of the articles were made for "my personal convenience," since it is "far more convenient to have access in my office to a photocopy of an article than to have to go to the library each time I wanted to refer to it." Affidavit of Donald Chickering at 11 (submitted as direct trial testimony) [hereinafter *Chickering testimony*]. Significantly, Chickering did not even have occasion to use five of the photocopied articles at all, further revealing that the photocopies of the eight *Catalysis* articles were primarily made just for "future retrieval and reference." *Id.*

[28] It is true that photocopying these articles also served other purposes. The most favorable for Texaco is the purpose of enabling Chickering, if the need should arise, to go into the lab with pieces of paper that (a) were not as bulky as the entire issue or a bound volume of a year's issues, and (b) presented no risk of damaging the original by exposure to chemicals. And these purposes might suffice to tilt the first fair use factor in favor of Texaco if these purposes were dominant. For example, if Chickering had asked the library to buy him a copy of the pertinent issue of *Catalysis* and had placed it on his shelf, and one day while reading it had noticed a chart, formula, or other material that he wanted to take right into the lab, it might be a fair use for him to make a photocopy, and use that copy in the lab (especially if he did not retain it and build up a mini-library of photocopied articles). This is the sort of "spontaneous" copying that is part of the test for permissible nonprofit classroom copying. *See Agreement on Guidelines for Classroom Copying in Not-For-Profit Educational Institutions, quoted in Patry, The Fair Use Privilege*, at 308. ^[n5] But that is not what happened here as to the six items copied from the circulated issues.

[29] As to the other two articles, the circumstances are not quite as clear, but they too appear more to serve the purpose of being additions to Chickering's office "library" than to be spontaneous copying of a critical page that he was reading on his way to the lab. One was copied apparently when he saw a reference to it in another article, which was in an issue circulated to him. The most likely inference is that he decided that he ought to have copies of both items - again for placement on his shelf for later use if the need arose. The last article was copied, according to his affidavit, when he saw a reference to it "elsewhere." *Chickering testimony* at 22. What is clear is that this item too was simply placed "on the shelf." As he testified, "I kept a copy to refer to in case I became more involved in support effects research." *Id.*

[30] The photocopying of these eight *Catalysis* articles may be characterized as "archival" - *i.e.*,

done for the primary purpose of providing numerous Texaco scientists (for whom Chickering served as an example) each with his or her own personal copy of each article without Texaco's having to purchase another original journal. ^[n6] The photocopying "merely `supersede[s] the objects' of the original creation," *Campbell*, ___ U.S. at ___, 114 S.Ct. at 1171 (quoting *Folsom v. Marsh*, 9 F.Cas. 342, 348 (No. 4,901) (C.C.D.Mass. 1841)), and tilts the first fair use factor against Texaco. We do not mean to suggest that no instance of archival copying would be fair use, but the first factor tilts against Texaco in this case because the making of copies to be placed on the shelf in Chickering's office is part of a systematic process of encouraging employee researchers to copy articles so as to multiply available copies while avoiding payment.

[31] Texaco criticizes three aspects of the District Court's analysis of the first factor. Relying largely on the Supreme Court's discussion of fair use in *Sony*, the District Court suggested that a secondary user will "win" this first factor by showing a "transformative (or productive) nonsuperseding use of the original, or [a] noncommercial use, generally for a socially beneficial or widely accepted purpose." 802 F. Supp. at 12. The District Court then concluded that Texaco's copying is "neither transformative nor noncommercial," *id.* at 13: not transformative because Texaco "simply makes mechanical photocopies of the entirety of relevant articles" and the "primary aspect" of Texaco's photocopying is to multiply copies, *see id.* at 13-15; and not noncommercial because, though it facilitates research, this research is conducted solely for commercial gain, *see id.* at 15-16.

[32] Texaco asserts that the District Court mischaracterized the inquiry under the first factor and overlooked several relevant considerations. First, Texaco contends that the District Court inappropriately focussed on the character of the *user* rather than the nature of the *use* in labeling Texaco's copying as commercial. Texaco claims that its status as a for-profit corporation has no bearing on the fair use analysis, and that its use should be considered noncommercial since it photocopied articles in order to aid Chickering's research. Texaco emphasizes that "research" is explicitly listed in the preamble of section 107, a circumstance that Texaco contends should make its copying favored under the first factor and throughout the entire fair use analysis. ^[n7]

[33] Second, Texaco contends that the District Court put undue emphasis on whether its use was "transformative," especially since the Supreme Court appears to have rejected the view that a use must be transformative or productive to be a fair use. *See Sony*, 464 U.S. at 455 n. 40, 104 S.Ct. at 795 n. 40 ("The distinction between `productive' and `unproductive' uses may be helpful in calibrating the balance [of interests], but it cannot be wholly determinative."). Texaco asserts that the "transformative use" concept is valuable only to the extent that it focusses [focuses] attention upon whether a second work unfairly competes with the original. Texaco states that in this case, where the photocopies it made were not sold or distributed in competition with the original, the nontransformative nature of its copying should not prevent a finding of fair use. Texaco also suggests that its use should be considered transformative: photocopying the article separated it from a bulky journal, made it more amenable to markings, and provided a document that could be readily replaced if damaged in a laboratory, all of which "transformed" the original article into a form that better served Chickering's research needs.

[34] Finally, Texaco claims that it should prevail on the first factor because, as the District Court acknowledged, the type of photocopying it conducted is widespread and has long been considered reasonable and customary. Texaco stresses that some courts and commentators regard custom and common usage as integral to the fair use analysis. *See, e.g., Williams & Wilkins Co. v. United States*, 487 F.2d 1345, 1353-56, 203 Ct.Cl. 74 (1973), *aff'd by equally divided Court*, [420 U.S. 376](#), 95 S.Ct. 1344, 43 L.Ed.2d 264 (1975); Lloyd L. Weinreb, *Fair's Fair: A Comment on the Fair Use Doctrine*, 103 Harv.L.Rev. 1137, 1140 (1990) [hereinafter Weinreb, *Fair's Fair*]. We consider these three lines of attack separately.

[35] 1. *Commercial use*. We generally agree with Texaco's contention that the District Court placed undue emphasis on the fact that Texaco is a for-profit corporation conducting research primarily for commercial gain. Since many, if not most, secondary users seek at least some measure of commercial gain from their use, unduly emphasizing the commercial motivation of a copier will lead to an overly restrictive view of fair use. See *Campbell*, ___ U.S. at ___, 114 S.Ct. at 1174; see also *Maxtone-Graham v. Burtchaell*, 803 F.2d 1253, 1262 (2d Cir. 1986) (noting that if "commercial" nature of a secondary use is overemphasized in the analysis, "fair use would be virtually obliterated"), *cert. denied*, 481 U.S. 1059, 107 S.Ct. 2201, 95 L.Ed.2d 856 (1987). See generally 3 *Nimmer on Copyright* § 13.05[A][1][c], at 13-162 to 13-163 (categorical rule against commercial uses unwarranted since this "would cause the fair use analysis to collapse in all but the exceptional case of nonprofit exploitation"). Though the Supreme Court had stated in *Sony* that every commercial use was "presumptively" unfair, see 464 U.S. at 451, 104 S.Ct. at 793, that Court and lower courts have come to explain that the commercial nature of a secondary use simply "tends to weigh against a finding of fair use." *Campbell*, ___ U.S. at ___, 114 S.Ct. at 1174 (quoting *Harper & Row*, 471 U.S. at 562, 105 S.Ct. at 2231); accord *Rogers v. Koons*, 960 F.2d 301, 309 (2d Cir.), *cert. denied*, ___ U.S. ___, 113 S.Ct. 365, 121 L.Ed.2d 278 (1992); *Sega Enterprises Limited v. Accolade, Inc.*, 977 F.2d 1510, 1522 (9th Cir. 1992); *Maxtone-Graham*, 803 F.2d at 1262.

[36] Indeed, *Campbell* warns against 'elevat[ing] . . . to a *per se* rule' *Sony's* language about a presumption against fair use arising from commercial use. ___ U.S. at ___, 114 S.Ct. at 1174. *Campbell* discards that language in favor of a more subtle, sophisticated approach, which recognizes that 'the more transformative the new work, the less will be the significance of other factors, like commercialism, that may weigh against a finding of fair use.' *Id.* [at ___, 114 S.Ct.] at 1171. The Court states that 'the commercial or nonprofit educational purpose of a work is only one element of the first factor enquiry' *id.* [at ___, 114 S.Ct.] at 1174, and points out that '[i]f, indeed, commerciality carried presumptive force against a finding of fairness, the presumption would swallow nearly all of the illustrative uses listed in the preamble paragraph of § 107' *Id.*

[37] We do not mean to suggest that the District Court overlooked these principles; in fact, the Court discussed them insightfully, see 802 F. Supp. at 12-13. Rather, our concern here is that the Court let the for-profit nature of Texaco's activity weigh against Texaco without differentiating between a direct commercial use and the more indirect relation to commercial activity that occurred here. Texaco was not gaining direct or immediate commercial advantage from the photocopying at issue in this case - *i.e.*, Texaco's profits, revenues, and overall commercial performance were not tied to its making copies of eight *Catalysis* articles for Chickering. Cf. *Basic Books, Inc. v. Kinko's Graphics Corp.*, 758 F. Supp. 1522 (S.D.N.Y. 1991) (revenues of reprographic business stemmed directly from selling unauthorized photocopies of copyrighted books). Rather, Texaco's photocopying served, at most, to facilitate Chickering's research, which in turn might have led to the development of new products and technology that could have improved Texaco's commercial performance. Texaco's photocopying is more appropriately labeled an "intermediate use." See *Sega Enterprises*, 977 F.2d at 1522-23 (labeling secondary use "intermediate" and finding first factor in favor of for-profit company, even though ultimate purpose of copying was to develop competing commercial product, because immediate purpose of copying computer code was to study idea contained within computer program).

[38] We do not consider Texaco's status as a for-profit company irrelevant to the fair use analysis. Though Texaco properly contends that a court's focus should be on the *use* of the copyrighted material and not simply on the *user*, it is overly simplistic to suggest that the "purpose and character of the use" can be fully discerned without considering the nature and objectives of the user. [\[n8\]](#)

[39] Ultimately, the somewhat cryptic suggestion in section 107(1) to consider whether the secondary use "is of a commercial nature or is for nonprofit educational purposes" connotes that a court should examine, among other factors, the value obtained by the secondary user from the use of the copyrighted material. *See Rogers*, 960 F.2d at 309 ("The first factor . . . asks whether the original was copied in good faith to benefit the public or primarily for the commercial interests of the infringer."); *MCA, Inc. v. Wilson*, 677 F.2d 180, 182 (2d Cir. 1981) (court is to consider "whether the alleged infringing use was primarily for public benefit or for private commercial gain"). The commercial/nonprofit dichotomy concerns the unfairness that arises when a secondary user makes unauthorized use of copyrighted material to capture significant revenues as a direct consequence of copying the original work. *See Harper & Row*, 471 U.S. at 562, 105 S.Ct. at 2231 ("The crux of the profit/nonprofit distinction is . . . whether the user stands to profit from exploitation of the copyrighted material without paying the customary price.").

[40] Consistent with these principles, courts will not sustain a claimed defense of fair use when the secondary use can fairly be characterized as a form of "commercial exploitation," *i.e.*, when the copier directly and exclusively acquires conspicuous financial rewards from its use of the copyrighted material. *See Harper & Row*, 471 U.S. at 562-63, 105 S.Ct. at 2231-32; *Twin Peaks*, 996 F.2d at 1375; *Rogers*, 960 F.2d at 309; *Iowa State University Research Foundation, Inc. v. American Broadcasting Companies, Inc.*, 621 F.2d 57, 61 (2d Cir. 1980); *Meeropol v. Nizer*, 560 F.2d 1061, 1069 (2d Cir. 1977) (examining whether use was "predominantly for commercial exploitation"), *cert. denied*, 434 U.S. 1013, 98 S.Ct. 727, 54 L.Ed.2d 756 (1978). Conversely, courts are more willing to find a secondary use fair when it produces a value that benefits the broader public interest. *See Twin Peaks*, 996 F.2d at 1375; *Sega Enterprises*, 977 F.2d at 1523; *Rosemont Enterprises, Inc. v. Random House, Inc.*, 366 F.2d 303, 307-09 (2d Cir. 1966), *cert. denied*, 385 U.S. 1009, 87 S.Ct. 714, 17 L.Ed.2d 546 (1967). The greater the private economic rewards reaped by the secondary user (to the exclusion of broader public benefits), the more likely the first factor will favor the copyright holder and the less likely the use will be considered fair.

[41] As noted before, in this particular case the link between Texaco's commercial gain and its copying is somewhat attenuated: the copying, at most, merely facilitated Chickering's research that might have led to the production of commercially valuable products. Thus, it would not be accurate to conclude that Texaco's copying of eight particular *Catalysis* articles amounted to "commercial exploitation," especially since the immediate goal of Texaco's copying was to facilitate Chickering's research in the sciences, an objective that might well serve a broader public purpose. *See Twin Peaks*, 996 F.2d at 1375; *Sega Enterprises*, 977 F.2d at 1522. Still, we need not ignore the for-profit nature of Texaco's enterprise, especially since we can confidently conclude that Texaco reaps at least some indirect economic advantage from its photocopying. As the publishers emphasize, Texaco's photocopying for Chickering could be regarded simply as another "factor of production" utilized in Texaco's efforts to develop profitable products. Conceptualized in this way, it is not obvious why it is fair for Texaco to avoid having to pay at least some price to copyright holders for the right to photocopy the original articles.

[42] 2. *Transformative Use*. The District Court properly emphasized that Texaco's photocopying was not "transformative." After the District Court issued its opinion, the Supreme Court explicitly ruled that the concept of a "transformative use" is central to a proper analysis under the first factor, *see Campbell*, ___ U.S. at ___, 114 S.Ct. at 1171-73. The Court explained that though a "transformative use is not absolutely necessary for a finding of fair use, . . . the more transformative the new work, the less will be the significance of other factors, like commercialism, that may weigh against a finding of fair use." *Id.* at ___, 114 S.Ct. at 1171.

[43] The "transformative use" concept is pertinent to a court's investigation under the first factor because it assesses the value generated by the secondary use and the means by which such value is generated. To the extent that the secondary use involves merely an untransformed duplication, the

value generated by the secondary use is little or nothing more than the value that inheres in the original. Rather than making some contribution of new intellectual value and thereby fostering the advancement of the arts and sciences, an untransformed copy is likely to be used simply for the same intrinsic purpose as the original, thereby providing limited justification for a finding of fair use. *See Weissmann v. Freeman*, 868 F.2d 1313, 1324 (2d Cir.) (explaining that a use merely for the same "intrinsic purpose" as original "moves the balance of the calibration on the first factor against" secondary user and "seriously weakens a claimed fair use"), *cert. denied*, 493 U.S. 883, 110 S.Ct. 219, 107 L.Ed.2d 172 (1989). [\[n9\]](#)

[44] In contrast, to the extent that the secondary use "adds something new, with a further purpose or different character," the value generated goes beyond the value that inheres in the original and "the goal of copyright, to promote science and the arts, is generally furthered." *Campbell*, ___ U.S. at ___, 114 S.Ct. at 1171; *see also* Pierre N. Leval, *Toward a Fair Use Standard*, 103 Harv. L.Rev. 1105, 1111 (1990) [hereinafter Leval, *Toward a Fair Use Standard*]. It is therefore not surprising that the "preferred" uses illustrated in the preamble to section 107, such as criticism and comment, generally involve some transformative use of the original work. *See 3 Nimmer on Copyright* § 13.05[A][1][b], at 13-160.

[45] Texaco suggests that its conversion of the individual *Catalysis* articles through photocopying into a form more easily used in a laboratory might constitute a transformative use. However, Texaco's photocopying merely transforms *the material object* embodying the intangible article that is the copyrighted original work. *See* 17 U.S.C. §§ 101, 102 (explaining that copyright protection in literary works subsists in the original work of authorship "regardless of the nature of the material objects . . . in which they are embodied"). Texaco's making of copies cannot properly be regarded as a transformative use of the copyrighted material. *See* Steven D. Smit, "Make a Copy for the File . . .": *Copyright Infringement by Attorneys*, 46 Baylor L.Rev. 1, 15 & n. 58 (1994); *see also Basic Books*, 758 F. Supp. at 1530-31 (repackaging in anthology form of excerpts from copyrighted books not a transformative use).

[46] Even though Texaco's photocopying is not technically a transformative use of the copyrighted material, we should not overlook the significant independent value that can stem from conversion of original journal articles into a format different from their normal appearance. *See generally Sony*, 464 U.S. at 454, 455 n. 40, 104 S.Ct. at 795 n. 40 (acknowledging possible benefits from copying that might otherwise seem to serve "no productive purpose"); Weinreb, *Fair's Fair*, at 1143 & n. 29 (discussing potential value from nontransformative copying). As previously explained, Texaco's photocopying converts the individual *Catalysis* articles into a useful format. Before modern photocopying, Chickering probably would have converted the original article into a more serviceable form by taking notes, whether cursory or extended; [\[n10\]](#) today he can do so with a photocopying machine. Nevertheless, whatever independent value derives from the more usable format of the photocopy does not mean that every instance of photocopying wins on the first factor. In this case, the predominant archival purpose of the copying tips the first factor against the copier, despite the benefit of a more usable format.

[47] 3. *Reasonable and Customary Practice*. Texaco contends that Chickering's photocopying constitutes a use that has historically been considered "reasonable and customary." We agree with the District Court that whatever validity this argument might have had before the advent of the photocopying licensing arrangements discussed below in our consideration of the fourth fair use factor, the argument today is insubstantial. As the District Court observed, "To the extent the copying practice was `reasonable' in 1973 [when *Williams & Wilkins* was decided], it has ceased to be `reasonable' as the reasons that justified it before [photocopying licensing] have ceased to exist." 802 F. Supp. at 25.

[48] In amplification of Texaco's arguments, our dissenting colleague makes two further points about the first factor analysis that merit a response. First, the dissent disputes our characterization of Chickering's use as "archival" on the ground that such a use would occur in an institutional setting, whereas Chickering copied for his personal use. Second, the dissent contends that Chickering's use is transformative because it is an important step in the process of doing research. We think the proper response to these observations emerges from considering how they would fare if the Texaco library had sent around entire books, rather than issues of a journal. Clearly, Chickering (and all the other researchers at the Beacon facility) would be making archival use of the circulating books if they made photocopies of the books for their individual offices and thereby spared Texaco the expense of buying them all individual volumes. An individual copies for archival purposes even if the resulting archive remains in a private office. When a corporation invites such archival copying by circulating items likely to be worth copying (whether articles or entire books), any distinction between individual and institutional archiving loses all significance.

[49] Moreover, the concept of a "transformative" use would be extended beyond recognition if it was applied to Chickering's copying simply because he acted in the course of doing research. The purposes illustrated by the categories listed in section 107 refer primarily to the work of authorship alleged to be a fair use, not to the activity in which the alleged infringer is engaged. Texaco cannot gain fair use insulation for Chickering's archival photocopying of articles (or books) simply because such copying is done by a company doing research. It would be equally extravagant for a newspaper to contend that because its business is "news reporting" it may line the shelves of its reporters with photocopies of books on journalism or that schools engaged in "teaching" may supply its faculty members with personal photocopies of books on educational techniques or substantive fields. Whatever benefit copying and reading such books might contribute to the process of "teaching" would not for that reason satisfy the test of a "teaching" purpose.

[50] On balance, we agree with the District Court that the first factor favors the publishers, primarily because the dominant purpose of the use is a systematic institutional policy of multiplying the available number of copies of pertinent copyrighted articles by circulating the journals among employed scientists for them to make copies, thereby serving the same purpose for which additional subscriptions are normally sold, or, as will be discussed, for which photocopying licenses may be obtained.

[51] B. Second Factor: Nature of Copyrighted Work

[52] The second statutory fair use factor is "the nature of the copyrighted work." [17 U.S.C. § 107](#) (2). In assessing this factor, the District Court noted that the articles in *Catalysis* "are created for publication with the purpose and intention of benefiting from the protection of the copyright law," and that copyright protection "is vitally necessary to the dissemination of scientific articles of the sort that are at issue." 802 F. Supp. at 16. Nevertheless, the Court ultimately concluded that this factor favored Texaco because the photocopied articles were essentially factual in nature and the "scope of fair use is greater with respect to factual than nonfactual works." *Id.* at 16-17 (quoting *New Era Publications International, ApS v. Carol Publishing Group*, 904 F.2d 152, 157 (2d Cir.), *cert. denied*, 498 U.S. 921, 111 S.Ct. 297, 112 L.Ed.2d 251 (1990)).

[53] On appeal, the publishers stress the District Court's comments concerning the importance of broad copyright protection for journal publications in order to foster journal production. Further, citing *Harper & Row* for the proposition that the creativity of an original work weighs against finding fair use, *see* 471 U.S. at 563, 105 S.Ct. at 2232, the publishers also point out that "the journal articles are expressions of highly original, creative and imaginative thinking."

[54] Though a significant measure of creativity was undoubtedly used in the creation of the eight articles copied from *Catalysis*, even a glance at their content immediately reveals the predominantly factual nature of these works. ^[n11] Moreover, though we have previously recognized the importance of strong copyright protection to provide sufficient incentives for the creation of scientific works, *see Weissmann*, 868 F.2d at 1325, nearly every category of copyrightable works could plausibly assert that broad copyright protection was essential to the continued vitality of that category of works.

[55] Ultimately, then, the manifestly factual character of the eight articles precludes us from considering the articles as "within the core of the copyright's protective purposes," *Campbell*, ___ U.S. at ___, 114 S.Ct. at 1175; *see also Harper & Row*, 471 U.S. at 563, 105 S.Ct. at 2232 ("The law generally recognizes a greater need to disseminate factual works than works of fiction or fantasy."). Thus, in agreement with the District Court, we conclude that the second factor favors Texaco.

[56] C. Third Factor: Amount and Substantiality of Portion Used

[57] The third statutory fair use factor is "the amount and substantiality of the portion used in relation to the copyrighted work as a whole." [17 U.S.C. § 107\(3\)](#). The District Court concluded that this factor clearly favors the publishers because Texaco copied the eight articles from *Catalysis* in their entirety.

[58] Texaco makes various responses to the District Court's straightforward conclusion. First, Texaco claims that this factor is significant only as a means to determine whether a copy unfairly supersedes demand for the original and should be considered "largely irrelevant" where, as here, a copy is not sold or distributed. Second, Texaco claims that, rather than focus on Texaco's copying of entire *articles*, it is more appropriate to consider that Texaco copied only a very small portion of any particular *issue or volume* of *Catalysis*. Finally, Texaco cites *Sony* and *Williams & Wilkins* for the proposition that the copying of entire copyrighted works can still constitute fair use. *See Sony*, 464 U.S. at 449-50, 104 S.Ct. at 792-93; *Williams & Wilkins*, 487 F.2d at 1353.

[59] Texaco's suggestion that we consider that it copied only a small percentage of the total compendium of works encompassed within *Catalysis* is superficially intriguing, especially since *Catalysis* is traditionally marketed only as a periodical by issue or volume. However, as the District Court recognized, each of the eight articles in *Catalysis* was separately authored and constitutes a discrete "original work[] of authorship," [17 U.S.C. § 102](#). As we emphasized at the outset, each article enjoys independent copyright protection, which the authors transferred to Academic Press, and what the publishers claim has been infringed is the copyright that subsists in each individual article - not the distinct copyright that may subsist in each journal issue or volume by virtue of the publishers' original compilation of these articles. The only other appellate court to consider the propriety of photocopying articles from journals also recognized that each article constituted an entire work in the fair use analysis. *See Williams & Wilkins*, 487 F.2d at 1353.

[60] Despite Texaco's claims that we consider its amount of copying "minuscule" in relation to the entirety of *Catalysis*, we conclude, as did the District Court, that Texaco has copied entire works. Though this conclusion does not preclude a finding of fair use, it militates against such a finding, *see Sony*, 464 U.S. at 449-50, 104 S.Ct. at 792-93, and weights the third factor in favor of the publishers.

[61] Finally, though we are sensitive to Texaco's claim that the third factor serves merely as a proxy for determining whether a secondary use significantly interferes with demand for the original - a concern echoed by some commentators, *see William W. Fisher III, Reconstructing the*

Fair Use Doctrine, 101 Harv.L.Rev. 1661, 1678 (1988) [hereinafter Fisher, *Reconstructing Fair Use*] - we think this factor serves a further end that advances the fair use analysis. Specifically, by focussing [focusing] on the amount and substantiality of the original work used by the secondary user, we gain insight into the purpose and character of the use as we consider whether the quantity of the material used was "reasonable in relation to the purpose of the copying." *See Campbell*, ___ U.S. at ___, 114 S.Ct. at 1175. In this case, the fact that Texaco photocopied the eight *Catalysis* articles in their entirety weakens its assertion that the overriding purpose and character of its use was to enable the immediate use of the article in the laboratory and strengthens our view that the predominant purpose and character of the use was to establish a personal library of pertinent articles for Chickering. *Cf. id.* at ___, 114 S.Ct. at 1176 (intimating that extent of copying can provide insight into primary purpose of copying).

[62] D. Fourth Factor: Effect Upon Potential Market or Value

[63] The fourth statutory fair use factor is "the effect of the use upon the potential market for or value of the copyrighted work." [17 U.S.C. § 107](#)(4). Assessing this factor, the District Court detailed the range of procedures Texaco could use to obtain authorized copies of the articles that it photocopied and found that "whatever combination of procedures Texaco used, the publishers' revenues would grow significantly." 802 F. Supp. at 19. The Court concluded that the publishers "powerfully demonstrated entitlement to prevail as to the fourth factor," since they had shown "a substantial harm to the value of their copyrights" as the consequence of Texaco's copying. *See id.* at 18-21.

[64] Prior to *Campbell*, the Supreme Court had characterized the fourth factor as "the single most important element of fair use," *Harper & Row*, 471 U.S. at 566, 105 S.Ct. at 2233; *accord* 3 *Nimmer on Copyright* § 13.05[A][4], at 13-183. However, *Campbell's* discussion of the fourth factor conspicuously omits this phrasing. Apparently abandoning the idea that any factor enjoys primacy, *Campbell* instructs that "[a]ll [four factors] are to be explored, and the results weighed together, in light of the purposes of copyright." [___ U.S. at ___] 114 S.Ct. at 1171.

[65] In analyzing the fourth factor, it is important (1) to bear in mind the precise copyrighted works, namely the eight journal articles, and (2) to recognize the distinctive nature and history of "the potential market for or value of" these particular works.^[n12] Specifically, though there is a traditional market for, and hence a clearly defined value of, *journal issues and volumes*, in the form of per-issue purchases and journal subscriptions, there is neither a traditional market for, nor a clearly defined value of, *individual journal articles*. As a result, analysis of the fourth factor cannot proceed as simply as would have been the case if Texaco had copied a work that carries a stated or negotiated selling price in the market.

[66] Like most authors, writers of journal articles do not directly seek to capture the potential financial rewards that stem from their copyrights by personally marketing copies of their writings. Rather, like other creators of literary works, the author of a journal article "commonly sells his rights to publishers who offer royalties in exchange for their services in producing and marketing the author's work." *Harper & Row*, 471 U.S. at 547, 105 S.Ct. at 2223. In the distinctive realm of academic and scientific articles, however, the only form of royalty paid by a publisher is often just the reward of being published, publication being a key to professional advancement and prestige for the author, *see Weissmann*, 868 F.2d at 1324 (noting that "in an academic setting, profit is ill-measured in dollars. Instead, what is valuable is recognition because it so often influences professional advancement and academic tenure."). The publishers in turn incur the costs and labor of producing and marketing authors' articles, driven by the prospect of capturing the economic value stemming from the copyrights in the original works, which the authors have transferred to them. Ultimately, the monopoly privileges conferred by copyright protection and the potential

financial rewards therefrom are not directly serving to motivate authors to write individual articles; rather, they serve to motivate publishers to produce journals, which provide the conventional and often exclusive means for disseminating these individual articles. It is the prospect of such dissemination that contributes to the motivation of these authors.

[67] Significantly, publishers have traditionally produced and marketed authors' individual articles only in a journal format, *i.e.*, in periodical compilations of numerous articles. In other words, publishers have conventionally sought to capture the economic value from the "exclusive rights" to "reproduce" and "distribute copies" of the individual articles, *see* [17 U.S.C. § 106\(1\) & \(3\)](#), solely by compiling many such articles together in a periodical journal and then charging a fee to subscribe. Publishers have not traditionally provided a simple or efficient means to obtain single copies of individual articles; reprints are usually available from publishers only in bulk quantities and with some delay.

[68] This marketing pattern has various consequences for our analysis of the fourth factor. First, evidence concerning the effect that photocopying individual journal articles has on the traditional market for journal subscriptions is of somewhat less significance than if a market existed for the sale of individual copies of articles. Second, this distinctive arrangement raises novel questions concerning the significance of the publishers' establishment of an innovative licensing scheme for the photocopying of individual journal articles.

[69] 1. *Sales of Additional Journal Subscriptions, Back Issues, and Back Volumes.* Since we are concerned with the claim of fair use in copying the eight individual articles from *Catalysis*, the analysis under the fourth factor must focus on the effect of Texaco's photocopying upon the potential market for or value of these individual articles. Yet, in their respective discussions of the fourth statutory factor, the parties initially focus on the impact of Texaco's photocopying of individual journal articles upon the market for *Catalysis* journals through sales of *Catalysis* subscriptions, back issues, or back volumes.

[70] As a general matter, examining the effect on the marketability of the composite work containing a particular individual copyrighted work serves as a useful means to gauge the impact of a secondary use "upon the potential market for or value of" that individual work, since the effect on the marketability of the composite work will frequently be directly relevant to the effect on the market for or value of that individual work.^[n13] Quite significantly, though, in the unique world of academic and scientific articles, the effect on the marketability of the composite work in which individual articles appear is not obviously related to the effect on the market for or value of the individual articles. Since (1) articles are submitted unsolicited to journals, (2) publishers do not make any payment to authors for the right to publish their articles or to acquire their copyrights, and (3) there is no evidence in the record suggesting that publishers seek to reprint particular articles in new composite works, we cannot readily conclude that evidence concerning the effect of Texaco's use on the marketability of *journals* provides an effective means to appraise the effect of Texaco's use on the market for or value of *individual journal articles*.

[71] These considerations persuade us that evidence concerning the effect of Texaco's photocopying of individual articles within *Catalysis* on the traditional market for *Catalysis* subscriptions is of somewhat limited significance in determining and evaluating the effect of Texaco's photocopying "upon the potential market for or value of" the individual articles. We do not mean to suggest that we believe the effect on the marketability of journal subscriptions is completely irrelevant to gauging the effect on the market for and value of individual articles. Were the publishers able to demonstrate that Texaco's type of photocopying, if widespread,^[n14] would impair the marketability of journals, then they might have a strong claim under the fourth factor.

Likewise, were Texaco able to demonstrate that its type of photocopying, even if widespread, would have virtually no effect on the marketability of journals, then it might have a strong claim under this fourth factor.

[72] On this record, however, the evidence is not resounding for either side. The District Court specifically found that, in the absence of photocopying, (1) "Texaco would not ordinarily fill the need now being supplied by photocopies through the purchase of back issues or back volumes . . . [or] by enormously enlarging the number of its subscriptions," but (2) Texaco still "would increase the number of subscriptions somewhat." 802 F. Supp. at 19. [\[n15\]](#) This moderate conclusion concerning the actual effect on the marketability of journals, combined with the uncertain relationship between the market for journals and the market for and value of individual articles, leads us to conclude that the evidence concerning sales of additional journal subscriptions, back issues, and back volumes does not strongly support either side with regard to the fourth factor. *Cf. Sony*, 464 U.S. at 451-55, 104 S.Ct. at 793-95 (rejecting various predictions of harm to value of copyrighted work based on speculation about possible consequences of secondary use). At best, the loss of a few journal subscriptions tips the fourth factor only slightly toward the publishers because evidence of such loss is weak evidence that the copied articles themselves have lost any value.

[73] 2. *Licensing Revenues and Fees*. The District Court, however, went beyond discussing the sales of additional journal subscriptions in holding that Texaco's photocopying affected the value of the publishers' copyrights. Specifically, the Court pointed out that, if Texaco's unauthorized photocopying was not permitted as fair use, the publishers' revenues would increase significantly since Texaco would (1) obtain articles from document delivery services (which pay royalties to publishers for the right to photocopy articles), (2) negotiate photocopying licenses directly with individual publishers, and/or (3) acquire some form of photocopying license from the Copyright Clearance Center Inc. ("CCC"). [\[n16\]](#) *See* 802 F. Supp. at 19. Texaco claims that the District Court's reasoning is faulty because, in determining that the value of the publishers' copyrights was affected, the Court assumed that the publishers were entitled to demand and receive licensing royalties and fees for photocopying. Yet, continues Texaco, whether the publishers can demand a fee for permission to make photocopies is the very question that the fair use trial is supposed to answer.

[74] It is indisputable that, as a general matter, a copyright holder is entitled to demand a royalty for licensing others to use its copyrighted work, *see* [17 U.S.C. § 106](#) (copyright owner has exclusive right "to authorize" certain uses), and that the impact on potential licensing revenues is a proper subject for consideration in assessing the fourth factor, *see, e.g., Campbell*, ___ U.S. at ___, 114 S.Ct. at 1178; *Harper & Row*, 471 U.S. at 568-69, 105 S.Ct. at 2234-35; *Twin Peaks*, 996 F.2d at 1377; *DC Comics, Inc. v. Reel Fantasy, Inc.*, 696 F.2d 24, 28 (2d Cir. 1982); *United Telephone Co. of Missouri v. Johnson Publishing Co., Inc.*, 855 F.2d 604, 610 (8th Cir. 1988).

[75] However, not every effect on potential licensing revenues enters the analysis under the fourth factor. [\[n17\]](#) Specifically, courts have recognized limits on the concept of "potential licensing revenues" by considering only traditional, reasonable, or likely to be developed markets when examining and assessing a secondary user's "effect upon the potential market for or value of the copyrighted work." *See Campbell*, ___ U.S. at ___, 114 S.Ct. at 1178 ("The market for potential derivative uses includes only those that creators of original works would in general develop or license others to develop."); *Harper & Row*, 471 U.S. at 568, 105 S.Ct. at 2235 (fourth factor concerned with "use that supplants any part of the *normal* market for a copyrighted work") (emphasis added) (quoting S.Rep. No. 473, 94th Cong., 1st Sess. 65 (1975)); *see also Mathieson v. Associated Press*, 23 U.S.P.Q.2d 1685, 1690-91, 1992 WL 164447 (S.D.N.Y. 1992) (refusing to

find fourth factor in favor of copyright holder because secondary use did not affect any aspect of the normal market for copyrighted work).

[76] For example, the Supreme Court recently explained that because of the "unlikelihood that creators of imaginative works will license critical reviews or lampoons" of their works, "the law recognizes no derivative market for critical works," *Campbell*, ___ U.S. at ___, 114 S.Ct. at 1178. Similarly, other courts have found that the fourth factor will favor the secondary user when the only possible adverse effect occasioned by the secondary use would be to a potential market or value that the copyright holder has not typically sought to, or reasonably been able to, obtain or capture. See *Twin Peaks*, 996 F.2d at 1377 (noting that fourth factor will favor secondary user when use "filled a market niche that the [copyright owner] simply had no interest in occupying"); *Pacific and Southern Co. v. Duncan*, 744 F.2d 1490, 1496 (11th Cir. 1984) cert. denied, 471 U.S. 1004, 105 S.Ct. 1867, 85 L.Ed.2d 161 (1985) (noting that the fourth factor may not favor copyright owner when the secondary user "profits from an activity that the owner could not possibly take advantage of"). [\[n18\]](#)

[77] Thus, Texaco is correct, at least as a general matter, when it contends that it is not *always* appropriate for a court to be swayed on the fourth factor by the effects on potential licensing revenues. Only an impact on potential licensing revenues for traditional, reasonable, or likely to be developed markets should be legally cognizable when evaluating a secondary use's "effect upon the potential market for or value of the copyrighted work."

[78] Though the publishers still have not established a conventional market for the direct sale and distribution of individual articles, they have created, primarily through the CCC, a workable market for institutional users to obtain licenses for the right to produce their own copies of individual articles via photocopying. The District Court found that many major corporations now subscribe to the CCC systems for photocopying licenses. 802 F. Supp. at 25. Indeed, it appears from the pleadings, especially Texaco's counterclaim, that Texaco itself has been paying royalties to the CCC. See Complaint ¶ 38; First Counterclaim ¶ 71. Since the Copyright Act explicitly provides that copyright holders have the "exclusive rights" to "reproduce" and "distribute copies" of their works, see [17 U.S.C. § 106\(1\) & \(3\)](#), and since there currently exists a viable market for licensing these rights for individual journal articles, it is appropriate that potential licensing revenues for photocopying be considered in a fair use analysis.

[79] Despite Texaco's claims to the contrary, it is not unsound to conclude that the right to seek payment for a particular use tends to become legally cognizable under the fourth fair use factor when the means for paying for such a use is made easier. This notion is not inherently troubling: it is sensible that a particular unauthorized use should be considered "more fair" when there is no ready market or means to pay for the use, while such an unauthorized use should be considered "less fair" when there is a ready market or means to pay for the use. The vice of circular reasoning arises only if the availability of payment is conclusive against fair use. Whatever the situation may have been previously, before the development of a market for institutional users to obtain licenses to photocopy articles, see *Williams & Wilkins*, 487 F.2d at 1357-59, it is now appropriate to consider the loss of licensing revenues in evaluating "the effect of the use upon the potential market for or value of" journal articles. It is especially appropriate to do so with respect to copying of articles from *Catalysis*, a publication as to which a photocopying license is now available. We do not decide how the fair use balance would be resolved if a photocopying license for *Catalysis* articles were not currently available.

[80] In two ways, Congress has impliedly suggested that the law should recognize licensing fees for photocopying as part of the "potential market for or value of" journal articles. First, section 108 of the Copyright Act narrowly circumscribes the conditions under which libraries are

permitted to make copies of copyrighted works. See [17 U.S.C. § 108](#). Though this section states that it does not in any way affect the right of fair use, see *id.* § 108(f)(4), the very fact that Congress restricted the rights of libraries to make copies implicitly suggests that Congress views journal publishers as possessing the right to restrict photocopying, or at least the right to demand a licensing royalty from nonpublic institutions that engage in photocopying. Second, Congress apparently prompted the development of CCC by suggesting that an efficient mechanism be established to license photocopying, see S.Rep. No. 983, 93d Cong., 2d Sess. 122 (1974); S.Rep. No. 473, 94th Cong., 1st Sess. 70-71 (1975); H.R.Rep. No. 83, 90th Cong., 1st Sess. 33 (1968). It is difficult to understand why Congress would recommend establishing such a mechanism if it did not believe that fees for photocopying should be legally recognized as part of the potential market for journal articles.

[81] Primarily because of lost licensing revenue, and to a minor extent because of lost subscription revenue, we agree with the District Court that "the publishers have demonstrated a substantial harm to the value of their copyrights through [Texaco's] copying," 802 F. Supp. at 21, and thus conclude that the fourth statutory factor favors the publishers.

[82] E. Aggregate Assessment

[83] We conclude that three of the four statutory factors, including the important first and the fourth factors, favor the publishers. We recognize that the statutory factors provide a nonexclusive guide to analysis, see *Harper & Row*, 471 U.S. at 560, 105 S.Ct. at 2230, but to whatever extent more generalized equitable considerations are relevant, we are in agreement with the District Court's analysis of them. See 802 F. Supp. at 21-27. We therefore agree with the District Court's conclusion that Texaco's photocopying of eight particular articles from the *Journal of Catalysis* was not fair use.

[84] Though we recognize the force of many observations made in Judge Jacobs's dissenting opinion, we are not dissuaded by his dire predictions that our ruling in this case "has ended fair-use photocopying with respect to a large population of journals," 60 F.3d at 938-39, or, to the extent that the transactional licensing scheme is used, "would seem to require that an intellectual property lawyer be posted at each copy machine," *id.* at 937-38. Our ruling does not consider photocopying for personal use by an individual. Our ruling is confined to the institutional, systematic, archival multiplication of copies revealed by the record - the precise copying that the parties stipulated should be the basis for the District Court's decision now on appeal and for which licenses are in fact available. And the claim that lawyers need to be stationed at copy machines is belied by the ease with which music royalties have been collected and distributed for performances at thousands of cabarets, without the attendance of intellectual property lawyers in any capacity other than as customers. If Texaco wants to continue the precise copying we hold not to be a fair use, it can either use the licensing schemes now existing or some variant of them, or, if all else fails, purchase one more subscription for each of its researchers who wish to keep issues of *Catalysis* on the office shelf.

[85] Conclusion

[86] The order of the District Court is affirmed. [\[n19\]](#)

*. Chief Judge Newman replaced the Honorable Charles E. Stewart, Jr., of the District Court for the Southern District of New York, sitting by designation, who recused himself after oral argument.

1. Texaco, for example, uses a significant portion of its initial brief to expound on photocopying activities in various industries. Similarly, a large part of the publishers' statement of facts is devoted to a broad discussion of Texaco's photocopying practices, the social importance of academic and scientific journals, and the economics of journal publication and photocopying. These and other details presented by the parties are discussed in the District Court's opinion, 802 F. Supp. at 4-9.

2. In full, [17 U.S.C. § 107](#) reads:

§ 107. Limitation on exclusive rights: Fair Use

Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news 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 use is of a commercial nature or is for nonprofit educational purposes;

(2) the nature of 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. The fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors.

3. See *Agreement on Guidelines for Classroom Copying in Not-For-Profit Educational Institutions*, quoted in Patry, *The Fair Use Privilege*, at 308, discussed *infra*, note 5.

4. For various reasons, for example, because certain articles are the work of the United States Government (which makes copyright protection unavailable, see [17 U.S.C. § 105](#)), the publishers do not always possess the copyrights for all articles within each journal.

5. These guidelines were included in the legislative history of the 1976 revision of the Copyright Act, see H.R.Rep. No. 1476, 94th Cong., 2d Sess. 68-71 (1976), U.S.Code Cong. & Admin.News 1976, p. 5659, and were endorsed by the House Judiciary Committee as "a reasonable interpretation of the minimum standards of fair use." *Id.* at 72, U.S.Code Cong. & Admin.News 1976, at 5686. Though these guidelines are not considered necessarily binding on courts, see *Marcus v. Rowley*, 695 F.2d 1171, 1178 (9th Cir. 1983), they exist as a persuasive authority marking out certain minimum standards for educational fair uses, see *Basic Books, Inc. v. Kinko's Graphics Corp.*, 758 F. Supp. 1522-36 (S.D.N.Y. 1991). See generally 3 *Nimmer on Copyright* § 13.05[E][3][a], at 13-226.1 to 13-226.2 (discussing nature and impact of guidelines); Patry, *The Fair Use Privilege*, at 307-09, 404-07 (same).

6. In this regard, the District Court's conclusion that the "primary aspect" of Texaco's copying was to multiply copies is accurate, see 802 F. Supp. at 14-15, irrespective of the evidence (or lack of evidence) concerning the nature and scope of Texaco's photocopying activity for its entire population of scientists. Even if the photocopies of the *Catalysis* articles in Chickering's files were the only copies ever made by Texaco - which, as Texaco stresses, is all that the evidence developed below conclusively showed - the primary objective in making these single copies was to provide Chickering with his own, *additional*, readily accessible copy of the original article. As the District Court noted, "[I]f Chickering were the subscriber and sole user of the subscription to *Catalysis*, and he made an extra copy of an article for use in the lab or for marking with scratch notes, the argument [for a transformative fair use] might have considerable force." 802 F. Supp. at 14.

7. Though Texaco claims that its copying is for "research" as that term is used in the preamble of section 107, this characterization might somewhat overstate the matter. Chickering has not used portions of articles from *Catalysis* in his own published piece of research, nor has he had to duplicate some portion of copyrighted material directly in the course of conducting an experiment or investigation. Rather, entire articles were copied as an intermediate step that might abet Chickering's research.

8. See Patry, *The Fair Use Privilege*, at 416-17 (noting that the nature of person or entity engaging in use affects the character of the use); *Report of the Register of Copyrights - Library Reproduction of Copyrighted Works* (17 U.S.C. § 108) 85 (1983) (explaining that though a scientist in a for-profit firm and a university student may engage in the same photocopying of scholarly articles to facilitate their research, "the copyright consequences are different: [the scientist's] copying is of a clearly commercial nature, and less likely to be fair use") *quoted in* Patry, *The Fair Use Privilege*, at 417 n. 307.

9. See also *Marcus v. Rowley*, 695 F.2d at 1175 (emphasizing that "a finding that the alleged infringers copied the material to use it for the same intrinsic purpose for which the copyright owner intended it to be used is strong indicia of no fair use."). see generally Leon E. Seltzer, *Exemptions and Fair Use in Copyright* 24 (1978) (noting traditional limit on applicability of fair use doctrine when reproduction of original work is done "in order to use it for its intrinsic purpose - to make what might be called the 'ordinary' use of it").

10. In stating that a handwritten copy would have been made, we do not mean to imply that such copying would necessarily have been a fair use. Despite the 1973 dictum in *Williams & Wilkins* asserting that "it is almost unanimously accepted that a scholar can make a handwritten copy of an entire copyrighted article for his own use . . ." 487 F.2d at 1350, the current edition of the *Nimmer* treatise reports that "[t]here is no reported case on the question of whether a single handwritten copy of all or substantially all of a book or other protected work made for the copier's own private use is an infringement or fair use." 3 *Nimmer on Copyright* § 1305[E][4][a], at 13-229.

11. Not only are the *Catalysis* articles essentially factual in nature, but the evidence suggests that Chickering was interested exclusively in the facts, ideas, concepts, or principles contained within the articles. Though scientists surely employ creativity and originality to develop ideas and obtain facts and thereafter to convey the ideas and facts in scholarly articles, it is primarily the ideas and facts themselves that are of value to other scientists in their research.

12. We focus on the eight articles to emphasize the special characteristics of articles as distinguished from journal issues or bound volumes. In doing so, we recognize, as did the District Court, see 802 F. Supp. at 18 n. 15, that the fourth factor is concerned with the category of a defendant's conduct, not merely the specific instances of copying. See 3 *Nimmer on Copyright* § 13.05[A][4], at 13-183 to 13-184 ("[I]t is a mistake to view [the fourth] factor . . . as merely raising the question of the extent of damages to plaintiff caused by the particular activities of the defendant. This factor rather poses the issue of whether unrestricted and widespread conduct of the sort engaged in by the defendant . . . would result in a substantially adverse impact on the potential market for or value of the plaintiff's present work.") (emphasis added).

13. One reason that the effect on the marketability of the composite work is typically relevant is because the strength of the market for the composite work will influence the payment producers will be willing to give to the author of the individual work for permission to include that individual work. For example, if a secondary use of a copyrighted story adversely affects purchases of a collection of short stories in which this story appears, then other producers of short story collections will less likely seek to have, or will pay less to have, that story as part of their collections. In this way, the market for or value of the story has clearly been affected by the secondary use.

14. Properly applied, the fourth factor requires a court to consider "not only . . . particular actions of the alleged infringer, but also 'whether unrestricted and widespread conduct of the sort engaged in by the defendant . . . would result in a substantially adverse impact on the potential market' for the original." *Campbell*, ___ U.S. at ___, 114 S.Ct. at 1177 (quoting 3 *Nimmer on Copyright* § 13.05[A][4]). *Accord Harper & Row*, 471 U.S. at 568-69, 105 S.Ct. at 2234-35; *Rogers*, 960 F.2d at 312.

15. Texaco assails the conclusion that, without photocopying, it would increase subscriptions "somewhat" as an improper inference unsupported by the evidence. Though we accept Texaco's assertion that additional subscriptions provide an imperfect substitute for the copies of individual articles that scientists need and prefer, we cannot conclude that the District Court's factual finding that "Texaco would add at least a modest number of subscriptions," 802 F. Supp. at 19, is clearly erroneous.

First, though Texaco claims that there is no reliable evidence suggesting that photocopying served to facilitate journal circulation, the evidence concerning Texaco's routing practices supports the District Court's inference that, without photocopying, Texaco will need a greater number of subscriptions to insure the prompt circulation of journals. Second, as discussed in connection with the first statutory factor, the dominant reason for, and value derived from, the copying of the eight particular *Catalysis* articles was to make them available on Chickering's shelf for ready reference when he needed to look at them. Thus, it is reasonable to conclude that Texaco would purchase at least a few additional subscriptions to serve this purpose, *i.e.*, to provide certain researchers with personal copies of particular

articles in their own offices.

16. The CCC is a central clearing-house established in 1977 primarily by publishers to license photocopying. The CCC offers a variety of licensing schemes; fees can be paid on a per copy basis or through blanket license arrangements. Most publishers are registered with the CCC, but the participation of for-profit institutions that engage in photocopying has been limited, largely because of uncertainty concerning the legal questions at issue in this lawsuit. The CCC is fully described in the District Court's opinion. 802 F. Supp. at 7-9. A more extended discussion of the formation, development, and effectiveness of the CCC and its licensing schemes is contained in Stanley M. Besen & Sheila Nataraj Kirby, *Compensating Creators of Intellectual Property: Collectives that Collect* (1989).

17. As Texaco notes and others have recognized, a copyright holder can always assert some degree of adverse affect on its potential licensing revenues as a consequence of the secondary use at issue simply because the copyright holder has not been paid a fee to permit that particular use. See Leval, *Toward a Fair Use Standard*, at 1124 ("By definition every fair use involves *some* loss of royalty revenue because the secondary user has not paid royalties."); Fisher, *Reconstructing Fair Use*, at 1671 (noting that in almost every case "there will be some material adverse impact on a 'potential market'" since the secondary user has not paid for the use). Thus, were a court automatically to conclude in every case that potential licensing revenues were impermissibly impaired simply because the secondary user did not pay a fee for the right to engage in the use, the fourth fair use factor would *always* favor the copyright holder. See Leval, *Toward a Fair Use Standard*, at 1125; Fisher, *Reconstructing Fair Use*, at 1672.

18. The Supreme Court's holding in *Sony* implicitly recognizes limits on the concept of "potential market for or value of the copyrighted work." Despite Justice Blackmun's dissenting view that the copying of television programs to enable private viewing at a more convenient time, *i.e.*, "time-shifting," deprived copyright holders of the ability to exploit the "sizable market" of persons who "would be willing to pay some kind of royalty" for the "privilege of watching copyrighted work at their convenience," *Sony*, 464 U.S. at 485, 104 S.Ct. at 811, the majority found that the copyright holders "failed to demonstrate that time-shifting would cause any likelihood of nonminimal harm to the potential market for, or the value of, their copyrighted works." *Id.* at 456, 104 S.Ct. at 796. The Court thus implicitly ruled that the potential market in licensing royalties enunciated by Justice Blackmun should be considered too insubstantial to tilt the fourth fair use factor in favor of the copyright holder.

19. Though neither the limited trial nor this appeal requires consideration of the publishers' remedy if infringement is ultimately found, we note that the context of this dispute appears to make ill-advised an injunction, which, in any event, has not been sought. If the dispute is not now settled, this appears to be an appropriate case for exploration of the possibility of a court-imposed compulsory license. See *Campbell*, ___ U.S. at ___ n. 10, 114 S.Ct. at 1171 n. 10; 3 *Nimmer on Copyright* § 13.05[E][4][e], at 13-241 to 13-242.

[87] JACOBS, Circuit Judge, dissenting:

[88] The stipulated facts crisply present the fair use issues that govern the photocopying of entire journal articles for a scientist's own use, either in the laboratory or as part of a personal file assisting that scientist's particular inquiries. I agree with much in the majority's admirable review of the facts and the law. Specifically, I agree that, of the four nonexclusive considerations bearing on fair use enumerated in section 107, the second factor (the nature of the copyrighted work) tends to support a conclusion of fair use, and the third factor (the ratio of the copied portion to the whole copyrighted work) militates against it. I respectfully dissent, however, in respect of the first and fourth factors. As to the first factor: the purpose and character of Dr. Chickering's use is integral to transformative and productive ends of scientific research. As to the fourth factor: the adverse effect of Dr. Chickering's use upon the potential market for the work, or upon its value, is illusory. For these reasons, and in light of certain equitable considerations and the overarching purpose of the copyright laws, I conclude that Dr. Chickering's photocopying of the *Catalysis* articles was fair use.

[89] A. Purpose and Character of the Use

[90] The critical facts adduced by the majority are that Dr. Chickering is a chemical engineer employed at a corporate research facility who keeps abreast of developments in his field by

reviewing specialized scientific and technical journals, and who photocopies individual journal articles in the belief that doing so will facilitate his current or future professional research. 60 F.3d at 915. I agree with the majority that the immediate goal of the photocopying was "to facilitate Chickering's research in the sciences, an objective that might well serve a broader public purpose." 60 F.3d at 922-23. The photocopying was therefore integral to ongoing research by a scientist. In my view, all of the statutory factors organize themselves around this fact. The four factors listed in section 107 (and reviewed one by one in the majority opinion) are considerations that bear upon whether a particular use is fair; but those factors are informed by a preamble sentence in section 107 that recites in pertinent part that "the fair use of a copyrighted work, including such use by reproduction in copies . . . for purposes such as . . . scholarship, or research, is not an infringement of copyright."

[91] "[T]here is a strong presumption that factor one favors the defendant if the allegedly infringing work fits the description of uses described in section 107." *Wright v. Warner Books, Inc.*, 953 F.2d 731, 736 (2d Cir. 1991). Much of our fair use case law has been generated by the use of quotation in biographies, a practice that fits "'comfortably within' the[] statutory categories `of uses illustrative of uses that can be fair.'" *New Era Publications Int'l, ApS v. Carol Pub. Group (New Era II)*, 904 F.2d 152, 156 (2d Cir.) (quoting *Salinger v. Random House, Inc.*, 811 F.2d 90, 96 (2d Cir.), *cert. denied*, 484 U.S. 890, 108 S.Ct. 213, 98 L.Ed.2d 177 (1987)), *cert. denied*, 498 U.S. 921, 111 S.Ct. 297, 112 L.Ed.2d 251 (1990). The photocopying of journal articles as part of ongoing scientific research fits just as squarely within the scope of these illustrative fair uses. This court has stated on several occasions: "'[I]f a book falls into one of these categories [i.e., criticism, scholarship or research], assessment of the first fair use factor should be at an end. . . ." *Wright*, 953 F.2d at 736 (quoting *New Era II*, 904 F.2d at 156 (quoting *New Era Publications Int'l, APS v. Henry Holt & Co.*, 884 F.2d 659, 661 (2d Cir. 1989) (Miner, *J.*, concurring in denial of rehearing in banc))). This is so "even though, as will often be the case," the copyist "'anticipates profits.'" *Wright*, 953 F.2d at 736-7 (quoting *New Era II*, 904 F.2d at 156 (quoting *Salinger*, 811 F.2d at 96)).

[92] The majority recognizes that photocopying puts the articles into a "a useful format," 60 F.3d at 923, for use in a laboratory, where the bound volume or whole journal would be cumbersome and subject to damage, and that "these purposes might suffice to tilt the first fair use factor in favor of Texaco if these purposes were dominant." 60 F.3d at 919. This view modifies the district court's conclusion that fair use might allow the photocopying of whole articles for use in the laboratory "if the original were copied onto plastic paper so that it could be used in a wet environment, onto metal so that it would resist extreme heat, onto durable archival paper to prevent deterioration, or onto microfilm to conserve space. . . ." *American Geophysical Union v. Texaco Inc.* 802 F. Supp. 1, 14 (1992). The majority notes, however, that Dr. Chickering "did not even have occasion to use five of the photocopied articles at all," 60 F.3d at 919, and emphasizes that Dr. Chickering's photo copying was done to assemble a personal file used, in Dr. Chickering's phrase, for "future retrieval and reference." 60 F.3d at 919. The majority calls this the "predominant archival purpose of the copying," 60 F.3d at 924, and therefore not in the nature of research. In my view, the research function is far broader than the majority opinion and the district court opinion contemplate.

[93] Replication of laboratory experiments is of course a form of scientific research, but it is not the whole or main part of it. Often, a researcher needs to know what others have thought and done in order to steer clear of repetition and dead ends, to evaluate theories and hypotheses for possible theoretical development or commercial application, to give credit to others, and much else. None of this requires a scientist to enter a laboratory. In any event, to describe Dr. Chickering's file as "archival," as the majority does, is a misnomer: an archive is ordinarily a bulk of documents accumulated by a bureaucratic process and serving as a resource for public or institutional reference. By contrast, Dr. Chickering's personal file contains articles available for reference to

assist the memory, curiosity and ongoing inquiries of a single researcher. As such, it is part of a transformative process of scientific research that has a long history.

[94] The majority concludes that the photocopying was "done for the primary purpose of providing Chickering with his own personal copy of each article," dismissively rejecting (in a footnote) Texaco's argument that the true, and fundamental, purpose for the photocopying was research:

Though Texaco claims that its copying is for "research" as that term is used in the preamble of section 107, this characterization might somewhat overstate the matter. Chickering has not used portions of articles from *Catalysis* in his own published piece of research, nor has he had to duplicate some portion of copyrighted material directly in the course of conducting an experiment or investigation. Rather, entire articles were copied as an intermediate step that might abet Chickering's research.

[95] 60 F.3d at 920 n. 7. In my view, it is no overstatement to call this process research. I have difficulty thinking of anything else to call it.

[96] The scientific method, properly conceived, is much more than a system of repeated laboratory experimentation. Rather, it is a dynamic process of "planned cooperation of scientists, each of whom uses and continues the investigations of his predecessors. . . ." Edgar Zilsel, "The Sociological Roots of Science," in Hugh F. Kearney, ed. *Origins of the Scientific Revolution*, 97 (1968). The scientific journal is an essential tool in this incremental, ongoing, transformative process. The physicist Peter L. Kapitza has noted the central role that journals play in it:

[T]he fundamental factor determining the collective work of scientists is the organization of information exchange. The more effectively this is carried out, the greater its scale and the more intensively science develops. The most effective method of scientific information up to date [sic] appears to be its dissemination through periodicals, since one can most widely and quickly communicate the scientific achievements in this way to a large number of interested scientists.

[97] Peter L. Kapitza, *Experiment, Theory, Practice*, 173 (1980). Today there are some 200,000 scientific journals published worldwide. *Id.* at 174.

[98] A use that is reasonable and customary is likely to be a fair one. *See Harper & Row Publishers, Inc. v. Nation Enterprises*, [471 U.S. 539](#), 550, 105 S.Ct. 2218, 2225, 85 L.Ed.2d 588 (1985) ("the fair use doctrine was predicated on the author's implied consent to 'reasonable and customary' use"). The district court, the majority and I start from the same place in assessing whether Dr. Chickering's photocopying is a reasonable and customary use of the material: making single photocopies for research and scholarly purposes has been considered both reasonable and customary for as long as photocopying technology has been in existence. *See Williams & Wilkins Co. v. United States*, 487 F.2d 1345, 1355-56, 203 Ct.Cl. 74 (1973), *aff'd by an equally divided court*, [420 U.S. 376](#), 95 S.Ct. 1344, 43 L.Ed.2d 264 (1976). The majority quotes the district court's short answer to this important insight: "To the extent the copying practice was 'reasonable' in 1973 [when *Williams & Wilkins* was decided], it has ceased to be 'reasonable' as the reasons that justified it before [photocopying licensing] have ceased to exist." 802 F. Supp. at 25. I do not agree at all that a reasonable and customary use becomes unfair when the copyright holder develops a way to exact an additional price for the same product. Moreover, I view the advent of the CCC as an event that bears analytically upon the distinct question of whether Dr. Chickering's use supersedes the original (the fourth factor). I therefore reach an issue - reasonable and customary use - not explored by the district court or by the majority.

[99] Consider what Dr. Chickering actually does with scientific journals. As a research scientist, he routinely sifts through the latest research done by his peers, much of which is printed in journals such as *Catalysis*. He determines which articles potentially assist his specific trains of thought and lines of inquiry, and he photocopies them. Relative to the volume of articles in each issue, his photocopying is insubstantial. He then files the articles for possible future use or study. As the majority observes, "[b]efore modern photocopying, Chickering probably would have converted the original article into a more serviceable form by taking notes, whether cursory or extended; today he can do so with a photocopying machine." 60 F.3d at 923-24. The majority's footnote 10, appended to this passage, questions whether or not a scholar's handwritten copy of a full work is "necessarily" a fair use. As the majority adds, however, *Williams & Wilkins* says:

[I]t is almost unanimously accepted that a scholar can make a handwritten copy of an entire copyrighted article for his own use, and in the era before photoduplication it was not uncommon (and not seriously questioned) that he could have his secretary make a typed copy for his personal use and files. These customary facts of copyright-life are among our givens.

[100] *Williams & Wilkins*, 487 F.2d at 1350. What Dr. Chickering does is simply a technologically assisted form of note-taking, such as has long been customary among researchers: the photocopy machine saves Dr. Chickering the toil and time of recording notes on index cards or in notebooks, and improves the accuracy and range of the data, charts, and formulas he can extract from the passing stream of information; but the note-taking purpose remains the same.

[101] The anthropologist Bruno Latour spent two years studying scientists at the Salk Institute for Biological Sciences. During the course of his study, he conducted anthropological observations of a neurobiologist working on an article for a journal. This scientist's desk was littered with copies of journal articles authored by other scientists:

Xeroxed copies of articles, with words underlined and exclamation marks in the margins, are everywhere. Drafts of articles in preparation intermingle with diagrams scribbled on scrap paper, letters from colleagues and reams of paper spewed out by the computer in the next room; pages cut from articles are glued to other pages; excerpts from draft paragraphs change hands between colleagues while more advanced drafts pass from office to office being altered constantly, retyped, recorrected, and eventually crushed into the format of this or that journal.

[102] Bruno Latour and Steve Woolgar, *Laboratory Life: The Social Construction of Scientific Facts*, 49 (1979). One essential step toward this drafting process is the accumulation over time of the journal articles that reflect the current state of knowledge that the journal author seeks to advance. Latour confirms that the photocopying of journal articles, and the use of them, is customary and integral to the creative process of science.

[103] The majority emphasizes that, as it happened, Dr. Chickering did not "use" the photocopied articles because, in five out of eight instances, he filed them away. There is nothing odd about making notes one does not immediately use, or that one may never consult again. Photocopies, which to Dr. Chickering are the functional counterpart of notes, are used (or not, as the case may be) in the same way. Dr. Chickering's filing away of these photocopies does not subvert his claim of fair use. Like the majority, I am convinced that his deposit of the photocopied articles in his personal file, pending his personal use of them in the future, is an important fact bearing upon fair use; but the dominant significance of that fact, under the first factor of section 107, is that (whether he "uses" them or files them) the articles are not re-sold or retailed in any way. If the copies were sold by Dr. Chickering, that would be a telling - possibly determinative - fact. What

Dr. Chickering has done reinforces the view that his photocopying was not commercial in purpose or character.

[104] The majority recognizes that, while the photocopying of the *Catalysis* articles was "not technically a transformative use," there is "significant independent value" in converting the articles to a photocopied format. 60 F.3d at 923. Nevertheless, the majority concludes that this transformative process does not militate in favor of fair use because of the "predominant archival purpose". In my view, however, the "archival purpose" is just a step in the process of taking and keeping notes, which should ordinarily entail no transformation of the material. Good notes, being as precise and copious as time allows, do not aspire to transform the original text, but are useful in research only to the extent that they faithfully record the original. Such notes, however, are important raw material in the synthesis of new ideas. Accordingly, I find the nature and purpose of the use to be fully transformative.

[105] The majority emphasizes *passim* that the photocopying condemned here is "systematic" and "institutional". These terms furnish a ground for distinguishing this case from the case that the majority expressly does not reach: the copying of journal articles by an individual researcher outside an institutional framework. For all the reasons adduced above, I conclude that the institutional environment in which Dr. Chickering works does not alter the character of the copying done by him or at his instance, and that the selection by an individual scientist of the articles useful to that scientist's own inquiries is not systematic copying, and does not become systematic because some number of other scientists in the same institution - four hundred or four - are doing the same thing.

[106] First, the majority's reliance on Texaco's institutional framework does not limit the potentially uncontrolled ramifications of the result. Research is largely an institutional endeavor nowadays, conducted by employees pursuing the overall goals of corporations, university laboratories, courts and law firms, governments and their agencies, think-tanks, publishers of newspapers and magazines, and other kinds of institutions. The majority's limitation of its holding to institutional environments may give comfort to inventors in bicycle shops, scientists in garage laboratories, freelance book reviewers, and solo conspiracy theorists, but it is not otherwise meaningful.

[107] The majority's reliance on the systematic character of the photocopying here also seems to me erroneous. The majority deems Texaco's photocopying systematic because Texaco uses circulation lists to route a copy of each journal issue to the scientists interested in the field. The majority, however, ignores the one determinative issue: whether the decision to photocopy individual articles is made by the individual researcher, as Dr. Chickering did here. Journal issues may be systematically circulated to all scientists in a given group, rather than (say) at random, but the circulation of journal issues is not photocopying, systematic or otherwise. The journal issues circulated by Texaco are procured by subscription. Once Texaco receives the subscription copies from the publisher, Texaco is free to circulate them in-house so that they can be seen by as many scientists as can lay eyes on them. This circulation of copies allows individual scientists to select individual articles for copying. The majority opinion, which leaves open the idea that this practice may comport with copyright law if done by an individual scientist, does not explain why it is impermissible when done by more than one.

[108] The nature and purpose of the use is not affected by Texaco's size or institutional nature, or by Texaco's circulation of its subscription journals to its scientists. I therefore find that this factor weighs clearly in favor of Texaco.

[109] B. Effect Upon Potential Market or Value

[110] In gauging the effect of Dr. Chickering's photocopying on the potential market or value of the copyrighted work, the majority properly considers two separate means of marketing: (1) journal subscriptions and sales, and (2) licensing revenues and fees.

[111] **(1) Subscriptions and sales.** The majority makes clear that, considered solely in terms of journal subscriptions and sales, this factor is a toss-up that may tip in the publisher's favor, but only after teetering for a while: "At best, the loss of a few journal subscriptions tips the fourth factor only slightly toward the publishers because evidence of such loss is weak evidence that the copied articles themselves have lost any value." 60 F.3d at 929. The majority pointedly observes that no evidence is offered that the photocopying at issue here, "if widespread, would impair the marketability of journals . . ." 60 F.3d at 928. Since Dr. Chickering's use maximizes the utility of a *Catalysis* subscription for the only audience it is ever likely to capture, I do not consider that the failure of proof in this respect is an oversight by the publishers or their able counsel.

[112] As to the individual articles photocopied by Dr. Chickering, I agree with the majority - as I read the opinion - that one cannot put a finger on any loss suffered by the publisher in the value of the individual articles or in the traditional market for subscriptions and back issues. The district court found that Texaco would not purchase back-issues or back volumes in the numbers needed to supply individual copies of articles to individual scientists.

[113] Finally, the circulation of *Catalysis* among a number of Texaco scientists can come as no surprise to the publisher of *Catalysis*, which charges double the normal subscription rate to institutional subscribers. The publisher must therefore assume that, unless they are reading *Catalysis* for pleasure or committing it to memory, the scientists will extract what they need and arrange to copy it for personal use before passing along the institutional copies.

[114] **(2) Licensing Revenues and Fees.** The majority states that "[o]nly an impact on potential licensing revenues for traditional, reasonable, or likely to be developed markets should be legally cognizable when evaluating a secondary use's effect upon the potential market for or value of the copyrighted work." 60 F.3d at 930. That statement of the law, with which I fully agree, supports the conclusion that the availability of a CCC license has little to do with fair use. The Supreme Court, in *Harper & Row*, held that this fourth factor addresses "use that supplants any part of the normal market for a copyrighted work. . . ." 471 U.S. at 568, 105 S.Ct. at 2235 (quoting S.Rep. No. 473, 94th Cong., 1st Sess. 65 (1975)). The Court has more recently declared, in considering the fair use ramifications of parody, that "[t]he market for potential derivative uses includes only those that creators of original works would in general develop or license others to develop." *Campbell v. Acuff-Rose Music, Inc.*, ___ U.S. ___, ___, 114 S.Ct. 1164, 1178, 127 L.Ed.2d 500 (1994). One factor deemed to make parody eligible for treatment as a fair use is that copyright holders do not ordinarily license artistic criticisms of their own works. However, even if authors were to seek to license these secondary works, it is not clear that they would succeed, because the Court found the secondary works to be a fair use: "when . . . the second use is transformative, market substitution is at least less certain, and market harm may not be so readily inferred." *Id.* at ___, 114 S.Ct. at 1177.

[115] In this case the only harm to a market is to the supposed market in photocopy licenses. The CCC scheme is neither traditional nor reasonable; and its development into a real market is subject to substantial impediments. There is a circularity to the problem: the market will not crystallize unless courts reject the fair use argument that Texaco presents; but, under the statutory test, we cannot declare a use to be an infringement unless (assuming other factors also weigh in favor of the secondary user) there is a market to be harmed. At present, only a fraction of journal publishers have sought to exact these fees. I would hold that this fourth factor decisively weighs in favor of Texaco, because there is no normal market in photocopy licenses, and no real consensus

among publishers that there ought to be one.

[116] The majority holds that photocopying journal articles without a license is an infringement. Yet it is stipulated that (a) institutions such as Texaco subscribe to numerous journals, only 30 percent of which are covered by a CCC license; (b) not all publications of each CCC member are covered by the CCC licenses; and (c) not all the articles in publications covered by the CCC are copyrighted. It follows that no CCC license can assure a scientist that photocopying any given article is legal. I will separately consider the Transactional Reporting Service (the per-copy transactional license) and the Annual Authorization Service (the blanket license). I confine my discussion here to scientists, although I note that the record reflects CCC's intention to pursue licensing arrangements in other sectors as well.

[117] Under a transactional license, the user must undertake copyright research every time an article is photocopied. First, one must consult a directory to determine whether or not the publisher of the journal is a member of the CCC. If it is, one must ascertain whether the particular publication is one that is covered by the CCC arrangement, because not all publications of participating publishers are covered. Then one must somehow determine whether the actual article is one in which the publisher actually holds a copyright, since there are many articles that, for such reasons as government sponsorship of the research, are not subject to copyright. The production director of plaintiff Springer-Verlag testified at trial that it is almost impossible to tell which articles might be covered by a copyright. Since even an expert has difficulty making such a determination, the transactional scheme would seem to require that an intellectual property lawyer be posted at each copy machine. Finally, once it is determined that the specific article is covered, the copyist will need to record in a log the date, name of publication, publisher, title and author of article, and number of pages copied.

[118] It may be easier to hand copy the material. The transactions costs alone would compel users to purchase a blanket license. However, if (as the majority holds) three of the fair use factors tip in favor of the publishers even without considering the market for license fees, a blanket license offers Texaco no safe harbor. Individual publishers remain free to stand upon the rights conferred in this Court's opinion, and negotiate separate licenses with separate terms, or sell offprints and refuse any license at all. Unless each publisher's licensing rights are made to depend upon whether or not that publisher participates in the CCC, we have the beginnings of a total market failure: with many thousands of scientific publications in circulation, a user cannot negotiate licensing fees individually with numerous publishers - unless it does nothing else. For many publications, licenses are simply not available. As to those, Dr. Chickering has the choice of hand copying, typescript, or the photocopying of selected pages only.

[119] The blanket license fares no better. The CCC license cannot confer absolution for the photocopying of articles published by nonmembers of the CCC. Nor can the participating publishers properly collect fees for the photocopying of articles for which they do not hold the copyright. The district court found that there is currently a viable market for licensing, chiefly for the following reasons:

(a) "[M]any of the largest corporations involved in research have become licensees under a CCC Annual Authorization." 802 F. Supp. at 24. However, until this case is decided, companies have had little choice but to become licensees or defendants.

(b) The CCC has developed an Annual Authorization arrangement that "permits free copying without any administrative burden of recordkeeping or reporting." *Id.* That system works, however, only if one ignores the rights of publishers who are non-members of the CCC.

(c) "[P]ublishers and individual users have . . . developed private annual licensing agreements. For example, AT & T Bell Labs, in addition to its membership in the CCC, has over 200 agreements with publishers covering photocopying with respect to some 350 journals that are not registered with the CCC. Furthermore, publishers have extended photocopying licenses to document delivery services." *Id.* at 24-25.

[120] These developments "(and the other parallel steps taken by the owner-user communities)", satisfy the district court that "[r]easonably priced, administratively tolerable licensing procedures are available. . . ." *Id.* at 25.

[121] It is hard to escape the conclusion that the existence of the CCC - or the perception that the CCC and other schemes for collecting license fees are or may become "administratively tolerable" - is the chief support for the idea that photocopying scholarly articles is unfair in the first place. The majority finds it "sensible" that a use "should be considered 'less fair' when there is a ready market or means to pay for the use." 60 F.3d at 931. That view is sensible only to a point. There is no technological or commercial impediment to imposing a fee for use of a work in a parody, or for the quotation of a paragraph in a review or biography. Many publishers could probably unite to fund a bureaucracy that would collect such fees. The majority is sensitive to this problem, but concludes that "[t]he vice of circular reasoning arises only if the availability of payment is conclusive against fair use." 60 F.3d at 931. That vice is not avoided here. The majority expressly declines to "decide how the fair use balance would be resolved if a photocopying license for *Catalysis* articles were not currently available." 60 F.3d at 931. Moreover, the "important" fourth factor, 60 F.3d at 931, tips in favor of the publishers (according to the majority) "[p]rimarily because of lost licensing revenue" and only "to a minor extent" on the basis of journal sales and subscriptions. 60 F.3d at 931.

[122] I do not agree with the majority that the publishers "have created, primarily through the CCC, a workable market for institutional users to obtain licenses for the right to produce their own copies of individual articles via photocopying." 60 F.3d at 930. By the CCC's admission, in its correspondence with the Antitrust Division of the Justice Department, "the mechanism for the negotiation of a photocopy license fee is often not even in place. . . . Nor can it be said that CCC's current licensing programs have adequately met the market's needs."^[n1] There is nothing workable, and there is no market.

[123] Even if the CCC is or becomes workable, the holder of a CCC blanket license is not thereby privileged to photocopy journal articles published by non-members of the CCC, as to which articles there is no "ready market or means to pay for the fair use". *See* 60 F.3d at 931. This Court has ended fair-use photocopying with respect to a large population of journals, but the CCC mechanism allows fair-use photocopying only of some of them. The facts before us demonstrate that the holder of a blanket license must still deal separately with CCC-member Bell Labs as to certain hundreds of its publications. With respect to the journals for which the publishers do not market licenses, users will either (a) research which publications are in this category and copy them longhand, in typescript or in partial photocopy, or (b) ignore our fair-use doctrine as unworkable. Neither option serves scientific inquiry or respect for copyright. In any event, it seems to me that when a journal is used in a customary way - a way that the authors uniformly intend and wish - the user should not be subjected on a day to day basis to burdens that cannot be satisfied without a team of intellectual property lawyers and researchers.

[124] The fourth factor tips decidedly in Texaco's favor because there is no appreciable impairment of the publishing revenue from journal subscriptions and sales; because the publisher captures additional revenue from institutional users by charging a double subscription price (and can presumably charge any price the users will pay); and because the market for licensing is

cumbersome and unrealized.

[125] C. Equitable Considerations

[126] The fair use doctrine is an "equitable rule of reason." *Sony Corp. of America v. Universal City Studios*, 464 U.S. 417, 448 & n. 31, 104 S.Ct. 774, 792 & n. 31, 78 L.Ed.2d 574 (1984). Applying the doctrine requires a case-by-case review that includes the four factors listed in section 107; but the statutory list is not exhaustive or exclusive. See *Harper & Row*, 471 U.S. at 549, 105 S.Ct. at 2225. The purpose of this equitable rule is "to avoid rigid application of the copyright statute when, on occasion, it would stifle the very creativity which that law is designed to foster." *Harper & Row*, 471 U.S. at 550 n. 3, 105 S.Ct. at 2225 n. 3 (quoting *Iowa State University Research Foundation, Inc. v. American Broadcasting Cos.*, 621 F.2d 57, 60 (2d Cir. 1980)).

[127] "[T]he author's consent to a reasonable use of his copyrighted works ha[s] always been implied by the courts as a necessary incident of the constitutional policy of promoting the progress of science and the useful arts, since a prohibition of such use would inhibit subsequent writers from attempting to improve upon prior works and thus . . . frustrate the very ends sought to be attained." *Harper & Row*, 471 U.S. at 549, 105 S.Ct. at 2225 (quoting H. Ball, *Law of Copyright and Literary Property* 260 (1944)). "[T]he fair use doctrine [is] predicated on the author's implied consent to 'reasonable and customary' use when he release[s] his work for public consumption. . . ." *Id.* at 550, 105 S.Ct. at 2225. All facts bearing upon the terms of that consent are germane to this analysis.

[128] The single fact that evidences the fair use expectation of the people whose creativity Congress seeks to stimulate, is that they *give away their copyright* in order to promote their work, their ideas and their reputations. The district court found that the "publishers do not pay authors money to publish their articles. . . ." *American Geophysical*, 802 F. Supp. at 26. The majority finds, "[n]o form of money payment is ever provided to authors whose works are published." 60 F.3d at 915; see also *id.* at 928 ("[P]ublishers do not make any payment to authors for the right to publish their articles or to acquire their copyrights. . . .").

[129] This is not to say, however, that the authors derive no benefit from the use of their works. To the contrary: "[T]he authors derive benefit from the publication of their works far more important than any small royalty the traffic might bear." *American Geophysical*, 802 F. Supp. at 26. The authors of scientific articles work and publish in order to gain distinction, appointment, resources, tenure. But they seek and derive absolutely no direct cash benefit from publication. It seems to me that this fact is of great importance: it means that, so long as the copyright system assures sufficient revenue to print and distribute scientific journals, the level of copyright revenue is not among the incentives that drive the authors to the creative acts that the copyright laws are intended to foster.

[130] As to this issue, the majority adopts the district court's view that it is "irrelevant" because the authors have assigned the copyright to publishers who risk capital to achieve the wide dissemination of the articles that the authors want and need. 802 F. Supp. at 27. The district court greatly overstates the case in concluding that "[o]nce an author has assigned her copyright, her approval or disapproval of photocopying is of no further relevance." *Id.* As a commercial proposition, that is unassailable. But equitable considerations under the copyright law justify an inquiry into the incentives for creating the work - here, the scientific journal articles. See *Harper & Row*, 471 U.S. at 550 n. 3, 105 S.Ct. at 2225 n. 3 (equitable rule of reason permits inquiry into whether "rigid application of the copyright statute . . . would stifle the very creativity which that law is designed to foster."). "The immediate effect of our copyright law is to secure a fair return for an 'author's' creative labor. But the ultimate aim is, by this incentive, to stimulate artistic

creativity for the general public good." *Fogerty v. Fantasy, Inc.*, ___ U.S. ___, ___, 114 S.Ct. 1023, 1029, 127 L.Ed.2d 455 (1994) (quoting *Twentieth Century Music Corp. v. Aiken*, [422 U.S. 151](#), 156, 95 S.Ct. 2040, 2044, 45 L.Ed.2d 84 (1975)). To that end, we are reminded that:

"The primary objective of copyright is not to reward the labor of authors, but `[t]o promote the Progress of Science and useful Arts.' To this end, copyright assures authors the right to their original expression, but encourages others to build freely upon the ideas and information conveyed by a work."

[131] *Id.* at ___, 114 S.Ct. at 1030 (quoting *Feist Publications, Inc. v. Rural Telephone Service Co.*, [499 U.S. 340](#), 349-50, 111 S.Ct. 1282, 1290, 113 L.Ed.2d 358 (1991)).

[132] The CCC's licensing fees unquestionably benefit the copyright holders, but no argument has been made that this additional revenue will fuel scientific creativity. According to Kapitza, "[e]very 10-15 years, the number of journals doubles and it has now reached the imposing number of 200,000." *Experiment, Theory, Practice* at 174. This proliferation of journals has been accomplished through sales and subscriptions. Clearly, the incentives currently in place for journal publishing assure a fair return, or else we would not see the exponential growth in scientific journals reported by Kapitza. Under the current system, publishers sell journals and subscriptions. They can, and do, charge institutional users more money, and are free to charge what they like.

[133] Since the copyright laws seek to stimulate *creativity* we should consider the incentives chiefly from the perspective of the authors and scientists. It has been recognized by this Court that in the scientific community, "what is valuable [to the authors] is recognition because it so often influences professional advancement and academic tenure." *Weissmann v. Freeman*, 868 F.2d 1313, 1324 (2d Cir.), *cert. denied*, 493 U.S. 883, 110 S.Ct. 219, 107 L.Ed.2d 172 (1989). From their point of view, then, what is truly important is the wide dissemination of their works to their colleagues.

[134] The incentives for scientific publication have been in place since the project of science began to be perceived as a cooperative venture more than three centuries ago. *See* E. Zilsel, "The Sociological Roots of Science," in Hugh F. Kearney, ed., *Origins of the Scientific Revolution*, at 97 (1968) ("In his *Nova Atlantis* Bacon depicted an ideal state in which technological and scientific progress is reached by planned co-operation of scientists, each of whom uses and continues the investigations of his predecessors and fellow workers.").^[n2] Scientists communicate through journals, and use them to stake claims to new ideas, disseminate their ideas, and advance their careers and reputations. These "authors have a far greater interest in the wide dissemination of their work than in royalties. . . ." *American Geophysical*, 802 F. Supp. at 27. That, evidently, is why they do not seek or expect royalties, and that is why licensing fees cannot be expected to increase or diminish their creativity or their drive to publish. The majority's ruling on fair use will add to the cost, time and effort that scientists spend to scan, keep and use journal articles, and will therefore tend to diminish the only reward that the authors seek from publication.

[135] Nowhere in the case law is there support for the proposition that the monopoly granted by copyright is designed to ensure the holder a maximum economic return; rather, the law's purpose is to balance competing interests - assuring the author a *fair* return, while permitting creative uses that build upon the author's work. *See, e.g., Fogerty*, ___ U.S. at ___, 114 S.Ct. at 1029 ("While it is true that *one* of the goals of the Copyright Act is to discourage infringement, it is by no means the *only* goal of that Act. . . . `The immediate effect of our copyright law is to secure a fair return for an `author's' creative labor. But the ultimate aim is, by this incentive, to stimulate artistic creativity. . . .") (quoting *Twentieth Century Music*, 422 U.S. at 156, 95 S.Ct. at 2044); *Harper & Row*, 471 U.S. at 546, 105 S.Ct. at 2223 ("The rights conferred by copyright are designed to

assure contributors to the store of knowledge a fair return for their labors."). More fundamentally, Dr. Chickering's photocopying is part of a creative enterprise that Dr. Chickering conducts in common with the authors of the articles. For that reason, and the others stated in this dissent, I conclude that Dr. Chickering's photocopying of isolated journal articles to assist his own research inquiries is fair use.

1. Letter from R. Bruce Rich, Weil, Gotshal & Manges (as counsel to CCC) to Thomas H. Liddle, Antitrust Division, United States Department of Justice (February 2, 1992) (filed as part of supplementation of record, pursuant to motion granted on October 12, 1993).

2. The Royal Society of London, founded in 1662, was the first to give institutional validity to the Baconian principles of verified experimentation and public reporting of theories and experimental results. See William Eamon, "From the Secrets of Nature to Public Knowledge," reprinted in David C. Lindberg and Robert S. Westman, eds. *Reappraisals of the Scientific Revolution*, at 349-57 (1991). The "ideal of cooperative research" allowed scientists to approach their work more methodically, and the project of science evolved into the system of experimentation, reporting, verification, and modification that is the scientific method. *Id.* The first scientific journal, *Philosophical Transactions*, was published in London in the 1660s. A. Rupert Hall, *The Revolution in Science, 1500-1700*, 230-31 (1983). The publisher, Henry Oldenburg, "created the scientific journal and the scientific paper as a means of communication," providing a vehicle for international communication between scientists about the results of their experiments. *Id.* at 231. In *Philosophical Transactions*, "[f]requent controversies over moot theoretical issues directed experimental interest to the testing of the conflicting theories; new hypotheses were broadcast; recent scientific works were critically reviewed; and plans for initiating research along certain lines were made public." Robert K. Merton, *Science, Technology & Society in Seventeenth Century England*, 224 (1978).
