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COPYRIGHT PROTECTION FOR COMPUTER-PRODUCED DIRECTORIES*

MICHAEL S. OBERMAN**

I. INTRODUCTION

PURSUANT to section 5(a) of the Copyright Act,¹ directories² are eligible for copyright protection. Thus, a compiler of names, known facts, and new data may be entitled to a statutory monopoly for his work, as long as his effort represents an independent creation. The scope of this protection—especially the delineation of infringement—may raise problems of degree in each litigated case. Still, the compiler's initial challenge—qualifying for a grant of a copyright—is generally met; on this point, the law appears settled.³

But the law on directories became settled long before the advent of computer technology. Indeed, the model of the compiler which runs through the leading cases⁴ suggests an energetic inquisitor tramping through the streets in search of information,⁵ a dedicated lexicographer laboriously assembling this information into a useful order, and—not the least—an ingenious craftsman who transforms the collection of facts into an attractive product. For his effort, and secondarily for his product, he is given protection. This image should change when computers are intro-

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1. 17 U.S.C. § 5(a) (1970).

2. The word "directories," as used in this article, refers to rather mundane compilations of public domain information. As opposed to collections of literary works, the items included in a directory are not independently copyrightable. More involved collections, such as encyclopedias which may contain extensive editorial material, are not considered. The emphasis is on a more modest type of endeavor, in the nature of a phone book or simple dossier, which presently is entitled to a thin copyright. "Computer-produced directory" refers to a printed directory in human readable form, partly or primarily prepared by a computer.

3. Gorman, Copyright Protection for the Collection and Representation of Facts, 76 Harv. L. Rev. 1569, 1584-85 (1963) [hereinafter cited as Gorman].

4. For a review of the case law, including the earliest opinions see Gorman 1584-89; Lurvey, "Verifying" from Prior Directories—"Fair Use" or Theft? Delicate Distinctions in the Protection of Copyrighted Compilations, 13 Bull. Copyright Soc'y 271, 272-80 (1966) [hereinafter cited as Lurvey].

5. The need for original investigation—crucial in map cases—is sometimes ignored with directories. Gorman, *supra* note 3, at 1584-85.

duced into directory production.⁶ Once raw data is fed into the computer data base and a "debugged" program is devised, the machine can rapidly produce the desired compilation.⁷ To be sure, some human participation is required for proper programming and for gathering and placing information into the machine's memory bank. However, the introduction of automation brings to the project a rate of speed, efficiency, and—quite likely—accuracy not possible through human effort alone.

One question suggested by this development is whether the advent of automation should change the copyrightability of directories or affect the depth of whatever monopoly is extended. It might appear, on one hand, that no change is appropriate. To some extent, the computer simply replaces the human employees who had performed necessary but tedious clerical functions for the copyright owner. That owner may previously have conceived, supervised and funded the compilation; he may continue to perform such roles once the computer is involved, with some qualitative changes.

On the other hand, the policy assumptions underlying current copyright law may not apply to the products of modern technology, for the introduction of new procedures generally heralds less a substitution than a departure. For example, with the development of photocopying, a researcher can painlessly take home a duplicate copy of all relevant materials. Xerography may be called a substitute for handcopying, but, in effect, attitudes and approaches to research have been altered substantially.⁸ Similarly, computer technology in time may alter the demand for and the utility of directories; factual information is likely to be moved along more effective conduits. Moreover, the protection afforded directories has always been thin: proof of infringement has required evidence of significant use.⁹ A major change in production—which computers clearly represent—may justify reducing a thin protection to no protection at all.

The problem presented is basically one of policy, not of statutory interpretation. The governing statute, in force since 1909, has often been

6. Not all operations have been given over to the computer. For example, a directory of IBM alumni is manually assembled by a former IBM executive, who sees no need for computer help. A hot-selling guide to IBM's alumni, *Business Week*, Mar. 18, 1972, at 22. Longer compilations—such as New York City telephone books—are computer assembled.

7. For a layman's introduction to computer operations see R. Arnold, H. Hill & A. Nichols, *Modern Data Processing* (1969); *Information* (A Scientific American Book) (1966); Project, *New Technology and the Law of Copyright: Reprography and Computers*, 15 U.C.L.A.L. Rev. 931, 975-78, 995-1001 (1968) [hereinafter cited as Project].

8. See *Williams & Wilkins Co. v. United States*, U.S. Ct. Cl. No. 73-68, summarized at 40 U.S.L.W. 2550 (Feb. 16, 1972) (opinion of Comm'r Davis). The copyright problems of photocopying are analyzed in Project, *supra* note 7, at 941-75.

9. The problem of infringement is discussed in Part IV *infra*.

adapted to reflect technological developments.¹⁰ Clearly, the term "directories" in section 5(a) can without strain include computer-produced works; if the computer, its programmer, or its owner can be an "author" under section 4,¹¹ the statute can be applied. Of more concern—and of more interest—are the judicially developed standards designed to complement the aims of the statute.¹² The requirement of originality,¹³ the idea/expression dichotomy,¹⁴ the tests for infringement—these doctrines reflect policy assumptions that might be affected by new methods of authorship; at least, these basic assumptions need to be reconsidered in the face of computer usage. In addition, the economic, monopolistic, and first amendment implications of copyright should be restudied in light of the prospects of modern technology.

Part II of this article explores the statutory requirement for authorship, with particular emphasis given to the criterion of originality. Part III analyzes limitations which have been placed upon copyright protection in order to avoid severe monopolization of words and ideas. Part IV considers the extent of copyright protection, centering on the factors underlying a determination of infringement. The primary aim of the article is to review these basic principles, and to assess the extent to which they are applicable to products of the new technology. Computer-produced directories will provide the focus for this review. The article concludes that the introduction of computer technology to directory production should not prevent a continuation of copyright protection for such works. The use of this technology, however, does require a modification of certain copyright doctrines as applied to directories.

II. THE REQUIREMENT OF AUTHORSHIP

A. *Originality Reconsidered*

In order to qualify for copyright protection, under both the Constitution and the Copyright Act, a work must satisfy the requirement of

10. See, e.g., *Fortnightly Corp. v. United Artists Television, Inc.*, 392 U.S. 310 (1968); *Williams & Wilkins Co. v. United States*, U.S. Ct. Cl. No. 73-68, summarized at 40 U.S.L.W. 2550 (Feb. 16, 1972) (opinion of Comm'r Davis). See also Project, *supra* note 7, at 1006-08; 25 Vand. L. Rev. 1093 (1972).

11. 17 U.S.C. § 4 (1970); see Part II(B) *infra*.

12. The basic policy considerations underlying the copyright statute are discussed, in relation to computerization, in Brown, *Property Rights under the New Technology*, in *Computers, Communications, and the Public Interest* 189, 190-92 (J. Greenberger ed. 1971) [hereinafter cited as Greenberger]. See also Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 Harv. L. Rev. 281, 284-323 (1970).

13. See Part II(A) *infra*.

14. See Part III(A)(1) & (2) *infra*.

originality.¹⁵ This requirement was developed by the courts¹⁶ to help define the term "author" which appears in both the copyright clause¹⁷ and section 4 of the statute. A work can meet this requirement if its origin can be traced to the author. There must be an independent creation, as opposed to a copying of a pre-existing work.¹⁸ Even if a new work is so similar to a pre-existing work that little new of value is added, the duplicating work—if it is not a plagiarism—may be copyrighted.¹⁹ Originality is thus distinct from the more demanding standard of novelty which is applied to patentable products.²⁰

While the basic notion of originality seems clear, courts applying the requirement to specific works appear to use two different tests or—perhaps more accurately—appear to be proceeding from two different perspectives.²¹ On one hand, a court may focus on the product to be copyrighted and may reach a decision about the "value"²² of the writing or creation. Or, a court may focus on the labor underlying the finished work and may estimate the value of the effort expended for the particular endeavor. Generally, the line between these tests is blurred,²³ and, indeed, the overlap is logical. A real contribution can be made if substantial labor is needed to produce a work or if the product, once completed, aids or

15. M. Nimmer, *Nimmer on Copyright* §§ 6, 10 (1972) [hereinafter cited as *Nimmer*].

16. *Burrow-Giles Lith. Co. v. Sarony*, 111 U.S. 53 (1884); *Puddu v. Buonamici Statutory, Inc.*, 450 F.2d 401, 402 (2d Cir. 1971).

17. U.S. Const. art. I, § 8, cl. 8.

18. *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, 191 F.2d 99 (2d Cir. 1951); *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49, (2d Cir. 1936), *aff'd*, 309 U.S. 390 (1940).

19. *Herbert Rosenthal Jewelry Corp. v. Kalpakian*, 446 F.2d 738 (9th Cir. 1971); *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49, 54 (2d Cir. 1936), *aff'd*, 309 U.S. 390 (1940).

20. *Imperial Homes Corp. v. Lamont*, 458 F.2d 895, 897 (5th Cir. 1972). But see *Lee v. Runge*, 404 U.S. 887 (1971) (Douglas, J., dissenting), denying cert. to 441 F.2d 579 (9th Cir. 1971). Justice Douglas suggested that the same prerequisites for an intellectual monopoly should obtain in the patent and copyright fields. This suggestion is criticized in *Nimmer*, A Comment on the Douglas Dissent in *Lee v. Runge*, 19 Bull. Copyright Soc'y 68 (1971).

21. Cf. *Lurvey*, *supra* note 4, at 286-87, where a distinction is made between an objective compiler—whose contribution is the rather mechanical task of compilation—and the subjective compiler, whose contribution includes an exercise of judgment. A court reviewing the work of a subjective compiler is likely to emphasize the value or usefulness of the compilation; a court reviewing the work of an objective compiler is likely to note the labor involved in the task of compilation. See also *Dworkin*, *Originality in the Law of Copyright*, 39 B.U.L. Rev. 526 (1959), reprinted in 11 ASCAP Copyright L. Symposium 60 (1962). But cf. *Nimmer*, *supra* note 15, § 41.

22. "Value," as used in this section, is not intended to connote a quantitative amount; rather it refers to a subjective determination of what the author has contributed.

23. In *Burrow-Giles Lith. Co. v. Sarony*, 111 U.S. 53 (1884), for example, the court defined originality both in terms of the finished photograph and in terms of the work or decisions preceding the finished picture.

entertains. In some works, both utility and effort are apparent; in other cases, one element of contribution prevails. Originality should involve both product value—perhaps to satisfy the need for minimal creativity—and some showing of effort, for the copyright monopoly is granted in order to encourage certain efforts. However, in trying to decide whether directories should continue to be copyrighted once the essential tasks of compilation are automated, it is helpful to force this distinction between the product and the labor contributed, and toward that end, to reconsider cases which rest primarily on one side of the dichotomy or the other.

1. The Product Value Test

While courts will look at each work and consider its inherent contribution in order to rule on originality, this test of the value of the product ordinarily is applied pro forma. Judges, who generally are trained in the law more fully than in the arts, are reluctant to rule on questions of achievement and aesthetics;²⁴ even with more mundane works, such as compilations, some reluctance persists.²⁵ Where copyright is denied—as in the case of maps prepared without independent exploration—the judgment generally relates to insufficient labor rather than to insubstantial achievement.²⁶ Indeed, the cases state rather specifically the limited nature of the requirement of product value. The often cited case of *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*²⁷ held:

All that is needed to satisfy both the Constitution and the statute is that the "author" contributed something more than a "merely trivial" variation, something recognizably "his own". . . . No matter how poor artistically the "author's" addition, it is enough if it be his own.²⁸

This minimization of the originality requirement was restated in the recent case of *Harcourt, Brace & World, Inc. v. Graphic Controls Corp.*²⁹ More interesting than the statement of this rule in *Harcourt, Brace* was the particular work given protection. The court held that printed answer sheets, designed for use in conjunction with student achievement examinations and for scoring by optical scanning machines, could be copyrighted. The court, noting that the area of originality was limited,

24. See *Bleistein v. Donaldson Lith. Co.*, 188 U.S. 239 (1903).

25. *Gorman*, supra note 3, at 1603.

26. See Part II(A)(2) infra. But see *Donald v. Zack Meyer's T.V. Sales & Serv.*, 426 F.2d 1027 (5th Cir. 1970), cert. denied, 400 U.S. 992 (1971), where the court ruled that the requisite originality was lacking in plaintiff's set of business forms which represented only a slight revision of preexisting forms.

27. 191 F.2d 99 (2d Cir. 1951).

28. *Id.* at 102-03 (citation omitted).

29. 329 F. Supp. 517 (S.D.N.Y. 1971). This case by implication supports copyright protection for computer programs.

nevertheless found that the designer had exercised discretion in placing the answer grids, in deciding which instructions to include and what information to solicit from the student, and in preparing a code to relate the answer grids to the exam questions.

While it may be contended that the area of copyrightable works should be expansive, with fine tuning being made in the determination of infringement,³⁰ *Harcourt, Brace* stretches originality quite far. The answer sheets had to be designed to meet the capabilities of the scoring machine, a restriction which placed limits on the size of the paper, the size and placement of the grids, and the instructions included. The examination question books affected the number of answer grids included, as well as the type of code devised to correlate questions to answer grids. Finally, the needs of the school systems ordering the forms suggested the information to be requested from the students. The limited area for originality with which the author began was thus further limited by the needs of the machine, the examination, and the purchasers. The contribution of the author did not seem to go beyond grid placement and type face selection. Arguably, the court could have denied copyright protection for the answer sheets on the ground that this contribution is little more than typographical ornamentation, for which a copyright is not granted.³¹

Backing away from these outer reaches, there should be little trouble in showing that a directory meets the product value test of originality. Still, there are two possible hurdles that should be considered. First, a court might look to the use made of the work to determine its value and conclude that copyright is inappropriate. For example, in *Surgical Supply Service, Inc. v. Adler*,³² Judge Van Dusen held that a combination trade catalogue, price list, and order blank form failed to qualify for copyright protection. While recognizing the general rule that compilations are copy-

30. Gorman, *supra* note 3, at 1603-05; Goldstein, *Copyright and the First Amendment*, 70 Colum. L. Rev. 983, 1027-28 (1970).

31. 37 C.F.R. § 202.1(a) (1972); see *Alberto-Culver Corp. v. Andrew Dumon, Inc.*, 466 F.2d 705, 711 (7th Cir. 1972); *M. M. Business Forms, Corp. v. Varco, Inc.*, 347 F. Supp. 419, 424 (S.D. Ohio 1972), *aff'd*, 472 F.2d 1137 (6th Cir. 1973). Another ground for denial may have been the "utilitarian function" doctrine of *Brown Instrument Co. v. Warner*, 161 F.2d 910 (D.C. Cir.), *cert. denied*, 332 U.S. 801 (1947), not fully distinguished by the *Harcourt* court. Under that doctrine, copyright has been denied to forms used only for machine print-out data. To give protection to the forms might extend protection of the machine—which treads on the province of patent. See also *Baker v. Selden*, 101 U.S. 99 (1879); *Taylor Instrument Co. v. Fawley-Brost Co.*, 139 F.2d 98 (7th Cir. 1943); 37 C.F.R. § 202.1(c), as amended 38 Fed. Reg. 3045 (1973). Some support for the *Harcourt* decision can be drawn from the analysis of copyright protection for computer programs in Note, *Copyright Protection for Computer Programs*, 64 Colum. L. Rev. 1274, 1283 (1964).

32. 206 F. Supp. 564 (E.D. Pa. 1962), *rev'd on other grounds*, 321 F.2d 536 (3d Cir. 1963).

rightable, the court found the product value to be insignificant: "Although it would appear very little originality is required to render this proposed price list the proper subject of copyright, a simple price list is not an original work in the 1950's or 1960's."³³ The price list was found to be of "no benefit to mankind" and to be not only "devoid of genius" but also lacking "any real creativity or literary merit." Rather, the list was a mere statement of articles and products. The holding in *Surgical Supply* suggests that the quantum of originality can change for particular works as societal conditions evolve. By 1962, a standard promotional item—a price list—was no longer sufficiently original; its only value was to promote sales,³⁴ not to promote human knowledge.

The thrust of the decision in *National Telegraph News Co. v. Western Union Telegraph Co.*³⁵—decided before the present statute was enacted—is similar. In this case, the court denied copyright protection to Western Union for the content of messages—primarily news items—sent over the "ticker" system. The value of these messages was a time value, that is, Western Union could transmit news before it became generally available. The court found that the work was a "product of opportunity" not a "product of originality."³⁶ A printed tape kept only one hour did not merit a monopoly; without drawing a clear line, the court impliedly defined the requisite product value in terms of the duration that a work would be used or kept.

A second obstacle to meeting the product value test concerns the quantity of words needed to qualify for copyright. In order to avoid freezing basic word combinations which are needed for free communication,³⁷ small phrases—unless particularly creative—cannot be protected. For example, even if defendant lyricist copied the phrase "night and noon" from plaintiff's song, there could be no infringement, for such a common phrase is not susceptible of copyright.³⁸ A precise quantitative floor is not placed for copyright protection; rather, the degree of creativity dis-

33. *Id.* at 569.

34. The court did not discuss the decision in *Bleistein v. Donaldson Lith. Co.*, 188 U.S. 239 (1903), which held copyrightable an advertising poster; *Surgical Supply* is not necessarily a contradiction, as the item and the year involved in the case—both different from those in *Bleistein*—led to the denial of copyright.

35. 119 F. 294 (7th Cir. 1902). The court, operating under an earlier statute, did not consider directly whether news is a proper subject matter for copyright. The court did provide a remedy under an unfair competition theory.

36. *Id.* at 298.

37. This problem is similar to the *Morrissey* doctrine, discussed in Part III(A)(2) *infra*, and the demands of the first amendment, discussed in Part III(B) *infra*. Similar considerations appear in the denial of copyright to titles. See *Nimmer*, *supra* note 15, § 34.

38. *O'Brien v. Chappel & Co.*, 159 F. Supp. 58 (S.D.N.Y. 1958); see B. Kaplan, *An Unhurried View of Copyright* 46 (1967) [hereinafter cited as Kaplan].

played in the word arrangement is weighed both against the number of words used and against the danger of freezing key phrases.³⁹

The introduction of computers to the preparation of directories should not generally affect whether the product value test can be met. By definition, under this test the court is looking to the end product rather than to the means of production. That the ordering or lay-out may be affected by the needs of the machine should cause little concern. The *Harcourt, Brace* court looked directly at the value of the product, apart from the demands of the machine that would receive the answer sheets. The *National Telegraph* court looked to the value of the messages, virtually ignoring the fact that the recently invented "ticker" machine had transmitted and printed the copy.

However, in certain cases, the two obstacles discussed—the absence of intrinsic value and the quantitative inadequacy of the authored phrase—may become more important. The acceleration of production made possible by computers may lead a court to decide that certain compilations, particularly street directories, are no longer entitled to copyright protection. Or if, as projected,⁴⁰ remote access terminals tied into large information data bases become widely available, the requisite contribution for copyrighting directories—which would perhaps only be the hard copy print-out from this same system⁴¹—should increase. For the directory print-out may be reduced to the function of the ticker tape in *National Telegraph* and be intended only for brief use. Similarly, as production is accelerated, the concept of an uncopyrightable small group of words might be revised upwards.⁴² Such revisions would most strongly affect the copyrightability of literary works—which the computer could also produce⁴³—where word arrangements are the essence of the copyrighted expression. With directories, the basic word units are facts, already in the public domain; it is the compilation of such facts—which often can be stated only one way and often are presented without the addition of other words—that is to be protected.

At present such problems remain speculative. The product value of the computer-produced directory should be measured according to the standard used for manually produced compilations. Given the specific con-

39. Nimmer, *supra* note 15, § 10.2.

40. Kemeny, *Large Time-Sharing Networks*, in Greenberger, *supra* note 12, at 1-12; Project, *supra* note 7, at 1024-26.

41. Query, under the present statute—or under the Revision Bill, S. 1361, 93d Cong., 1st Sess. (1973)—can the first person to have a compilation appear on a console screen get a copyright (if some computer record could be filed with the Register of Copyrights)?

42. The Morrissey doctrine, discussed in Part III(A)(2) *infra*, more fully explores the non-copyrightable status of certain word combinations.

43. Cybernetic Serendipity 53-62 (J. Reichardt ed. 1968) [hereinafter cited as Reichardt].

gressional intent to protect directories under section 5(a) and given the ability of a court to adjust the degree of protection afforded once a copyright is granted, the first element of originality—the product value—should continue to be a lenient requirement.

2. The Labor Value Test

The principle that originality involves a significant effort by the author is demonstrated most clearly by the map cases. In the important case of *Amsterdam v. Triangle Publications, Inc.*,⁴⁴ the Third Circuit Court of Appeals ruled that a cartographer, in order to secure a copyright, must add to his map original details ascertained through the “sweat of his own brow.” The test of originality is not met if the mapmaker simply combines or redesigns pre-existing maps. While this decision has been strongly criticized,⁴⁵ its doctrine still has vitality.⁴⁶ Moreover, *Amsterdam* brought to the surface a requirement that had been applied implicitly by other courts to different types of works.

For example, the leading case in the area of telephone directories contains this strain of “sweat of his own brow.” The court in *Leon v. Pacific Telephone & Telegraph Co.*⁴⁷ held valid the copyright of the San Francisco and East Bay telephone directories. In its opinion, the court described the money and labor expended in the preparation of these directories, concluding that the task was an “expensive, complicated, well-organized endeavor, requiring skill, ingenuity, and original research.”⁴⁸ Such activity, the court concluded, was entitled to copyright protection. An even clearer statement is found in *Jeweler's Circular Publishing Co. v. Keystone Publishing Co.*,⁴⁹ where the Second Circuit Court of Appeals stated: “The right to copyright a book upon which one has *expended labor* in its preparation does not depend upon . . . anything more than *industrious collection*. The man who *goes through the streets* of a town . . . acquires material of which he is the author.”⁵⁰ Because the directories in these cases had both utility and economic worth, the works might have been

44. 189 F.2d 104 (3d Cir. 1951).

45. Nimmer, *supra* note 15, § 18.32; Gorman, *supra* note 3, at 1572-75. Professor Gorman argues that the rule discourages redesigned or combined maps, which would be easier to use than were the pre-existing sources. The *Amsterdam* court reveals a different policy view, forcing cartographers to verify and find information through direct observation.

46. In *Donald v. Zack Meyer's T.V. Sales & Serv.*, 426 F.2d 1027, 1030 (5th Cir. 1970), cert. denied, 400 U.S. 992 (1971), the court relied on *Amsterdam* in holding that plaintiff's work lacked the requisite product value.

47. 91 F.2d 484 (9th Cir. 1937).

48. *Id.* at 486.

49. 281 F. 83 (2d Cir.), cert. denied, 259 U.S. 581 (1922); accord, *Consumers Union of the United States v. Hobart Mfg. Co.*, 189 F. Supp. 275, 278 (S.D.N.Y. 1960).

50. 281 F. at 88 (emphasis added).

protected primarily due to the product value. Nevertheless, the courts in justifying the copyrights directly emphasized the task of collection and the task of production.

It is certainly questionable whether this labor value test can be met once a computer is deployed to compile and print directories. Two subordinate questions must be faced, only one of which can be authoritatively answered. First, can a copyright be granted for a work produced primarily by a machine? Second, should the conception of requisite labor be altered to reflect the advance in technology?

The fact that a machine essentially produces a work should not bar copyright protection. In the landmark case of *Burrow-Giles Lithographic Co. v. Sarony*,⁵¹ the Supreme Court held that a photograph can be an original work of art and thus be entitled to copyright. Plaintiff's efforts in producing the picture included posing the subject, arranging the background, arranging the lighting, and preparing the print; an idea was given expressive details and was executed. More recently, in *Time Inc. v. Bernard Geis Associates*,⁵² similar efforts of preparation and on-location work justified copyright protection for a movie, even though the event recorded—which gave the film its critical importance—was not anticipated by the photographer. "Photographs," of course, were specifically included in the copyright statutes⁵³ controlling the decisions in these cases. By including that term, Congress undoubtedly appreciated that protection was being given for works produced jointly by man and machine. While directories were also specifically mentioned in section 5(a), "directories" were included in the Act before the advent of automation.⁵⁴ Nevertheless, use of a machine to produce a work otherwise protectable under the Act should not, by itself, preclude copyrightability, since machines were in use, at the time of the passage of the Act, to produce protectable works.

The question that remains is whether use of labor-saving machines for directories should bear on the copyrightability of this type of product. If the reasoning of the photography cases can be applied—and these cases do seem most closely analogous to computer-produced directory problems—then protection should continue to be provided for directories. In the task of preparing a directory, the human author is faced with decisions and labors comparable to those familiar to photographers. The basic structure of the directory must be conceived, a computer program developed, an information input procedure arranged, and a final format for the directory

51. 111 U.S. 53 (1884).

52. 293 F. Supp. 130 (S.D.N.Y. 1968).

53. See 17 U.S.C. § 5(j), (m) (1970).

54. Directories are also covered by the Revision Bill. See S. 1361, 93d Cong., 1st Sess. § 103 (1973).

designed. Some of the tedious tasks once performed by human labor have been automated; if a sufficient data base is available, even the collection of information may be automated. Still, there is room for the human contribution. There may be less "sweat of the brow" but there are at least compensating administrative headaches to be overcome.

3. The Tests of Originality: Conclusion

Directories should still satisfy the requirement of originality, even when computerization minimizes the clerical effort of the human author. The mechanics of preparation do not, as yet, alter the contribution of the compilation. While an author can be greatly aided by computerization, the human contribution can nevertheless satisfy the minimal requirement that the product be affected "by the personal influence of the author."⁵⁵ As automation evolves, the human effort may decline, as indeed may the value of directories. At that point, a different result could well be appropriate (although a decline in directory output is likely to precede this eventuality). For the present, the traditional reasons for acknowledging the originality of directories⁵⁶ should prevail, notwithstanding the assistance of computers in their production.

B. *The Computer as an "Author"*

The consideration of the ability of computer-produced directories to satisfy the requirement of originality assumed that computers can be "authors," under both the Constitution and the Act, or, at least, that use of computers should not make impossible a finding of authorship. This assumption merits some examination, although many of the observations to be made were necessarily raised in the discussion of originality.

There are really two situations to be considered. First, a computer may be used by a human author in order to accelerate his production or, perhaps, to prepare works that otherwise would not have been undertaken. In this situation, the computer ultimately prints out the work to be copyrighted, but this production is informed by human directions. Under present law, there should be little difficulty in finding "authorship." The Supreme Court has defined an "author" as "he to whom anything owes its origin;"⁵⁷ a similar definition has been given to the term as it appears

55. *Jewelers' Circular Publ. Co. v. Keystone Publ. Co.*, 274 F. 932, 934 (S.D.N.Y. 1921), *aff'd*, 281 F. 83 (2d Cir.), *cert. denied*, 259 U.S. 581 (1922). This standard was enunciated by Judge Learned Hand in the context of a photography case.

56. See Gorman, *supra* note 3, at 1585. For the effect of granting copyright liberally and making adjustments through definition of infringement, see note 85 *infra* and accompanying text.

57. *Burrow-Giles Lith. Co. v. Sarony*, 111 U.S. 53, 58 (1884) (citations omitted).

in the statute.⁵⁸ When a man uses a machine to simplify the tasks of production, that man should still be found responsible for the creation of the work. Reliance on time-saving equipment or even on equipment which permits new types of creations does not eliminate the minimal intellectual contribution which an author is expected to provide.⁵⁹ While there may be a change in the type of human contribution, human control of a machine or of a mechanical process does meet the test of authorship.⁶⁰ Indeed, changes in technology have occurred before the computer age, and the copyright statute has been applied—or is likely to be applied—to cover a variety of works involving recently developed production techniques.⁶¹

With directories, the authorship requirement should raise few problems when a computer is used to assist in production. Compilations generally have involved the labor of many people. The employer of those people is entitled to copyright protection for the product if the product was a work made for hire⁶²—that is, works for which an “employer possessed the right to direct and to supervise the manner in which the work was being performed.”⁶³ When the employer, in effect, replaces certain workers with a computer, there is little reason to deny him continued status as an “author.” His supervision and sponsorship of the project continue.⁶⁴

58. *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, 191 F.2d 99, 102-03 (2d Cir. 1951).

59. *Bleistein v. Donaldson Lith. Co.*, 188 U.S. 239 (1903).

60. Cf. *Alfred Bell & Co. v. Catalda Fine Arts, Inc.*, 191 F.2d 99 (2d Cir. 1951) (use of mezzotint engraving process); *Time Inc. v. Bernard Geis Associates*, 293 F. Supp. 130 (S.D.N.Y. 1968) (production of home movies). See also text accompanying notes 51-56 *supra*.

61. For a discussion of this problem, with particular reference to electronic music, see Savelson, *Electronic Music and the Copyright Law*, in 13 ASCAP Copyright L. Symposium 133 (1964) [hereinafter cited as Savelson]. As for directories, phone books—which for large cities are computer produced—continue to carry copyright notice.

62. 17 U.S.C. § 26 (1970).

63. *Scherr v. Universal Match Corp.*, 417 F.2d 497, 500 (2d Cir. 1969), cert. denied, 397 U.S. 936 (1970); accord, *Lin-Brook Builders Hardware v. Gertler*, 352 F.2d 298, 300 (9th Cir. 1965) (“[T]he presumption arises that the mutual intent of the parties is that the title to the copyright shall be in the person at whose instance and expense the work is done.”).

64. With the use of a computer, certain problems might arise as to the ownership of the “joint work.” That is, the person who directed the assembling of the data base, the computer programmer, and the employer who funded and perhaps supervised the particular work may all claim rights in the final work. Of course, if the employer hired the programmer and the data compilers—or if contractual agreements were entered into—the problem may be avoided under the “works for hire” rule. See note 63 *supra* and accompanying text. Absent such an arrangement, an interesting problem exists. Several people can be seen as contributing to a single work. In the case of the revision of a copyrighted directory, for example, there can be several copyrighted works—including the old directory and the computer program—being combined into the one new compilation. The cases in this area suggest that a joint work might be found. See *Shapiro, Bernstein & Co. v. Jerry Vogel Music Co.*, 221 F.2d 569, modified, 223 F.2d 252 (2d Cir. 1955); *Nimmer*, *supra* note 15, ch. 6; Savelson, *supra* note 61, at 150-51.

The second and more interesting situation to be considered concerns the requirement of authorship where the computer approaches the function of creating works. Projects have been completed in which computers have been fed information about a given art form and programmed to create works of that type.⁶⁵ While the final output depends in large part upon the initial input, devised by humans, the separation between human contribution and computer creation widens. Computers can be instructed to make random selections for the placement of objects in a drawing or for the selection of words in a poem. At a certain point, the machine is making those determinations normally associated with an author's creative contribution.⁶⁶ At that point, is there an author? And, if so, who is that author?

It should be possible to contend successfully that the human programmer nevertheless remains the author, eligible to copyright "his" work. In a recent motion picture case, for example, a copyright was allowed where the amateur photographer picked the camera angle, adjusted the settings, and recorded events—with no inkling of the events the camera would record and with no idea of creating a copyrightable work.⁶⁷ This decision effectively rewards a human author who had the good fortune to capture in his camera an historical event. By analogy, the person who operates a computer which eventually produces something of value should be able to claim authorship. Even when the computer does perform random creations, it requires a human to program the machine for such random selections;⁶⁸ in addition, a human must review the output, both to refine the program used and to decide which of the works, if any, should merit publication. The computer may be creating the work subsequently popularized, but, at least at the present time, the computer requires human assistance—if not direction—at both the input and output stages.

Moreover, copyright protection is granted to an author for his works in order to encourage the creation of writing.⁶⁹ In the case of works made for hire, authorship is imputed to the employer who directs production, partly to encourage such coordinated efforts of creation. The same policy

65. See generally Reichardt, *supra* note 43; Project, *supra* note 7, at 976-78. As a directory usually is designed to satisfy a specific reference need, the problem discussed at this point in the text is not fully applicable to directories.

66. See Milde, Can a Computer Be an "Author" or an "Inventor"?, 51 J. Pat. Off. Soc'y 378, 403-44 (1969) [hereinafter cited as Milde].

67. Time Inc. v. Bernard Geis Associates, 293 F. Supp. 130 (S.D.N.Y. 1968).

68. Savelson, *supra* note 61, at 149-50.

69. See Berlin v. E. C. Pubs., Inc., 329 F.2d 541, 543-44 (2d Cir.), cert. denied, 379 U.S. 822 (1964). See generally H.R. Rep. No. 2222, 60th Cong., 2d Sess. (1909), reprinted in Nimmer, *supra* note 15, app. I, at 959, 966-67. See also Title II of the Copyright Revision Bill which would create a "National Commission on New Technological Uses of Copyrighted Works" to study, *inter alia*, problems of copyright and computers. S. 1361, 93d Cong., 1st Sess. § 70 et. seq. (1973).

goal still has a place in the context of computerized creation: to impute authorship to the people responsible for the computer-produced works will serve to encourage the further production of such works and, even more, to encourage expenditures on computer experimentation.⁷⁰

III. LIMITS TO COPYRIGHT PROTECTION

Although directories—produced manually or mechanically—appear to qualify for copyright protection under the statute and under the basic tests of originality, that protection may be strictly delimited or even denied in order to avoid inhibiting, or in order to greatly encourage, the efforts of other authors. Three doctrines, while differing somewhat conceptually, are all directed at encouraging the flow of words and the exchange of ideas. Each of these doctrines—the idea/expression dichotomy, the *Morrissey* holding, and the reach of the first amendment—raise policy considerations that may militate against continued copyright protection for directories. The force of these arguments therefore must be analyzed in some detail.

A. *The Idea/Expression Dichotomy and the Morrissey Doctrine*

1. Ideas and Expression in a Directory

The idea/expression dichotomy may be succinctly stated: what copyright protects is the expression of an idea, not the idea itself. Anyone can pluck an idea from a copyrighted writing and incorporate that idea into another work entitled to copyright protection; so long as the taking is clean, and the sinews of expression do not cling to the idea, there is no violation.⁷¹ But while the doctrine may be easily stated, in application the dichotomy represents a most difficult abstraction.⁷²

The problem as it relates to literary works was clarified in a classic statement by Judge Learned Hand:

Upon any work, and especially upon a play, a great number of patterns of increasing generality will fit equally well, as more and more of the incident is left out. The last may perhaps be no more than the most general statement of what the play is about,

70. See Project, *supra* note 7, at 977. If, however, as a matter of policy it is decided not to encourage such efforts or not to give protection to computer-produced works, then that decision may be implemented by legislatively denying that computers can be "authors" and stating that an author can not use a computer. Rather than working through a judicial test of originality or some special test of infringement for computer-produced works, a statutory provision could accomplish the desired goal with the least disruption to established copyright doctrines.

71. See *Scott v. WKJG, Inc.*, 376 F.2d 467, 469 (7th Cir.), cert. denied, 389 U.S. 832 (1967); *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49, 54 (2d Cir. 1936), *aff'd*, 309 U.S. 390 (1940).

72. *Peter Pan Fabrics, Inc. v. Martin Weiner Corp.*, 274 F.2d 487, 489 (2d Cir. 1960).

and at times might consist only of its title; but there is a point in this series of abstractions where they are no longer protected, since otherwise the playwright could prevent the use of his "ideas," to which, apart from their expression, his property is never extended.⁷³

In developing this formulation, Judge Hand recognized that a play—like most literary works—adds incident, detail, and nuances to one or more basic themes. Others can explore those themes or ideas, but the embellishments and the verbal expression of the ideas are protected.

Directories, of course, are quite different from literary works. The amount of elaboration, creativity, and artistry demonstrated by a compiler is limited. Generally, there is but one essential idea involved—for example, a compilation of names accompanied by addresses and phone numbers, or a dossier containing employment, education, and credit records. Once this single idea is perceived, the author executes it; in this execution, there are but few variations that can be made without altering the idea. The scope of expression is quite narrow.

Curiously, the idea/expression dichotomy has often been ignored by courts in directory cases. In *Leon v. Pacific Telephone & Telegraph Co.*,⁷⁴ for example, the court held that an alphabetically organized phone book for the San Francisco area was infringed by a numerically organized directory for the same area. The court did not identify idea and expression; rather, defendant's use of a copyrighted work—to make a competing directory which the plaintiff itself may eventually have prepared—was considered unfair. It is possible to view plaintiff's idea as the combination of names, addresses, and phone numbers for one city and his expression as an alphabetical arrangement.⁷⁵ To some degree, this complements Judge Hand's "abstraction test" for literary works. In a play, for example, the stock characters and basic themes selected comprise the idea, but more detailed plot arrangements fall into expression.⁷⁶ Under this analysis, no infringement should have been found in *Leon*. The defendant may have taken the idea—that is, the choice of which public domain facts to collect—but a different arrangement, a different expression was used. Perhaps the defendant should have been held for misappropriation;⁷⁷ still, a copyright infringement did not lie.

Furthermore, if the plaintiff's idea is seen as the alphabetical combina-

73. *Nichols v. Universal Pictures Corp.*, 45 F.2d 119, 121 (2d Cir. 1930).

74. 91 F.2d 484 (9th Cir. 1937).

75. *Id.* at 485. Arguably, the choice of cities and towns to be included may be an aspect of expression; however, in the *Leon* case the infringing work was aimed at the same area.

76. With a directory, often little more is added once this expression—assumed to be the arrangement—is contributed. On the other hand, the words chosen by a playwright to clothe the idea and the plot are generally seen as the artistic creation.

77. Cf. Gorman, *supra* note 3, at 1571.

tion of names, phone numbers, and addresses for a certain locality, it is clear that even the idea used by the defendant was distinct in that the second work was a numerical directory.⁷⁸ In this situation it is most difficult to define the nature of the author's expression, since an alphabetical listing of specified facts can seemingly be expressed in few ways. As typography is not susceptible of copyright,⁷⁹ typographical flourishes should not comprise the expression—for expression is the copyrightable part of a work. Lay-out and graphic arrangements, although seemingly akin to typography, may be protected. In the *Harcourt, Brace* case,⁸⁰ for example, the author's contribution which justified copyright protection appeared to be little more than placement of grids on an answer sheet and inclusion of lines to elicit certain information. An attractive arrangement of compiled facts, designed also to provide maximum utility, might therefore be deemed to constitute expression.⁸¹ Under this view, if a compiler with the idea for an alphabetical directory had used plaintiff's book as a source of data, but then used a different graphic format, no infringement should follow. Under present law,⁸² however, infringement would lie. The offense in *Leon* was unfair use of plaintiff's directory or, more precisely, of plaintiff's labors. The court was concerned primarily with a type of unfair competition, and, ignoring the idea/expression dichotomy, rather automatically afforded copyright protection.

Perhaps the rule for a directory—as presently applied by the courts—might be more accurately called an “idea/execution” distinction, for expression in a directory impliedly is deemed to rest on the accurate gathering of facts and on the placement of each fact in the proper position vis-à-vis other facts. Given the limited variations that are possible once the plan for ordering the facts is set, the essential author-like contribution mentioned by the courts is one of effort, not of expression.⁸³ Within this framework, others can take the idea for the directory and independently execute the idea, even if the finished products are identical. This approach comports with the nature of directories; as collections of public-domain facts—and facts needed by society—these works

78. See Nimmer, *supra* note 15, § 41.

79. See note 31 *supra*.

80. 329 F. Supp. 517 (S.D.N.Y. 1971); see note 29 *supra* and accompanying text.

81. See Gorman, *supra* note 3, at 1584-89. *Contra*, *PIC Design Corp. v. Sterling Precision Corp.*, 231 F. Supp. 106, 111 (S.D.N.Y. 1964) (visual impact of trade catalogues could not be protected by copyright in situation where format could not be greatly varied and still serve business needs).

82. See Part IV(A) *infra*.

83. The type of directory being considered is the simple collection of facts. See note 2 *supra*. Broader protection—and a broader boundary of expression—may be appropriate where the compiler is more selective in the choice of information included than is seen in a phone directory. Cf. Lurvey, *supra* note 4, at 287-89.

cannot be granted broad monopolies which might hamper the flow of vital information.⁸⁴

This emphasis on effort or independent execution by an author approximates one standard test for infringement, discussed further in Part IV below. The idea/expression distinction is related in a practical way to infringement in that an author's expression must have been copied for infringement to lie. The distinction, however, was not designed primarily as a test for the adjudication of infringement. Conceptually, there is a difference between the idea/expression dichotomy, which centers on a concern over improper monopolies on ideas, and infringement, which more directly focuses on competitive losses. And, in the interest of orderly analysis, the isolation of ideas from expression should precede a finding of infringement; this leads to a determination first of what copyrights actually protect before the issue of injury is faced.⁸⁵ Therefore, it is worthwhile to pursue more carefully the application of the idea/expression dichotomy to directories.

2. The *Morrissey* Doctrine

In examining the effect of the idea/expression problem, it is necessary to confront the doctrine of *Morrissey v. Procter & Gamble Co.*⁸⁶ and its elaboration in *Herbert Rosenthal Jewelry Corp. v. Kalpakian*.⁸⁷ In *Morrissey*, the First Circuit Court of Appeals held that where an idea can be expressed in only a very limited number of ways—so that extension of copyright protection to an expression of the idea could effectively create a monopoly in the idea itself—copyright should be denied for any and all of the few possible expressions. This case involved rules for a sales promotional contest, in which prizes would be awarded according to social security numbers. Defendants ran a contest similar to the one planned by the plaintiff and, in effect, tracked the wording

84. See Note, Copyright Protection for Computer Programs, 64 Colum. L. Rev. 1274, 1286-87 (1964).

85. Professor Kaplan, *supra* note 38, at 63, observes that copyright notice does not report the thinness of the right, and the presence of a formal notice might impede others from venturing in the area—even if the likelihood of infringement is, in fact, small. Granting copyright too easily—placing the emphasis of copyright law on infringement determinations—risks such discouragement and also risks unjustifiably large verdicts when a marginal copyright goes to the jury. It should be remembered that a registration certificate is *prima facie* evidence of a valid copyright; thus, if the Register, acting under a liberal rule of copyrightability, accepts a work, the burden to prove the invalidity of the copyright shifts to the defendant. 17 U.S.C. § 209 (1970); see *Covington Fabrics Corp. v. Artel Prods, Inc.*, 328 F. Supp. 202, 204 (S.D.N.Y. 1971).

86. 379 F.2d 675 (1st Cir. 1967); see *Nimmer*, *supra* note 15, § 143.11; 67 Mich. L. Rev. 167 (1968).

87. 446 F.2d 738 (9th Cir. 1971).

of plaintiff's rule (although access to plaintiff's work was an issue in the case). While the *expression* of the idea for the game normally would be copyrightable, the court concluded that this idea could permit "if not only one form of expression, at best only a limited number."⁸⁸ Therefore, the wording of the rule was not protected lest the idea be monopolized.

In *Kalpakian*, the Court of Appeals for the Ninth Circuit picked up the *Morrissey* doctrine and apparently marched forward. The facts of the case are particularly relevant to the directory problem, for there was only one basic idea behind the work involved (without the added layers of abstractions seen in literary works). Plaintiff jeweler designed a jeweled bee pin; defendant, probably aware of plaintiff's popular model, designed several bee pins. While the pins varied in size—as did the individual jewels arranged to form each bee—plaintiff argued an infringement occurred if an ordinary observer could confuse the pins of the parties. Although the court's decision reveals a desire to prevent using copyright as a substitute for patent⁸⁹—which desire may have affected the decision—the holding does rest on the *Morrissey* doctrine. Finding that the idea and expression for a bee pin are inseparable—for only one arrangement of jewels was considered able to represent a bee—the court concluded that no protection could be extended; to grant a monopoly to plaintiff's expression would be to grant a monopoly over the idea.

In one sense, *Kalpakian* did not go so far as *Morrissey*. In the latter case several expressions—albeit a very limited number—were admittedly possible; the *Kalpakian* court, however, emphasized that testimony indicated only one expression was possible. Nevertheless, the approach in *Kalpakian* has far-reaching implications: the court gave the expression of the bee a narrow interpretation and the idea a very broad view. That is, only the arrangement of jewels was seen as the expression; the idea was seen as a jewel-encrusted bee. It is the court's delineation of the idea and the expression which determines the application.⁹⁰

88. 379 F.2d at 678.

89. The denial of copyright is sometimes explained as necessary to preserve the realm of patent laws. See note 31 *supra*.

90. By viewing the idea in very general terms—for example, a combination of jewels to represent an animal—it is possible to find protectable expression. In *Roth Greeting Cards v. United Card Co.*, 429 F.2d 1106 (9th Cir. 1970), the court held that although the words used in a greeting card were in the public domain, the integration of common words into the card produced a copyrightable work: "[P]roper analysis of the problem requires that all elements of each card, including text, arrangement of text, art work, and association between art work and text, be considered as a whole." *Id.* at 1109; cf. Goldstein, *supra* note 30, at 1018; Note, Copyright Protection for Computer Programs, 64 *Colum. L. Rev.* 1274, 1286 (1964).

The *Kalpajian* court did compare the various pins, but decided only that "[t]here is no greater similarity between the pins . . . than is inevitable from the use of jewel-encrusted bee forms in both."⁹¹ Still, differences can be imagined which would alter the value of and the demand for the pins—and such differences might suggest a need to more broadly describe the expression. It would seem that the color of the jewels, the size of the pin, the type of metal holding the jewels, the type of clasp supporting the pin, the type of jewels and, of course, the arrangement of the jewels could all be considered possible elements of expression. Perhaps the evidence in this case did not suggest such variations were commercially feasible. Still, variations should be sought out before the copyright prohibition of *Morrissey* is applied.

3. Directories, Computers and the *Morrissey* Doctrine

The *Morrissey* doctrine—that copyright should be denied where an idea allows but a finite number of expressions—has been accepted to date by only two circuits.⁹² But if generally accepted, the implications of this case for protection of directories seem clear; indeed, the *Morrissey* court in discussing the problems of limited expression cited a directory case.⁹³ Unless lay-out, pagination, symbols, or design provide the basis for expression,⁹⁴ the idea of compiling certain known facts can only be executed in a small number of ways. If in applying traditional copyright law, courts made an exception for directories,⁹⁵ then

91. 446 F.2d at 742.

92. Although only the First and Ninth Circuits have used this approach, the doctrine was implicitly accepted by the Southern District of New York. See *Higgins v. Baker*, 309 F. Supp. 635 (S.D.N.Y. 1970); *Time Inc. v. Bernard Geis Associates*, 293 F. Supp. 130 (S.D.N.Y. 1968). Compare *Continental Cas. Co. v. Beardsley*, 253 F.2d 702 (2d Cir. 1958), with *Morrissey v. Procter & Gamble Co.*, 379 F.2d 675 (1st Cir. 1967).

93. 379 F.2d at 678, citing *Sampson & Murdock Co. v. Seaver-Radford Co.*, 140 F. 539 (1st Cir. 1905).

94. But see *Amsterdam v. Triangle Publ., Inc.*, 189 F.2d 104 (3d Cir. 1951) (with maps, such features did not satisfy the originality requirement); *PIC Design Corp. v. Sterling Precision Corp.*, 231 F. Supp. 106 (S.D.N.Y. 1964) (visual presentation not copyrightable, in situation where format could not be greatly varied due to needs of business).

95. Professor Gorman, *supra* note 3, at 1584-89, very persuasively argues that courts should apply the copyright law with a sensitivity for the type of work involved. Under his analysis, there is a public interest in encouraging directories which are more useful and more attractive—and also in encouraging independent verification of these compilations. Thus, protection should be extended to each compiler who improves existing directories, with the proviso that some independent checking—perhaps some investigation as well—is likely needed to escape infringement. But Professor Gorman's emphasis for preventing improper monopolies is on the test of infringement, that is, the type of verification needed. Given the decisions in *Morrissey* and *Kalpajian* and given the implications of computer production, it would appear necessary to delineate more clearly the extent of the copyright in directory

the task of verification or the task of compilation might merit protection for such works. But if the *Morrissey* doctrine is to apply consistently to all types of writing, certain directories—those that can be presented in but limited ways—might be stripped of protection.

With respect to the *Leon* telephone directory situation—previously discussed in terms of the idea/expression distinction—the effect of *Morrissey* should be observed. The doctrine should not bar a copyright if the idea behind a specific compilation of facts can be presented in a significant variety of ways. If the idea is defined as an *alphabetical* listing of names, addresses, and phone numbers, that idea can be expressed many ways⁹⁶ *only if* the type of visual features mentioned above⁹⁷ are included as part of the expression. Implicitly *Kalpajian* rejected this. Yet, since the area of designs, which includes costume jewelry, presents special problems concerning patent implications, *Kalpajian* may be distinguished from a directory situation.⁹⁸ However, no copyright should be allowed for a compilation if visual arrangements are excluded from expression and if the mode of ordering is given as an aspect of the idea.

If the idea of a phone directory is assumed to be a compilation of names, addresses, and numbers (which would appear to be the most logical assumption) many more expressions are possible. Beyond the visual impact, a compiler can plan the arrangement of facts. Alphabetical order of names, geographical zones or addresses, or numerical sequences of phone numbers are at least three possibilities, and others might easily be imagined. Given this assumption, *Morrissey* might not bar a copyright, particularly if graphic changes alter the expression; there is latitude for others to use the idea. Indeed, there may be encouragement for others to prepare inverted editions of the original compilation. If

cases. Infringement looks to the fairness of defendant's conduct and, in the directory area, to the amount of verification by the defendant. See Lurvey, *supra* note 4. The idea/expression distinction more clearly examines the desirability of the initial copyright. Perhaps the approaches operate, in effect, identically, by restricting the protection afforded fact compilations. Still, there is a conceptual difference which directs attention to distinct policy concerns. See note 85 *supra* and accompanying text; Part IV *infra*. A fuller description of the expression can suggest a different test for infringement. See 67 Mich. L. Rev. 167, 170 (1968).

96. Whether an idea allows many expressions is a question of fact. *Higgins v. Baker*, 309 F. Supp. 635, 638 (S.D.N.Y. 1970) (analysis of psychiatric theories might be expressed in limited ways). The limited expression available to a subsequent fact compiler was recognized in *W. H. Anderson Co. v. Baldwin Law Publ. Co.*, 27 F.2d 82, 89 (6th Cir. 1928).

97. See text accompanying notes 78-82 *supra*.

98. But see *PIC Design Corp. v. Sterling Precision Corp.*, 231 F. Supp. 106 (S.D.N.Y. 1964). *PIC Design* might be distinguished, as the district court found that the trade catalogues could not be altered in visual presentation. Most directories can be varied in size, design, and layout; these factors may be classified as expression.

a second compiler treads on the expression, there would be an infringement; if the subsequent work revealed a distinct expression, there would be no copyright violation. Spinning off directories by exploiting the labors of the initial compiler, however, might give rise to a state action for misappropriation,⁹⁹ unless this area has been pre-empted by federal law.

The appropriateness of granting protection for the mode of ordering facts becomes less clear when the use of computers is considered. The resources and labor of the copyright proprietor in *Leon* were expended on an alphabetical directory, which can be viewed as one expression of the idea of gathering names, addresses, and numbers; the use of numerical ordering was an obvious alternative, but the plaintiff did not invest the effort to produce such a work. Had computer technology been available, alternative directories could have been produced easily. The creation of the first directory presumes that the necessary information had been gathered. If that information had been stored in a computer data bank, a simple program could have instructed the machine to reorder the information. In other words, with the aid of computers, the first person to gather the necessary information—and with expanding data banks, the step of gathering facts may soon become unnecessary—can produce all expressions of the idea, assuming that the plan of ordering is the expression. If each variation is copyrighted, the idea becomes controlled, save to the extent that visual variations are viewed as expressions permitting alternative works.¹⁰⁰ (Of course, independent pro-

99. Reliance on misappropriation runs strong into the holdings in *Compco Corp. v. Day-Brite Lighting, Inc.*, 376 U.S. 234 (1964), and *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225 (1964). See also *Columbia Broadcasting Sys., Inc. v. DeCosta*, 377 F.2d 315 (1st Cir.), cert. denied, 389 U.S. 1007 (1967); 2 R. Callmann, *The Law of Unfair Competition, Trademarks and Monopolies* § 60.4 (3d ed. 1968). Even if it is assumed that these cases—by holding that the federal patent system pre-empts the field of monopolies for inventions falling under the reach of the patent clause, art. I, § 8, cl. 8—apply to misappropriation of a non-copyrightable or of a thinly protected writing, it should be possible for Congress to preserve the action of misappropriation. *Sears* and *Compco* are addressed to the “evil” of state laws which hamper the uniformity of federal law; misappropriation of intellectual property can be added to that federal law (or even delegated by Congress to the states). These two cases seem to bear more clearly on state common law copyright. Rather than preserve such protection, the Revision Bill would broaden the federal pre-emption. See S. 1361, 93d Cong., 1st Sess. § 301 (1973). An action based on misappropriation should prove less of an inhibition to compilers who in good faith use an existing directory than is copyright infringement. Only when there is a commercial abuse would the tort doctrine be invoked. See generally Callmann, *supra*, §§ 60-62; W. Prosser, *Torts* § 130 (4th ed. 1971). Some further definition in this area should follow the decision of the Supreme Court in *Goldstein v. California*, cert. granted, 406 U.S. 956 (1972).

100. Some support for considering visual alterations an expression may be wrung from *Time Inc. v. Bernard Geis Associates*, 293 F. Supp. 130 (S.D.N.Y. 1968). The court in this

duction of one of the expressions would not be a copyright infringement in any event; in that sense, the control would never be complete.)¹⁰¹

The effect of the computer, therefore, is to equate the two formulations of expression suggested for the *Leon* situation; that is, variations in both visual presentation and manner of ordering, as opposed to visual variations alone. While the *Harcourt, Brace* approach¹⁰² of broad copyrightability would cover even the visual contributions as an expression, the *Kalpakian* analysis¹⁰³ should lead to a contrary result. The resolution of this issue may determine whether, with computer-produced directories, the idea can be easily monopolized if protection is given to an arrangement of facts. Even if visual impact is an expression, reliance on features tangentially related to the value of the directory¹⁰⁴ makes for a thin copyright, at best; infringement begins to require a total replication.

B. *Implications of the First Amendment*

The idea/expression dichotomy and the *Morrissey* doctrine, operating to advance the aims of the copyright clause and of the statute enacted under it, represent one type of anti-monopoly force limiting the protection afforded authors: only expression will be copyrighted and, then, only if ideas are not frozen. A similar force, recently receiving attention

case held the *Morrissey* doctrine inapplicable where copyright protection for films of the assassination of President Kennedy would not prevent discussion of the event in other media. A shift in the visual impact might approximate a change in the media.

101. The problem is also apparent with literary works. Although more variations on a theme are conceivable, see Goldstein, *supra* note 30, at 1018 n.136, the computer can be programmed to churn out a continuous stream of random variations. Many will not make literary sense; some might achieve commercial acclaim. Yet, the concern is that the machine can produce those expressions that do have literary merit, and, by printing out all such expressions, can freeze an idea. For a description of one computer project in this area, see Reichardt, *supra* note 43, at 58. Still, as the text above states, copyright prevents only copying of an expression, not use of an idea. Should an author working independently be able to create the same expression as did the computer, no infringement would lie. This is suggested by Judge Hand's famous "Ode" analysis in *Sheldon v. Metro-Goldwyn Pictures Corp.*, 81 F.2d 49 (2d Cir.), cert. denied, 298 U.S. 669 (1936). "[I]f by some magic a man who had never known it were to compose anew Keats's Ode on a Grecian Urn, he would be an 'author,' and, if he copyrighted it, others might not copy that poem, though they might of course copy Keats's." *Id.* at 54. That the computer can turn out so many variations may at once raise the spectre of freezing an idea but also the likelihood that the volume of literary expression will increase, thereby reducing the chance that an author may have seen all expressions relating to any given idea. Independent creations of future Odes on a Grecian Urn should become more likely, by human and computer authors alike.

102. See text accompanying notes 29-31 *supra*.

103. See Part III(A)(2) *supra*.

104. But cf. Gorman, *supra* note 3, at 1584-89.

from courts¹⁰⁵ and commentators,¹⁰⁶ is the enforcement of the first amendment in the area of copyright. To date, no case has held that the amendment bears on literary monopoly. But if the first amendment were to be energetically applied to copyright problems, the impact would be particularly strong in the area of fact compilations.

The first amendment could operate to block copyright protection in situations not governed by *Morrissey*. This is suggested by the facts of *Time Inc. v. Bernard Geis Associates*.¹⁰⁷ There, a Dallas resident planned to take home movies of a presidential motorcade, but ended up having produced the most complete photographic description of President Kennedy's assassination. Time Inc. bought the copyright in these films and, having printed sequences of particular frames in *Life Magazine*, sought to prevent use of these pictures, as well as of graphic drawings based on the pictures, in a book by a different publisher. The court held that *Morrissey* did not block copyright for the photographs, for the event depicted—seen as the idea—could be expressed in other ways; that is, any author not relying on these films could describe the event without inhibition.¹⁰⁸ While the court, in denying relief, rested on fair use, the first amendment might have been applied to these facts.¹⁰⁹ Noting that the impact of photographs was stronger than that of verbal reports and that no other photographs recorded the event, the court could have held widespread replication of the pictures was necessary for a democratic dialogue; even though this would involve the use of

105. *Lee v. Runge*, 404 U.S. 887 (1971) (Douglas, J., dissenting), denying cert. to 441 F.2d 579 (9th Cir. 1970); *Rosemont Enterprises, Inc. v. Random House, Inc.*, 366 F.2d 303, 311 (2d Cir. 1966) (Lumbard, C.J., concurring), cert. denied, 385 U.S. 1009 (1967); *Walt Disney Prods. v. Air Pirates*, 345 F. Supp. 108, 115-16 (N.D. Cal. 1972). Chief Judge Lumbard would appear to be the first judge to raise the possibility of a first amendment application to copyright. But see Nimmer, A Comment on the Douglas Dissent in *Lee v. Runge*, 19 Bull. Copyright Soc'y 68, 72 (1971). For a report of an unsuccessful attempt to apply the free exercise of religion clause to copyright problems, see *Robert Stigwood Group, Ltd. v. O'Reilly*, 346 F. Supp. 376, 382-84 (D. Conn. 1972).

106. Goldstein, *supra* note 30. See generally Nimmer, Does Copyright Abridge the First Amendment Guarantees of Free Speech and Press?, 17 U.C.L.A.L. Rev. 1180 (1970); Sobel Copyright and the First Amendment: A Gathering Storm?, 19 ASCAP Copyright L. Symposium 43 (1971) [hereinafter cited as Sobel].

107. 293 F. Supp. 130 (S.D.N.Y. 1968).

108. In the same way paraphrasing can infringe a literary work, reliance on the photos to prepare sketches can be infringement. *Id.* at 144. However, the court in *Time Inc.* did not fully answer the argument that photographs in some cases may be the only real way to describe an idea. That is, if the idea is defined as more than the mere event—but includes, e.g., reactions of onlookers and appearance of participants—then perhaps *Morrissey* should apply. Cf. Nimmer, *supra* note 106, at 1197 (photographs of alleged massacre at My Lai are needed for democratic dialogue).

109. Nimmer, *supra* note 106, at 1201.

plaintiff's expression, such use, by providing information otherwise unavailable, is required by the policies of the first amendment.¹¹⁰ This analysis would suggest a copyright should be limited¹¹¹ if extensive protection of expression inhibits the flow of facts and ideas necessary for public debate.

A more striking illustration of when the first amendment might impose new constraints on copyright is provided by *Rosemont Enterprises, Inc. v. Random House, Inc.*¹¹² There, a corporation effectively controlled by Howard Hughes purchased copyrights on five articles about him and subsequently, by alleging infringement, tried to enjoin publication of an unauthorized biography of Hughes. The court denied a preliminary injunction, primarily because plaintiff did not demonstrate probable success on the merits; the biography likely constituted fair use of the articles rather than an infringement of them. A concurring opinion by Chief Judge Lumbard,¹¹³ however, perceived the first amendment issue: if a person could amass copyrights on articles describing the same theme, a monopoly over the theme might be gained. Whereas the *Morrissey* doctrine denies a copyright to any *single* expression which can freeze an idea, the facts of *Rosemont* reveal that a *collection* of expressions each individually copyrightable under *Morrissey* may achieve excessive control over an idea. Such control could interfere with the public's right to know about an event or person and, consequently, such control should fall under the proscriptions of the first amendment.¹¹⁴

The *Rosemont* plaintiff clearly demonstrated how copyright law could be used to impose a prior restraint on speech and to control the release of information. Had the court permitted this use of the aggregate of copyrights, Hughes could have blocked public discussion about himself; such a restriction on free speech—especially if imposed before the speech occurs through an injunctive prior restraint—is prohibited, save in ex-

110. For a discussion of these policies, see authorities cited in note 106 supra.

111. Nimmer, supra note 106, at 1199, argues for compulsory licensing of news photos, rather than for an absolute denial of protection. See *Williams & Wilkins Co. v. United States*, U.S. Ct. Cl. No. 73-68, summarized at 40 U.S.L.W. 2550 (Feb. 16, 1972) (opinion of Comm'r Davis) (information flow not impeded where payment, rather than injunction, is sought in photocopying situation).

112. 366 F.2d 303 (2d Cir. 1966). See the helpful discussion of this case in Goldstein, supra note 30, at 984-86; Sobel, supra note 106, at 54-59.

113. 366 F.2d at 309.

114. Cf. *Rosenbloom v. Metromedia, Inc.*, 403 U.S. 29, 40-44 (1971), noted in 40 *Fordham L. Rev.* 651 (1972); *Time Inc. v. Hill*, 385 U.S. 374, 381 (1967); *New York Times Co. v. Sullivan*, 376 U.S. 254, 269-70 (1964). See also Nimmer, *The Right to Speak from Times to Time: First Amendment Theory Applied to Libel and Misapplied to Privacy*, 56 *Calif. L. Rev.* 935, 958-67 (1968).

treme situations.¹¹⁵ Similarly, with broad copyright protection, Hughes could have monitored the release of information about himself; from among the copyrighted works, he could have determined which to republish and when this would be done.¹¹⁶

The implications of the *Rosemont* case and, to a lesser degree, of *Bernard Geis* may have some bearing on the protection which should be given to computer-produced directories. To be sure, the necessity, if any, of resorting to the first amendment in order to circumscribe the copyright protection given to a particular compilation would depend largely upon the degree of protection previously afforded to that work. This is illustrated by the case of the telephone directory, discussed in the previous sections.¹¹⁷ Should the idea for the directory be defined as an alphabetical listing of names, accompanied by phone numbers and addresses, then only the visual impact remains as protected expression. With such a thin monopoly, there is little interference with free communication, so that the amendment should not be invoked. If the idea is seen as a collection of names, numbers, and addresses, then each plan of ordering—such as alphabetical or numerical—becomes part of the protectable expression. Should a computer produce directories employing all feasible plans of ordering and should each expression be put forth for copyright, use of the idea may be hampered. However, this prospect should spring the *Morrissey* defense;¹¹⁸ without recourse to the first amendment, the idea may still be kept unmonopolized.

Therefore, the common variety phone book apparently would seem to trigger few first amendment controls. The depth of the protection placed on such works is shallow, and, consequently, the use of these directories by others is only slightly impeded. Indeed, save for cases of commercially competing directories prepared in such a way as to suggest misappropriation, there are few suits for infringement. Clearly, the facts collected in these simple works can be appropriated for public debate;¹¹⁹ free speech is in no way restricted. But are there other situa-

115. Cf. *New York Times v. United States*, 403 U.S. 713 (1971); *Freedman v. Maryland*, 380 U.S. 51 (1965). But cf. Sobel, *supra* note 106, at 79-80.

116. Goldstein, *supra* note 30, at 986, describes this as the evil of "enterprise monopoly"—where one entity has an aggregate of statutory copyrights for works on the same subject.

117. See Parts II and III(A) *supra*.

118. See Part III(A)(2) *supra*.

119. See Nimmer, *supra* note 15, § 29.1. Preparation of the phone book does not require subjective judgment in the selection of facts. Where subjective judgment is involved, use of the facts, except as leads, may raise an infringement. *Id.* § 29.5. But cf. Lurvey, *supra* note 4, at 289.

tions in which the first amendment might impose new barriers to copyright for a single compiler?

Other types of compilations may present first amendment issues. Consider, for example, the situation in *Triangle Publications, Inc. v. New England Newspaper Publishing Co.*¹²⁰ Plaintiffs' publication included various charts, each of which contained specific facts about completed horse races. While plaintiffs had exercised skill, judgment, and coordination of labor in order to produce these copyrightable syntheses, the individual items of data contained in the charts were in the public domain. Still, defendants were held to have infringed when they used these facts; even though defendants had altered the wording somewhat, they had tracked the selection and arrangement for the facts devised by plaintiffs. Thus, the court gave some private control over facts supposedly in the public domain.

Perhaps racing data is not basic to the democratic dialogue, which free speech is to foster.¹²¹ Nevertheless, the *Triangle Publications* case does show that a court may protect historical facts once special efforts are made to assemble the information. If the facts involved clearly appear relevant to public concerns, then inhibiting the use of those facts may constitute a violation of the first amendment.

With computer technology, compilations can be prepared which gather and correlate a broad range of social and economic data.¹²² Recently, for example, *The New York Times* published tables and maps depicting the rate of particular crimes in each police precinct in New York City.¹²³ With the aid of these figures, certain assumptions about police administration, street safety, and community control can be properly reevaluated. To what extent can this important data be restricted? It is certain that anyone who independently compiles this data, without leaning on *The Times*, may use their own findings without any limitation.¹²⁴ On the other hand, reliance on the labors of others—especially if the selection and arrangement of facts required great effort and significant

120. 46 F. Supp. 198 (D. Mass. 1942).

121. Professor Kaplan, *supra* note 38, at 61, suggests that the insignificant news value of race results may have influenced the theory used by the court. But query, whether government supervised off-track betting, see, e.g., N.Y. Unconsol. Laws §§ 8081-8104 (McKinney Supp. 1972), has altered this? Quite possibly, facts about track attendance and winning purses are needed as the government debates how the "handle" should be divided.

122. See, e.g., Raduchel, Regression Analysis Program for Economists, Harv. Inst. Econ. Research, Tech. Paper No. 7 (Nov. 1970).

123. Feb. 15, 1972, at 1, col. 2; Feb. 14, 1972, at 1, col. 1.

124. See note 101 *supra* and accompanying text.

judgment—has been held to constitute an infringement¹²⁵ or misappropriation.¹²⁶ Therefore, if *The Times* may copyright these compilations—which is not fully clear under *Triangle Publications*, since the court there emphasized the skill and labor underlying the copyrightable work—use of the information may be restricted. But if commentators and public leaders cannot freely use these correlations without infringing the copyright of *The Times*, then debate can be thwarted.¹²⁷ Reporting on the inferences of the data without tracking the tables may avoid infringement; yet, as in *Bernard Geis*, this alternative may communicate less than does the copyrighted work. Thus, there may be a situation in which free speech should prevail over a literary monopoly. This would be particularly true if one proprietor should amass several copyrights covering data in the same area—through a variety of correlations, for example—and thereby gain broad control over the information so treated (unless checked by the *Morrissey* doctrine).

The use of computers by newspapers for fact compilations and for information processing¹²⁸ certainly raises new copyright problems, many of which may spill over into the first amendment area. Other computer productions raise similar problems. A corporation controlling a large number of dossiers can determine the release of personal information¹²⁹ when exposure of such facts may be in the public interest.¹³⁰ Compiling biographical facts in a computer may, to the extent that common law copyright applies, inhibit the release of such information,¹³¹ and the computer makes possible storage of vast amounts of information. Per-

125. See, e.g., *Toksvig v. Bruce Publ. Co.*, 181 F.2d 664 (7th Cir. 1950); *Triangle Publ., Inc. v. New England Newspaper Publ. Co.*, 46 F. Supp. 198 (D. Mass. 1942); *Nimmer*, supra note 15, §§ 29.4-.5. But see *Myers v. Mail & Express Co.* (S.D.N.Y. 1919) (unreported), cited in *Kaplan*, supra note 38, at 62; accord, *Rosemont Enterprises, Inc. v. Random House, Inc.*, 366 F.2d 303, 310 (2d Cir. 1966), cert. denied, 385 U.S. 1009 (1967).

126. See *International News Serv. v. Associated Press*, 248 U.S. 215 (1918). As to the validity of misappropriation actions see note 99 supra.

127. The inhibition would be prevented if permission were granted to use the material; such permission would be given to subscribers of the paper's wire service. Others may use parts of the data under the fair use doctrine. See note 135 infra. Nevertheless, this doctrine is clearly limited. See cases cited at note 125 supra.

128. The *New York Times* is currently engaged in an effort to computerize its indexes, its morgues, and other sources of information. The goal is to make ready a vast and complete data retrieval system. See *Sandberg-Diment*, *All the News That's Fit to Print Out*, *N.Y. Magazine*, Jan. 17, 1972, at 45-47.

129. See generally *A. Miller*, *The Assault on Privacy* chs. II-IV (1971); *Data Banks in a Free Society* (A. Westin ed. 1972).

130. See cases cited note 114 supra.

131. On the problems of common law copyright see *Estate of Hemingway v. Random House, Inc.*, 23 N.Y.2d 341, 244 N.E.2d 250, 296 N.Y.S.2d 771 (1968); note 99 supra.

haps in time, computers may be able to author biographies—once programmed and fed necessary data; theoretically, at least, the machine ought to be able to produce all possible expressions for certain of the facts, thus monopolizing some biographies.¹³² As of now, the line between copyright protection and first amendment free speech has yet to be judicially drawn; a “balancing” is still required.¹³³ Nevertheless, the possibilities of computer-produced compilations, especially in the province of news, should shortly bring the first amendment into the copyright area, as it has been brought into the realm of other state and federal regulatory interests.¹³⁴

IV. EXTENT OF COPYRIGHT PROTECTION

Copyright law, as applied to directories, has centered primarily on some notion (often unexpressed) of “fair use.”¹³⁵ Courts generally glide quickly over the potential problems lurking in the originality requirement, glance past the idea/expression dichotomy, and focus instead on the contribution—usually in terms of labor—of each party.¹³⁶ If the plaintiff’s work required great effort and expense, and if the defendant’s work, while benefiting from plaintiff’s endeavor, added little of substance, infringement will be found. Implicitly or explicitly, courts are balancing the equities presented by each situation and are deciding when defendant’s use of a copyrighted work appears parasitic.

132. See generally Reichardt, *supra* note 43.

133. See Nimmer, *The Right to Speak from Times to Time: First Amendment Theory Applied to Libel and Misapplied to Privacy*, 56 Calif. L. Rev. 935, 942 (1968); Sobel, *supra* note 106, at 63-67, 71-79.

134. See, e.g., *Rosenbloom v. Metromedia, Inc.*, 403 U.S. 29 (1971), noted in 40 Fordham L. Rev. 651 (1972) (defamation laws); *United Transp. Union v. State Bar*, 401 U.S. 576 (1971) (state control over group legal services); *Red Lion Broadcasting Co. v. FCC*, 395 U.S. 367 (1969) (FCC equal time regulations); *Lamont v. Postmaster Gen.*, 381 U.S. 301 (1965) (federal statute regulating “communist propaganda” moving through the mails).

135. The fair use doctrine is a judicial standard of fairness applied to determinations of infringement. While a copyright affords certain monopolies to its owner, 17 U.S.C. § 1 (1970), courts have ruled other persons can use copyrighted works in limited ways without violating any of the statutory rights. Fair use, therefore, functions as a defense to infringement. Section 107 of the Revision Bill would codify this doctrine; that section specifies certain factors which a court should consider in determining fair use: “1) the purpose and character of the use; 2) the nature of the copyrighted work; 3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and 4) the effect of the use upon the potential market for or value of the copyrighted work.” S. 1361, 93d Cong., 1st Sess. at 8 (1973). See generally Nimmer, *supra* note 15, § 145.

136. Cf. Lurvey, *supra* note 4, at 286.

The analysis presented above in Parts II and III attempted to uncover some preliminary questions a court should face before considering infringement. Most important should be an evaluation of what the first directory contributes—apart from the effort inherent in the work. Originality, even if construed as a minimal requirement in terms of requisite product value, should nevertheless be enforced as a requirement. Since expression comprehends elements to be protected by copyright, a critical step in each case should be the specific identification of those aspects of a work which represent expression as opposed to uncopyrightable idea(s). To be sure, the concepts of originality and of idea versus expression merge into problems of infringement,¹³⁷ but the problems are better treated when those concepts are respected. Building on the discussion of copyright protection for simple directories given in the preceding parts, Part IV tries to define the extent of protection that these works merit. The traditional approach to infringement will be briefly stated, followed first by a discussion of the context in which computer-produced works must be viewed, and finally by a determination of what should constitute infringement of a computer-produced directory.

A. *Infringement of Directories*¹³⁸

While infringement cases involving literary or artistic works struggle with difficult questions of access and similarity,¹³⁹ directory cases are, for the most part, far less abstract. At the risk of oversimplification, the essential question concerns the amount of independent verification provided by a defendant.¹⁴⁰ That is, it is generally conceded that defendant made some use of plaintiff's work;¹⁴¹ it is also conceded that some use

137. Kaplan, *supra* note 38, at 38-78.

138. The discussion focuses primarily on objective gatherings of public domain facts, rather than on directories requiring more ingenuity in the selection of facts. See note 2 *supra*; text accompanying notes 120-26 *supra*. For a discussion of the different types of directories, see Lurvey, *supra* note 4, at 287-89.

139. See, e.g., *Nichols v. Universal Pictures Corp.*, 45 F.2d 119 (2d Cir. 1930), cert. denied, 282 U.S. 902 (1931) (patterns of expressions in a play); *Arnstein v. Porter*, 154 F.2d 464, *aff'd*, 158 F.2d 795 (2d Cir. 1946), cert. denied, 330 U.S. 851 (1947) (problems of access and similarity); *Fred Fisher, Inc. v. Dillingham*, 298 F. 145 (S.D.N.Y. 1924) (unconscious copying).

140. Gorman, *supra* note 3, at 1585; Lurvey, *supra* note 4, at 283. Both of these articles trace the early cases in an effort to clarify the concept of verification.

141. If this use is denied, the problem of proof can become troublesome since the material involved is in the public domain. Thus, defendant may claim to have obtained the information from a non-copyrighted source. Note, *Copyright Protection for Computer Programs*, 64

by defendant is proper to at least check the finished work, if not to find clues and ideas for beginning the effort. But in order to meet the requirement of independent creation—both to constitute originality and to avoid a finding of infringement—the defendant must do some independent checking of the facts compiled. This checking need not reach the level of original investigation for new facts; the effort being encouraged is the verification of the accuracy of previously collected facts.¹⁴²

A typical application of this approach is seen in *Chain Store Business Guide, Inc. v. Wexler*.¹⁴³ In this case, plaintiff produced a series of trade directories, each of which centralized the name, phone number, and similar objective data for businesses engaged in particular trades. The bulk of the data was drawn from 1,816 telephone books, but through his own questionnaires plaintiff gathered additional data and verified the information presented. Defendant was found to have used plaintiff's directories in order to prepare a series of mailing labels, which in effect could substitute for plaintiff's directory but which also provided a time-saving function. The court focused on the similarities of the facts contained in each work and concluded that there was an infringement. Rather than referring to the 1,816 telephone directories used by plaintiff or devising new questionnaires, defendant had improperly copied from plaintiff's directories in order to produce a competing, although physically and functionally somewhat different, work.

The emphasis, then, is placed on the use made by defendant of the facts compiled by plaintiff. Less attention has been given to the visual impact of each work, although the physical arrangement of a directory might affect its utility and its marketability, as well as comprising part of the expression.¹⁴⁴ Nor has the plan for ordering the facts—another possible aspect of expression—been determinative; if the defendant, without any checking, compiled the information gathered by plaintiff in a new order, there is still an infringement.¹⁴⁵ The emphasis chosen probably reflects an awareness of competitive practices.¹⁴⁶ Facts are the essence of a directory; the value of the work is in its comprehensiveness. To allow subsequent compilers to reorder the facts—or to redesign the

Colum. L. Rev. 1274, 1287 (1964); see *W. H. Anderson Co. v. Baldwin Law Publ. Co.*, 27 F.2d 82, 87 (6th Cir. 1928) (common errors as proof of copying).

142. See Gorman, *supra* note 3, at 1584.

143. 79 F. Supp. 726 (S.D.N.Y. 1948).

144. But cf. *PIC Design Corp. v. Sterling Precision Corp.*, 231 F. Supp. 106, 111 (S.D. N.Y. 1964).

145. *Leon v. Pacific Tel. & Tel. Co.*, 91 F.2d 484, 486 (9th Cir. 1937).

146. See Gorman, *supra* note 3, at 1586-87.

volume, while taking the facts—would be to allow competitors to challenge the sales of the initial directory.¹⁴⁷ However, in focusing on “fair use” or on unfair competition, at least in spirit, if not in terminology, courts have given insufficient attention to what exactly is the contribution to be protected. Labor is being protected against misappropriation through a rhetoric of infringement, and facts—supposedly in the public domain—are being placed under at least a thin private monopoly.¹⁴⁸ Neither of these effects should follow from the Copyright Act, which is aimed at encouraging and protecting original expression.¹⁴⁹

The verification test sticks too closely to the contribution made by defendant; infringement should be more fully correlated with what should be seen as the plaintiff's protectable contribution. That is, courts should focus more directly on each work granted copyright to determine its expression—be it the plan of ordering, the visual arrangement, the subjective selection of facts (in more sophisticated directories). If the defendant used the facts assembled by plaintiff to produce a different type of directory, or even if the second directory serves the same function but has a substantially different style, there should be no finding of infringement. Plaintiff's rights are in his expression and, unless the labor required to gather and place the facts in proper order is itself an expression, his monopoly should not extend to public domain facts.¹⁵⁰ If there is a competitive abuse, recourse should be made available in tort for the misappropriation of labor to the degree permitted by recent Supreme Court decisions.¹⁵¹

On the other hand, if the defendant violates the expression, there should be a finding of infringement, even if the defendant has verified the facts used.¹⁵² However, present law may not produce this result.

147. *Consumers Union of United States, Inc. v. Hobart Mfg. Co.*, 189 F. Supp. 275, 278 (S.D.N.Y. 1960).

148. Cf. *Nimmer*, supra note 15, § 41. The effect is more striking with directories requiring more selective judgment: in those cases, the facts chosen and the means of arrangement are protected. See *Adventures in Good Eating, Inc. v. Best Places to Eat, Inc.*, 131 F.2d 809 (7th Cir. 1942); *Triangle Publ., Inc. v. New England Newspaper Publ. Co.*, 46 F. Supp. 198 (D. Mass. 1942).

149. See *McGraw-Hill, Inc. v. Worth Publ., Inc.*, 335 F. Supp. 415, 420 (S.D.N.Y. 1971).

150. *Consumers Union of United States, Inc. v. Hobart Mfg. Co.*, 189 F. Supp. 275, 278 (S.D.N.Y. 1960).

151. See note 99 supra.

152. Allowing plaintiff protection for his expression should not unduly restrict the use of facts. If the mode of arrangement is classified as part of the idea, others can use the facts as long as the visual impact devised does not tread on plaintiff's presentation. On the other hand, where the arrangement of facts is seen as part of the expression, many arrangements

Peculiar to simple directories is the theoretical ability of a defendant to observe plaintiff's book and to independently produce a competing work, without directly copying plaintiff's work. That is, the compiler simply by glancing at a published directory often will be able at once to comprehend the idea and the expression employed—the mode of ordering, the coverage of the facts, the graphic arrangement, etc. If defendant has access to the same data base, or desires to do independent gathering of facts, he should be able to produce a close imitation of plaintiff's directory.¹⁵³ A playwright, on the other hand, might observe the stock characters and general themes chosen by an author and write a similar play; but the likelihood is that many plot details, and certainly most of the wording, in the second work will be distinct. So long as there are differences in expression, infringement will be avoided.¹⁵⁴ Under the verification test for directories, the competing directory would probably *not* be an infringement, even though the expression may be duplicated. The ability of an imitator to produce a competing work reflects the thinness of the right involved.¹⁵⁵ But perhaps such competition should be considered an infringement. Defendant is effectively copying what is determined to be protected expression; even if this copying is not achieved by repeated reference to the first directory, familiarity with a copyrighted work and likely dependence on that work can constitute infringement.¹⁵⁶ The difficult question remains the degree of reference which constitutes copying.

should be available so that the facts may be used. However, if only limited arrangements are feasible, *Morrissey*, discussed in Part III(A)(2) *supra*, should operate to block the initial copyright (as might the first amendment). See Part III(B) *supra*.

153. Of course, if more precise details or graphics are essential to the work, the task of imitation approaches the case of a literary copy. The directory in *Jewelers' Circular Publ. Co. v. Keystone Publ. Co.*, 274 F. 932 (S.D.N.Y. 1921), *aff'd*, 281 F. 83 (2d Cir.), *cert. denied*, 259 U.S. 581 (1922), represents a more involved directory, where actual copying was required to produce the competing work.

154. *Nichols v. Universal Pictures Corp.*, 45 F.2d 119 (2d Cir. 1930).

155. Too closely tracking the appearance of plaintiff's work may, in appropriate situations, give rise to a cause of action for passing off. In *Surgical Supply Serv., Inc. v. Adler*, 206 F. Supp. 564 (E.D. Pa. 1962), discussed in text accompanying notes 32-34 *supra*, the district court enjoined defendant from producing a price list which too closely approximated plaintiff's list, even though the court concluded that plaintiff's list could not be copyrighted. On appeal, the Third Circuit reversed on the unfair competition issue, concluding that the record did not support the claim of passing off. 321 F.2d 536 (3d Cir. 1963). Actions for passing off, as claims of misappropriation, may have been cut down by recent Supreme Court holdings. See note 99 *supra*.

156. *Herbert Rosenthal Jewelry Corp. v. Kalpakian*, 446 F.2d 738, 741 (9th Cir. 1971); *Harold Lloyd Corp. v. Witwer*, 65 F.2d 1, 16 (9th Cir. 1933); *Fred Fisher, Inc. v. Dillingham*, 298 F. 145, 148 (S.D.N.Y. 1924).

With manually produced directories, it is unlikely that competing directories will be independently produced, that is, without leaning on the first work; indeed, this assumption underlies the test of verification, which recognizes that the second compiler relies on the efforts of the first compiler. With the advent of computers, however, the likelihood of such independent replication becomes more plausible. The test of infringement, which for manually produced directories has focused too closely on the efforts provided by each party, requires extensive redefinition for computer-produced works.

B. *The Context of Computer-Produced Works*

Before deciding the extent of protection which should be given to computer-produced directories, it is necessary at least to note the other copyright problems presented by computer technology, for the resolution of these problems bears directly upon the issue of copyrightability of compilations. Two such problems have been recognized and have received extensive consideration:¹⁵⁷ first, whether copyright protection should be granted for computer programs¹⁵⁸ and second, whether feeding copyrighted works into a computer data bank constitutes an infringement.¹⁵⁹ For the purpose of delimiting the protection to be given to computer-produced works, it will be assumed these other questions have been answered. Indeed, the copyrightability of computer programs seems to be anticipated,¹⁶⁰ and, while many do oppose defining as an infringement computer use of copyrighted works,¹⁶¹ drafts of the Copyright Revision Bill appear to make an "input" an infringement, save to the extent of a fair use.¹⁶²

If the person who designs a computer program is given a monopoly

157. A general framing of these problems is contained in Greenberger, *supra* note 12, ch. 6; Banzhaf, *When a Computer Needs a Lawyer*, 71 *Dick. L. Rev.* 240 (1967).

158. Breyer, *supra* note 12, at 340-50; Project, *supra* note 7, at 978-93; Note, *Copyright Protection for Computer programs*, 64 *Colum. L. Rev.* 1279 (1969).

159. Levy, *Copyright Law and Computerized Legal Research*, 20 *Bull. Copyright Soc'y* 159, 164-70 (1973); MacLean, *Education and Copyright Law: An Analysis of the Amended Copyright Revision Bill and Proposals for Statutory Licensing and a Clearinghouse System*, 20 *ASCAP Copyright L. Symposium* 1 (1972); Project, *supra* note 7, at 975-1026; Note, *Copyright Law Revision: Its Impact on Classroom Copying and Information Storage and Retrieval Systems*, 52 *Iowa L. Rev.* 1141 (1967).

160. Copyright Office Cir. 61 (May 1969); cf. *Harcourt, Brace & World, Inc. v. Graphic Controls Corp.*, 329 F. Supp. 517, 523 (S.D.N.Y. 1971).

161. See, e.g., Kaplan, *supra* note 33, at 104; Breyer, *supra* note 12, at 338.

162. H.R. Rep. No. 83, 90th Cong., 1st Sess. 152, 167 (1967). For comparison see S. 1361, 93d Cong., 1st Sess. §§ 101, 107, 117 (1973).

over that program and if feeding a work into a computer is made an infringement, what copyright protection should be given to directories? As more directories are produced by computers and as the effort to expand information banks is intensified, at least three lines of argument should be weighed against continued protection for directories. First, the essential function of the present copyright law for directories is to limit competitive works, largely by providing the first compiler with a "lead time."¹⁶³ That is, each subsequent compiler must do independent verification, thus delaying the publication of competing works; in the interim, the first compiler can push present sales and can enter into contractual agreements for future sales. New technology should alter the pattern. When production is computerized, a "debugged" program is essential for efficient compilation. With phone books, the program is relatively simple, but for more sophisticated correlations and collections the program will be more difficult to prepare.¹⁶⁴ Assuming that most data necessary for compilations will eventually be stored in a widely accessible data bank, control over the program may provide the necessary lead time, making unnecessary a copyright for the finished work. This would be particularly true if patent protection were to be placed on programs; in that event, use of the program would require special licensing and would allow great control over competitive uses. However, a recent Supreme Court decision¹⁶⁵ diminishes the likelihood that patent protection will be afforded to computer programs, absent new legislation. If programs are given only copyright protection, there is less control.¹⁶⁶ Nevertheless, if use of a copyrighted program constitutes an infringement, sufficient protection may be available to a compiler through a copyright on his program.

Second, if directories are copyrighted, they cannot be fed into information storage banks without permission; the input, unless found to be a fair use, might constitute an infringement.¹⁶⁷ But directories, as collections of facts, may contain information essential to further analysis. Of course, when an extensive information book has already been created, these facts should already have been stored; indeed, the copy-

163. Cf. Breyer, *supra* note 12, at 299-302. Professor Breyer's approach to copyright has been strongly attacked in Tyerman, *The Economic Rationale for Copyright Protection for Published Books: A Reply to Professor Breyer*, 18 U.C.L.A.L. Rev. 1100 (1971) [hereinafter cited as Tyerman].

164. See note 122 *supra*.

165. *Gottschalk v. Benson*, 409 U.S. 63 (1972).

166. Iskrant, *The Impact of the Multiple Forms of Computer Programs on their Adequate Protection by Copyright*, 18 ASCAP Copyright L. Symposium 92, 93 (1970).

167. See note 162 *supra*.

righted compilation may have been made possible by such storage in conjunction with a proper program. Still, for a transitional period at least, all computer memories will not be connected, and a directory produced from one data bank may provide facts which appropriately should be placed in other banks. Given the public interest in making facts available in the most useful form—an interest which argued in favor of protection for manually produced directories¹⁶⁸—and given the probability that an input may constitute infringement, protection for directories should be further restricted; wider dissemination of facts through computers should not be blocked.

Finally, projections of future developments in computer technology include the widespread consumer use of remote access terminals,¹⁶⁹ which would allow the general public to draw information from data banks. Should these predictions prove true, the commercial value of bulky printed directories could diminish. Indeed, at some point, there may be no market for printed directories, or other similar works, which require protection in the form of copyright.¹⁷⁰ In recognition of these prospects—and perhaps, in order to encourage the compilation of vast data banks—directories might be deleted from the Copyright Act; competitive problems perceived in the case law might better be solved by a federal code of misappropriation.¹⁷¹

C. *Infringement of Computer-Produced Directories*

The approach to infringement which emphasizes the amount of verification contributed by the defendant seems inappropriate once directories are computerized. Such an approach presupposes significant effort by the plaintiff to gather and to order the data, and it requires of the defendant at least a minimal expenditure of similar labor. With computerization, and with information banks, the tediousness of the initial endeavor can be delegated largely to the machine. Moreover, the verification test does not adequately deal with the directory inspired by, but not derived from, a copyrighted work.¹⁷² With the computer, the likelihood of imitative directories, prepared with only passing reference to the plaintiff's work, becomes assured. How should infringement be defined?

The discussion of the requirement of originality noted the similarity

168. See Gorman, *supra* note 3, at 1584.

169. See note 40 *supra*.

170. Kaplan, *supra* note 38, at 121-22.

171. See note 99 *supra*.

172. See Part IV(A) *supra*.

between computer production and photographic production;¹⁷³ that is, a human author in each situation can instruct a mechanized device to produce a certain copyrightable work. This comparison suggests one approach for a test of infringement. While any person may freely photograph an object in the public domain, it is probably an infringement to duplicate exactly a copyrighted picture. Trying to recreate pose, angle, lighting, and camera settings would fall under the proscription, as would the more obvious infringement of rephotographing and replicating the picture.¹⁷⁴ This suggests that a compiler who sees plaintiff's work and subsequently tries to design a program and to find suitable banks of data in order to duplicate that work should be deemed to be an infringer.¹⁷⁵ What would be imitated through such an effort is not only the public domain facts but also the arrangement, and perhaps selection and correlations of facts as well.

In effect, to call this an infringement would complement the present thrust—although not the result¹⁷⁶—of the verification test, as applied to manually produced directories. That test looks to the efforts of the defendant and, in point of fact, finds infringement where defendant tries to appropriate the plaintiff's efforts.¹⁷⁷ With manual compilations, that effort is the accurate collection of facts; with photographs or computer productions, the effort would be planning and preparation for use of the machine.

The photograph test puts plaintiff somewhat in control of public domain facts, as this test is applied to computerized compilations. Unless defendant alters the arrangement—or other expressive elements of the directory—his work would remain tainted and the facts could not be fully reprinted. But once changes are made that will distinguish the second work, defendant can distribute a competing work, without copyright infringement and without independent checking of the facts. This result more closely observes the idea/expression dichotomy than does the verification test, and also comports with the first amendment policy

173. See text accompanying notes 51-54 *supra*.

174. See Gorman, *supra* note 3, at 1598-1600 and cases discussed therein.

175. Cf. *Harold Lloyd Corp. v. Witwer*, 65 F.2d 1, 17 (9th Cir. 1933) (intent to copy may be a factor).

176. See text accompanying notes 153-56 *supra*.

177. Of course, any notion of infringement includes a thread of appropriation, for a copying is required. See generally Nimmer, *supra* note 15, ch. 12. What makes certain directory cases unique is an emphasis on an appropriation of plaintiff's labor. Infringement of literary works rests more strongly on a comparison of the work of each party, apart from the efforts each invested to write the work. See *Nichols v. Universal Pictures Corp.*, 45 F.2d 119 (2d Cir. 1930).

of keeping facts and ideas free. To be sure, this test gives very thin protection for a directory, proscribing little more than exact duplication.¹⁷⁸ However, the reduced labor required to assemble facts eventually may justify this reduced protection.¹⁷⁹

Thus, in instances where the defendant tries to closely imitate the plaintiff's directory, an infringement should be found. The protected expression is to be carefully delimited, including only the arrangement of facts, in terms of plan of ordering and visual presentation. Such an approach should be applied to cases of commercially competing directories. The first compiler deciding to publish a particular directory can achieve an initial marketing advantage; by preparing a suitable computer program and assembling—or locating—a sufficient data base, he can quickly publish the directory. Advance contracts and an initial sales push may make sufficient a small amount of lead time.¹⁸⁰ Other compilers would then be free to use the facts collected, even for expanding information data banks; the effort involved in compiling the facts should not be part of the protected expression. But others could not market directories containing the same facts presented in the same way, since the presentation should be recognized as the expression. At least the visual impact should be distinct; the ordering of facts should be modified.¹⁸¹ It is clear that subsequent compilers may benefit from plaintiff's collection of facts. This limitation, however, is necessary to keep free the flow of information. Plaintiff still has some economic protection and, thus, incentive to prepare his directory. His lead time might guarantee him enough sales to insure a profit. Moreover, if plaintiff's arrangement is particularly attractive or useful, then other directories containing the same facts—but which cannot track plaintiff's arrangement—will not be severe competition. And, in the case of trade directories, "passing off" is limited.¹⁸² Only if the same arrangement is independently created, which becomes more possible with computerization, can the competing

178. Compare § 1(f) of the Copyright Act, added in 1971, which allows efforts to exactly duplicate a sound recording; only electronic tracking—"record piracy"—is proscribed. 17 U.S.C. § 1(f) (Supp. 1973).

179. For the emphasis on labor expended in the originality requirement, see Part II(A)(2) *supra*.

180. Breyer, *supra* note 12, at 299-300.

181. If alternative orderings are not feasible, Morrissey should block a copyright for plaintiff's first arrangement (though the visual arrangement can still be protected). See Part III(A)(2)-(3) *supra*. Thus, to avoid infringement, defendant should alter both facts and graphics where these elements were copyrightable. If only the visual presentation were to be protected, of course defendant need only avoid duplicating this expression.

182. See note 155 *supra*.

works be identical; but independent creations have always been considered non-infringing, lest the copyright monopoly become a full substitute for patents.

To focus this approach more sharply, the facts of *Leon*¹⁸³—the typical phone book case—should now be reconsidered. Assuming computer production is now employed, there should be no cause for infringement. Plaintiff prepares a listing of names, addresses, and phone numbers in alphabetical order, published in a certain graphic package. The data base necessary for this directory would be ready for plaintiff; the billing records—already computerized—could serve. And the retrieval program needed to draw out the facts is elementary. Thus, the amount of labor perceived by the *Leon* court has been reduced.¹⁸⁴ Defendant can not replicate the plaintiff's directory. However, he should be able to present the same facts arranged differently. In *Leon*, defendant used a numerical ordering. This directory served a different need and may have been styled distinctly. The court found an infringement, for the defendant used plaintiff's work as a source of facts. If defendant has access to a sufficient data bank, such use would be unnecessary, and the resulting numerical directory should be allowed.¹⁸⁵ A more difficult problem may arise where the defendant uses plaintiff's directory to augment a data bank. If defendant stores the data in plaintiff's directory and if defendant's output does not duplicate plaintiff's work, to find an infringement would be to give plaintiff control over the public domain facts; the expression—the plan of arrangement and the graphic presentation—would not be tracked. Allowing this control would impede the flow of information and could invoke the proscriptions of the first amendment.

183. See notes 74-82 *supra* and accompanying text.

184. Of course, programmers and computer operators must be employed. The cost of preparing the directory—including personnel, computer time, and printing—may not diminish; indeed, likely costs have risen. Nevertheless, a copyright is not granted in recognition of these expenditures; at most, the protection is supposed to encourage necessary expenditures. See *Berlin v. E. C. Publ., Inc.*, 329 F.2d 541, 543-44 (2d Cir.), cert. denied, 379 U.S. 822 (1964). The economic incentives operating in the copyright area are skillfully debated by Breyer, *supra* note 12, and Tyerman, *supra* note 163. Telephone directories are somewhat unique as they are given free to phone subscribers; inverted books—arranged by phone number or by address—are sold.

185. The result in *Chain Store Business Guide Inc. v. Wexler*, 79 F. Supp. 726 (S.D.N.Y. 1948), discussed in text accompanying note 143 *supra*, should also be changed: the subsequent use of facts collected by plaintiff in defendant's distinct directory should not be an infringement. Where a directory requires special detailing, as in *Jewelers' Circular Publ. Co. v. Keystone Publ. Co.*, 274 F. 932 (S.D.N.Y. 1921), aff'd, 281 F. 83 (2d Cir.), cert. denied, 259 U.S. 581 (1922), infringement may still lie. This should continue to protect competing trade directories. See note 153 *supra*.

Thus, irrespective of the rules which develop for use of copyrighted works in computer memories,¹⁸⁶ an exception should be made for simple directories: the input of the collected facts should be allowed.

V. CONCLUSION

Under present case law, a directory of public domain facts, assembled without subjective evaluation of each entry, is given copyright protection. The arrangement selected by the compiler as well as the facts drawn together cannot be published by anyone who does not at least verify independently the accuracy of the facts. Underlying this law is the assumption that the initial compiler expended great effort in the production of the directory; that effort is rewarded by preventing others—especially business competitors—from extensively using the copyrighted work.

This approach has focused too strongly on the labor expended by the initial compiler. Indeed, that expenditure has, at times, served to satisfy the originality requirement and to shape the test of infringement. Not enough attention has been given to the idea/expression dichotomy and to a deliberate evaluation of what exactly is contributed by the copyrighted work itself. A precise delineation of what is the compiler's expression would be likely to reduce the monopoly granted a directory, and properly public domain facts would become less subject to private control.

With the introduction of computer technology to directory production, there is a special need to reconsider the law in this area. Due to this technology, many of the tedious human jobs rewarded by courts with a copyright have been removed. Beyond this, the use of computers allows compilers to order information in many different ways; if the lines of protection granted to each work are not closely drawn, facts essential to society might be systematically monopolized.

It is suggested that directories for the present be granted copyright protection—but the rights extended must be quite thin. Only the plan of ordering facts and the graphic arrangement for the facts should be protected. Others should be free to reorder the facts and to redesign the directory in order to prepare a non-infringing work; even more, others should be allowed to feed the facts into computer storage banks. Should the plans of ordering certain facts prove so limited as to make possible a freezing of the facts, then the protected expression should be restricted to the visual presentation. In effect, this would preclude only

186. See Part IV(B) *supra*.

total replication. Nevertheless, given the prospects of new communication systems, basic data ought not be locked in fifty-six year time capsules.

Eventually the use of computers should alter the way information is collected and the way information is sold. Networks linking individual computers—with remote access terminals commonly available—should make traditional volumes of data compilations unnecessary. Where directories continue to be marketed as books, however, sufficient encouragement for compilers may be allowed in the lead time available to the first publisher, in the protection of visual arrangement, and in the degree of control given over computer programs. Beyond these limited concessions to commercial pressures, copyright should not restrict the use of fact compilations. The flow of information made possible by evolving technology should not be stopped by private monopolies.