

Notes of Cases
Jurisprudence

COPYRIGHT—COMPUTER PROGRAMS—IS COPYRIGHT PROTECTION DESIRABLE?—Of the difficult adjustments which the advent of the computer demands, a new assessment and appreciation of the technological environment of copyright will not be of the first importance, but some marginal significance attaches to this particular, parochial legal response. Benjamin Kaplan nicely captures the scene in suggesting that “all the picturesque folk of the communications family of today . . . will have to adjust themselves to the changing cosmos”.¹ As yet, the law’s response remains embedded in the frozen language² of statutes such as the Canadian Copyright Act.³ Of course, copyright law reform is hardly ever high on the political agenda. Intellectual Property is, by its nature, a broad subject and the laws which define and encompass it are complex and often difficult to comprehend. Its reform does not normally attract votes or publicity, the two main staples on which the legislator politician thrives. Legislation about industrial and intellectual property usually has to take its turn at the end of the queue.⁴

So it is that the Copyright Act has been pressed into service in the cause of protecting and regulating the output of a host of inventions, innovations and intelligencies which were the science fiction of the 1920’s.⁵

¹ Benjamin Kaplan, *An Unhurried View of Copyright* (1967), p. 119.

² Karl

Lewellyn, *The Common Law Tradition: Deciding Appeals* (1960), p. 360.

³ R.S.C. 1970, c.C-30, (hereafter referred to as the Copyright Act or the Act). The Act remains substantially unamended since its adoption, S.C. 1921, c. 24. The present Act, which was largely a codifying measure, came into force in 1924. The extant leading English language text on copyright, H.G. Fox, *The Canadian Law of Copyright and Industrial Designs* (2nd ed., 1967), makes no mention of computers, computer programs or allied works. Quebec is served by a more perspicacious text, Serge Pichette, *Le régime canadien de la propriété intellectuelle* (1979).

⁴ Justice Graham, *Industrial Property: The Scene in Europe*, [1980] *Patent and Trademark Institute Bulletin* 247, at p. 259.

⁵ See, further, *infra*, footnote 48 and accompanying text.

Its antiquity qualifies it as something of a museum piece among Commonwealth enactments. A successor was foreshadowed with the publication of the (Liberal) government White Paper, *From Gutenberg to Telidon*.⁶ This was the product of a long and carefully nurtured period of research and contemplation which aimed at modernizing the framework and polishing the detail of the Act. The return of a Progressive Conservative government in the September 1984 election heralded a hiatus in the passage of new legislation. Some of the contentious issues are to be rethought, but with a clear four year term of office, legislative reform at last looks likely.

Meanwhile, litigation has come to be seen as a way of pumping the life-force of the technological age into statutes which had their genesis in the days of the horse and cart, the quill and penny weeklies. Particularly, the courts have been faced with the question of whether a computer program is protected as a literary work under the provisions of copyright legislation enacted nearly forty years before computers became a viable phenomenon. Courts in France, Japan, West Germany, Great Britain, the United States and Australia have been presented with a similar conundrum. Cases have also considered whether copyright may exist in other materials involved in the electronic enterprise, including electronic data bases, machine graphics and computer generated audio visual displays.⁷

Two recent Canadian cases, one from the province of Ontario, the other from Quebec, have confronted the straightforward determination of whether copyright protection extends to computer programs. The more cursory examination comes in the chronologically later Superior Court of Quebec case *La société d'informatique R.D.G. Inc. v. Dynabec Ltée*,⁸ but it has the comparative advantage of conclusions based in some part at least on Canadian jurisprudence. The judgment of Madame Justice Reed in *International Business Machines Corporation v. Spirales Computers Inc.*⁹ discusses the issues more fully but her reasoning, although more mature, is largely derivative of that of the Full Federal Court of Australia in *Apple Computer Inc. v. Computer Edge Pty. Ltd.*¹⁰ In both cases, the

⁶ Consumer and Corporate Affairs and Department of Communications (1984) (hereafter called the White Paper). See my comment, [1984] 8 E.I.P.R. 235.

⁷ For a brief survey of recent U.S. decisions see Jon A. Baumgarten, Copyright (1984), 36 Federal Communications L. J. 167 ('Videotex Symposium'). A comprehensive analysis of the protection of computer software is offered by Duncan Davidson in his exhaustive survey, *Protecting Computer Software* (1983), 23 Jurimetrics 337. See also Hugh Brett, Lawrence Parry (eds.), *The Legal Protection of Computer Software* (1981), especially Manfred Kindermann, A Review of Suggested Systems for the Protection of Computer Software, pp. 139-171.

⁸ Hereafter *RDG*, as yet unreported, Superior Court of Quebec, Case No. 500-05-008597-849, August 14, 1984.

⁹ (1984), 2 C.I.P.R. 56 (F.T.D.), hereafter *IBM*.

¹⁰ (1984), 53 A.L.R. 225, [1984] Fleet St. R. 481 (Fed. C.A.), rev'g (1984), 50 A.L.R. 581, [1984] Fleet St. R. 246 (Fed. T.C.). See J. Lahore (1984), 7 E.I.P.R. 196.

Copyright Act was relied on as encompassing copyright in computer software. By section 4, copyright extends to "every original literary . . . work", which is defined in section 2 to "include every original production in the literary . . . domain, whatever the mode of its expression". That wording has been described as "sufficiently vague to permit the inclusion of computer programs" as literary works,¹¹ and in the White Paper it is implied that the Act's protection extends already to cover, at least, programs in human readable form.¹²

RDG v. Dynabec

RDG had developed for six Quebec cities a group of software packages which would assist the cities in their municipal administration. Several employees later left RDG and joined Dynabec who then attempted to contract with the cities for the exploitation of those programs. RDG claimed copyright ownership of the programs and sought in interlocutory proceedings to enjoin Dynabec from infringing that right. In granting the injunction, Hannan J.S.C. held, *inter alia*, that "protection of the Canadian Copyright Act extends to literary works and account being taken of technological advances since the proclamation of the Act in January 1924, it must be held that such works include the computer software packages here discussed".¹³

The ensemble of each software package exists, he said:¹⁴

. . . as a series of written instructions based on observation and analysis and expressed in literate terms destined for introduction into the computer system . . . The introduction of these instructions into the computer system requires a translation from its expression as literature to its expression as machine language, and this function is a treatment, an abstract or a summary of the software package expressed in literate terms.

The uncontradicted evidence on which he relied for this conclusion was that a software package necessary for the operation of a computer is a written document in the traditional sense. The computer's tasks were, he said, compiled as a series of "micro-instructions" committed to paper for transfer either into the computer's permanent Read Only Memory (ROM) or on to discs which can be used for particular tasks (Random Access Memory: RAM). The judge was fortified in his conclusion by obiter from *Spacefile v. Smart Computing Systems Ltd.*,¹⁵ *Apple Computer Inc. v.*

¹¹ A.A. Keyes, C. Brunet, Copyright in Canada: Proposals for a Revision of the Law (1977), p. 108.

¹² White Paper, *supra*, footnote 6, p. 79.

¹³ *Supra*, footnote 8, at p. 24.

¹⁴ *Ibid.*, at pp. 16-17.

¹⁵ (1983), 75 C.P.R. (2nd) 281 (Ont. H.C.), although this contains little analysis of the issue.

*Computer Edge*¹⁶ and the American case of *Apple Computer Inc. v. Franklin Computer Corporation*.¹⁷

He noted section 11 of the Interpretation Act¹⁸ requires every statute to be given such fair, large and liberal construction and interpretation as best ensures the attainment of its objects. Accordingly, he drew a parallel between the writer of a computer program and a translator.¹⁹

The technological act of rendering the literate software comprehensible to a computer system by giving it a special mode of expression is . . . equivalent to a translation of such work which does not diminish the protection the original work enjoys under *The Copyright Act* [section 3(1)(a)].

This view had been expressed by Fox and Lockhart JJ. in the Australian *Apple* case²⁰ and is in accord with the opinion expressed by Pichette in his treatise.²¹ Hannan J.S.C. concluded that section 3 of the Canadian Act protected published programs, those which were completed but not yet published, and those which were in preparation and partially completed.

IBM v. Spirales

IBM Corporation and allied Canadian corporations manufacture and market computer software as well as the hardware with which IBM is more traditionally associated. One program is called the "IBM Personal Computer Basic Input Output System—1.0" (BIOS) which is used to work its Personal Computer. The program is recorded in ROM and embedded in a semi-conductor circuit—a chip—mounted in the computer on manufacture with the intention of permanent residence, although it can be removed.²²

¹⁶ *Supra*, footnote 10.

¹⁷ 714 F. 2d. 1240, 219 U.S.P.Q. 113 (C.A. 3rd Cir., 1983), cert. dismissed 104 S. Ct. 690 (1984).

¹⁸ R.S.C. 1970, c.1-23.

¹⁹ *Supra*, footnote 8, at p. 21. Insofar as material, s.3(1) of the Copyright Act provides: ". . . copyright means the sole right to produce or reproduce the work or any substantial part thereof in any material form whatever . . . if the work is unpublished, to publish the work or any substantial part thereof; and includes the sole right (a) to produce, reproduce, perform or publish any translation of the work; . . .".

²⁰ *Supra*, footnote 10, at pp. 235, 260-262 (A.L.R.), 496, 522-524 (Fleet St. R.). See also Lahore, *ibid.*, at p. 199.

²¹ *Op. cit.*, footnote 3, pp. 243 *et seq.*

²² The judgments in *IBM*, *supra*, footnote 9, and the Australian *Apple* case, *supra*, footnote 10, contain useful introductions to the terminology. Also accessible are G. Dworkin, *The Nature of Computer Programs*, in J. Lahore, G. Dworkin, Y. Smyth, *Information Technology: The Challenge of Copyright* (1984), p. 89, especially pp. 90-94; Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies and Computer Programs* (1970), 84 Harv. L. Rev. 281.

IBM also published a Technical Reference Manual for the IBM Personal Computer. In it was a listing of the source code (the language in which computer programs are written, intelligible to human beings), the object code (the machine language, usually said to be intelligible only to the machine) and other technical specifications. This manual, which was on independent sale, was protected by copyright as a literary work.

Spirales imports from Taiwan and sells in Canada a computer called the COPAM Intelligent PC-301. Affidavit evidence made it clear that it contains a copy of the BIOS program recorded in ROM. Spirales had copied the object code version of the computer program and used this to undercut IBM's market. Reed J. had to determine whether this was an infringement under the Copyright Act. The defendant lodged two substantive objections.

First, it argued that in order to qualify as a "literary work" the work had to be in written or printed form. It urged that a computer program was not "expressed in print or writing" and, as was stated by Peterson J. in *University of London Press Ltd. v. University Tutorial Press Ltd.*,²³ the word "literary" is used in a sense somewhat similar to the word "literature" in political or electioneering literature and refers to written or printed matters. Subsequent decisions have however made it clear that this equation of "literary work" with "literature" cannot be sustained.²⁴ Reed J. had little difficulty in reconciling a computer program in its source code form with this modified test. The IBM source code was the expression of thought in an original form—in alpha numeric form—and capable of copyright protection. The IBM program did not fall foul of the limitation expressed by Marais A.J. in the *Rosenstein* case²⁵ and Lockhart J. in the Australian *Apple* case,²⁶ that a program which did no more than produce multiplication tables or the alphabet would not exhibit sufficient skill or effort to render the work of a new and original character, and would hence be refused copyright.

Spirales' second and more important contention was that in its object code form the program could not be protected by copyright. This argument had three limbs: (1) as the sole purpose of the program was said to be to drive the computer, Spirales suggested that it existed only as part of

²³ [1916] 2 Ch. 601, at p. 608 (Ch.D.).

²⁴ See, e.g., *Northern Office Micro Computers (Pty.) Ltd. v. Rosenstein Pty. Ltd.*, [1982] Fleet St. R. 124, at pp. 133-134 (Sup. Ct., South Africa); *Apple v. Computer Edge*, *supra*, footnote 10, especially the consideration of this point by Lockhart J., at pp. 258 (A.L.R.), 520 (Fleet St. R.). It is enough that something in writing exists, not that it express meaning in ordinary language; see W.A. Copinger, E.P. Skone James, *Copyright* (12th ed., 1980), para 156, cited with approval per Fox J. *ibid.*, at pp. 234 (A.L.R.), 495 (Fleet St. R.); *IBM*, *supra*, footnote 9, at p. 63.

²⁵ *Ibid.*

²⁶ *Supra*, footnote 10, at pp. 234 (A.L.R.), 495 (Fleet St. R.).

the machine and could not be protected; (2) as the object code form of the program was designed as instructions to the computer, it did not communicate to human beings, a necessary ingredient of a "literary work"; (3) it urged that even if the object code could be copyrighted, protection should extend only to the BIOS program as set out in the Technical Manual. As the evidence appeared to disclose that the Manual itself had not been copied, but only, as in the Australian case, the object code in the chip itself, there had been no act of infringement.

The thrust of the first limb was that the permanently mounted chip was a part of the machine. Counsel suggested that there was no difference in principle between the instant case and *Hollinrake v. Truswell*²⁷ in which it was held that the sleeve pattern imprinted with numbers was not copyrightable, or *Boosey v. Wright*²⁸ which held that rolls containing perforations for use on a piano player were not a breach of the copyright in the musical work itself. Their function, like that of the computer program, was to engage with and form part of the mechanical contrivance simply to produce musical notes. Reed J. rejected this submission. The information imbedded in the chip operated in conjunction with the computer but was not part of the machine. The permanent mounting within the computer was for convenience only, and the program could be removed and replaced if desired. Computer programs, she said, were no more machine parts than video tapes were part of projectors or phonorecords part of a stereo system.²⁹

Spirales' more forceful argument relied on further dicta from the judgment in *Hollinrake*. In a passage which has recently gained the express approval of Stephenson L.J.,³⁰ Davey L.J. stated:³¹

... a literary work is intended to afford either information and instruction, or pleasure, in the form of literary enjoyment.

Spirales contended that the computer program in its object code form did not meet this requirement. To rebut this argument Reed J. drew again on the majority decision in the Australian *Apple* case.³² Davey L.J.'s dicta could not be considered an exhaustive statement or

²⁷ [1894] 3 Ch. 420 (C.A.).

²⁸ [1900] 1 Ch. 122 (C.A.).

²⁹ *Supra*, footnote 9, at p. 65, quoting from the American *Apple* case, *supra*, footnote 17, at pp. 1251 (F.), 122 (U.S.P.Q.). This, however, is an unfortunate comparison. See National Commission on New Technological Uses of Copyrighted Works (CONTU), Final Report (1978), p. 15. For an alternative view see dissent of Commissioner Hersey, *ibid.*, p. 27, *et seq.*

³⁰ *Exxon Corporation v. Exxon Insurance Consultants International Ltd.*, [1982] R.P.C. 69, at p. 88 (C.A.).

³¹ *Supra*, footnote 27, at p. 428.

³² *Supra*, footnote 10, per Lockhart J., at pp. 260 (A.L.R.), 521-522 (Fleet St. R.); Sheppard J., at pp. 274-275 (A.L.R.), 537-538 (Fleet St. R.).

definition of a literary work because it seemed to contemplate an intention to allow others to see it. As copyright subsists in unpublished work,³³ this limitation was inappropriate and the conclusion based upon it flawed.

Finally, Reed J. turned to the infringement argument. Spirales contended the copyright in the Technical Manual was as far as protection for the computer program should go. Its argument was that, under the *Canadian Admiral*³⁴ test, for copyright to subsist in a "work" the work must be expressed to some extent at least in some material form, be capable of identification and have a more or less permanent endurance.³⁴ Allied with this was Sheppard J.'s dissent on this point in the *Apple Computer Inc.* case. He held that programs in object code were not literary works.³⁵

... only the machine itself, that is, the microprocessor ... can 'understand' or 'see' and thus deal with the object code ... if what is alleged to constitute a literary work (here the programmes in object code) cannot be seen even with the aid of the screening or printing devices attached to the computer, they cannot in my opinion amount to a literary work.

In the *IBM* case, Reed J. held that publication in the Technical Manual constituted reduction to material form within the *Canadian Admiral* requirement. The fact that when reproduced it could not be read by the human eye made no difference. The "chip" version of the code is a reproduction in material form rather than a translation of the literary work in source code and capable of copyright protection under the Canadian Act in its own right.³⁶ Somewhat enigmatically, however, she had earlier referred to the publication of the BIOS program in object code in the Technical Manual and observed that "[t]his is not a case where there is no written version of the programme in its object code manifestation".³⁷ If this is to suggest a distinction between the outcome here and the case where, for example, there is no Technical Manual or other written expression of the object code, then that might be thought to have unnecessarily sown the seeds of further litigation.

³³ Copyright Act, *supra*, footnote 3, s.3(1).

³⁴ *Canadian Admiral Corporation Ltd. v. Rediffusion Inc. Ltd.*, [1954] Ex. C.R. 382 (Exch. Ct.).

³⁵ At pp. 276 (A.L.R.), 538-539 (Fleet St. R.), quoted by Reed J., in *IBM*, *supra*, footnote 9, at pp. 67-68.

³⁶ *IBM*, *ibid.*, at p. 68. This accords with the view in the South Africa, *Northern Office Micro*, *supra*, footnote 24. Lockhart and Fox JJ. in the Australian *Apple* case, *supra*, footnote 10, and Hannan J.S.C. in *RDG*, *supra*, footnote 8, favoured the "adaptation" or "translation" theory. Goulding J. regards either as appropriate, *Sega Enterprises Ltd. v. Richards*, [1983] Fleet St. R. 73, at p. 75 (Ch.D.). See Lahore, *loc. cit.*, footnote 10, at p. 202.

³⁷ *IBM*, *ibid.*, at p. 67 (emphasis added).

Canadian Computer Copyright

This pair of cases brings Canadian law into line with the many other members of the international community which have extended the protection of their copyright legislation to computer software. The effects of that are difficult to gauge and any effort to do so would presently be superfluous. The immediate question in both cases was whether a computer program is a "literary work". Davidson³⁸ argues forcefully for an affirmative answer to that question. Doubt has arisen, he suggests, only because of a confusion between the dual mechanical and symbolic nature of software.

The *IBM* case disposes felicitously of this issue. The authorship of software consists of the symbolic manipulation of letters, numbers and symbols as laid down by the demands of computer languages. Its expression is the specific logic and design of the program, which is not the functioning of the computer but a symbolic representation of that functioning.³⁹ The change of the code from subject to object does not alter this expression nor does the question of intelligibility affect the copyrightability of the object code.⁴⁰

[T]he expression of the program in object code is less intelligible than the expression in source code. This is due to the nature of computer languages . . . nevertheless, object code is not unintelligible. Indeed, it has no purpose when printed or displayed except to be deciphered. In addition, object code can be almost directly translated into assembly language . . . the object code computer instructions represented in ones and zeros translated into simple mnemonics which are easier to understand . . .

The object code is a reproduction rather than translation of the source code.⁴¹ Lahore⁴² contended that the disagreement over this issue in the Australian Full Federal Court left "many uncertainties", and made the advent of remedial legislation promised following Beaumont J.'s trial decision all the more welcome. That first instance case, refusing copyright protection, had been an "unfortunate digression" which had caused widespread "consternation" and the legislature responded with "commendable vigour" to ensure that computer software was "adequately protected".⁴³ The Canadian courts have not been found guilty of such vacillation. Although the White Paper promises a special statutory scheme

³⁸ *Loc. cit.*, footnote 7, at pp. 360-384, especially pp. 365-368, 371-372.

³⁹ *Ibid.*, at p. 367.

⁴⁰ *Ibid.*, at p. 368.

⁴¹ Compare the treatment of this in the *IBM* and *RDG* cases.

⁴² *Loc. cit.*, footnote 10, at p. 201.

⁴³ *Ibid.*, at pp. 196-201.

of computer program copyright⁴⁴ the courts have thawed the frozen language and openly brought copyright into the service of the technological age.

Several technical problems arise immediately. Do program writers enjoy the moral rights which section 12(7) of the Canadian Act confers? Are the traditional copyright concepts of originality and term appropriate to computer software? And is the copyright protection against copying of more than limited use compared with the regulation of the use of the protected program itself? While it is remarkable that none of these intermediate issues even figure in the courts' assessment of the plaintiffs' claims in either *IBM* or *RDG*, more problematic still is the apparent lack of sensitivity to the issues which lie behind these formal questions of legal interpretation; the tacit acquiescence in the fiction that courts do and can only see the world through the keyhole of litigation.⁴⁵

*Beyond the Gutenberg Galaxy*⁴⁶

Until recently, copyright has been confined to regulating the interests of authors, publishers and consumers in discrete works. Computer technology, *par excellence*, is transforming copyright into one of the bargaining chips used in the competitive market game, reserved especially as a counter to what is seen as unfair competitive practices—the core issue in both *IBM* and *RDG*.⁴⁷ To that extent, the issues raised by copyright, of economic interest and political judgment, become heightened as legislation is pressed beyond its historically specific parameters to catch up with the technological progress of later generations.⁴⁸

But this begs the question. The issue of legal interpretation cloaks the fundamental problem of whether copyright is the appropriate form of legal regulation and protection for computer programs, if indeed any is shown to be necessary. This is neither a new nor profound problem, but it is, within its own compass, an important one. Computers, interlinked by

⁴⁴ *Op. cit.*, footnote 6, pp. 79-86. The scheme of the legislation is outlined in Morgan, *loc. cit.*, footnote 6.

⁴⁵ To adopt Paul Freund's phrase, quoted in Thomas, Have the Judges Done Too Much?, Time, Jan. 22, 1979, at p. 91.

⁴⁶ Recalling Marshall McLuhan's book, *The Gutenberg Galaxy* (1962).

⁴⁷ A similar point is made obliquely in the concurring opinion of Commissioner Nimmer, CONTU Report, *op. cit.*, footnote 29, p. 26.

⁴⁸ It is remarkable how little discussion there is in any of the recent cases from various common law jurisdictions of that hallowed dogma "the intention of the legislature" when discussing the applicability of copyright legislation to computer programs. The Copyright Act, in particular, is an example of what Guido Calabresi has recently called an "obsolete" statute: see A Common Law for the Age of Statutes (1982), pp. 2, 121-123. His preferred technique for resolving this problem appears to be precisely that which the Canadian courts have adopted: *ibid.*, especially pp. 164-165.

communication lines, are developing into the new nervous system⁴⁹ of the body politic. One special dilemma which they present is that their vast new informational power will simply enhance the already inordinate power of public and private organizations rather than augmenting the capacities and capabilities of human beings.⁵⁰ It is for this reason that legal systems must be alert to the destination of the protection and privilege to which their handiwork is devoted. The issue of whether a computer program is or ought to be patentable subject matter is frequently raised. Most jurisdictions have concluded against such protection.⁵¹ Instead, they have opted for the "short-cut" protection afforded by copyright rather than think through a proper regulatory scheme.⁵² Particular problems are raised by this choice.

A copyright holder is not required to publish the work in question, and so is not required to provide public benefit during the term of copyright nor to disclose the explanatory research and development background necessary to understand a program, and thus add to the common fund of knowledge. The use of existing copyright statutes, which, as in Canada, provide copyright protection for the author's life plus fifty years, gives almost perpetual copyright. It is preferable to require public disclosure while commercial value might still adhere to the program as the cost of a limited monopoly protection. Against this are typically placed at least two arguments. First, that the computer software industry actually needs copyright protection in order to ensure that the investment of time and resources is repaid sufficiently to stimulate continued research and development. Secondly, that copyright actually ensures greater public access to innovative programs than continued reliance on some other forms of protection.

Stephen Breyer has argued that a large difference between the cost of producing a work initially and the cost of copying it is not alone sufficient to show that copyright protection is desirable.⁵³ An assumption which lies behind the "incentive to continue research" argument is that it is difficult to recoup development costs of hundreds of thousands of dollars when programs can be so easily copied. That might be more of a problem in markets where it is difficult to identify, organize and bargain with all

⁴⁹ Robert Fano, cited in Lawrence Tribe, *Channelling Technology Through Law* (1973), p. 439.

⁵⁰ *Ibid.*, p. 438. For an excellent discussion of this dilemma see Joseph Weizenbaum, *Computer Power and Human Reason* (1984 ed.), especially pp. 17-38, 232-257.

⁵¹ See W.R. Cornish, *Intellectual Property* (1981), p. 172; CONTU Report, *op. cit.*, footnote 29, p. 17.

⁵² J. McL. Emmerson, *Computer Software: Detailed Enquiry Needed Before Legislation* (1984), 58 *Law Institute J.* 514, at p. 517. The following paragraph draws particularly on this essay. Emmerson was counsel for Computer Edge in the Australian *Apple* case, *supra*, footnote 10. See also footnote 44, *supra*.

⁵³ *Loc. cit.*, footnote 22, at p. 344. And see Dworkin, *op. cit.*, footnote 22, p. 90.

potential program buyers than with relatively more homogeneous sectors of the market.⁵⁴ But evidence is still lacking of any substantial hardship suffered by software manufacturers which is directly related to the hitherto absence of copyright protection. Before it can be concluded that copyright protection will correct perceived wrongs, it is necessary to examine "the probable speed and ferocity of competitive response, the presence of subsidies, the ability of buyers to channel revenue to publishers and authors in the absence of protection".⁵⁵

The pharmaceutical industry invests a substantial amount of capital in research and development. It also carries the burden of clinical safety trials before even determining whether marketing its products is feasible or lawful. Patent protection, which has public disclosure benefits, is sufficient to enable the industry to recoup its costs—with handsome profit—even though its output can be copied at little cost.⁵⁶ Is protection so badly needed in the computer software industry that the case for the application of copyright legislation is made out? It is quite correct to observe, as Dworkin does,⁵⁷ that demands for software protection have grown increasingly vociferous in the last decade. But "words like 'theft' and 'piracy' have been used with more rhetoric than accuracy".⁵⁸ If intellectual property protection is necessary, the sooner it is done the better. But it by no means follows that "the hurried introduction of a bad form of protection is better than waiting for a good one".⁵⁹

The second issue is whether copyright really ensures greater public access to computer software.⁶⁰ Here, a core assumption is that on achieving copyright protection, the computer software industry would cash in any other forms of protection. But as Commissioner Hersey has put it, "it is obvious that the industry, faced with a choice between secrecy and dissemination, as represented in the choice of trade-secrecy laws and copyright has overwhelmingly opted for the former".⁶¹ Public access to innovative programs, he argued, would be inhibited rather than facilitated by the addition of the copyright solution to areas of protection—especially trade secrecy—which already exist.⁶²

⁵⁴ Breyer, *ibid.*, at p. 346.

⁵⁵ *Ibid.*, at p. 351. See also CONTU Report, *op. cit.*, footnote 29, p. 30, dissent of Commissioner Hersey.

⁵⁶ This paragraph draws on Emerson, *loc. cit.*, footnote 52, at p. 518.

⁵⁷ *Op. cit.*, footnote 22, pp. 89-90, text and accompanying footnote 1.

⁵⁸ Emerson, *loc. cit.*, footnote 52, at p. 514. And see text accompanying footnotes 47 and 48, *supra*.

⁵⁹ *Ibid.*, p. 518.

⁶⁰ This formed the base line of the CONTU Report majority; compared with other forms of protection, copyright was the least-worst alternative: see CONTU Report, *op. cit.*, footnote 29, pp. 16-25.

⁶¹ CONTU Report, *ibid.*, p. 34 (Commissioner Hersey).

⁶² *Ibid.*

... it is evident that, with eased requirements for deposit and disclosure, copyright itself would be used as one more device to prevent rather than enable, access to innovative programs—one more device of industrial security.

This is perhaps the most telling consideration against the desirability of general copyright for computer programs. This is to recall the point made by Tribe—the question of access to technology and control over its use and output is probably the single most important decision which has to be taken in relation to computers, both hardware and software. At bottom, the solution to this problem depends on questions of political judgment, to which issues of law and fact are merely the amenuenses. The courts and the forensic process which they serve are ill-equipped to resolve these dilemmas. The investigation of complex issues which computer technology raises is no reason to condone the acquiescence in stop-gap measures between full and proper legislative consideration. Unless clear need is shown, the courts should decline to proffer intellectual property protection to computer software. Such need has not been shown. The doubtful observer is entitled to wonder what precisely has changed since 1977 when Harbridge House observed that the availability of copyright protection for computer software was “of monumental insignificance to the industry”.⁶³ As Benjamin Kaplan concluded:⁶⁴

... wise legislation will proceed not by deduction from a monistic premise but a series of judgments about ends served and disserved by particular measures.

The fragile compromises made with the successors of Gutenberg in the technological age may be poorly served by the perpetuation of old forms of social and economic power.

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⁶³ Legal Protection of Computer Software (1977), p. iii, study commissioned by CONTU, *supra*, footnote 29, cited Hersey, *ibid.*, p. 35, n.152.

⁶⁴ *Op. cit.*, footnote 1, p. 124.

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