NEW WINE IN OLD BOTTLES: ARTHUR MILLER AND COPYRIGHT LAW

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For over forty years, Professor Arthur Miller has been a major force in legal education and the law itself. For decades at Harvard Law School, and now as a professor at New York University School of Law, he has taught innumerable classes, published scores of scholarly articles, and educated and influenced the lives of countless students, including distinguished practitioners, law professors and deans, university presidents, judges, and members of Congress.[1] After more than forty years and forty-five volumes, his Wright and Miller treatise remains the preeminent reference in the field of civil procedure, and his casebook is a mainstay of first year law school courses across the country. Indeed, Miller's body of work is so vast and his influence on the world of procedure is so great that it is easy to overlook another of his specialties, copyright law. This Article attempts to address that oversight.

Copyright law and Arthur Miller are a natural match. The law itself presents endless intellectual challenge; its basic principles are ancient and easy to state, but difficult to apply. The issues are nuanced, there are no bright lines and, as technological advances have fundamentally transformed both the nature of the "works" protected by copyright and the forms infringement may take, the opportunities for thoughtful academic work are without limit. As discussed in the pages below, throughout his career Arthur Miller has been a powerful voice in the debate over the evolving scope of copyright law.

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1. Among the law professors who were Arthur Miller's students are Linda Silberman at NYU and Jane Ginsburg at Columbia; the university presidents are John Sexton of NYU and Joel Seligman of Rochester; the judges include Chief Justice Roberts, Judges Reena Raggi (2d Cir.), Ronald M. Gould (9th Cir.), Joseph A. Greenaway (3d Cir.), Deanell Reece Tacha (10th Cir.), and Patti Saris (D. Mass.); and the members of Congress include Senators Russ Feingold and Jack Reed and Representative Barney Frank.

I.
THE COPYRIGHT CONUNDRUM

Although often thought of in tandem with its sister discipline of patent law, copyright law is a creature unto itself. In terms of their similarities, both patent and copyright law represent forms of intellectual property and provide legal protection, on defined terms and for limited durations, to the products of human creativity.[2] Both share the distinction of having been expressly called for in the United States Constitution itself, where Congress is provided the power:

> To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.[3]

Both are exclusively creatures of federal law.[4] Neither protects ideas themselves; copyright requires original expression "fixed in any tangible medium" and patent requires a useful, novel, and nonobvious invention, at least constructively reduced to practice.[5]

Although copyright is more commonly associated in popular thought with artistic and aesthetic works, such as books, plays, movies and musical recordings, while patents are thought of in the context of chemical compounds, machines and processes, the same works can be, and often are, protected by both. For example, an original computer software program is protected by copyright but may also include processes, algorithms, and other elements that are protected by patent (as well as undisclosed source code, which is typically protected as a trade secret, under state law).[6] While the application of copyright to utilitarian works may seem strange to some, it is not new. The original Copyright Act of 1790 expressly provided protection for such useful and utilitarian works of author-

2. These features are similar on a conceptual level but differ vastly in practice. For example, the duration of copyright protection varies greatly and can last up to 120 years or more, while a patent's term is a fixed twenty years from the date of application or fourteen years for design patents (excluding provisional applications and certain term adjustments or extensions). *See* 17 U.S.C. §§ 301–305 (2006); 35 U.S.C. §§ 154(a)(2), 173 (2006).

3. U.S. CONST. art. I, § 8, cl. 8.

4. One of the main goals of the 1976 Copyright Act was to eliminate state and common law forms of copyright law. The 1976 Act explicitly preempts all previous copyright protection "under the common law or statutes of any State." 17 U.S.C. § 301(a) (2006).

5. 17 U.S.C. § 102(a) (2006); 35 U.S.C. §§ 101–103 (2006).

6. Robert L. Graham, *The Legal Protection of Computer Software*, 27 COMM. ACM 422, 423–25 (1984).

ship as maps and nautical charts.[7] At a time when the economies of the United States and the world are increasingly fueled by intellectual property, these related bodies of law also share the distinction of being critically important.

While copyright and patent law may share these similarities of purpose and history, on an analytical level their differences are more profound. The protection of a patent does not exist until the government, acting through the U.S. Patent and Trademark Office, issues it.[8] The boundaries of this property right are set forth in an official document, the patent, which contains a written description of the invention and its background, followed by a number of written claims which define the scope of the patent right.[9] These claims, and not the features of any product the inventor may have created to practice the invention, delineate the limits of the inventor's exclusive rights. Infringement turns on demonstrating that the allegedly infringing (or "accused") product contains every element of one or more of the asserted claims.[10]

Since the Supreme Court's decision in *Markman v. Westview Instruments, Inc.*,[11] the process of interpreting a patent's claims has become a case within the case.[12] The court's *Markman* ruling, which sets forth the interpretation or "construction" of disputed patent claim terms, may determine the outcome of the dispute.[13] Even

7. *See, e.g.*, Blunt v. Patten, 3 F. Cas. 763 (S.D.N.Y. 1828) (No. 1580). Today, such antique maps may be appreciated for their historic and aesthetic value, but at the time they were created they meant the difference between a safe journey home and being lost at sea.

8. A utility patent application filed on or after June 8, 1995, has a term of protection that begins on the date on which the patent issues. 35 U.S.C. § 154(a)(2) (2006).

9. This has been true consistently since the enactment of the Patent Act of 1836. *See* Patent Act of 1836, ch. 357, § 6, 5 Stat. 117, 119 (1836).

10. Infringement requires a showing that "the accused product or process contain[s] elements identical or equivalent to each claimed element of the patented invention." Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 40 (1997). In statutory terms, "whoever without authority makes, uses, offers to sell, or sells any patented invention, within the United States or imports into the United States any patented invention during the term of the patent therefor, infringes the patent." 35 U.S.C. § 271(a).

11. 517 U.S. 370 (1996).

12. In *Markman*, the Supreme Court held that the resolution of disputed patent claim terms is a matter of law for the court to decide. *Id.* at 372. This ruling spawned the practice of holding a (typically pretrial) hearing known as a claim construction hearing, or simply a *Markman* hearing.

13. A claim construction ruling determines the metes and bounds of a patentee's rights and may resolve the question of literal infringement by a defendant. As Judge Newman noted, "Deciding the meaning of the words used in the patent is

though claim construction issues are often hotly contested, and reversals on appeal are common,[14] the analytical process is meant to be almost formulaic.

The definition of the patent-protected invention is to be found in the patent itself, in the language of the claims as informed by the descriptive elements of the specification and whatever distinctions are drawn in the patent's prosecution history.[15] Creativity is not part of the claim interpretation equation. Of course, when patent cases raise questions about the outer limits of patentable subject matter,[16] the legal issues can be as nuanced as anything in copyright law; but as a general rule, the lines in patent law are meant to be knowable.

Copyright, on the other hand, is a very different matter. The property right itself is automatic, created the moment an original work of authorship is fixed in a tangible medium of expression, whether or not it is ever published.[17] Unlike a patent, it does not depend upon a specific grant by the government following an elaborate substantive review.[18] Copyrights are—or, more accurately, may be—registered by the Copyright Office, not issued.[19]

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often dispositive of the question of infringement." Markman v. Westview Instruments, Inc., 52 F.3d 967, 999 (Fed. Cir. 1995) (en banc) (Newman, J., dissenting), *aff'd*, 517 U.S. 370 (1996).

14. Many empirical studies have documented the high reversal rate of district court claim constructions by the Federal Circuit. *See, e.g.*, Kimberly A. Moore, Markman *Eight Years Later: Is Claim Construction More Predictable?*, 9 LEWIS & CLARK L. REV. 231, 231 (2005); Michael Saunders, *A Survey of Post-*Phillips *Claim Construction Cases*, 22 BERKELEY TECH. L.J. 215, 232–40 (2007).

15. The record of correspondence between the patent applicant and the U.S. Patent and Trademark Office (PTO) is known as the "prosecution history" of a patent. Phillips v. AWH Corp., 415 F.3d 1303, 1317 (Fed. Cir. 2005) (en banc). It is one piece of the "intrinsic evidence" to consider when construing patent claims. *See id.* at 1315, 1317 (finding that preferred way to construe claim is to study intrinsic evidence).

16. The four categories of patentable subject matter are outlined in 35 U.S.C. § 101 (2006) as processes, machines, manufactures, and compositions of matter. The outer limits of these categories are constantly being redrawn by the courts. *See, e.g.*, Bilski v. Kappos, 130 S. Ct. 3218, 3228–29 (2010) (broadening test for patent-eligible subject matter to include business methods).

17. *See* 17 U.S.C. § 102 (2006) (discussing copyright in general); Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 548–49 (1985) (finding copyright infringement for unauthorized use of quotations from President Ford's unpublished memoirs).

18. *See infra* note 20 and accompanying text. The substantive review is known as the prosecution of a patent.

19. Copyright registration is permissive and not a condition of copyright protection. 17 U.S.C. § 408(a) (2006). In order to sue for copyright infringement,

More fundamentally, the scope of what is protected by a copyright is not defined in advance by a government agency that has examined and analyzed the protected work. There are no claims; the right is defined by the copyrighted work itself.[20] That does not mean that everything in a work, no matter how original and creative, is necessarily protected by the copyright that applies to the work as a whole. The protection of the Copyright Act is limited to original "expression," and expressly excludes any "idea," "procedure," "system," "process," "method of operation," "concept," "principle," or "discovery."[21] Drawing the line between protected "expression" and the rest is rarely easy, and there are no claims to aid in the process. Judge Learned Hand, whose preeminence in American copyright law is reflected by the fact that his "levels of abstractions" test is still used to analyze computer programs and other complex copyrighted works,[22] stated after thirty years of experience in copyright law that "[o]bviously, no principle can be stated as to when an imitator has gone beyond copying the 'idea,' and has borrowed its 'expression.' Decisions must therefore inevitably be *ad hoc*."[23] There simply are no bright lines.

Determining whether infringement has occurred can be equally difficult. Again, a comparison to patent law is instructive. On one level, copyright infringement ought to be an easier question. Unlike patent law, which grants the patent owner exclusive rights to an invention enforceable against even an innocent infringer who may have independently created the same thing, copyright law never says that you cannot create something. It simply requires that you do your own work and not copy from someone else.[24] Copying may be indirect or even unintended, but if the alleged infringer was never exposed to the copyrighted work, even

however, a party typically must have obtained a registration of the copyright. *Id.* § 411(a).

20. *See* 17 U.S.C. §§ 102–03 (2006).

21. *Id.* § 102.

22. *See, e.g.*, Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930); Gates Rubber Co. v. Bando Chem. Indus., Ltd., 9 F.3d 823, 834 (10th Cir. 1993); Computer Assocs. Int'l v. Altai, Inc., 982 F.2d 693, 706 (2d Cir. 1992); Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37, 60 (D. Mass. 1990).

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

24. Whereas patent law is grounded in negative rights (i.e., the right to prevent others from making, using, or selling the patented invention), copyright law grants certain exclusive rights to the owner of a copyright in a work. *See generally* 17 U.S.C. §§ 101–22 (2006).

the independent creation of an exact, verbatim copy, while highly unlikely, would not constitute infringement.[25] It seems simple.

But again, copyright law refuses to apply a bright line test. Unlike patent law, which has an "all elements" rule, requiring that an allegedly infringing product meet each and every element of an asserted patent claim,[26] copyright law employs a markedly fuzzier "substantial similarity" test to determine infringement.[27] Close may not be good enough to establish patent infringement, but as with hand grenades and horseshoes, it works for copyright infringement. The infringement question in copyright often turns on a subjective judgment as to how much is too much.

This problem is compounded geometrically by the fact that the same copyright principles developed over the centuries, primarily in the context of artistic works produced and distributed on paper, today apply to works of authorship expressed in binary code and copied and distributed through the flow of electrons. This is not to suggest that copyright has *ever* been confined to artistic works or that changes in technology have not, in the past, created new challenges for copyright law to address.[28] But there is no question that the pace and scope of technological change over the last few decades eclipses anything that occurred in the centuries before.[29]

25. 17 U.S.C. § 501 (2006) defines copyright infringement and requires, inter alia, that the defendant copy the protected work. If the protected work was independently created, and thus not copied, there can be no infringement. *See id.* (citing sections providing copyright owners exclusive rights of reproduction). Courts generally require a copyright owner to prove copying through circumstantial evidence that the defendant had access to the original work. *See, e.g.*, Arnstein v. Porter, 154 F.2d 464, 468 (2d Cir. 1946).

26. "Under the 'all elements' rule, to find infringement, the accused device must contain 'each limitation of the claim, either literally or by an equivalent.'" TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc., 529 F.3d 1364, 1379 (Fed. Cir. 2008) (quoting Freedman Seating Co. v. Am. Seating Co., 420 F.3d 1350, 1358 (Fed. Cir. 2005)).

27. Indeed, "[t]he nuances of the 'substantial similarity' test vary . . . depending on the nature of the copyrighted work at issue." BUC Int'l Corp. v. Int'l Yacht Council Ltd., 489 F.3d 1129, 1148 (11th Cir. 2007).

28. For example, in *White-Smith Music Publishing Co. v. Apollo Co.*, 209 U.S. 1 (1908), the Supreme Court ruled that manufacturers of music rolls for player pianos did not have to pay royalties to the composers because the piano rolls were not copies of the plaintiffs' copyrighted sheet music, but were instead parts of the machine that reproduced the music. *Id.* at 13–14. Congress reacted to the decision by amending the Copyright Act to include a compulsory license for the manufacture and distribution of such mechanical embodiments of musical works. Metro-Goldwyn-Mayer Distrib. Co. v. Bijou Theatre Co., 59 F.2d 70, 74 (1st Cir. 1932).

29. To be sure, early cases that examined encoded sequences of instructions in the form of player piano rolls advanced copyright law at the time. *See White-Smith*

That is, if it was difficult deciding whether George Harrison's *My Sweet Lord* sounded too much like *He's So Fine*,[30] or the Captain America comic book character too closely resembled Superman,[31] imagine the complexity of applying the same basic rules to decide whether the structure of computer source code (analogized to the detailed plot of a novel) crosses the line and infringes. New methods of digital distribution and storage of copyrighted content, licensed and not, adds to the difficulty of drawing appropriate lines, as does the fact that copyright law, unlike patent, has a "fair use" doctrine that excuses, on equitable grounds, certain conduct that otherwise would constitute infringement.[32] Once again, the copyright law eschews bright lines. Although fair use is codified in 17 U.S.C. §107, with the statute providing four *non*-exclusive factors that courts are to consider,[33] even a cursory review of the case law reveals that these decisions are heavily fact-based judgments as to how much is too much as a matter of equity.[34]

Music, 209 U.S. 1. But contemporary questions involving computer software and digital distribution and storage of copyrighted works have complicated the law in an unparalleled fashion.

30. *See* Bright Tunes Music Corp. v. Harrisongs Music, Ltd., 420 F. Supp. 177, 178 (S.D.N.Y. 1976).

31. *See* Nat'l Comics Publ'ns, Inc. v. Fawcett Publ'ns, 191 F.2d 594, 597 (2d Cir. 1951).

32. By statute, "the fair use of a copyrighted work . . . for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright." 17 U.S.C. § 107 (2006).

33. Factors to be considered include:

(1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;

(2) the nature of 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.

Id.

34. The Supreme Court's landmark decision in *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417 (1984), which is widely relied upon as establishing a fair use defense for the noncommercial, home copying of copyrighted material, is a perfect example. *See id.* at 454–55. Few decisions among the hundreds that have cited this case have paused to consider how many of the factual predicates for that 5-4 decision are no longer true. *Compare* Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd., 545 U.S. 913, 934 (2005) (not considering changed circumstances), *and* Realnetworks, Inc. v. DVD Copy Control Assoc., 641 F. Supp. 2d 913, 941 (N.D. Cal. 2009) (same), *with* Cartoon Network LP v. CSC Holdings, Inc., 536 F.3d 121, 132–33 (2d Cir. 2008) (noting that Sony did not have ongoing relationship with customers, while Cablevision did have ongoing relationship).

The stakes could not be higher. A number of American industries, including some in which the United States still leads the world in terms of innovation, depend upon copyright protection for their futures. Those who write and publish books, or who produce television shows and motion pictures, look at what has become of the recorded music industry and worry about their own survival. We are taught that the law is meant to provide predictable outcomes that allow for sound business decisions and investment. But as copyright law has never provided simple or bright line answers and is being applied to new and rapidly evolving technologies, such predictability remains elusive.

As these challenges involving digital works of authorship unfolded, many in the academic community argued that traditional copyright law simply was not up to the task. Countless law review articles were published with titles that included the word "revisiting" and the name of a recent appellate decision, or proposing entirely new, or hybrid, forms of intellectual property protection to cover the emerging technologies.[35] Some simply argued that copyright was the wrong body of law to protect, for example, computer software, preferring that patent protection provide the exclusive answer.[36] As major cases were making their way through the appellate courts, it became common to see amicus briefs filed in the name of "The Copyright Law Professors," consistently arguing against the protection of whatever was at issue in the particular case.[37]

Against this backdrop, Arthur Miller stood out as a dissenting voice. In his academic work, he wrote strongly, and with the force of history on his side, that copyright law could meet the challenge and, when applied by sound judicial minds, could strike the right

35. An entire Columbia Law Review issue was devoted to new and hybrid approaches to intellectual property law. *See* J.H. Reichman, *Legal Hybrids Between the Patent and Copyright Paradigms*, 94 COLUM. L. REV. 2432 (1994). The headlining article was authored by Pamela Samuelson, Randall Davis, Mitchell D. Kapor, and J.H. Reichman, and was entitled *A Manifesto Concerning the Legal Protection of Computer Programs*, 94 COLUM. L. REV. 2308 (1994).

36. "To some, these issues were nothing more than the same old wine, and they fit nicely into the old doctrinal bottles. Others, although regarding computer technologies as a new wine, nonetheless found satisfactory answers in the old bottles. The controversy . . . was generated by those who believe that we really are dealing with a sufficiently new wine that it requires new conceptual bottles." Arthur R. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 HARV. L. REV. 977, 979 (1993).

37. *See, e.g.*, Brief Amicus Curiae of Copyright Law Professors in Support of Respondent, Lotus Dev. Corp. v. Borland Int'l, Inc., 516 U.S. 233 (1996) (No. 94-2003); Brief Amicus Curiae of Eleven Copyright Law Professors, Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510 (9th Cir. 1992).

balance between protecting the incentives essential to promoting a ready flow of new creative works and not stifling innovation or inadvertently creating economic monopolies.[38] As he wrote of pouring "new wine into old bottles,"[39] Professor Miller was uniquely equipped to speak to the matter. He had been a key player in the examination of the application of copyright law to emerging technologies from the very beginning.

II.
MILLER AND COPYRIGHT: THE EARLY DAYS

As he tells the story, Arthur Miller's involvement with copyright law began as a second-year law student and brand new editor of the Harvard Law Review.[40] His first assignment was to review that journal's procedures for complying with the then-applicable notice requirements of the Copyright Act of 1909.[41] His memorandum on the subject was reviewed by Professor Benjamin Kaplan, Harvard's resident expert in copyright law and civil procedure.[42] That work resulted in an offer to become Kaplan's research assistant the following summer and marked the beginning of a fifty-year relationship as teacher, mentor, colleague, and friend,[43] as Miller went on to inherit Kaplan's role as Harvard's preeminent scholar in both the copyright and procedure fields.

In those days, and for many years beyond, intellectual property law was an afterthought in legal education. Harvard offered a single-semester course in copyright, taught every second year, with a course in patent law scheduled in the off year. Kaplan's interest in the subject arose from his love of books, plays, music and art. Miller describes Kaplan as a "natural proselytizer" and himself as a "relatively early and ardent convert."[44] In the late 1960s and early 1970s, when Miller began his collaboration with Kaplan, the copyright community was in the midst of the multi-decade campaign to reform and modernize the 1909 statute.[45] Leading the charge, as is

38. *See generally* Miller, *supra* note 36, at 980–82.

39. *Id.* at 979 (stating that treating computer programs as a form of literary work would "put the new wine into the old bottles").

40. *See* Arthur R. Miller, *Introduction: An Unhurried View of Copyright (and Benjamin Kaplan) — A Personal Reflection*, *in* BENJAMIN KAPLAN ET AL., AN UNHURRIED VIEW OF COPYRIGHT REPUBLISHED (AND WITH CONTRIBUTIONS FROM FRIENDS), at MILLER–1 (Iris C. Geik et al. eds., LexisNexis Matthew Bender 2005) (1967).

41. *Id.*

42. *Id.*

43. *Id.*

44. *Id.* at MILLER–2.

45. *See id.*

typically the case in copyright legislative efforts, were the various content-providing industries that depended on copyright protection.[46] The digital revolution was in its earliest days, and although no one could fully anticipate at that time the changes and challenges that lay ahead, Kaplan and Miller focused on the potential impact that the use of computers would have on copyright law in the future.[47] In particular, Kaplan and Miller were asked to assist Educational Community (EDUCOM), a consortium of educational institutions concerned that the proposed new copyright law might unduly restrict the ability of the academic community fully to exploit the potential of the emerging new technologies for teaching and research.[48] The concerns expressed by EDUCOM, ably articulated by Kaplan and Miller, were remarkably farsighted given that the computers of the day were mainframes, programmed with punch cards, and the Internet was still decades away. Indeed, one of the projects they envisioned was the creation of an immense, digital global library, making the world's knowledge freely available to all—decades before Google actually attempted to do it.[49] Although the future shape and significance of the emerging new technologies could barely be imagined at the time, Miller has described the debate as "a veritable struggle to set the agenda for the future of intellectual property law."[50] In that debate, the champions of the future in battling the protectionists of the publishing industry were Kaplan and Miller.[51]

In the midst of this debate, Kaplan delivered the Carpentier Lectures at Columbia Law School, subsequently published as the book *An Unhurried View of Copyright*,[52] which is still viewed as one of the most thoughtful treatments of the subject ever published. As Miller has written, "The genius of the Lectures is that they take us back to first principles."[53] The fundamental point was that copyright law has always represented a balance between the legitimate

46. *See Leaders: Copyright and Wrong; Protecting Creativity*, ECONOMIST, Apr. 10, 2010, at 16.

47. Miller, *supra* note 40, at MILLER–2.

48. *Id.* at MILLER–2 n.2.

49. *Id.*; *see also* Authors Guild v. Google Inc., No. 05-CV-8136(DC), 2011 WL 986049, at *1 (S.D.N.Y. Mar. 22, 2011).

50. Miller, *supra* note 40, at MILLER–2.

51. *See id.*

52. Benjamin Kaplan, *An Unhurried View of Copyright*, *reprinted in* BENJAMIN KAPLAN ET AL., AN UNHURRIED VIEW OF COPYRIGHT REPUBLISHED (AND WITH CONTRIBUTIONS FROM FRIENDS) (Iris C. Geik et al. eds., LexisNexis Matthew Bender 2005) (1967).

53. Miller, *supra* note 40, at MILLER–2.

property interests of those who create original works and those who wish to use those works without undue encumbrances.[54] The judgment required to strike that balance cannot exist without a sound understanding of the historical roots and purposes of copyright law, as reflected not only in its various statutory forms, but also in the rich fabric of case law developed over the years.[55] Miller describes Kaplan's philosophy as "low-protectionist"; copyright protection is not a natural right, but the means to an end.[56] Kaplan made the case, based on both English and American history, that the amount of protection afforded needed to be sufficient to provide the incentives to create—or, as the Constitution states, "To Promote the Progress of Science"—but not to go further to the point of stifling legitimate use.[57] Kaplan went on to argue that not all works necessarily required protection of the same scope and duration.[58] While Kaplan's views were not universally welcomed or accepted,[59] it is fair to say that the basic debate over copyright protection and the seriousness with which such issues are treated has never been the same since.[60]

III.
CONTU AND THE COPYRIGHT ACT OF 1976

After decades of debate, Congress finally enacted the Copyright Act of 1976, creating the basic statutory scheme still in place today.[61] There was, however, one piece of unfinished business involving the role of emerging technologies. What the years of discussion failed to resolve was the treatment of new computer and other electronic methods of storing and accessing intellectual content. Those concerned about the damage that might be done to emerging technologies by the proposed new legislation urged that the statute include a moratorium on liability for copyright infringe-

54. *Id.* at MILLER–3.

55. *Id.*

56. *Id.* at MILLER–4 to –5.

57. *See id.* at MILLER–5.

58. *Id.*

59. *Id.*

60. For another thoughtful treatment of the subject by a noted academic who went on to a distinguished judicial career, see Stephen Breyer, *The Uneasy Case For Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281 (1970).

61. The Copyright Act of 1976, which provides the basic framework for the current copyright law, was enacted on October 19, 1976, as Pub. L. No. 94-553, 90 Stat. 2541 (codified as amended at 17 U.S.C. §§ 101–805 (2006)).

ment for three years while the issue was studied.[62] The advocates of strong protection—i.e., authors and publishers—threatened to block the statute entirely if it contained any such provision.[63] The solution was to create, in 1974, the National Commission on New Technological Uses of Copyrighted Works (CONTU), which was given three years to study the issues and report back to Congress with recommendations.[64] The 1976 Act became law without expressly resolving any of the open questions while the Commission did its work.[65] President Ford appointed Professor Arthur Miller as one of fourteen CONTU commissioners, identifying him as a representative of the interests of copyright users.[66] The Commission was chaired by Judge Stanley Fuld, and the Vice-Chair was Melville Nimmer, the noted copyright scholar and treatise author.[67] Arthur Miller was a member of the Computer Software subcommittee.[68] After hearing testimony from over 100 witnesses and reviewing numerous reports and studies, CONTU issued its recommendations to Congress.[69]

The recommendations required only the most modest amendments to the Copyright Act. With respect to the protection of computer programs, CONTU recommended that the definition of "literary works" be amended to include a reference to computer programs, thus signaling that such digital works of authorship should be afforded the same exclusive rights and be subject to the same idea–expression analysis used for more traditional writings, such as novels and plays.[70] Even works in machine language, which an ordinary person could not possibly read, were to be literary works for purposes of copyright law.[71] To address concerns about

62. *See* NAT'L COMM'N ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT OF THE NATIONAL COMMISSION ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS 4 (1979) [hereinafter FINAL REPORT].

63. *Id.*

64. *Id.* (citing S. 3976, 93d Cong. (1974) (enacted)).

65. *Id.* (noting bill's enactment on December 31, 1974, as Pub. L. No. 93-573).

66. *Id.*

67. *See id.*

68. *Id.* at 6.

69. *See id.* at 7.

70. *Id.* at 11, 16.

71. *See id.* at 10, 16; *see also* 17 U.S.C. § 101 (2006) (noting that "audiovisual works" includes works that are "intended to be shown by the use of machines" and "copies" includes works that "can be perceived, reproduced, or otherwise communicated . . . with the aid of a machine"). This contrasted with earlier interpretations of copyright law, underscored by the Supreme Court's holding that a piano roll was not a "copy" of the music it played because it was incapable of being read by

what might be viewed as unlicensed copying, an amendment was proposed to permit lawful creation of a backup when a user installed software on the hard drive in her or his computer.[72] Electronic databases, another area of major concern to CONTU, were to be treated as compilations under section 103 of the Act, just like telephone directories or collections of economic or baseball statistics.[73] And with respect to the philosophical debate over whether a work actually written by a computer could be protected by copyright, CONTU concluded that such works could and should be protected to the extent that they otherwise qualified as original "works of authorship" within the meaning of the law.[74] In short, after years of study and debate, CONTU concluded that these new technologies did not require a new and distinct form of protection or analytical framework; they could be accommodated under the Copyright Act of 1976 with nothing more than modest statutory tweaks to confirm that this was Congress' intent. With the Computer Software Amendments of 1980, Congress did precisely that.[75]

IV.
SOFTWARS[76]

Then the battle began in earnest. The 1980s and 1990s saw a significant amount of copyright infringement litigation as the software industry and the courts wrestled with what it meant to treat computer programs as literary works for the purposes of copyright law. One early line of cases arose as the popularity of video games gave rise to imitations.[77] The value that plaintiffs sought to protect

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the unaided human eye. FINAL REPORT, *supra* note 62, at 10 (citing White-Smith Music Publ'g Co. v. Apollo Co., 209 U.S. 1 (1908)). Notably, Commissioner John Hersey dissented from the Final Report over this issue. Commissioner Hersey's view was that copyright law is an "inappropriate, as well as unnecessary, way of protecting the usable forms of computer programs." *See id.* at 27.

72. FINAL REPORT, *supra* note 62, at 12.

73. *See id.* at 16.

74. *See id.*

75. Indeed, Congress adopted CONTU's recommendations with few changes in what became the Computer Software Copyright Act of 1980, Pub. L. No.96-517, § 10, 94 Stat. 3028 (1980).

76. "Softwars" was a term coined to describe "the clashes over ownership of the creative and inventive aspects of computer programs," and the title of an excellent book on the subject. ANTHONY LAWRENCE CLAPES, SOFTWARS: THE LEGAL BATTLES FOR CONTROL OF THE GLOBAL SOFTWARE INDUSTRY 3 (1993) [hereinafter SOFTWARS]; *see also* ANTHONY LAWRENCE CLAPES, SOFTWARE, COPYRIGHT, AND COMPETITION: THE "LOOK AND FEEL" OF THE LAW (1989).

77. *Id.* at 25. The early video game copyright cases included *Williams Elecs., Inc. v. Artic Int'l, Inc.*, 685 F.2d 870 (3d Cir. 1982), *Atari, Inc. v. N. Am. Philips*

in these cases was found in the visual images appearing on the screen; the internal code or mechanical means for generating those sequences of images were typically not what the imitator copied.[78]

A parallel line of cases arose with respect to computer code itself.[79] There was little real debate that the wholesale appropriation of another computer program's source code, or the duplication of the object code that actually instructed the machine to operate, would infringe the original program's copyright.[80] One of the early appellate decisions on the subject was the Third Circuit's decision in *Apple v. Franklin*,[81] where the court granted a preliminary injunction against a company seeking to emulate the success of the then-industry standard Apple II personal computer by copying Apple's proprietary operating system.[82] Subsequent cases tested the literary works metaphor, as the courts decided cases in which the alleged infringer did not literally copy the source or object code of the original program line for line or bit for bit, but instead paraphrased the code by copying its structure or certain key components.[83] Cases about computer software invoked analogies to the hook of a song or the detailed plot of a book or play, as the classic tools for assessing plagiarism in these more traditional works provided rules of decision in an entirely different high-technology medium.[84] Again, the Third Circuit provided an important marker with its *Whelan* decision, applying the detailed plot analogy to the structure of a program for managing a dental office.[85]

Consumer Elecs. Corp., 672 F.2d 607 (7th Cir. 1982), and *Stern Elecs., Inc. v. Kaufman*, 669 F.2d 852 (2d Cir. 1982), among others.

78. SOFTWARS, *supra* note 76, at 90–95.

79. *See id.* at 25.

80. *See id.* at 25, 27–28.

81. Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240 (3d Cir. 1983).

82. *Id.* at 1253–54 (3d Cir. 1983). Notably, unlike the approach taken by IBM and other PC makers, who used non-exclusive and publicly available chips created by Intel and an operating system created by Microsoft, Apple's approach was to have its computers operated using its own proprietary operating system which it did not license to others who wished to imitate its product. SOFTWARS, *supra* note 76, at 91.

83. The result was the creation of "copied" software programs that were functionally and for all practical purposes identical to the original program, even though the individual lines of code were different. *See, e.g.*, Whelan Assocs., Inc. v. Jaslow Dental Lab., Inc., 797 F.2d 1222, 1224–25 (3d Cir. 1986).

84. *See e.g.*, Computer Assocs. Int'l v. Altai, Inc., 982 F.2d 693, 701–02 (2d Cir. 1992).

85. *Whelan Assocs.*, 797 F.2d at 1234. In *Whelan*, the Third Circuit held that the idea of a utilitarian work is its purpose or function, and the "comprehensive nonlit-

But the most interesting and commercially important of these cases arose at the logical intersection of the video game cases protecting visual displays and the cases involving the non-literal copying of internal program elements—that is, the series of cases brought to protect the user interfaces of some of the world's most popular and successful computer programs.[86] Beginning in the mid-1980s, as the decreasing price and ready availability of enhanced processing speed and memory in personal computers put less of a premium on the efficiency of a program's internal code, more and more of the program's value came to reside in the user interface of a successful program.[87] Once personal computing became popular beyond the narrow band of techies who first took it up, a successful program needed to be easy to understand and to use—i.e., user-friendly—without recourse to elaborate user manuals. As popular hit programs emerged in each of the major application fields, a network effect would develop around these so-called "industry standards," as popularity led to familiarity and encouraged the development of supporting applications and tools, which in turn fueled even greater popularity.[88] Users expected user interfaces—the screen displays, menus, commands, keystroke sequences and other portions of the program with which the user directly interacted—to be well-designed and intuitive. Increasingly, those who wished to compete with popular programs adopted a business plan built around producing products in which the internal code was original—often created at low cost by very junior programming teams—but the user interface was a self-described clone of the market leader.[89] Why try to persuade the market to try something new when you could offer a product that looked and felt like the popular favorite for a fraction of the price of the original? Even if the clone program was a bit slower or less memory efficient or had small technical glitches, with computers getting cheaper and more powerful, at the right price these issues were not outcome-determinative in the marketplace.

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eral similarity" between two programs still constituted copyright infringement. *Id.* at 1236.

86. SOFTWARS, *supra* note 76, at 90–95.

87. *See id.* at 95.

88. *See* Hsing Kenneth Cheng & Qian Candy Tang, *Free Trial or No Free Trial: Optimal Software Product Design with Network Effects*, 205 EUR. J. OPERATIONAL RES. 437, 437 (2010).

89. *See* SOFTWARS, *supra* note 76, at 84 (describing new wave of copyright litigation aimed at "look and feel" as archetypal conflicts over legal protection for user interfaces).

The result of this wave of interface imitations was a series of lawsuits from coast to coast. Apple sued Microsoft for emulating the user interface of the Macintosh computer in its Windows operating system.[90] Xerox, whose Xerox Palo Alto Research Center (PARC) pioneered the same graphical user interface elements that both Apple and Microsoft used so successfully in their offerings, followed suit by suing Apple for infringing its copyrights.[91] Ashton-Tate, whose dBase products were the leading desktop database offerings, sued Fox Software for making a dBase clone.[92] And Lotus Development Corporation, the maker of Lotus 1-2-3—at the time, the most popular software application in the world—filed a series of copyright infringement actions against clones of Lotus 1-2-3, beginning with Paperback Software[93] in 1986 and culminating with its case against Borland, which ended in a 4–4 tie in the Supreme Court in 1996.[94]

One important theme that emerged in the cases of this era was the assertion of the need for compatibility or interoperability, as it was sometimes called, as a purported defense to copyright infringe-

90. Apple Computer, Inc. v. Microsoft Corp., 709 F. Supp. 925, 926 (N.D. Cal. 1989).

91. Xerox Corp. v. Apple Computer, Inc., 734 F. Supp. 1542, 1543–44 (N.D. Cal. 1990). Most of Xerox's allegations were dismissed based on what amounted to faulty pleading. *See id.* at 1545.

92. Ashton-Tate Corp. v. Fox Software, Inc., 760 F. Supp. 831, 831 (C.D. Cal. 1991).

93. Lotus Dev. Corp. v. Paperback Software Int'l, 740 F. Supp. 37 (D. Mass. 1990). The decision in *Paperback*, by the distinguished district judge and Harvard law school professor, Robert E. Keeton, provides a comprehensive treatment of the software copyright cases, and adopted a three-part analysis derived from Judge Hand's decision in *Nichols v. Universal Pictures Corp.*, 45 F.2d 119 (2d Cir. 1930), that was used by other courts in the decisions that followed. *See* Gates Rubber Co. v. Bando Chem. Indus., Ltd., 9 F.3d 823, 834 (10th Cir. 1993); Computer Assocs. Int'l v. Altai, Inc., 982 F.2d 693, 706 (2d Cir. 1992); *Lotus Dev. Corp.*, 740 F. Supp. at 60

94. Lotus Dev. Corp. v. Borland Int'l, Inc., 831 F.Supp. 202 (D. Mass. 1993), *rev'd*, 49 F.3d 807 (1995), *aff'd by an equally divided court*, 516 U.S. 233 (1996). In light of how the intellectual property world has changed since, it is ironic to note that *Lotus v. Borland* was argued in the Supreme Court on the same day as the *Markman* case. At the time, as the contemporaneous press coverage indicates, the *Lotus* case was of greater interest, by far. *See, e.g.*, Joan Biskupic, *Easy as 1-2-3? Pivotal Software Copyright Infringement Case Casts Justices in Role of Computer Students*, WASH. POST, Jan. 8, 1996, at A15; Robert Marquand, *Disputes Over Software, Census Top the Agenda in Key Week for Court: Hotly Contested Cases Expected to Further Polarize Justices*, CHRISTIAN SCI. MONITOR, Jan. 8, 1996, at 3; Teresa Riordan, *Patents: With Substantial Sums at Stake, Intellectual Property Gets Its Day in the Nation's Highest Court*, N.Y. TIMES, Jan. 8, 1996, at 38. Yet, the *Markman* decision went on to revolutionize patent law, just in time for the patent litigation explosion that still continues today.

ment. The defense was presented in various forms. In the video game context, it was argued that it might be a fair use to copy some code of a game controller, at least as an intermediate step in the design process, if that was the only way to create new and original games that would work on another company's system.[95] Alternatively, in the computer program context, some argued that elements of a program were not really protected by copyright because they were essential to using the first program's unprotected system or method of operation.[96] Similar arguments were that code similarities of a particular type were not really evidence of copying but simply reflected the fact that both the original protected work and the allegedly infringing product were designed to work with the same operating system or some other shared external constraint.[97] These arguments took various forms and may or may not have been legitimate copyright defenses, but there is no doubt that the policy issues they implicated were a factor in all the major cases.[98]

Arthur Miller was a key player in this battle for the future of the software industry. He was called by IBM as an expert witness at trial in one software copyright case,[99] and when *Lotus v. Borland* went to the Supreme Court, he was a key player on that appellate team.[100] But perhaps his greatest contribution was a major article he wrote in the Harvard Law Review, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*[101] In this article, Miller retraced the history of CONTU, the computer program amendments of 1980, and the entire statutory framework for providing copyright protection to com-

95. *See* Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510, 1516–17 (9th Cir. 1992); Atari Games Corp. v. Nintendo of Am. Inc., 975 F.2d 832, 842–44 (Fed. Cir. 1992).

96. *See, e.g.*, Computer Assocs. Int'l v. Altai, Inc., 982 F.2d 693, 702 (2d Cir. 1992); Johnson Controls, Inc. v. Phoenix Control Sys., Inc., 886 F.2d 1173, 1175–76 (9th Cir. 1989); Apple Computer, Inc. v. Franklin Computer Corp., 714 F.2d 1240, 1245 (3d Cir. 1983).

97. *Atari Games*, 975 F.2d at 845 (Atari unsuccessfully making this argument); *see* Accolade, Inc. v. Distinctive Software, Inc., No. C9020202RFP, 1990 WL 180239, at *1 (N.D. Cal. June 17, 1990).

98. One of the best articulations of the policy arguments that troubled the courts in many of these cases is found in Judge Boudin's concurring opinion in *Lotus v. Borland* when it was reargued before the First Circuit. Lotus Dev. Corp. v. Borland Int'l, 49 F.3d 807, 819 (1st Cir. 1995) (Boudin, J., concurring).

99. *See* Allen-Myland, Inc. v. Int'l Bus. Machs. Corp., 746 F. Supp. 520, 537–38 n.19 (E.D. Pa. 1990).

100. He worked closely with the Author, who was counsel of record, on the case.

101. Miller, *supra* note 36.

puter programs and databases.[102] He then analyzed in some detail all the leading cases in this developing field and considered how they fit within the body of copyright law.[103] His thesis was that the fundamental decision by CONTU, adopted by Congress, to apply the traditional methods and standards of copyright analysis to these new forms of literary works was working, and that well-reasoned decisions by thoughtful judges, proceeding case by case, were filling in the answers just as they always have in copyright law.[104]

As noted above, at this time the most popular view in the growing academic copyright community was that what Miller described as pouring new wine into old bottles was really more like trying to force a "square peg in a round hole."[105] They argued that cases such as *Whelan* and *Paperback* were wrongly decided, and they celebrated any defense win as a repudiation of the preceding cases.[106] In addition, they urged the creation of new *sui generis* legislation tailored to provide only the most limited software protection or, failing that, leaving the entire matter to be covered by patent law, assuming, incorrectly as subsequent events have demonstrated, that the nominally more stringent requirements of patent law would prevent intellectual property rights and their enforcement from "fencing the commons," slowing innovation.[107] Their amicus briefs opposing protection were filed in most of the major cases mentioned above.[108] Professor Miller was not alone in arguing that properly applied traditional standards could handle the task; he had some distinguished company among his colleagues.[109] He may have been outnumbered, but he was not outgunned. His Harvard Law Review article persuasively makes the case that time-honored

102. *See id.* at 978–91.

103. *Id.* at 991–1036.

104. *Id.* at 980–81.

105. *Id.* at 980, 1008 (citing Computer Assocs. Int'l v. Altai, Inc., 982 F.2d 693, 712 (2d Cir. 1992)).

106. *See, e.g.*, Brief for Copyright Law Professors as Amici Curiae Supporting Respondent at 9, Lotus Dev. Corp. v. Borland Int'l, Inc., 516 U.S. 233 (1996) (No. 94-2003).

107. *See, e.g.*, *id.* at 5.

108. *See supra* note 37.

109. *See, e.g.*, Robert A. Gorman & Jane C. Ginsburg, *Authors and Publishers: Adversaries or Collaborators in Copyright Law?*, *in* BENJAMIN KAPLAN ET AL., AN UNHURRIED VIEW OF COPYRIGHT REPUBLISHED (AND WITH CONTRIBUTIONS FROM FRIENDS), at GORGIN–17 to –18 (Iris C. Geik et al. eds., LexisNexis Matthew Bender 2005) (1967); Jane C. Ginsburg, *Four Reasons and a Paradox: The Manifest Superiority of Copyright Over Sui Generis Protection of Computer Software*, 94 COLUM. L. REV. 2559 (1994); Paul Goldstein, *Comments on* A Manifesto Concerning The Legal Protection of Computer Programs, 94 COLUM. L. REV. 2573, 2575 (1994).

copyright approaches worked well in the new environment, just as they always had in the past.[110]

Apart from his writings, Professor Miller played an important role in shaping the rapidly expanding academic interest in the application of copyright and other intellectual property law to the new technologies. He and Professor Charles Nesson at Harvard created and taught a series of seminars, entitled Law, Internet & Society, in which law students discussed, debated, and then blogged on some of the hottest issues of the day with the practicing attorneys handling some key cases, industry leaders in the technology field, judges, academics from other disciplines and other schools, and even a lyricist for the Grateful Dead, John Perry Barlow, who was a leading voice on the anti-protection side.[111] What began in those seminars ripened in 1994 into a landmark, university-wide symposium on *The Internet and Society*, and ultimately the creation of the Berkman Center, which today is a leading source of innovative thinking on the law and technology.[112] Today, the intellectual property field is popular both in private practice and the academic world. It is no exaggeration to say that Arthur Miller is one of the pioneers; he was there at the beginning and is still a powerful voice today.

V.
OLD IDEAS ARE NEW AGAIN

One of Professor Miller's more recent law review articles has a fascinating history of its own and demonstrates that Professor Miller believes in more than simply applying traditional copyright principles in a changing world.[113] As a law review editor at Harvard over fifty years ago, Arthur Miller's student note was to consider the protection of "ideas," those vitally important fruits of human creativity that copyright expressly declares to be unprotected and unprotectable and that patent will only cover if presented in some concrete form having a defined practical application.[114] That law review note

110. Miller, *supra* note 36.

111. *See, e.g.*, John Perry Barlow, *The Economy of Ideas: A Framework for Patents and Copyrights in the Digital Age (Everything You Know About Intellectual Property Is Wrong)*, WIRED 2.03, Mar. 1994, at 84, *available at* http://www.wired.com/wired/archive/2.03/economy.ideas.html.

112. THE HARVARD CONFERENCE ON THE INTERNET & SOCIETY (O'Reilly & Assocs. ed., 1997). For more information, see BERKMAN CTR. FOR INTERNET & SOC'Y, http://cyber.law.harvard.edu/ (last visited Feb. 17, 2011).

113. Arthur R. Miller, *Common Law Protection for Products of the Mind: An "Idea" Whose Time Has Come*, 119 HARV. L. REV. 705, 706, 711 (2006).

114. *Id.* at 706.

was never published because, at the time, Harvard and Dean Erwin Griswold were being sued by a litigant claiming that the Dean had stolen his idea for a series of tax books.[115] Given the circumstances, anything published in the Law Review on the subject would, depending on its conclusion, either look like an effort to bolster the school's defense or, worse yet, undermine it.[116]

Fifty years later, what began as a student note was published in the Harvard Law Review as *Common Law Protection for Products of the Mind: An "Idea" Whose Time Has Come*.[117] "Ideas" per se are expressly excluded by copyright protection and do not qualify under patent law either. To the extent they are protected at all, it is strictly under state law and unlike either patents or copyrights which define property rights enforceable against the world, the protection of "ideas" tends to be confined to the assertion of a claim against someone who learned it directly from its creator. As Miller explains, courts have historically been reticent to protect ideas for two reasons: (1) a fear of conferring a monopoly in ideas, and (2) a desire to circumvent evidentiary and administrative difficulties associated with these cases.[118] The courts have imposed "concreteness" and "novelty" requirements to reflect these concerns.[119] In the article, Miller makes the case for the importance of protecting ideas; points out the failure of law, particularly at the federal level, to do so; and thoughtfully explores various alternative approaches to solving the problem.[120] In particular, Miller proposes a new two-part test: *first*, directly confronting the monopoly issue, and *second*, examining the defendants' gain from access to the idea (i.e., its value).[121] What the article illustrates is the importance of continuing to consider the need for potential new legal constructs, even as we work to apply the old. It shows the value, in fact the necessity, of providing effective protection for creative and innovative human endeavors, while still maintaining the delicate balance without which competition and innovation itself may suffer.

115. *Id.* at 706–07; Puente v. President & Fellows of Harvard Coll., 248 F.2d 799, 800 (1st Cir. 1957).

116. Miller, *supra* note 113, at 707.

117. *Id.*

118. *Id.* at 720–23.

119. *Id.* at 718–23.

120. *Id.*

121. *Id.* at 732.

VI.
CONCLUSION

There are few areas of law that have changed as dramatically in the last fifty years as intellectual property law and, in particular, the law of copyright. From the debates that led to the adoption of the Copyright Act of 1976 to the cutting edge digital issues of today, Arthur Miller—as scholar, teacher and even advocate—has been a voice of reason and sound judgment, defending the rights of those who create original works to the rewards envisioned by the Constitution, without unduly compromising the equally important rights of those who enjoy and use such works, and the public at large. When others have argued that the system is broken and cannot meet the challenge of rapid technological change, Professor Miller has calmly demonstrated that the old rules work, if properly understood and applied. And as his most recent work on the law of "ideas" demonstrates, when the prevailing legal doctrine does prove itself wanting, he is perfectly willing to propose a new analytical approach to protecting the most fundamental of all products of human intellect. In sum, Arthur Miller remains a leading light in intellectual property thought, as he has been for almost fifty years.