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# In Vento Scribere: The Intersection of Cyberspace and Patent Law

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IN VENTO SCRIBERE: THE INTERSECTION OF  
CYBERSPACE AND PATENT LAW

*Max Stul Oppenheimer*\* \*\*

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## I. INTRODUCTION: THE *NEW NEW* TECHNOLOGY

By design, the law is reactive. Development of the law is driven by developments in technology, particularly by those which are publicly perceived as breakthrough developments. For example, the announcement of the successful cloning of a sheep from a mature somatic cell prompted calls for new legislation and reexamination of existing laws governing everything from the funding of biomedical research to the definition of human life. The realization that the Internet is transforming communications has likewise prompted new legislation and reexamination of existing laws governing everything from fundamental concepts of presence and jurisdiction to personal privacy.

Considerable recent attention has been devoted to United States patent law, in part because of interest in global harmonization of intellectual property laws, and in part because of the growth of the intellectual economy and the concomitant increase in interest in the methods of protecting intellectual property. It has gone unnoticed, however, that a fundamental principle of United States patent law—the refusal to grant patents on inventions which have entered the public domain—needs reexamination in light of the Internet’s rapid development. The *Manual of Patent Examining Procedure* (MPEP),<sup>1</sup> the United States Patent Office’s guidance document for the examination of patent applications, is silent on the use of Internet materials as “printed publications” (a major category of documents which help define the public domain) in deciding patentability. There appears to be no published analysis of whether the Internet is a medium of “printed publications” either in the general literature or in the United States Patent Office’s policy documents. A moment’s consideration of the amount of information on the Internet, compared to the amount of information in books and magazines, and a second moment’s conjecture as to the relative amounts of information in these media in the future, should make clear the importance of such an analysis. In 1980, a researcher looking for public information would have relied principally on books and magazines in a library; in 2002, the researcher will rely principally on

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1. PATENT & TRADEMARK OFFICE, U.S. DEP’T OF COMMERCE, *MANUAL OF PATENT EXAMINING PROCEDURE* (6th ed. rev. 3 1997).

electronic sources, including Internet Web pages, news group archives, online databases, and whatever new resources the next three years bring.

For those who are late to the revolution, an excellent (if already outdated) introduction to the capabilities of the Internet is given in Justice Stevens' opinion in *Reno v. American Civil Liberties Union*:<sup>2</sup>

The Internet is an international network of interconnected computers . . . .

The Internet has experienced "extraordinary growth." The number of "host" computers . . . increased from about 300 in 1981 to approximately 9,400,000 by the time of the trial in 1996. . . . About 40 million people used the Internet at the time of trial, a number that is expected to mushroom to 200 million by 1999.

Individuals can obtain access to the Internet from many different sources . . . . Most colleges and universities provide access for their students and faculty; many corporations provide their employees with access through an office network; many communities and local libraries provide free access; and an increasing number of storefront "computer coffee shops" provide access for a small hourly fee. Several major national "online services" such as America Online, CompuServe, the Microsoft Network, and Prodigy offer access to their own extensive proprietary networks as well as a link to the much larger resources of the Internet. These commercial online services had almost 12 million individual subscribers at the time of trial.

Anyone with access to the Internet may take advantage of a wide variety of communication and information retrieval methods. These methods are constantly evolving. . . . All of these methods can be used to transmit text; most can transmit sound, pictures, and moving video images. Taken together, these tools constitute a unique medium—known to its users as "cyberspace"—located in no particular geographical location but available to anyone, anywhere in the world, with access to the Internet.

E-mail enables an individual to send an electronic message . . . to another individual or to a group of addressees. . . . A mail exploder is a sort of e-mail group. Subscribers can send messages to a common e-mail address, which then forwards the message to the group's other subscribers. Newsgroups also serve groups of regular participants, but these postings may be read by others as well. There are thousands of such

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2. 117 S. Ct. 2329 (1997) (striking down the first federal legislative response to the Internet).

groups. . . . About 100,000 new messages are posted every day. In most newsgroups, postings are automatically purged at regular intervals. . . . [T]wo or more individuals wishing to communicate more immediately can enter a chat room to engage in real-time dialogue—in other words, by typing messages to one another that appear almost immediately on the others' computer screens. The District Court found that at any given time “tens of thousands of users are engaging in conversations on a huge range of subjects.” . . .

The best known category of communication over the Internet is the World Wide Web, which allows users to search for and retrieve information stored in remote computers. . . . In concrete terms, the Web consists of a vast number of documents stored in different computers all over the world. Some of these documents are simply files containing information. However, more elaborate documents, commonly known as Web “pages,” are also prevalent. Each has its own address—“rather like a telephone number.” . . . They generally also contain “links” to other documents created by that site's author or to other (generally) related sites. . . .

Navigating the Web is relatively straightforward. A user may either type the address of a known page or enter one or more keywords into a commercial “search engine” in an effort to locate sites on a subject of interest. A particular Web page may contain the information sought by the “surfer,” or, through its links, it may be an avenue to other documents located anywhere on the Internet. . . . Access to most Web pages is freely available, but some allow access only to those who have purchased the right from a commercial provider. The Web is thus comparable, from the readers' viewpoint, to both a vast library including millions of readily available and indexed publications and a sprawling mall offering goods and services.

From the publishers' point of view, it constitutes a vast platform from which to address and hear from a world-wide audience of millions of readers, viewers, researchers, and buyers. Any person or organization with a computer connected to the Internet can “publish” information. . . . Publishers may either make their material available to the entire pool of Internet users, or confine access to a selected group, such as those willing to pay for the privilege. “No single organization controls any membership in the Web, nor is there any centralized point from which individual Web sites or services can be blocked from the Web.”<sup>3</sup>

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3. *Id.* at 2334-36 (footnotes omitted).

Justice Stevens has described the Internet, in a non-patent context, as “a vast library including millions of readily available and indexed publications.”<sup>4</sup> In the patent context, however, current caselaw would exclude this vast library from the definition of “printed publications” since the Internet, as currently structured, does not meet the court-imposed requirements that a “printed publication” be accessible and indexed. Thus, the principal research tool of the next decade would not, as currently constituted, be considered part of the public domain for purposes of limiting claims to patentability.

Understanding this counterintuitive result begins with article I, section 8, clause 8 of the United States Constitution, which empowers Congress “[t]o 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.”<sup>5</sup> This power is implemented by 35 U.S.C. § 101, which provides: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”<sup>6</sup>

United States patent policy rewards inventors with a patent in exchange for providing the public with information which was not previously available to it.<sup>7</sup> This underlying policy is implemented by the novelty requirements of 35 U.S.C. § 102<sup>8</sup> and the non-obviousness requirements of 35 U.S.C. § 103.<sup>9</sup> Taken together, these sections bar patentability of

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4. *Id.* at 2335.

5. U.S. CONST. art. I, § 8, cl. 8.

6. 35 U.S.C. § 101 (1994).

7. *See* United States v. Dubilier Condenser Corp., 289 U.S. 178, 186 (1933). *See generally In re Bayer*, 568 F.2d 1357, 1359-60 (C.C.P.A. 1978) (discussing why patents are not granted for publicly available information).

8. 35 U.S.C. § 102 provides:

A person shall be entitled to a patent unless—

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States. . . .

35 U.S.C. § 102 (1994).

9. 35 U.S.C. § 103 provides:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to

inventions, knowledge of which is already in the public domain, or which are obvious in light of knowledge already in the public domain.<sup>10</sup>

A principal source of evidence of what is in the public domain is "printed publications," also referred to as "references." Section 102(a) bars patentability if the invention was described in a printed publication prior to the applicant's date of invention; section 102(b) bars patentability if the invention was described in a printed publication more than one year prior to the applicant's filing a patent application.<sup>11</sup> A claimed invention which is barred by section 102(a) is referred to as "anticipated" by the section 102(a) reference. "An anticipating reference must bear within its four corners adequate directions for the practice of the invention."<sup>12</sup>

Congress' choice of the seemingly redundant phrase "printed publication" has troubled courts and led to inconsistent resolutions of the twin questions: "when is a publication printed?" and "when is a printing published?" Although the law on the issue has been described as "a muddled mess,"<sup>13</sup> two main interpretations have emerged: the statutory standard requires "publication," and "printed" is therefore surplusage; and the statutory standard requires "printing" as well as "publication." Modern

a person having ordinary skill in the art to which said subject matter pertains.

35 U.S.C. § 103 (1994).

10. Throughout this Article, "public domain" refers to information about an invention; whether the invention itself is in the public domain depends on whether it was patented and, if so, whether the patent has expired.

11. *See id.* § 102. The publication must be sufficiently detailed to enable others to practice the invention. *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 631-32 (Fed. Cir. 1987). The date which would bar patentability (i.e., the day prior to the date of invention, or the day one year and one day prior to filing the patent application) is known as the "critical date"; the time period (i.e., one year) is referred to as the "grace period." The grace period has been varied, and differs depending on the type of patent being sought. All of the cases cited herein deal with "utility patents." Most countries other than the United States follow a rule of "absolute novelty" and do not provide a grace period.

12. *General Tire & Rubber Co. v. Firestone Tire & Rubber Co.*, 349 F. Supp. 345, 356 (N.D. Ohio 1972) (citing *Dewey & Almy Chem. Co. v. Mimex Co.*, 124 F.2d 986, 989-90 (2d Cir. 1942); *Lincoln Stores, Inc. v. Nashua Mfg. Co.*, 157 F.2d 154, 159-60 (1st Cir. 1946); *Gordon Form Lathe Co. v. Walcott Mach. Co.*, 32 F.2d 55, 58 (6th Cir. 1929); *Morgan Const. Co. v. Wellman-Seaver-Morgan Co.*, 18 F.2d 395, 399 (6th Cir. 1927); and *Munising Paper Co. v. American Sulphite Pulp Co.*, 228 F. 700, 703-04 (6th Cir. 1915)).

13. Wesley Kobylak, Annotation, *Meaning of Term "Printed Publication" Under 35 U.S.C. § 102(a) and (b), Denying Patentability to Invention Described in Printed Publication Before Invention by Applicant or More than One Year Prior to Date of Patent Application*, 70 A.L.R. FED. 796, 803 (1984); *see also I.C.E. Corp. v. Armco Steel Corp.*, 250 F. Supp. 738, 741 (S.D.N.Y. 1966) (stating that courts have failed to enunciate a uniform standard of what constitutes a "publication" and of what is "printed"). A more sympathetic interpretation is offered in *In re Hall*: "The § 102 publication bar is a legal determination based on underlying fact issues, and therefore must be approached on a case-by-case basis." *In re Hall*, 781 F.2d 897, 899 (Fed. Cir. 1986).

cases have tended to focus on "publication," in the sense that the document in question is available to a significant segment of the public, with little regard for the document's form of dissemination (although all cases to date have involved information in some tangible form).<sup>14</sup>

The development of the Internet requires a reexamination of the old questions in a new context: is information which has been posted<sup>15</sup> to a Web page or other public forum on the Internet a "printed publication" under section 102? Including Internet postings as "printed publications" would greatly expand the amount of information which must be analyzed in order to determine patentability of inventions. Excluding Internet postings would, in the near future, likely exclude a significant portion of cutting edge technological information from the public domain. This Article will demonstrate that, under the current state of the caselaw and given the current structure of the Internet, information posted to the Internet cannot be considered a "printed publication."<sup>16</sup> It will then propose changes which might be made in the patent statute or in the Internet itself in order for Internet postings to qualify as "printed publications."

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14. See Kobylak, *supra* note 13, at 86 (Supp. 1997) (citing *Mobil Oil Corp. v. Amoco Chemicals Corp.*, 779 F. Supp. 1429 (D. Del. 1991); Gerald Rose, *Do you have a "Printed Publication?" If Not, Do You Have Evidence of Prior "Knowledge or Use?"*, 61 J. PAT. OFF. SOC'Y 643, 650-51 (1979)).

15. The term "posting" is used herein to mean placing information on a computer which is accessible to the public (although not necessarily the entire public) via the Internet and would include the current technologies of electronic mailing to a newsgroup or usenet, or a hypertext link from a World Wide Web page.

16. It is important to point out issues which are not posed by Internet posting: there is no reason to suggest that posting removes anything from the public domain. Three cases must be considered.

In the first case, an original document satisfies the definition of printed publication because it has been printed and widely disseminated, for example, a journal article. A copy of the document is posted on the Internet. Clearly, the posting does nothing to withdraw the original from the public domain, and the original document remains a printed publication—it is irrelevant whether the Internet posting is a printed publication or not.

In the second case, an original document satisfies the definition of printed publication because it is printed and a copy is publicly available, properly indexed, and accessible to the interested public. Posting a copy of the index would, again, not remove anything from the public domain and the posted index is irrelevant.

In the third case, an original document is publicly available only because of a copy having been posted on the Internet. This is the case of interest. While this article reviews the status of such a posting as a printed publication under the "printed publication" section of 35 U.S.C. § 102, it does not reach the question of whether such a posting might be evidence of public use or knowledge and thereby defeat patentability under the "public use or knowledge" section of 35 U.S.C. § 102. This presents different issues of proof and raises other issues beyond the scope of this article.



## II. CONSTITUTIONAL BACKGROUND

An inventor has two options for profiting from an invention: keep the invention confidential, thus relying on trade secret protection,<sup>17</sup> or protect the invention under patent law.<sup>18</sup> Thomas Jefferson, the father of the United States patent system,<sup>19</sup> noted:

If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of everyone . . . .<sup>20</sup>

The choice to share an invention with the public irrevocably surrenders the control which the inventor possessed. Thus, the Constitution instructs, an incentive must be provided to encourage inventors to share ideas with a world that would otherwise have, at best, the product of the invention for

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17. Trade secret protection arises under common law, but has been codified by statute based on the Uniform Trade Secrets Act (UTSA) in 34 states and the District of Columbia. *See* UNIF. TRADE SECRETS ACT, 14 U.L.A. 433 (1990). Certain misappropriations of trade secrets are also prohibited by federal criminal law, *see* 18 U.S.C. §§ 2314-2315, and the Economic Espionage Act of 1996, *see* 18 U.S.C. §§ 1831-1839. The general requirements for trade secret protection are the possession of confidential information which confers an economic benefit on those with knowledge of such information, plus reasonable steps to maintain its confidentiality. *See* UNIF. TRADE SECRETS ACT § 1(4), 14 U.L.A. at 438. Trade secret protection prevents misappropriation—broadly, obtaining the information by improper means. *See id.* § 1(2). Trade secret protection may therefore be lost if the information becomes known to others through independent development or other proper means. Most states recognize reverse engineering of a publicly sold product as proper means. *See, e.g.,* *Kewanee Oil Co. v. Bicron Corp.*, 416 U.S. 470, 476 (1974). Unless such an event occurs, however, a trade secret may be maintained indefinitely.

18. In order to obtain a patent, the inventor must file an application with the United States Patent and Trademark Office (PTO). *See* 35 U.S.C. § 111 (1994). The application is examined by the PTO and, if the application meets statutory requirements (including the requirements of novelty under 35 U.S.C. § 102 and non-obviousness under 35 U.S.C. § 103), a patent is issued. *See id.* § 131. The inventor has no patent rights until the patent is issued. *See id.* § 154(a)(2). Patent applications are, by law, confidential and, therefore, it is possible to maintain trade secret rights while a patent is pending. *See id.* § 122. Of course, once a patent issues, it is public and therefore information contained in the application can no longer be maintained as a trade secret.

19. Jefferson is characterized in *Graham v. John Deere Co.*, 383 U.S. 1, 7 (1966), as the “moving spirit” of the patent statute and the author of the 1793 Act.

20. THOMAS JEFFERSON, Letter to Isaac McPherson (Aug. 13, 1913), in *THE PORTABLE THOMAS JEFFERSON* 525, 530 (Merrill D. Peterson, ed. 1975). Jefferson further observed: “Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He who receives an idea from me, receives instructions himself without lessening mine; as he who lights his taper at mine receives light without darkening me.” *Id.* This observation was clearly a lapse of economic judgment for the sake of rhetoric. The basis of trade secret law is that there is economic value in keeping competitors in the dark.

as long as the inventor chose to share it, and no longer.<sup>21</sup>

The Constitution does not specify the incentive.<sup>22</sup> It is clear, however, that no incentive is necessary if the public is already in possession of the underlying inventive idea. Hence section 102 denies patentability to ideas which were "public" (to choose a word that does not prejudge the issue) either before their supposed invention by the patent applicant<sup>23</sup> or sufficiently long before the applicant chose to apply for a patent.<sup>24</sup> Most countries apply an absolute novelty standard which, except in limited circumstances, precludes patentability for an invention disclosed, even by the inventor, prior to filing a patent application.<sup>25</sup> United States law provides a grace period for an inventor to file a patent application after having made the invention public.<sup>26</sup> It was early held that minor deviations from public domain material would not support patentability.<sup>27</sup> This judicial gloss was codified as 35 U.S.C. § 103 which denies patentability to ideas which are "obvious" advances over what is already "public."<sup>28</sup>

Thus, the question of when an idea is already "public" is central to the issue of patentability. Congress has experimented with this fundamental issue. The following Part discusses the various attempts by Congress to answer this important question.

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21. Some inventions lend themselves more easily to commercialization coupled with trade secrecy than others. Inventions which may be used under the sole control of the inventor (for example a machine which produces, but is not itself, a consumer product) can be commercialized without disclosing their secrets. Inventions which must be placed in the hands of third parties (for example, consumer products) pose greater risks of disclosure, for example, by reverse engineering.

22. In fact, Congress has from time to time altered the incentive, and has provided different incentives for different types of inventions and discoveries. Most recently, it changed the term of United States Patents from 17 years from date of issue to 20 years from date of application. *See* 35 U.S.C. § 154(a)(2) (1998). Design patents last for 14 years. *See* 35 U.S.C. § 173 (1994).

23. *See* 35 U.S.C. § 102(a) (1994).

24. *See id.* § 102(b). Note that the two subclasses of section 102 have different purposes. Section 102(a) reinforces the section 101 principle that only the inventor is entitled to a patent: if there were a printed publication describing the invention before the claimed date of invention, then the applicant is not the original inventor. On the other hand, section 102(b) can bar even the original inventor from obtaining a patent. The purpose of section 102(b) is to discourage inventors from delaying filing an application (thereby delaying, if not destroying, the public benefit of the disclosure of the invention) or from filing a patent application only after efforts to preserve a trade secret have failed.

25. *See* DONALD S. CHISUM & MICHAEL A. JACOBS, UNDERSTANDING INTELLECTUAL PROPERTY LAW 2-97 (1997); DONALD A. GREGORY ET AL., INTRODUCTION TO INTELLECTUAL PROPERTY LAW 38-39 (1994).

26. The grace period with respect to printed publications for public use or sale is currently one year. *See* 35 U.S.C. § 102(b) (1994). Under the 1836 statute, as amended in 1839, the grace period was two years. There is no grace period in countries which follow the rule of absolute novelty.

27. *See* *Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 248, 261 (1850).

28. *See* 35 U.S.C. § 103 (1994).

### III. STATUTORY DEVELOPMENT OF THE PUBLIC DOMAIN CONCEPT

The patent statute divides the patentable from the unpatentable along several lines: inventorship, patentable subject matter, and prior state of the art. Only inventors may apply for patents.<sup>29</sup> Only subject matter permitted by statute may be patented.<sup>30</sup> Only inventions, knowledge of which is not already in the public domain, may be patented.<sup>31</sup>

Although the statute has been through several major incarnations, from the beginning it has prohibited granting patents which would withdraw technology from the public domain. However, the requirement that a patent be denied if the invention was described in a prior printed publication did not explicitly enter the patent statute until its third enactment, in 1836.<sup>32</sup>

#### A. *The 1790 Statute*

The original patent statute,<sup>33</sup> enacted in 1790, provided for patenting of “any useful art, manufacture, engine, machine, or device, or any improvement therein not before known or used.”<sup>34</sup> It also created a board

29. *See id.* § 101.

30. *See id.*

31. *See id.* § 102.

32. *See infra* text accompanying notes 41-47.

33. Act of April 10, 1790, ch. 7, 1 Stat. 109 (1790) (repealed 1793). Section 1 of the statute provided:

That upon the petition of any person or persons to the Secretary of State, the Secretary for the department of war, and the Attorney General of the United States, setting forth, that he, she, or they, hath or have invented or discovered any useful art, manufacture, engine, machine, or device, or any improvement therein not before known or used, and praying that a patent may be granted therefor, it shall and may be lawful to and for the said Secretary of State, the Secretary for the department of war, and the Attorney General, or any two of them, if they shall deem the invention or discovery sufficiently useful and important, to cause letters patent to be made out in the name of the United States, to bear [tests] by the President of the United States, reciting the allegations and suggestions of the said petition, and describing the said invention or discovery, clearly, truly and fully, and thereupon granting to such petitioner or petitioners, his, her or their heirs, administrators or assigns for any term not exceeding fourteen years, the sole and exclusive right and liberty of making, constructing, using and vending to others to be used, the said invention or discovery . . . .

*Id.* § 1, 1 Stat. 109-10.

34. *Id.* Presumably, the “not before known” standard would have precluded patenting an invention which would fail the current section 102(b) bar, although it is not clear what time frame the “before” refers to (the date of invention or the date of application). If it refers to the date of the

composed of the Secretary of State (then Thomas Jefferson), the Secretary of War (then Henry Knox), and the Attorney General (then Edmund Randolph), empowered to issue a patent "if they shall deem the invention or discovery sufficiently useful and important."<sup>35</sup> No power of review was provided,<sup>36</sup> and presumably these three cabinet members took time from their regular duties to review each application.<sup>37</sup>

### B. *The 1793 Statute*

The second patent statute,<sup>38</sup> enacted in 1793, provided that

when any person . . . being a citizen . . . of the United States, shall allege that he . . . [has] invented any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement of any art, machine, manufacture or composition of matter, not known or used before the application, and shall present a petition to the Secretary of State, . . . it shall and may be lawful for the said Secretary of State, to cause letters patent to be made out . . . .<sup>39</sup>

Thus, in effect, under the 1793 statute, a patent was granted to any U.S. citizen who paid the application fee. If multiple parties claimed the same invention, a three person board was appointed (one member by the Secretary of State, and one member by each of the claimants) to decide entitlement to the patent.<sup>40</sup>

### C. *The 1836 and 1870 Statutes*

Senator John Ruggles of Maine perceived the flaw of what was, in effect, a registration system (as opposed to an examination system) and chaired the Congressional committee which reviewed and revised the

application, then it is a more stringent standard than that imposed by current section 102(b), but conforms to the norm of patent statutes outside the United States. *See supra* note 25. In that case, "by others" must be implied, since by definition the inventor knew of the invention before filing the application (although not before the date of invention).

35. 1 Stat. at 110.

36. Perhaps no review power was provided in despair of finding a tribunal willing to second-guess Jefferson, Knox, and Randolph.

37. In the three years of operation under the 1790 statute, 55 patents were issued. *See U.S. DEP'T OF COMMERCE, THE STORY OF THE U.S. PATENT AND TRADEMARK OFFICE 2* (1988).

38. Act of Feb. 21, 1793, ch. 11, 1 Stat. 318 (repealed 1836).

39. *Id.* § 1, 1 Stat. at 318-20. The language limits patents to invention not known or used before filing of the application. This must have been intended to mean "not known or used by others" since clearly the inventor knew of the invention before filing the application.

40. *See id.* § 9, 1 Stat. at 322-23. In the case of more than two claimants, either the parties mutually agreed on the arbitrators or the Secretary of State appointed all three. *See id.* 1 Stat. at 323.

patent statute in 1836. The Ruggles committee report noted that, under the 1793 system, patents were issued “without any examination into the merit or novelty of the invention,” “[many] patents . . . are worthless and void, as conflicting with, and infringing upon one another, or upon, public rights not subject to patent privilege; arising either from a want of due attention to the specifications of claim, or from the ignorance of the patentees of the state of the arts . . . ,” and “a great number of lawsuits arise, which are daily increasing in an alarming degree, onerous to the courts, ruinous to the parties, and injurious to society,” and concluded that patents, and thus the then-current patent system, were of little value.<sup>41</sup> As a result of the Ruggles report, the third patent statute<sup>42</sup> was enacted in 1836, returning to the pre-1793 examination system, and imposing for the first time an explicit statutory bar to patentability in the case of prior “printed publications.”<sup>43</sup>

The 1836 act provided:

[I]f . . . it shall not appear to the Commissioner that the same had been . . . *described in any printed publication in this or any foreign country*, or had been in public use or on sale with the applicant’s consent or allowance prior to the application, if the Commissioner shall deem it to be sufficiently useful and important, it shall be his duty to issue a patent therefor.<sup>44</sup>

41. JOHN RUGGLES, SENATE REPORT ACCOMPANYING S. 239, 24TH CONG. at 3-4 (1st Sess. 1836).

42. Act of July 4, 1836, ch. 357, 5 Stat. 117 (1836) (amended 1870; repealed 1952).

43. See *id.* § 7, 5 Stat. at 119-20. Interestingly, U.S. Patent #1 (the earlier patents not having been numbered) was issued to Senator Ruggles for a “Locomotive Steam-Engine for Rail and Other Roads.” U.S. DEP’T OF COMMERCE, *supra* note 37, at 7. Nothing in the patent statute bars the grant of a patent to a legislator. Then-Congressman Abraham Lincoln received U.S. Patent 6,469 for “A Device for Buoying Vessels over Shoals.” *Id.* at 9.

44. § 7, 5 Stat. at 119-20 (emphasis added). The pertinent test reads:

[I]f, [upon examination], it shall not appear to the Commissioner that the same had been invented or discovered by any other person in this country prior to the alleged invention or discovery thereof by the applicant, or that it had been patented or described in any printed publication in this or any foreign country, or had been in public use or on sale with the applicant’s consent or allowance prior to the application, if the Commissioner shall deem it to be sufficiently useful and important, it shall be his duty to issue a patent therefor. But whenever, on such examination, it shall appear to the Commissioner that the applicant was not the original and first inventor or discoverer thereof, or that any part of that which is claimed as new had before been invented or discovered, or patented, or *described in any printed publication* in this or any foreign country, as aforesaid, or that the description is defective and insufficient, he shall notify the applicant thereof, giving him, briefly, such information and references as may be useful in judging of the propriety of renewing his application, or of altering his specification to embrace only that part of the invention or discovery which is new.

Interestingly, the highlighted language was not present in the April 28 Senate report, and there appears to be no legislative history indicating the reason for its inclusion or the manner in which it was introduced into the final bill approved on July 4, 1836. No corresponding change was added to the infringement defenses section,<sup>45</sup> adding to the implication that Congress did not devote significant attention to the issue.<sup>46</sup>

The 1836 statute also created a distinct Patent Office within the Department of State and provided for internal appellate review and appeal to the courts.<sup>47</sup> It was not until 1870 that the Patent Office began publishing patents.<sup>48</sup>

#### D. *The 1952 Statute*

The latest major revision of the patent statute occurred in 1952.<sup>49</sup> It retained the bar to patentability of inventions previously described in a patent or printed publication<sup>50</sup> and added a new statutory bar to patentability of inventions which were obvious in light of such publications.<sup>51</sup> The relevant statutory language currently reads:

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*Id.* (emphasis added).

45. Section 15 of the 1836 patent statute provided that a defendant could plead any special matter tending to prove that the invention "had been described in some public work anterior to the supposed discovery thereof by the patentee, or had been in public use, or on sale, with the consent and allowance of the patentee before his application for a patent." § 15, 5 Stat. at 123. Under the 1870 re-enactment of the patent statute, the "public work" language was replaced by a defense that the invention or discovery "had been patented or described in some printed publication prior to [the plaintiff's] supposed invention or discovery thereof." Act of July 8, 1870, ch. 230, § 61, 16 Stat. 198, 208 (1870) (repealed 1952).

46. The issue would be whether a defendant could raise the defense that the patent was invalid if it were anticipated by a printed publication which had not been identified by the patent office during prosecution. Had it been identified during prosecution, the patent office would have refused to issue the patent on the basis of the highlighted language. Thus, the patent should not have been issued. However, once the patent had issued, the statute does not explicitly permit the defendant to defeat an infringement suit based on a prior printed publication. This inconsistency was corrected in the 1870 statute, *see* § 61, 16 Stat. at 208, and does not appear to have been raised in litigation in the interim.

47. *See* § 7, 5 Stat. at 119-20 (internal review); § 16, 5 Stat. at 123-24 (judicial review). Judicial appellate review was transferred, under the 1851 amendments, to the U.S. Court for the District of Columbia, to the U.S. Court of Customs and Patent Appeals in 1929, and then to the Court of Appeals for the Federal Circuit in 1982.

48. *See* § 20, 16 Stat. at 200; U.S. DEP'T OF COMMERCE, *supra* note 37, at 14. Previously one copy was retained by the patent office and one copy delivered to the inventor.

49. *See* Patent Act, ch. 950, 66 Stat. 792 (1952) (codified as amended at 35 U.S.C. §§ 1-293 (1994)).

50. *See* § 102, 66 Stat. at 797-98.

51. *See id.* (codifying the judicial interpretation first adopted by the Supreme Court in

### Conditions for patentability; novelty and loss of right to patent

A person shall be entitled to a patent unless—

- (a) the invention was known or used by others in this country, or patented or *described in a printed publication* in this or a foreign country, before the invention thereof by the applicant for patent, or
- (b) the invention was patented or *described in a printed publication* in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States . . . <sup>52</sup>

### Conditions for patentability; non-obvious subject matter

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.<sup>53</sup>

## IV. THE "PRINTED PUBLICATION" ISSUE IN THE CASES

The meaning of "printed publication" is thus central to patentability.<sup>54</sup> The constitutionally mandated exchange of new knowledge for limited monopoly, implemented by the section 102 bar of patentability of claims already in the public domain, is determined most frequently by the evidence of "printed publications."<sup>55</sup> What, then, is a "printed publication," and how does it differ from a "publication" (or, for that matter, from a "printing")? Precisely that question has been raised in a number of cases, testing the 1836 formulation against then-modern technological advances.

Two theories emerged as to its application: one emphasizing "printed," the other emphasizing "publication." Since the original statutory language predates even the typewriter (invented in 1867), and since the method of

*Hotchkiss v. Greenwood*, 52 U.S. (11 How.) 248 (1850).

52. 35 U.S.C. § 102(a), (b) (1994) (emphasis added).

53. *Id.* § 103.

54. For a general review see Kobylak, *supra* note 13.

55. See PATENT & TRADEMARK OFFICE, *supra* note 1, § 706.02 ("By far the most frequent ground of rejection is on the ground of unpatentability in view of the prior art . . .").

printing employed in 1836 has become commercially infeasible, both theories must employ some degree of speculation as to legislative purpose, without engaging in the statutory construction debate between strict construction and legislative intent analysis. The alternative would be to read section 102 out of the statute.

#### A. *The "Print" Theory of "Printed Publications"*

What may be called the "print" theory holds that the statute requires that a printed publication meet two tests: it must be published, and it must be produced by a mass printing process.<sup>56</sup> A document that meets these tests is a "printed publication"—proof of actual public access to the document is not required.<sup>57</sup> Under this theory, even though information

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56. See *In re Tenney*, 254 F.2d 619, 626 (C.C.P.A. 1958).

57. See *id.* at 626-27. The *Tenney* court noted that it is

readily evident that what Congress was concerned with, both in 1836 and 1952, was the *probability* that the subject matter would be made known to the American public. Knowledge and use in the United States would *probably* (or so Congress must have reasoned) come to the attention of the American people whereas the same probability would not be present with respect to such knowledge and use abroad. By the same token, in the case of "printed" publications, Congress no doubt reasoned that one would not go to the trouble of printing a given description of a thing unless it was desired to print a number of copies of it. . . .

But though the law has in mind the *probability* of public knowledge of the contents of the publication, the law does not go further and require that the probability must have become an actuality. In other words, once it has been established that the item has been both printed and published, it is not necessary to further show that any given number of people actually saw it or that any specific number of copies have been circulated. The law sets up a *conclusive presumption* to the effect that the public has knowledge of the publication when a single printed copy is proved to have been so published.

*Id.* (footnote omitted).

In *In re Wyer*, 655 F.2d 221 (C.C.P.A. 1981), a document was held to be a printed publication without any evidence that any member of the public actually had accessed it. See *id.* at 226-27. In another case, the court was willing to infer public access prior to the critical date based on ambiguous testimony as to the "normal" process of a university library. See *In re Hall*, 781 F.2d 897, 899-900 (Fed. Cir. 1986) (holding a doctoral thesis to be a printed publication). The court in *Ex parte Hershberger*, 96 U.S.P.Q. (BNA) 54, 56 (Pat. Off. Bd. App. 1953), held that a single copy of a college thesis was a printed publication despite restrictions placed on copying. The court noted that access, rather than the ability to copy, determined "publication" status. See *id.* at 56-57. While clearly correct as stated (the right to copy, even in the case of a book, being controlled by copyright law), the statement overlooks the impact that the right to copy has on public access. In the case of a book, there is presumably a broad right of the public to own a copy, not by copying, but by virtue of the fact that publication makes multiple copies available for purchase. In the case of a single copy which is deemed published solely because it is indexed in a library, the presumption of public access inherently depends on interested parties being able to make their own copies.



might be a “publication,” in the sense that it has been made available to the public, it still would not qualify as a section 102 reference if it were not “printed.”<sup>58</sup> This theory is better understood in historical context. In a time before typewriters, photocopiers, telefaxes and high-speed printers (much less electronic mail and Web pages), the only means of permanent mass dissemination of information was the printing press. Thus, an 1836 lawmaker trying to distinguish between “public” (meaning not trade secret) information, and information that was both public in that sense and public in the sense of being widely disseminated in a permanent form, could well have chosen the words “printed publication” to convey that concept. As explained in *In re Tenney*:<sup>59</sup> “Congress no doubt reasoned that one would not go to the trouble of printing . . . unless it was desired to print a number of copies,” therefore presumably increasing the likelihood of availability to the public.<sup>60</sup>

### B. *The “Publication” Theory of “Printed Publications”*

What may be termed the “publication” theory adopts a broad interpretation of the term “printed,” instead placing its focus on whether a document has been made widely available to the public. As early as 1937, the Patent Office Board of Appeals recognized that the literal 1836 meaning of “printed” was an unworkable standard, since printing at that time involved movable type, a process no longer in wide use in the 20th century printing industry.<sup>61</sup> In 1960, a district court foreshadowed the

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58. This literal reading is supported by the “public use or knowledge” language of the same statutory sections. See 35 U.S.C. § 102. If the “printed publication” clause is considered to require public access independent of the means of publication, then presumably whatever is covered by the “printed publication” language would also be covered by the “public knowledge” clause. The implication of the use of the two clauses is that Congress perceived a difference between printed and non-printed information. One difference may be based on the assumption that printed documents can “travel” more easily and widely than people; thus, a printed document, wherever it originates, may be presumed to reach an interested audience in the United States. A second difference may be based on a concern that non-printed knowledge is more perishable than printed knowledge. This latter difference cannot explain the geographic distinction of the two bars: 35 U.S.C. § 102 bars patentability if there has been a printed publication anywhere in the world, while it bars patentability based on prior public use knowledge in the United States. See *supra* text accompanying note 52 for the full language of the statutory section.

59. 254 F.2d 619 (C.C.P.A. 1958). Although stating the “publication” view, the *Tenney* court concluded that the document *sub judice*, a microfilmed document, did not meet that standard for a printed publication. See *id.* at 622.

60. *Id.* at 626.

61. See *Gulliksen v. Halberg*, 75 U.S.P.Q. (BNA) 252 (Pat. Off. Bd. App. 1937). In *Gulliksen* the Board affirmed the dissolution of an interference (an internal procedure to determine priority between two applicants for patents on the same invention) on the grounds that neither applicant was entitled to the patent since it was anticipated by a printed publication. See *id.* at 254. The printed publication was a typewritten thesis, bound and shelved at the Massachusetts Institute of

“publication” theory when it interpreted “printed” as employing a method by which many copies could be easily and quickly reproduced from one standard article, so as to ensure general distribution and public disclosure.<sup>62</sup>

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Technology library. *See id.* at 253. It had been stipulated that the thesis was available to the public prior to the bar date and that its contents anticipated the claimed invention. *See id.* The only issue was whether the thesis was a “printed publication.” *See id.* Although erroneously stating that the printed publication requirement entered the patent statute in 1870, *see supra* note 44, the Board stated:

at that time [1870], a printed publication could be produced in only one way, i.e., pieces of individual type were set by hand and after an amount equivalent to a page had been composed, the type were locked in a frame, the face of the type treated with a coating of ink and the paper was then pressed on the type to produce an imprint. It is, therefore, clear that at the time this term was placed in the patent statutes it necessarily had a restricted and specific meaning, but since that date, the art of printing has undergone many radical changes so that at the present day it would be almost impossible to have any printing done in accordance with the process in use in 1870. At the present time, practically all printed matter, including court records, which are required to be in print, are printed on what is known as a rotary press. In such a press, the printing face is made up not of movable type, but of a cast cylinder which impresses only a line at a time as the paper is passed beneath the roll. In addition, the term “printed” can be properly applied to a process in which a stenciled sheet prepared on a typewriter, is used. In this latter instance, no type is used in making the imprint, but according to the accepted definition of the term “printed,” the product resulting from the use of a mimeographed sheet can properly be described as printed matter. It is therefore apparent to us that at the present time the term “printed” cannot be given a specific meaning. Instead, it is a general term defining an operation by which devices carrying shapes of letters, characters, etc., are caused to leave a reproduction of said letters, etc., impressed or fixed upon a sheet of paper or other material.

*Id.* at 253.

62. *See* *Browning Mfg. Co. v. Bros, Inc.*, 126 U.S.P.Q. (BNA) 499, 503 (D. Minn. 1960). The court held that summary judgment on anticipation (based on drawings which were exhibited at a trade show as part of a sales exhibition, but not distributed) was inappropriate given the factual issues presented, but in so doing discussed the printed publication issue. *See id.* at 505.

The cases do not recognize any consistent definition and application of the term “printed publication” as used in the statute. Compare the typewritten college thesis cases, *Hamilton Laboratories v. Massengill*, 111 F.2d 584 (6th Cir. 1940); *Ex parte Hershberger*, 96 U.S.P.Q. 54 (P.O.B.A., 1952); *Gulliksen v. Halberg*, 75 U.S.P.Q. 252 (P.O.B.A., 1937); with, *Application of Tenney*, 254 F.2d 619, 117 U.S.P.Q. 348 (C.C.P.A. Patents, 1958); *Permutit Co. v. Graver Corp.*, 43 F.2d 898, 7 U.S.P.Q. 51 (7th Cir. 1930); *Permutit Co. v. Wadham*, 13 F.2d 454 (6th Cir. 1926); *Carter Products, Inc. v. Colgate-Palmolive Co.*, 130 F. Supp. 557, 104 U.S.P.Q. 314 (D. Md. 1955), *affirmed*, 230 F.2d 855, 108 U.S.P.Q. 383 (4th Cir. 1956), *cert. denied*, 352 U.S. 843, 111 U.S.P.Q. 467 (1956). In *Application of Tenney, supra*, a microfilm copy of a German patent application placed in the Library of Congress in Washington, D.C., after World War II was held not to be

The theory is most clearly articulated in *In re Wyer*:<sup>63</sup> a document is a printed publication "whether . . . printed . . . on microfilm or a magnetic disk or tape . . ." if "available and accessible to persons concerned with the art."<sup>64</sup> The theory has become firmly established (if not universally followed) in a series of cases reviewing the question whether a single copy of a typewritten thesis, properly indexed in a publicly accessible library, was a printed publication.<sup>65</sup> Under the "publication" theory, what is central

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a printed publication in that the method of reproduction was not a "mode of producing copies which would ordinarily be used in making a large number of copies so as to insure general distribution of publication." . . . This would seem to be the better rule for it is the ease of mass production that increases the probability that the invention will be disclosed to the public for commercial exploitation. The word "printed," as enacted in the statute, modifies "publication"; they must be read together. *Printing, though not necessarily requiring the use of a printing press, at least connotes a system of reproduction whereby many copies of a document may be easily and quickly reproduced from one standard article or set of symbols.* Something more than public disclosure of any document is meant; it is the method or mode of making the disclosures which is also material. In the instant case, it does not appear how the drawings in question were produced. . . . For all that the record shows, the drawings could have been originals created through the use of manual drafting utensils or made by tracing[,] neither of which process is printing.

*Id.* at 503 (emphasis added). The underscored language of the above formulation, of course, would now make any data fixed on paper a "printed publication" because photocopying permits the required easy and quick reproduction from a standard original.

63. 655 F.2d 221 (C.C.P.A. 1981). The *Wyer* court upheld the denial of a patent in light of a microfilmed document, holding that such a document was a printed publication under 35 U.S.C. § 102. *See id.* at 227.

64. *Id.*

65. *See, e.g., In re Hall*, 781 F.2d 897 (Fed. Cir. 1986); *Hamilton Lab., Inc. v. Massengill*, 111 F.2d 584 (6th Cir. 1940). In a questionable extension of the principle, the board in *Gulliksen v. Halberg*, 75 U.S.P.Q. (BNA) 252, 253 (Pat. Off. Bd. App. 1937), concluded that the document was available as an anticipatory reference as of the date of its receipt by the library, not the date it was indexed. This is contrary to the results reached in *Canron, Inc. v. Plasser Am. Corp.*, 474 F. Supp. 1010 (E.D. Va. 1978), *aff'd*, 609 F.2d 1075 (4th Cir. 1979); *Bergstrom v. Sears, Roebuck & Co.*, 457 F. Supp. 213 (D. Minn. 1978), *aff'd*, 599 F.2d 62 (8th Cir. 1979); and *Protein Found., Inc. v. Brenner*, 260 F. Supp. 519 (D.D.C. 1966); and the position stated by the Patent Office in the MANUAL OF PATENT EXAMINING PROCEDURE, *see* PATENT & TRADEMARK OFFICE, *supra* note 1, at 700-11; all of which hold that the effective date of a magazine is the date it reached an addressee, not the date it was placed in the mail. Presumably, there is data on the reliability of mail delivery which would permit a presumption that at least some magazine subscribers receive their magazines in a timely fashion. It is doubtful that similar data on the indexing of material by libraries in general exists. Thus, if magazines become anticipatory references upon receipt rather than mailing, it would seem that, a fortiori, a document which is an anticipatory reference solely by virtue of its availability in a library should become so as of the date of indexing, rather than the date of receipt by the library. *In re Bayer*, 568 F.2d 1357, 1362 (C.C.P.A. 1978), implicitly holds that the date of indexing controls as the date of anticipation in cases where the document is a printed publication

to the monopoly-for-information exchange is that the information be placed widely and irretrievably in the hands of the public, and the 1836 Congress used the words "printed publication" in the context of printing being the only reliable means of doing so.

While the "publication" theory tends to find anticipation and therefore deny patentability in more cases than does the "print" theory, it should be noted that the theories cannot be classified simply as "pro patentee" or "anti-patentee." Even accepting the "publication" theory that printing is the only reliable means of assuring public access, the reverse is not necessarily true. There are situations in which a document might be printed (in the classical printing press sense) and published (in the classical multiple-copies-available for distribution sense), and therefore a "printed publication" under the "printed" theory, yet not be a "printed publication" under the "publication" theory if it could be shown that the public did not in fact have access to the document. Such a case was presented in *Badowski v. United States*,<sup>66</sup> where a document published by the government of the U.S.S.R. was held not to satisfy the "printed publication" requirement because, although "printed" and "published," it was difficult to obtain (and, presumably, not "public").<sup>67</sup> The Court held

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by virtue of library deposit. *Accord* *Ecolchem, Inc. v. Southern Cal. Edison Co.*, 863 F. Supp. 1165, 1174 (C.D. Cal. 1994), *modified*, 91 F.3d 169 (Fed. Cir. 1996). The touchstone is not the typewriter, but the placement of the document in a publicly accessible location coupled with means for the public to know of the document's existence. *Cf. In re Cronyn*, 890 F.2d 1158, 1161 (Fed. Cir. 1989) (holding that a typewritten thesis, indexed in a shoebox in the library of a chemistry lab and only by the student's name, was not a printed publication).

66. 164 F. Supp. 252 (Ct. Cl. 1958).

67. *See id.* at 256. *Badowski* involved parachute technology, which was described in a Soviet Air Force journal. *See id.* The U.S. government had tried unsuccessfully to obtain a copy of the journal, finally doing so only after years of effort. *See id.* It should also be noted that, although not referred to in the decision, the case arose at the height of the Cold War, during a time when U.S.-U.S.S.R. competition for scientific "firsts" gave rise to suspicion as to the authenticity, as well as accessibility, of Soviet documents and the facts reported in them. *See, e.g., Freeman v. Minnesota Mining & Mfg. Co.*, 693 F. Supp. 134, 149 (D. Del. 1988), *aff'd in part and vacated in part*, 884 F.2d 1397 (Fed. Cir. 1989) (relying on the testimony of an expert witness that, in the 1970s, Soviet research institutes were not open to foreigners and that visas were not reliably available).

Inaccessible documents (e.g., classified documents) cannot serve as references since they do not put the information in question in the public domain. Classified documents have been held unavailable as references. *See Whitcomb v. American Airlines Inc.*, 164 U.S.P.Q. (BNA) 610 (E.D. Va. 1968), *rev'd on other grounds*, 443 F.2d 630 (4th Cir. 1971); *see also Wycoff v. Motorola, Inc.*, 502 F. Supp. 77, 88 (N.D. Ill. 1980) (holding that a manual sold to the government prior to the critical date "did not, as is required, place the claimed subject matter in the possession of the public, since the publication remained secret within the U.S. government's hands only," and rejecting the argument that distribution to the government was sufficient to constitute publication). "The decided cases clearly indicate that distribution of printed documents by an independent contractor to the customer or contracting party in connection with the contract work does not, in and of itself, constitute a 'publication' of the documents." *Id.* at 88 (citing *Dow Chem. Co. v.*

that “[t]he statutory language, ‘printed publication,’ implies that numerous copies were printed and were made accessible to the general public.”<sup>68</sup>

It is impossible to determine by purely grammatical analysis which interpretation the legislature intended: Were they trying to subdivide what was “printed” in the sense of being permanently recorded on paper (which would include, for example, private letters) into that which was private and that which was publicly accessible, or were they trying to subdivide what was publicly accessible (in the sense of not being a trade secret) into that which had been mass produced and that which had not? Accepting the 1836 premise that the only way to assure permanent public accessibility was via the printing press (and remembering that even the invention of the typewriter was still more than thirty years in the future when the 1836 statute was enacted), the two interpretations were indistinguishable. Once the 1836 premise failed, the choice of theory mattered.<sup>69</sup> With the introduction of microfilm and the photocopier, technologies which did not

Williams Bros. Well Treating Corp., 81 F.2d 495, 499 (10th Cir. 1936)); cf. Siemens-Elema AB v. Puritan-Bennett Corp. 13 U.S.P.Q. 2d (BNA) 1804, 1806 (S.D. Cal. 1989) (holding “[t]he difficulty in locating . . . documents does not diminish the public’s right of access once they are found”).

The Patent Office’s MANUAL OF PATENT EXAMINING PROCEDURE provides:

#### Effective Dates of Declassified Printed Matter

In using declassified material as references there are usually two pertinent dates to be considered, namely, the printing date and the publication date. The printing date . . . may be considered as that date when the material was prepared for limited distribution. The publication date is the date of release when the material was made available to the public. . . .

In the use of any of the above noted material as an anticipatory publication, the date of release following declassification is the effective date of publication within the meaning of the statute.

For the purpose of anticipation predicated upon prior knowledge under 35 U.S.C. § 102(a) the above noted declassified material may be taken as *prima facie* evidence of such prior knowledge as of its printing date even though such material was classified at that time. When so used the material does not constitute an absolute statutory bar and its printing date may be antedated by an affidavit under 37 CFR 1.131. . . .

PATENT & TRADEMARK OFFICE, *supra* note 1, at § 707.05(f).

68. *Badowski*, 164 F. Supp. at 255.

69. Many cases could still, of course, be resolved consistently under either theory. For example, the court in *In re Cronyn*, 890 F.2d at 1161, held that a thesis indexed in a college library by author’s name only is not a printed publication. In *In re Bayer*, 568 F.2d 1357, 1361 (C.C.P.A. 1978), the court held that a thesis available only to three reviewers was not a printed publication (because the probability of public knowledge of the contents of the document was virtually nil). Viewed from a “print” standpoint, both references fail because they were typed, not printed. Viewed from a “publication” standpoint, both fail because there was no way for the public to know of their existence or find them without knowing of their existence.

employ the movable type print of 1836, but which nevertheless permitted wide public dissemination, the premise no longer held.

## V. PRE-INTERNET DEVELOPMENT AND RESOLUTION

When Congress amended the patent statute in 1836 to add the “printed publication” bar, mass distribution required printing on a press. As new technologies for mass publication emerged, courts wrestled with the boundaries of the definition of the word “printed.”

### A. *The Printing Press*

Early cases rejected the argument that any document, simply by virtue of being on paper, was a printed publication, generally on the theory that public access was not achieved simply by placing an idea on paper.<sup>70</sup> Alternative copying technology consisted of manually rewriting a copy from an original, which was both time-consuming and posed the risk of errors in the process.

### B. *Technology Breaks Through: The Typewriter*

The first deviation from acceptance of the printing press definition of “printed” appears to be *Gulliksen v. Halberg*,<sup>71</sup> where the Patent Office Board of Appeals ruled that a typewritten thesis, available at only one library, was a printed publication. Although only one copy of the document was proved to exist, and that copy was typewritten rather than printed on a press, the board noted that it was a permanent, legible document, capable of wide distribution (by photographic means) and accessible to the public, and concluded that this satisfied the statutory requirement of a printed publication.<sup>72</sup> *Gulliksen* was followed in 1940 by *Hamilton Laboratories v. Massengill*,<sup>73</sup> the first appellate decision granting “printed publication”

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70. See, e.g., *Keene v. Wheatley*, 14 F. Cas. 180, 192-93 (C.C.E.D. Pa. 1861) (No. 7644). Although a copyright infringement case, the court noted: “Under the laws concerning patents for inventions, a previous description of the alleged invention in a ‘public work,’ which means a printed book, defeats a patent. But such a description in an unprinted book has, in itself, no such effect.” *Id.* at 193. “Human means of increasing the number of copies by writing are extremely limited. By printing, they may, on the contrary, in the words of Lord Cranworth, be multiplied indefinitely.” *Id.* at 192.

71. 75 U.S.P.Q. (BNA) 252 (Pat. Off. Bd. App. 1937). According to the dissent, “[t]he word ‘printed’ used in the statute has not received any extended discussion in the decisions dealing with printed publications so that it can be definitely ascertained what is comprehended within this word.” *Id.* at 254 (Edinburg, Exam’r in Chief, dissenting).

72. See *id.* at 253. Under this test, of course, any document becomes a printed publication since it can be photocopied. Such a view compels the focus to shift from “printing” to “making publicly accessible.”

73. 111 F.2d 584 (6th Cir. 1940).

status to a typewritten document. Again, this involved a thesis available in a single college library, although available to students and patrons of other libraries with exchange privileges.<sup>74</sup>

The Patent Office Board of Appeals extended the definition by including a typed document with handwritten elements as a printed publication, in *Ex parte Hershberger*.<sup>75</sup> The typed document was a thesis, which included handwritten drawings and equations (the typewriter not having the requisite symbols for typing equations).<sup>76</sup> The liberalization of the definition of "printed publication" can, perhaps, be explained by the perception that public access to university library materials had (whether through improvements in indexing, transportation, or dissemination) reached the level of public access to 1836 printing press produced documents.<sup>77</sup>

Implicit abandonment of the literal printing requirement and development of the general "publication" view can be seen in *I.C.E. Corp. v. Armco Steel Corp.*<sup>78</sup> The court in *I.C.E.* held that a reference may be a printed publication if the document "has been disseminated or otherwise made available to the extent that persons interested and ordinarily skilled in the subject matter or art, exercising reasonable diligence, can locate it and recognize and comprehend . . . the essentials of the claimed invention without need of further research or experimentation."<sup>79</sup> In 1967, a typewritten paper distributed at a conference was held to be a printed publication, a supportable reading of the statute only if publication is deemed to mean made available in a public or non-confidential manner.<sup>80</sup>

By 1971, the Third Circuit explicitly concluded: "[P]rinting' is no longer the only process synonymous with 'publication.' The emphasis, therefore, should be public dissemination . . . and its availability and

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74. *See id.* at 585.

75. 96 U.S.P.Q. (BNA) 54 (Pat. Off. Bd. App. 1953). The Board noted that modern inks had become more permanent in character. *See id.* at 57.

76. *See id.* at 55. A hand printed paper in the Japanese language was held to be a printed publication in *Tyler Refrigeration Corp. v. Kysor Indus. Corp.*, 601 F. Supp. 590, 603-04 (D. Del.), *aff'd*, 777 F.2d 687 (Fed. Cir. 1985) on the basis that Japanese language documents were characteristically handwritten due to the large number of pictorial characters.

77. Most United States doctoral dissertations and a large number of masters theses are now indexed, and publicly available, through University Microfilms International Dissertation Services, which provides "xerographic" copies from microfilm.

78. 250 F. Supp. 738 (S.D.N.Y. 1966).

79. *Id.* at 743.

80. *See Deep Welding, Inc. v. Sciaky Bros., Inc.*, 417 F.2d 1227, 1235 (7th Cir. 1969). Note that in the library indexing cases, at least the assumption can be made that "the public" (i.e., anyone with sufficient interest and training in the particular subject matter) should be able to gain access to the document. In *Deep Welding*, however, it is difficult to see how such an assumption can be made without further factual support (for example, that the conference was attended by people who would in turn index the manuscript and make it available to "the public").

accessibility to persons skilled in the subject matter or art.”<sup>81</sup> In a 1974 decision, however, the Seventh Circuit maintained the ambiguous word “printed” in concluding that: “[t]o constitute a printed publication . . . all that is required is that the document in question be printed and so disseminated as to provide wide public access to it.”<sup>82</sup>

### C. *The Expansion Solidifies: The Mimeograph*

While caselaw on typewritten documents evolved along with technological advances making dissemination of such documents easier, and while microfilm technology is still in transition,<sup>83</sup> the qualification of mimeograph documents as references appears to have been established without dissent. There appears to be no case holding that a mimeograph was not a printed publication. As early as 1937, the patent office rejected a patent based on the availability of a prior mimeographed document.<sup>84</sup> The explanation, although not explicit in the cases, seems obvious. While a document might be microfilmed for one of two purposes (a means of dissemination or a means of archiving, often accompanied by the destruction or off-site storage of the original), the only reason for preparing a mimeograph stencil is so that multiple copies can be made, therefore presumably indicating an unambiguous intent to distribute and justifying a presumption that publication was intended. As with typeset documents, if that presumption is rebutted (by showing that the document was classified or deemed confidential), then the document is not a printed

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81. *Philips Elec. & Pharm. Indus. Corp. v. Thermal & Elec. Indus., Inc.*, 450 F.2d 1164, 1170 (3rd Cir. 1971); accord *Johns Hopkins Univ. v. CellPro*, 894 F. Supp. 819 (D. Del. 1995). The *Philips* court stated, however, that the party offering the document should prove that it had been disseminated or otherwise made accessible to persons concerned with the art to which the document related. See *Philips*, 450 F.2d at 1171.

82. *Popeil Bros., Inc. v. Schick Elec., Inc.*, 494 F.2d 162, 166 (7th Cir. 1974). The *Popeil* court invalidated a patent based on instruction books and advertising pamphlets distributed in Japan. See *id.* at 167. Of course, the literal holding is uninformative, since the document in question was “printed.”

83. See *infra* notes 86-95 and accompanying text.

84. See *Gulliksen v. Halberg*, 75 U.S.P.Q. (BNA) 252, 254 (Pat. Off. Bd. App. 1937). The Board later accepted a handwritten document as a printed publication in *Ex parte Brendlein*, 105 U.S.P.Q. (BNA) 453, 454 (Pat. Off. Bd. App. 1955), stating that the printed publication requirement was satisfied where unlimited copies could be made. In *Brendlein*, the underlying document was listed in a widely circulated (printed) bibliography, along with instructions for ordering a copy produced from a microfilm master of the original paper copy. However, the court was unclear as to whether the printed publication was the original paper copy or the microfilm master. See *id.* A district court held a mimeograph document not to be a printed publication in *General Tire & Rubber Co. v. Firestone Tire & Rubber Co.*, but did so on the basis that the document was confidential. See 349 F. Supp. 345, 355 (N.D. Ohio 1972). Confidential documents do not constitute printed publications, even if they are produced using a printing press. See *supra* note 67.



publication.<sup>85</sup>

#### D. *Technological No-Man's Land: Microfilm*

The third technological development to bring a new form of publication under § 102 was microfilm. Here, however, the caselaw remains unsettled on fundamental issues.

In *In re Tenney*,<sup>86</sup> the Court of Customs and Patent Appeals was presented with the question whether a microfilmed document was a printed publication. The court concluded it was not, reasoning:

While microfilming furnishes a means of multiplying copies, there is no *probability*, from a mere showing that a microfilm copy of a disclosure has been produced, that the disclosure has achieved wide circulation and that, therefore, the public has knowledge of it. The nature of present day microfilm reproduction differs from normal printing methods. Though one would be more likely than not to produce a number of copies of printed material, one producing an item by microfilming would be as apt to make one copy as many. In the case of printing, unless a number of copies were produced, a waste of time, labor and materials would result; present day microfilming methods, on the other hand, are as well designed to produce one microfilm as well as many without waste.<sup>87</sup>

The court was, however, troubled by its conclusion, noting:

It is no doubt true that the present law is anomalous, as evidenced by our conclusion that the microfilm is not "printed." A foreign patent file, laid open for public inspection, is not a printed publication, because typewritten,

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85. See *General Tire*, 349 F. Supp. at 354. The *General Tire* court discussed whether a class of documents was intended for distribution:

The third classification of disputed references is the preliminary and final mimeographed reports of the Wilmington Chemical Company. At least one of these reports was distributed to several individuals in the rubber industry. However, each was marked "Confidential." There is no evidence that dissemination to the general public was intended, nor that the public had access to the reports.

These reports fail as prior printed publications. They are not prior art under 35 U.S.C. § 102.

*Id.* at 355 (citations omitted).

86. 254 F.2d 619, 621 (C.C.P.A. 1958).

87. *Id.* at 627.

while a printed publication, available to the public only in a Southern Rhodesian library, would be. The former is obviously more likely to reach the eyes of the American public than the latter. It is obvious, however, that unless we are to rewrite 35 U.S.C. § 102(b) for Congress, this must be the result reached. Our job is to interpret the law, not to make it.<sup>88</sup>

While the court was properly concerned about a policy concluding that typewritten public documents were not “printed,” while printed but less publicly accessible documents were not, the concern does not seem to follow from the court’s premises. If in fact printing implies the intention to produce a large number of copies, while microfilming does not, then the conclusion that a printed document would be available “only in a Southern Rhodesian library” seems faulty.<sup>89</sup> Implicitly, the court must have been questioning the premises: by 1958, it was reasonable to question whether the underlying assumption that printing implied the intention to produce a large number of copies while microfilming necessarily meant an intention to maintain close control over a limited number of copies was sound.

In 1962, the Patent Office Board of Appeals interpreted *Tenney’s* holding as limited to microfilm that was indexed improperly, and distinguished the pending appeal on the basis that the reference in dispute had been indexed properly.<sup>90</sup> Although following *Tenney* (and reaching the same conclusion), the district court in *General Tire & Rubber Co. v. Firestone Tire & Rubber Co.*,<sup>91</sup> was more precise in its focus on the reason for denying printed publication status to microfilms of war-era German patents, maintained post-war by the U.S. government:

Not only are Firestone’s microfilm references not “printed,” but there is no evidence of their publication. Publication is not shown by mere evidence of ability to mass produce. Directly in point are decisions which hold that German GM’s (Gebrauchsmustern) are not publications although they are indexed, the index is published, and copies of the GM are available to the public on request.

The German microfilms fail as prior printed publications.

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88. *Id.*

89. *Id.*

90. *Ex parte Garbo*, 803 Off. Gaz. Pat. Office 315 (Pat. Off. Bd. App. 1962). The Board also noted, “In the four years since [*Tenney*] microfilm techniques have made significant advances in the field of scientific information.” *Id.* at 318.

91. 349 F. Supp. 345 (N.D. Ohio 1972).

They are not prior art under 35 U.S.C. § 102.<sup>92</sup>

The subtle shift between *Tenney* and *General Tire* is the recognition of the possibility that a microfilmed document might be a printed publication if there were evidence of publication<sup>93</sup>—presumably, of wide public availability.<sup>94</sup> Although not discussed in *General Tire*, the distinction between properly and improperly indexed documents would logically be one factor in determining public availability.<sup>95</sup>

#### E. *The Envelope: Printed Publications "Written" on the Wind*

In *Gulliksen*, the Patent Office Board of Appeals noted that the 18th century method of printing was no longer commercially feasible and looked for the purpose of the printed publication requirement, concluding:

[I]t is reasonable to infer that the framers of Section 4886 [the predecessor of 35 § U.S.C. 102] intended by "a printed publication" to mean a publication in which the text is fixed or impressed on pages in contradiction to publication by such fugitive means as lectures, gestures, etc. At the time this statute was written, the only way in which a permanent record could be made was either printing by means of type, or by writing out same in longhand by means of a pencil or pen. Longhand records were often difficult to decipher by reason

92. *Id.* at 355 (citations omitted).

93. Perhaps in an effort to insure against a remand of a case which had taken 20 years to bring to trial, generating a 44,773 page transcript and over 100,000 pages of depositions and evidence, see *General Tire*, 349 F. Supp. at 349 n.1, the court made this backup argument in Finding 127:

Since reproduction by microfilm is not "printing," these German references fail as printed publications. Even if one were to consider them as being printed, they fail as anticipations because the microfilmed material itself was not publicly distributed. Instead, a list of the titles of the microfilmed material was published as the Bibliography of Scientific and Industrial Reports (BSIR). The material was so poorly indexed, however, that it was virtually inaccessible to a researcher. Further, many frames of microfilm are poorly made and difficult to reproduce or read accurately.

*Id.* at 386-87.

94. Several courts have now held that microfilm qualifies as printed, and that microfilm may be a printed publication if it has been made public. See *In re Wyer*, 655 F.2d 221 (C.C.P.A. 1981); *Philips Elec. & Pharm. Indus. Corp. v. Thermal & Elec. Indus., Inc.*, 450 F.2d 1164 (3rd Cir. 1971); *Ex parte Brendlein*, 105 U.S.P.Q. (BNA) 453 (Pat. Off. Bd. App. 1955); *I.C.E. Corp. v. Armco Steel Corp.*, 250 F. Supp. 738 (S.D.N.Y. 1966). *But see General Tire*, 349 F. Supp. at 355. The result in *General Tire* may be reconciled since the court found no evidence of actual dissemination of the underlying document. See *id.*

95. See *Garbo*, 803 Off. Gaz. Pat. Office at 318

of eccentricities in penmanship, and often the ink used was of poor quality. Obviously, printing produced a far more satisfactory record and would result in a wider distribution of the knowledge contained therein.<sup>96</sup>

Of course, as noted in *Tenney*,<sup>97</sup> there are numerous handwritten documents that are centuries old.

Although the circuit courts are split on the issue, there are cases holding that a verbal presentation, accompanied by display of a document, constitutes a printed publication. In *Regents of University of California v. Howmedica, Inc.*,<sup>98</sup> the court held that a lecture accompanied by slides did not create a printed publication, although noting that slides (had they been distributed) could themselves be a printed publication.<sup>99</sup> *Browning Manufacturing v. Bros, Inc.*<sup>100</sup> is in accord, holding that displaying a printed document at a trade show was insufficient to make the document a printed publication.<sup>101</sup> The Federal Circuit has gone both ways on the issue, and has failed to provide a clear test for the status of a verbal presentation accompanied by the display of printed materials.<sup>102</sup>

The emphasis on public dissemination can be questioned as rendering the printed publication provision surplus in light of the "known or used by others" provision of section 102.<sup>103</sup> If a printed publication is defined by its accessibility to, and knowledge by, others in the United States, then what does the printed publication bar add to the public knowledge bar? If it is interpreted as adding nothing, then the interpretation violates the canon of statutory construction that "courts should not interpret statutes in a manner that renders terms of the statute superfluous."<sup>104</sup>

It is clear, however, that modern cases have stepped away from a literal reading of the printing press requirement and instead have admitted any form of publication which appears to assure public access to the document

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96. *Gulliksen v. Halberg*, 75 U.S.P.Q. (BNA) 252, 253 (Pat. Off. Bd. App. 1937).

97. *See supra* note 59.

98. 530 F. Supp. 846 (D.N.J. 1981), *aff'd without opinion*, 676 F.2d 687 (3rd Cir. 1982).

99. *See id.* at 859-60.

100. 126 U.S.P.Q. (BNA) 499 (D. Minn. 1960).

101. *See id.* at 503.

102. *Compare* *Massachusetts Inst. of Tech. v. AB Fortia*, 774 F.2d 1104, 1109 (Fed. Cir. 1985) (holding that there was a printed publication under those circumstances), *with* *Hybritech Inc. v. Abbott Lab.*, 849 F.2d 1446 (Fed. Cir. 1988), *aff'g*, 4 U.S.P.Q.2d (BNA) 1001, 1006-07 (C.D. Cal. 1987) (holding that there was no printed publication where only a limited number of printed copies of a speech had been provided, on a restricted basis, to a journal review committee).

103. 35 U.S.C. § 102(a) (1994).

104. *George Hyman Constr. Co. v. Occupational Safety & Health Review Comm'n*, 582 F.2d 834, 841 (4th Cir. 1978); *see also* *Virginia v. Browner*, 80 F.3d 869, 877 (4th Cir. 1996) ("A court should not . . . construe a statute in a manner that reduces some of its terms to mere surplusage.").

in question.<sup>105</sup> Although the statements of rationale vary, the following principles of modern interpretation emerge from the cases. A publication is not printed simply because it is on paper. For example, handwritten notes or private letters, not filed in a public place, do not satisfy the requirement.<sup>106</sup> Conversely, a publication need not be reproduced by a printing press in order to be considered printed, if it is accessible to a significant portion of the public which might find it of interest (not, it should be noted, the entire public at large).<sup>107</sup>

While these might seem trivial interpretations of the statutory language, they are at least interpretations. A strict, frozen at the time of passage, interpretation of section 102 has been rejected, even though the statute has been recodified twice since 1836 and the "printed publication" language has survived legislative review intact.<sup>108</sup> Thus, it is possible to raise the question of how to apply the underlying principle of section 102 to emerging methods of communicating ideas.

If the underlying purpose of section 102 is to assure public dissemination, then it is appropriate to view the cases as linked to the state of technology at their date of decision. Thus, a holding that a microfilmed

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105. Thus far, no court has extended the definition of "printed" to information which is not transmitted in a tangible form. Even the lecture cases, *see supra* notes 98-102 and accompanying text, involved the display, if not the transfer of possession, of tangible documents.

106. The leading treatise of the 19th Century, 1 WILLIAM C. ROBINSON, *THE LAW OF PATENTS FOR USEFUL INVENTIONS* 446-47 (Sage Hill Publishers, Inc. 1971) (1890) (footnotes omitted) comments as follows:

[T]he publication must be: (1) A work of public character, intended for general use. . . .

A work of public character is such a book or other printed document as is intended and employed for the communication of ideas to persons in general, as distinguished from particular individuals. Private communications, although printed, do not come under this description, whether designed for the use of single persons or of a few restricted groups of persons.

One writer has, however, proposed that the test should be "if any person other than the inventor has possession of a non-restricted . . . disclosure of the invention, then that particular disclosure must be considered a printed publication." Richard W. Hoffman, Comment, *What Constitutes a Printed Publication Under the Patent Act*, 1988 DET. C.L. REV. 961, 972. While this proposal would provide a bright line test, it would make collaborations and venture financing virtually impossible. Many collaborators and venture capital firms will not agree to confidentiality, and it is difficult to monitor even formal publications in a business or academic environment; setting and enforcing policies for all disclosures would be impractical. Finally, any gain in clarity of statement would likely be at the expense of complication of evidentiary issues.

107. *See In re Cronyn*, 890 F.2d 1158 (Fed. Cir. 1989); *In re Wyer*, 655 F.2d 221 (C.C.P.A. 1981); *Hamilton Lab., Inc. v. Massengill*, 111 F.2d 584 (6th Cir. 1940); *accord In re Bayer*, 568 F.2d 1357 (C.C.P.A. 1978) (stating the principle although holding it not satisfied in the case *sub judice*).

108. *See supra* notes 41-53 and accompanying text.

document is not a "publication" should, although stated in absolute terms, be viewed as a holding that a microfilmed document is not a "publication" under the then-current state of microfilm technology.<sup>109</sup> Therefore, whether the Internet is a printed publication medium or not depends on the then-current state of Internet technology. As the typewriter cases show,<sup>110</sup> changes in the underlying technology, or changes in public acceptance and use of the technology, can produce changes in the legal result.

## VI. THE INTERNET

As new methods of disseminating information have become available, the definition of "printed publication" has expanded by extending the reach of "printed" to include documents which are not typeset. If the caselaw could expand the meaning of "printed" to include documents which are not typeset, could it not also expand to include information which is not a tangible document?

The *Manual of Patent Examining Procedure*,<sup>111</sup> containing the patent office's internal guidelines for review of patent applications, neither directs nor forbids patent examiners to make use of Internet resources as references. It has been suggested by one commentator that data stored in computers are likely to be considered printed publications.<sup>112</sup> This suggestion appears to have contemplated that the information would be stored on a publicly accessible computer from which members of the public could retrieve copies.<sup>113</sup> In that context, and assuming that the documents on the computer were properly indexed so as to allow identification of relevant information by members of the public interested in the art, this conclusion appears consistent with the trend of reasoning in modern cases.<sup>114</sup>

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109. Such a view is implicit in the recognition of advances in microfilm technology which at least partly underpins *Ex parte Garbo*, 803 Off. Gaz. Pat. Office 315, 318 (Pat. Off. Bd. App. 1962), justifying a decision at variance with the prior Board decision in *Tenney*. See *supra* note 59.

110. See *supra* notes 71-82 and accompanying text.

111. PATENT & TRADEMARK OFFICE, *supra* note 1.

112. See Kobylak, *supra* note 13, at 812 (acknowledging, however, that no court had yet addressed the issue).

113. See *id.* at 813. "[C]ounsel may therefore expect the court's inquiry to focus on the number of computer terminals having access to the computer's data storage as well as the number of persons serviced by those terminals." *Id.* An example of a publicly accessible database would be LEXIS. Note that such a database does not pose the issues raised herein in connection with Internet publications: it is under the control of a disinterested third party, it is maintained permanently, the date of accession is established and maintained by a disinterested third party, and it is searchable. Should such a database be maintained on the Internet, as LEXIS is, it would not lose its status as a printed publication; however, it does not follow that merely placing data on the Internet per se creates a printed publication. See *supra* note 16.

114. It should be noted that the revisers of the Uniform Commercial Code, although

The argument in favor of printed publication status for Internet publications can be summarized as follows. *Philips Electronic & Pharmaceutical Industries Corp. v. Thermal & Electronics Industries, Inc.*<sup>115</sup> acknowledges that the patent statute is not "bound solely to the traditional method of the printing press" but must take into account contemporary technology.<sup>116</sup> *Philips* and *In re Wyer*<sup>117</sup> hold that the critical elements are the degree of dissemination and accessibility.<sup>118</sup> *Wyer* even states, in dictum, that magnetic storage can qualify as a printed publication.<sup>119</sup> Modern computer technology has provided a low cost and ease of access which satisfies the requirement of the possibility of easy and quick reproduction under *Browning Manufacturing*.<sup>120</sup> The fundamental patent tradeoff is limited term monopoly in exchange for information otherwise unavailable to the public. What could be more public than something posted on the Internet?

However appealing this argument is in its simplicity, it must pass two tests. It must show that an Internet posting meets the explicit holdings of the caselaw, and it must show that there are no implicit, underlying assumptions in the caselaw that would not apply equally with respect to Internet postings. Failing either test, the argument must be rejected and Internet postings cannot bar patentability under section 102(a).<sup>121</sup>

#### A. *Do Internet Postings Meet the Holdings of Current Caselaw?*

It is easy to dispose of one hurdle to acceptance of Internet postings as printed publications: as posted, Internet documents are not printed in any sense of the word. They can be transferred to paper, but as posted, they are

acknowledging the pressure of electronic commerce, concluded:

The definition of "document" contemplates and facilitates the growing recognition of electronic and other nonpaper media as "documents," however, for the time being, data in those media constitute documents only in certain circumstances. . . . The fact that data transmitted in a nonpaper (unwritten) medium can be recorded on paper by a recipient's computer printer, facsimile machine, or the like does not under current practice render the data so transmitted a "document."

U.C.C. § 5-102, cmt. 2 (1995).

115. 450 F.2d 1164 (3rd Cir. 1971).

116. *See id.* at 1170.

117. 655 F.2d 221 (C.C.P.A. 1981).

118. *See id.* at 227; *Philips*, 450 F.2d at 1170.

119. *See Wyer*, 655 F.2d at 227.

120. *See Browning Mfg. Co. v. Bros, Inc.* 126 U.S.P.Q. (BNA) 499, 503 (D. Minn. 1960).

121. A separate issue, beyond the scope of this article, is whether they might bar patentability under section 102(b).

electronically stored data. This is true, however, of microfilm as well. It can be used to produce a paper image but it is not, itself, such an image.<sup>122</sup> Although not unanimous, the trend of the caselaw is to admit microfilm (at least if it is indexed and members of the public can order printed copies) as a printed publication.<sup>123</sup> Furthermore, although it is doubtful that the *Wyer* court anticipated the development of the Internet,<sup>124</sup> that court did state that a document is a printed publication "whether . . . printed . . . on microfilm or a magnetic disk or tape . . . if available and accessible to persons concerned with the art."<sup>125</sup> Although transmitted over the Internet, the documents exist, at least initially, on a magnetic disk on a host machine. Therefore, under current caselaw, courts should not reject Internet postings as printed publications solely because postings initially exist in electronic form.

The *Wyer* test, however, also requires accessibility to persons concerned with the art.<sup>126</sup> In one sense, the Internet represents the ultimate in accessibility, allowing multiple, simultaneous access by individuals at the far ends of the earth. However, accessibility means more than the right to look, it also means the ability to find.

The cases do not explicitly distinguish these two aspects of accessibility, but in order for a document to be publicly accessible, the public must be entitled to at least see, if not copy, the document<sup>127</sup> and the public must be able to locate the document and distinguish it from among other, irrelevant, documents.<sup>128</sup> An interesting test of this latter point is the treatment accorded the United States Patent Office's own records. Once a United States Patent is issued, the documents related to its handling in the Patent Office (known as the "file wrapper" or "prosecution history") become public. In *Camp Brothers & Co. v. Portable Wagon Dump & Elevator Co.*,<sup>129</sup> the court held that the contents of a patent application file

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122. Cf. *Benchcraft, Inc. v. Broyhill Furniture Indus., Inc.*, 681 F. Supp. 1190, 1200 (N.D. Miss. 1988). In *Benchcraft*, the court held that a photograph qualified as a printed publication. *See id.* To be precisely on point, the court would have to have held the negative from which the photographs were printed was the printed publication.

123. *See, e.g., Wyer*, 155 F.2d at 227.

124. It is likely that the *Wyer* court was envisioning the magnetic disk itself being copied and the copies distributed. An Internet document would not be distributed in this way. Instead, the original document would more likely be stored, in digital form, on a magnetic (or optical) disk and distribution would take place by electronic transfer of the information over communication lines. The second copy of the information could then be stored on a second, remote, magnetic disk which would not be a duplicate of the original disk—it is the information content which would be duplicated.

125. *Wyer*, 655 F.2d at 227.

126. *See id.*

127. *See supra* note 67 and accompanying text.

128. *See supra* notes 72-76 and accompanying text.

129. 251 F. 603 (7th Cir. 1917).



were not printed publications because of “the practical impossibility of . . . the search” to find what “lies buried in some one file wrapper of the infinite number [of file wrappers] in the Patent Office.”<sup>130</sup>

Internet postings clearly satisfy the first requirement (the “right to look” requirement): it would be hard to argue that information posted on the Internet was not intended to be publicly accessible.<sup>131</sup> However, even though Internet postings satisfy the first requirement, current indexing of Internet postings does not satisfy the second requirement—the ability to find.<sup>132</sup> While indexing is improving, the task is formidable. As of January 1998 there were over 29 million Internet hosts, up from 16 million in January, 1997, and over 2.2 million Web servers.<sup>133</sup> As of 1995, over 130,000 articles per day were being posted to Usenet sites.<sup>134</sup> The numbers are growing dramatically.<sup>135</sup>

On this ground, general Internet postings do not satisfy the requirements for printed publications.<sup>136</sup> The underlying test of printed publication status is public accessibility. Accessibility requires more than theoretical access; it also requires the ability to separate relevant documents from at least the great majority of irrelevant documents. The

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130. *Id.* at 608. Since the Patent Office still does not provide a comprehensive public index to the contents of patent application files, presumably *Camp Brothers* would be decided the same way today. *But see* *Vass v. Multi Med Indus., Inc.*, 204 U.S.P.Q. (BNA) 1071, 1073 (E.D.N.Y. 1979).

131. An issue might be raised as to whether the posting was lawful. *See, e.g.*, *Sega Enters. Ltd. v. Maphia*, 857 F. Supp. 679, 686 (N.D. Cal. 1994) (discussing copyright infringement when unauthorized copies of a game were uploaded to the Internet); *Religious Tech. Ctr. v. Netcom Online Communication Servs., Inc.*, 923 F. Supp. 1231, 1241 (N.D. Cal. 1995) (discussing copyright violation in posting selections of L. Ron Hubbard’s work on the Internet); *Religious Tech. Ctr. v. Lerma*, 897 F. Supp. 260, 263 (E.D. Va. 1995) (discussing confidential church documents posted on the Internet). Even linking to an Internet Web site is arguably an infringement of the copyright of the linked Web site. *See* *Futureontics, Inc. v. Applied Anagramics, Inc.*, 45 U.S.P.Q. (BNA) 2005, 2007-09 (C.D. Cal. 1998) (denying motion to dismiss such a claim). However, all that is required of a printed publication is accessibility, not the right to copy. Thus, cases challenging the scope of copyright on the Internet would not impact this analysis any more than cases challenging the unlicensed copying of a book or magazine article would impact the status of that book or article as a printed publication. Moreover, the issue would only be presented as to those postings where the poster was not the copyright owner.

132. While there are a number of “search engines,” such as Yahoo, HotBot, etc., there is no general index to the Internet, nor, as the figures suggest, is such an index likely to become available in the near future.

133. *See* Robert H. Zakon, *Hobbes’ Internet Time Line 4.0*, (visited Feb. 25, 1999) <<http://www.isoc.org/guest/zakon/Internet/History/HIT.html>>.

134. *See id.*

135. *See id.*

136. This is not to say that certain specialized collections of documents made available through the Internet might not qualify if they were adequately indexed and known to those interested in the art. Simply because it is available on the Internet does not disqualify an otherwise qualifying document as a printed publication.

Internet does not currently provide this capability.

**B. *Do the Implicit Assumptions of the Cases Apply to Internet Postings?***

If the literal language of the cases were to be viewed as broad enough to cover Internet postings, it would then be necessary to examine the assumptions underlying the cases and to determine whether those assumptions were equally valid with respect to Internet postings. The official definition of the Internet, to the extent there is one, is reflected in an October 24, 1995 resolution of the Federal Networking Council:

“Internet” refers to the global information system that—

- (i) is logically linked together by a globally unique address space based on the Internet Protocol (IP) or its subsequent extensions/follow-ons;
- (ii) is able to support communications using the Transmission Control Protocol/Internet Protocol (TCP/IP) suite or its subsequent extensions/follow-ons, and/or other IP-compatible protocols; and
- (iii) provides, uses or makes accessible, either publicly or privately, high level services layered on the communications and related infrastructure described herein.<sup>137</sup>

Internet pages are stored electronically, transmitted digitally, and displayed as ephemeral images on computer screens. No literal reading of the phrase “printed publication” could seriously be thought to encompass such images, and even the most liberal interpretation of “printed publication” still requires a “document.” For all the stretching of the statute, courts have dealt, at least at the literal level, with a document that, for the whole of its existence, was fixed and unchanging. The majority of the courts gave “printed publication status” only where the document was safe—either widely distributed or in the care of a public institution.<sup>138</sup> The Internet is an ever-changing landscape. While a thesis indexed in a library is unchanged and can always be found in that library, a Web page may disappear without a trace. As Justice Stevens noted in *Reno v. American*

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137. *FNC Resolution: Definition of “Internet,”* (visited Feb. 25, 1999) <[http://fnc.gov/Internet\\_res.html](http://fnc.gov/Internet_res.html)>.

138. See, e.g., *Ex parte Hershberger*, 96 U.S.P.Q. (BNA) 54 (Pat. Off. Bd. App. 1952).

*Civil Liberties Union*,<sup>139</sup> newsgroup postings are regularly purged.<sup>140</sup> Is the information “available” to the public if it once was but no longer is? Is the indexing system available on the Internet sufficient to assure public accessibility?

The cases on printed publications appear to assume that:

1. Printing evidences an intent to make a document publicly available, meaning, as discussed above, that it is accessible and can be found.
2. Once a document has become publicly available, it will remain so.
3. Once publicly available, the form and content of a document will remain fixed.
4. A publicly available document can have assigned to it a verifiable date of publication.

The first assumption is easily shown to be correct. As explained in *In re Tenney*,<sup>141</sup> “Congress no doubt reasoned that one would not go to the trouble of printing . . . unless it was desired to print a number of copies,” therefore presumably increasing the likelihood of availability to the public.<sup>142</sup> In the Internet context, it is no “trouble” to make a number of copies. The attraction of the Internet as a publishing medium lies in its cheap and simple (to the end user) ability to produce a large number of copies, the number dependent solely on the demand for the information. Although the poster does not demonstrate an intent to make the information widely available through “the trouble” of posting, it would be difficult to argue that a general posting to the Internet did not carry with it the intent to offer wide public availability. It should be noted that several cases indicate that posters do not intend to permit unrestricted copying, but simply access.<sup>143</sup> The printed publication cases do not, however, require unrestricted copying, simply accessibility, and to require otherwise would conflict with the copyright statute.<sup>144</sup>

A second, more troubling, assumption, however, is the assumption of

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139. 117 S. Ct. 2329 (1997).

140. *See id.* at 2335.

141. 254 F.2d 619 (C.C.P.A. 1958).

142. *Id.* at 626.

143. *See supra* note 131.

144. Such a requirement would particularly conflict with 17 U.S.C. § 106 (1994) which grants a copyright owner the exclusive right to copy and prepare derivative works, subject to public policy exceptions contained in 17 U.S.C. §§ 107-120 (1994). None of the exceptions requires surrendering a copyright as a precondition to a work being a reference under the patent law, and such an exception would lead to the absurd result that the author of a work could determine whether or not an unrelated invention was patentable.

permanent public access. This assumption has two components. The assumption that, once released to the public, the printed publication cannot be destroyed or otherwise withdrawn from the public.<sup>145</sup> And the assumption that, once released to the public, the printed publication will remain invariable.

For example, an Internet Web page may be created and stored on a single computer. It may be accessed remotely by virtue of its connection to the Internet and its construction according to Internet protocols. It is possible that it will be duplicated at a so-called "mirror site," but duplication on such a site does not follow automatically from mere presence on the Internet. It also is possible that some or all of the contents of the Web page will be duplicated, either by creating an electronic copy on a second computer or by printing the page.<sup>146</sup> It is not, however, inherent in the posting itself that either will take place, nor is it certain that the Web page will be indexed by any of the automatic search engines in a fashion that will be accessible to those interested in the art.<sup>147</sup>

It is thus possible that the decision of a host of a particular Web site to discontinue hosting, or to remove a document from that particular site, may in fact withdraw the document from the public. This would be analogous to the recall and destruction of an entire run of books or magazines; however, the difficulty of doing so is by no means analogous. Because of the considerably greater difficulty of destroying an entire edition of a printed magazine or book once published, the transfer of information through such a medium to the public domain is much more certain than the transfer of Internet posted information. It is also possible that decisions by, or events beyond the control of, a particular host will deprive the public of access to a document, either temporarily<sup>148</sup> or permanently.<sup>149</sup> Again, the

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145. Of course, if all copies are inaccessible, the issue does not arise. An interesting case would be presented if all public copies had become unavailable and the only surviving copies were in the hands of the litigants.

146. Technically, what a user sees on a computer screen is not a copy of what is on the host computer, and what is printed from the Web page is not a duplicate of what is on the host computer (or, necessarily, what is on the user's screen); rather, each is a derivative work in the copyright sense. See 17 U.S.C. § 101 (1994). The party hosting the Web page has considerable control over what can be printed and how it will appear.

147. Automatic search engines, such as Yahoo, HotBot, Lycos, and others, index certain words; they do not index concepts. Therefore, unless the author of a Web page chooses words which would be used by the searcher to describe the concept that is being searched for, the automatic index will not locate the document. This has particular relevance to the discovery and use of information from analogous arts, where different jargon (or, even worse, acronyms) may be used to describe the concept of interest.

148. In 1996, subscribers to America Online and Netcom were denied access for nineteen and thirteen hours, respectively, due to lack of capacity. See Zakon, *supra* note 133. On July 17, 1997 an error at Network Solutions caused the DNS table (the table which correlates domain names with their Internet addresses) for .com and .net "to become corrupted, making millions of systems

likelihood of such an event terminating public access to a published book or magazine is remote.

For similar reasons, the assumption that a posting to the Internet will remain unchanged as it is disseminated can easily be shown to be unwarranted. The data which presents a Web site are stored electronically in digital format. As such, the data, and thereby the image presented to a visitor to the site, are easily modified. Digital modifications are difficult, if not impossible, to detect.<sup>150</sup> Thus, possession by the public of access to a particular purported copy of an Internet "publication" does not assure public access to the original information.

Should the issue arise as to which of several purported "originals" was in fact the original, the accuracy of a fourth underlying assumption must be questioned: can it be assumed that the date of publication of each copy can be accurately determined? Two patentability issues are controlled by the date of publication: the so-called "critical date" under section 102 (the date on which the reference became available to the public and therefore available as a potential bar to patentability) and the general knowledge and belief of one of "ordinary skill in the art" under section 103.

As discussed above,<sup>151</sup> a reference can anticipate a claim to a patent only if the reference was either prior to the claimed date of invention or more than one year prior to the United States application date. Similarly, when determining whether a collection of references invalidates a claim for obviousness under section 103, one factor is what those of ordinary skill in the art believed at the time the invention was made.<sup>152</sup> A document indicating that, on that date, the claimed invention was already known or believed to be possible would likely negate patentability. But a document indicating that, on that date, it was widely believed that the invention was impossible, would argue in favor of patentability.

With a journal article, or even a single indexed thesis, it is possible to determine a date of public accessibility. Again, because of the electronic nature of the Internet and the control exercised by the host of the data, it is

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unreachable." *Id.*

149. In 1996, InterNic unlisted 9,272 organizations' domain names for failure to pay their domain name fee. *See id.* As noted in *Reno v. American Civil Liberties Union*, 117 S. Ct. 2329, 2335 (1997), "In most newsgroups, postings are automatically purged at regular intervals." It is, of course, possible that prior to the demise of a site or the purging of a message, it will have been copied and stored elsewhere, but the test of printed publication status is continued public accessibility.

150. Encryption techniques may be used to authenticate digital documents, but such techniques rely on independent knowledge of characteristics of the original document. Furthermore, most Web pages are not currently authenticated.

151. *See supra* note 65.

152. *See supra* note 9 for the full text of section 103.

possible for a host to provide an inaccurate date of public availability.<sup>153</sup>

It thus appears that several of the underlying assumptions which allowed the expansion of the term "printed publication" in prior cases cannot safely be made with respect to the Internet as it exists today. Therefore, Internet postings do not constitute "printed publications" under section 102.

## VII. IF NOT NOW, WHEN?

At first glance, the question posed at the outset, "Will the principal research tool of the next decade be considered part of this statute-defined guardian of the public domain?" appears to answer itself. Although a concern should be noted as to the risk that the public domain will be so inundated with prior art as to make definition of the boundary of the public domain impossible,<sup>154</sup> the simple answer to this concern is that neither the Constitution nor the caselaw require an *a priori* definition of the public domain. What is required is protection of the public by limiting the grant of patent rights to situations where the public benefits by addition of knowledge not already in the public domain.

With this goal, it is troubling to conclude that the dominant research tool of any future age will be excluded from consideration in patentability determinations. The fundamental rule of patentability is that monopolies are not awarded for what is already in the public domain. Therefore, whatever tools are available to place information in the hands of researchers should also withdraw that information from the reach of patent applicants.

This intuitive response turns out to be incorrect, at least with respect to the 1999 Internet. The current state of development of the Internet does not permit data disseminated on the Internet to satisfy the requirement of a printed publication under section 102. The data is transitory, it is not necessarily available to the public (partly because of the absence of effective indexing and partly because of the ability to modify), it is capable

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153. The date of posting would be a relevant, but not necessarily controlling date. Under the majority of the magazine cases, *see supra* note 65, the critical date is not the date on the cover but the date of actual delivery to a subscriber. The analogous date for the Internet would be the date a second party actually received (in the electronic mail context) or visited (in the Web site context). This data can be collected by the host, but again if the host chose to falsify the data, the change would be difficult if not impossible to detect.

154. One factor not discussed in the cases is the braking effect of printed publications in the printing press sense. In order to have a document published by press printing, significant effort was involved and, not only did this indicate a commitment to public dissemination by the author, but also the likelihood that someone (such as a book publisher or magazine editor) shared the view that such dissemination was warranted.

of after-the-fact manipulation,<sup>155</sup> and it is not necessarily date-verifiable. Simply because data is disseminated on the Internet would not, however, deprive it of printed publication status if it were otherwise a printed publication.

Having concluded that the Internet is not currently at a stage of development to qualify as a medium of "printed publications" under section 102, the next question is "when will it be?" More precisely, what must change in order for Internet dissemination to qualify? The simple answer is that the lack of assured, continued, effective accessibility identified above must be addressed. Any one of three events could do so: broad evolution of the Internet itself, directed creation of a "trusted" subdivision of the Internet, or legislation.

### A. *Evolution*

As with prior technologies,<sup>156</sup> if the Internet develops in such a way that makes it probable that a researcher in the field would find the data (for example, if indexing improved so as to make data retrievable and verifiable as to content and date of publication), then without more, data on the Internet would qualify as a printed publication. At least at the circuit court level, the line has been crossed too often and too consistently to fear a holding that electronic transfer, per se, will prevent a document from being considered a printed publication. The issues raised above go not to the electronic nature of Internet documents but solely to the current consequences of that electronic nature.

### B. *Directed Creation*

Alternatively, an Internet library of specific data could be created for the sole purpose of making such data qualify as a printed publication under section 102(a). Recalling that the problem with Internet dissemination is that it does not meet the indexing, permanent accessibility, or verifiable dating requirements, none of these problems are beyond the technically achievable scope of the Internet, at least with respect to documents as to which a conscious choice of inclusion is made.

One possible blueprint for a trusted archive which would meet the requirements of the caselaw would be as follows:

Ownership—The archive would need to be owned (i.e.,

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155. It must be conceded that *Ex parte Hershberger*, 96 U.S.P.Q. (BNA) 54 (Pat. Off. Bd. App. 1952), held that a thesis was a printed publication even though it was in a loose leaf binder. *See id.* at 57. Instinctively, a document in a looseleaf binder strongly suggests at least the risk of undetected alterations.

156. *See supra* notes 86-95 and accompanying text (discussing microfilm technology).

hosted) by an organization perceived as sufficiently independent of interested parties. Possibilities would include government agencies, universities, or independent groups formed for the purpose. It would be desirable, although not, under current cases, necessary, to make provision for mirror sites both as an additional assurance of continued availability and for the practical reason that demand for access to the archive might be high enough to overwhelm a single site.

**Financial stability**—The owner would need to have sufficient financial backing to assure continued existence of the archive and access to the public. This could, in part, be based on fees charged for placing documents in the archive and fees charged for access.<sup>157</sup>

**Indexing**—The archive would need to be indexed in such a way that those having an interest in a particular art could find relevant documents within a comparatively small group of documents. Thus, the indexing would need to both provide a likelihood of identifying relevant documents in the area sought and a likelihood of excluding a large proportion of irrelevant documents. The specifics would vary from art to art—a problem in nuclear physics could probably be focused more narrowly than a problem in furniture-making, both because of the relative ages of the technology and the relative specificity of the processes.

**Dating and preservation**—The archive would need to create and maintain a verifiable date stamp associated with each document. In light of the inconsistent caselaw with respect to the critical date for library stored documents and for magazines,<sup>158</sup> it would be prudent to store both the date on which the document was received by the archive and the date it was made available to the public.<sup>159</sup> A technical solution for assuring authenticity and date of submission exists in currently available Public Key Encryption technology. For example, the archive could provide an encrypted electronic receipt including the original document and the date it was received.

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157. No case has required that a document must be available free of charge in order to be considered a printed publication and, in fact, typically they are not. Magazines and books are typically sold; the Patent Office charges for copies of United States Patents.

158. *See supra* note 65.

159. Even if not required for section 102 purposes, this dual date storage would have the added benefit of providing evidence of the state of public knowledge for section 102 and section 103 purposes.



Such an archive would also need to resolve other practical problems.

**Incentives**—Even if deposit were free, it would involve an investment of time and it would deprive the author of the ability to withdraw the publication from the public domain. If created legislatively, deposit with the archive could be made a condition of copyright registration (currently, although not a condition of copyright protection, the Register of Copyrights can request that a copy of any registered work be deposited with the Library of Congress, and sanctions are provided for failure to comply),<sup>160</sup> although this would only capture documents which the author sought to copyright, and could exclude a large fraction of Internet documents. In order to obtain non-copyrighted documents (or if the archive were created by a private organization with no power to compel deposits), some incentive would need to be provided to encourage authors to submit documents.

**Copyright**—Anyone other than the author<sup>161</sup> would need to deal with the author's copyright. Putting aside the issues which arise once the archive has a legitimate copy of the material in question,<sup>162</sup> there must at some point be a document or electronic version transferred to the archive. This document or electronic version could not be created without the author's permission or an exemption from copyright

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160. Under 17 U.S.C. § 407(d) (1994), the Library of Congress may request a copy of any published work submitted for copyright registration. Failure to provide the requested copy forfeits registration. *See id.*

161. In light of the question of who will have the incentive to spend the time, effort, and money, it is likely that parties other than the author will want to provide documents to the archive.

162. Those issues would include: Whether viewing a document through the Internet infringe the copyright owner's rights and whether copying the document to the archive's storage medium infringe the copyright owner's rights or is it sanctioned by 17 U.S.C. § 108 (1994) or by 17 U.S.C. § 117 (1994), which provides:

Notwithstanding the provisions of section 106, it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided:

- (1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or
- (2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

infringement.

### C. Legislation

Congress could solve the archive copyright problem by legislation amending the copyright statute. It has previously created exceptions to the copyright statute, for example, fair use,<sup>163</sup> library and archive copying,<sup>164</sup> ephemeral recordings<sup>165</sup> and compulsory licenses for phonorecords and cable.<sup>166</sup>

More directly, Congress could amend section 102 of the patent statute to address the Internet specifically and make it a print medium by legislative fiat. The section 102 denial of patentability over prior printed publications is not constitutionally required, and in fact did not exist as part of the statutory scheme until 1836.<sup>167</sup> Patents are not based on a common law right, but are purely a federal legislative right.<sup>168</sup> Congress may exercise the legislative right to exclude certain classes of inventions from patent protection,<sup>169</sup> and courts have denied patents based on public

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163. 17 U.S.C. § 107 (1994) provides that: "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."

164. 17 U.S.C. § 108 provides that:

[I]t is not an infringement of copyright for a library or archives . . . to reproduce no more than one copy or phonorecord of a work, or to distribute such copy or phonorecord, under the conditions specified by this section if—

- (1) the reproduction or distribution is made without any purpose of direct or indirect commercial advantage;
- (2) the collections of the library or archives are (i) open to the public, or (ii) available not only to researchers affiliated with the library or archives or with the institution of which it is a part, but also to other persons doing research in a specialized field; and
- (3) the reproduction or distribution of the work includes a notice of copyright.

165. See 17 U.S.C. § 112 (1994).

166. See 17 U.S.C. § 111(d) (1994) (requiring compulsory license for cable systems); 17 U.S.C. § 115(a) (1994) (requiring license for distributed phonorecords).

167. See *supra* note 41-48 and accompanying text.

168. See *Bonito Boats, Inc. v. Thunder Craft Boats, Inc.*, 489 U.S. 141, 146 (1989); *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225, 229-30 (1964); see also 28 U.S.C. § 1338 (1994) (conferring exclusive federal judicial jurisdiction over patent matters). James Madison observed, in *The Federalist*, that with respect to patents and copyrights "[t]he States cannot separately make effectual provision for either." THE FEDERALIST NO. 43, at 272 (James Madison) (1937).

169. See, e.g., 42 U.S.C. § 2181(a) (1994) (excluding certain nuclear energy technology from patent protection); see also *Diamond v. Chakrabarty*, 447 U.S. 303, 318 (1980) ("Congress is free to amend section 101 so as to exclude from patent protection organisms produced by genetic

disclosures, which were not printed in the 1836 sense, for more than fifty years without constitutional challenge.

### VIII. CONCLUSION

The status of Internet postings as printed publications under section 102 is, at best, uncertain. Applying current caselaw to the current state of the Internet would most likely deny printed publication status to this emerging research tool. It could be decided as a policy matter that Internet postings should not bar patentability under section 102: the potential ocean of information is too vast and unruly to provide the necessary likelihood of enforceability of patents to satisfy the constitutional mandate of encouragement for inventors. Alternatively, it could be decided that a vast, unruly public domain furthers the policy of the patent laws.

Whether by statutory solution or private enterprise, a resolution clearly deciding the status of Internet postings as printed publications is preferable to allowing uncertainty to surround the principal publication and research tool of the next decade. A resolution favoring printed publication status (and therefore barring patentability of subsequent inventions) is currently technologically feasible, at least with respect to selected categories of Internet postings, and would be consistent with the objective of protecting the public domain. In fairness to inventors and to protect against loss of information in an ocean of data, the resolution should also provide for effective storage and indexing of postings granted printed publication status.