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The Meaning of Science in the Copyright Clause

Ned Snow*

ABSTRACT

The Constitution premises Congress's copyright power on promoting "the Progress of Science." The word Science therefore seems to define the scope of copyrightable subject matter. Modern courts and commentators have subscribed to an originalist view of Science, teaching that Science meant general knowledge at the time of the Framing. Under this interpretation, all subject matter may be copyrighted because expression about any subject increases society's store of general knowledge. Science, however, did not originally mean general knowledge. In this Article, I examine evidence surrounding the Copyright Clause and conclude that at the Framing of the Constitution, Science meant a system of knowledge that comprises distinct branches of study. This historically accurate meaning casts doubt on whether a distinct group of expression may be copyrighted—namely, expression that the First Amendment does not protect. I argue that the original meaning of Science cannot support a constitutional copyright of unprotected speech.

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I. INTRODUCTION

The Constitution's Copyright Clause limits the scope of copyright to works that "promote the Progress of Science."¹ The

1. U.S. CONST. art. I, § 8, cl. 8 ("The Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . ."). This statement that the

meaning of the term *Science* would thus seem important in determining the boundaries of copyright protection.² To this end, modern courts apply a purportedly original meaning of *Science*—general knowledge or learning.³ Under this modern interpretation of the original meaning, if the content of expression adds to society's general store of knowledge, it is copyrightable.⁴ And because expression regarding any content adds to the general store of knowledge, this interpretation of *Science* extends copyright to all content.⁵ Even libel, obscenity, and true threats

Copyright Clause limits the scope of copyright to works that “promote the Progress of Science” is subject to disagreement. I address the different views on this issue in Part II.B.3.

2. Hereinafter, when I refer to the meaning of the term *Science* in the Copyright Clause, I simply capitalize *Science* instead of italicizing it according to Chicago Manual of Style Rule 7.58. I treat references to the term useful Arts in the same fashion. Alternatively, when I refer to a meaning of science that is not specific to the Copyright Clause, I do not capitalize science.

3. See, e.g., *Golan v. Holder*, 132 S. Ct. 873, 888 (2012) (“The ‘Progress of Science,’ petitioners acknowledge, refers broadly to ‘the creation and spread of knowledge and learning.’”); *Eldred v. Ashcroft*, 537 U.S. 186, 212 n.18 (2003) (explaining the public benefit of copyright as “the proliferation of knowledge” which would “ensure[] the progress of science”) (citation omitted); *id.* at 243 (Breyer, J., dissenting) (explaining undisputed premise that by “‘Science’ . . . the Framers meant learning or knowledge”).

4. This conclusion is apparent from the absence of any constitutional *content* requirement for copyright protection. The modern Supreme Court has adopted only a constitutional requirement for *originality* relating to *Science*. See, e.g., *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 347 (1991) (describing originality as the “touchstone” and “very ‘premise of copyright law’”) (citation omitted); *Harper & Row, Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 545, 546, 558 (1985) (explaining purpose of copyright as increasing “the harvest of knowledge” and declaring that “original works” provide the “seed and substance of this harvest”); *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975) (“[T]he ultimate aim [of copyright] is, by this incentive, to stimulate artistic creativity . . .”).

5. See, e.g., cases cited *supra* note 4; *Mitchell Bros. Film Grp. v. Cinema Adult Theater*, 604 F.2d 852 (5th Cir. 1979) (concluding that obscene content does not bar it from being copyrightable); *Jartech, Inc. v. Clancy*, 666 F.2d 403, 404–05 (9th Cir. 1982) (same); *Belcher v. Tarbox*, 486 F.2d 1087, 1088 (9th Cir. 1973) (rejecting argument that false and fraudulent material could not receive copyright protection).

In addition to courts, commentators have followed this interpretation. See, e.g., 1 WILLIAM F. PATRY, *COPYRIGHT LAW AND PRACTICE* 123 (1994) (“The term ‘science’ as used in the Constitution refers to the eighteenth-century concept of learning and knowledge.”); L. RAY PATTERSON & STANLEY W. LINDBERG, *THE NATURE OF COPYRIGHT: A LAW OF USERS’ RIGHTS* 48 (1991) (“[T]he word science retains its eighteenth-century meaning of ‘knowledge or learning.’”); NEIL WEINSTOCK NETANEL, *COPYRIGHT’S PARADOX* 106 (2008) (describing overriding purpose of promoting the “progress of science” as “broadly understood to include all products of the mind”).

That copyright lacks any content restriction does not imply that anything at all may be copyrighted. Other terms in the Copyright Clause still limit the scope of copyrightable works (e.g., Authors, Writings). See *Feist*, 499 U.S. at 346. Works must still be fixed in a tangible

add to the general store of knowledge; they accordingly would seem copyrightable.⁶

Or perhaps not. In the recent case of *Wong v. Hard Drive Products, Inc.*, the plaintiff argued that copyright cannot exist in obscene works.⁷ The *Wong* court ruled for the plaintiff, although it failed to issue an opinion.⁸ In the absence of that opinion, the case raises an interesting question: Does Science in the Copyright Clause encompass expression that the Free Speech Clause fails to protect? Recently, the Supreme Court in *Golan v. Holder* re-iterated the seeming truism that Science in the Copyright Clause meant knowledge or learning.⁹ Albeit in dicta, the *Golan* Court's statement reinforces the teaching that the original meaning of Science contemplates all possible content in copyright.

This teaching lacks support from any scholarly examination of the history surrounding the Copyright Clause. Legal scholars and courts have never performed a thorough examination of Science's original meaning in the Constitution.¹⁰ They have passively accepted the conventional interpretation of general knowledge solely on the basis that it reflects the first entry for science in a 1786 dictionary.¹¹

medium and be original expression to be copyrightable. *See id.*

6. *See* cases cited *supra* note 5.

7. *See* Plaintiff's First Amended Complaint at 10–11, *Wong v. Hard Drive Prods., Inc.*, No. 5-12-cv-00469-HRL (N.D. Cal. Jan. 31, 2012).

8. *See* Stipulated Judgment, *Wong*, No. 4-12-cv-00469-YGR (N.D. Cal. May 31, 2012).

9. 132 S. Ct. 873, 888 (2012).

10. Scholars usually take this definition as axiomatic, without questioning its historical accuracy. *See* discussion *infra* Part II.A (describing absence of analysis from authorities who have given conclusion on meaning of Science).

11. Consider Justice Breyer's dissent in *Eldred v. Ashcroft*. He explained the undisputed premise that by "'Science' . . . the Framers meant learning or knowledge." 537 U.S. 186, 243 (2003) (Breyer, J., dissenting). To support this claim, Justice Breyer cited to a commentator, Edward Walterscheid, who relied on the first entry for science in the 1786 edition of Dr. Samuel Johnson's *Dictionary of the English Language*, where the definition of science is simply "knowledge." *Id.* (citing EDWARD C. WALTERSCHEID, *THE NATURE OF THE INTELLECTUAL PROPERTY CLAUSE: A STUDY IN HISTORICAL PERSPECTIVE* 125–26 (2002) (citing 2 SAMUEL JOHNSON, *A DICTIONARY OF THE ENGLISH LANGUAGE* (London, W. Strahan et al., 7th ed. 1786))). Walterscheid further noted two other commentators who posited this same meaning, again based on Dr. Johnson's first entry for science. *See* WALTERSCHEID, *supra*, at 125–26 & n.46 (citing Arthur H. Seidel, *The Constitution and a Standard of Patentability*, 48 J. PAT. OFF. SOC'Y 5, 11–12 & n.14 (1966); Giles S. Rich, *Principles of Patentability*, 28 GEO. WASH. L. REV. 393, 396 (1960)).

As a sidenote, the commentators referenced in this footnote do not specify which edition of Dr. Johnson's *Dictionary* they rely on. *See, e.g.,* WALTERSCHEID, *supra*, at 125–26 & n.46. Presumably, they would have relied on the 1786 edition, which is closest to the time of the

Yet dictionaries of that time listed entries in order of a word's development in meaning, so the first entry would have stated the most primitive meaning—not the most commonly used.¹² To be sure, the absence of scholarly scrutiny on this issue is remarkable, especially given its impact on the scope of copyright.

This Article analyzes the original meaning of Science in the Copyright Clause. Based on evidence surrounding the Copyright Clause, the Article concludes that the conventional interpretation is anachronistically incorrect. The evidence suggests that neither the Framers nor the public of that time would have ever intended such a broad, and for all practical purposes, *meaningless* meaning of Science.¹³ The text of the Constitution, writings of the Framers, colonial copyright statutes, case law proximate to the Framing, and initial copyright registration records all make clear that this conventional understanding of the original meaning of Science is wrong.¹⁴ All indicate a very different meaning—a powerfully discriminating meaning—in the Copyright Clause.

The evidence indicates that Science meant a system of knowledge comprising distinct branches of study.¹⁵ To promote the Progress of Science, expression needed to promote that system of knowledge.¹⁶ For instance, a journal of lunar observations and an instructional book on administering medicines (both published in 1791) would have been viewed as promoting a branch of study, and so they accordingly were copyrighted.¹⁷ By contrast, in 1790, the *New York*

framing. In the end, though, it would not matter which edition they relied on given that the original 1755 edition lists the same entries for science. See 2 SAMUEL JOHNSON, A DICTIONARY OF THE ENGLISH LANGUAGE (London, W. Strahan et al., 7th ed. 1755).

12. Dr. Johnson explained:

In every word of extensive use, it was requisite to mark the progress of its meaning, and show by what gradations of intermediate sense it has passed from its primitive to its remote and accidental signification; so that every foregoing explanation should tend to that which follows, and the series be regularly concatenated from the first notion to the last.

1. JOHNSON, *supra* note 11, at preface page 6. See also discussion *infra* Part III.A.2 (analyzing four other entries found in Dr. Johnson's *Dictionary*).

13. See discussion *infra* Part III.

14. See discussion *infra* Part III.

15. See discussion *infra* Part III.

16. See discussion *infra* Part III.D.2.

17. In 1791, William Waring registered the following book for federal copyright protection, entitled:

Magazine's monthly stories of seduction would not have been viewed as promoting a branch of study, and they accordingly were not copyrighted.¹⁸

This historical understanding of Science and its effect on copyright raises the question of whether courts should continue to view copyright as entirely content neutral. Certainly I do not propose a return to the 1790 views regarding which expressional content promotes fields of studies. Unlike in 1791, stories of seduction in today's *New York Magazine* should fall within the meaning of Science. Indeed, over the past two centuries American culture has come to embrace most subject matter as sufficiently valuable to be worthy of study. Yet one category of expression falls short—that which is unprotected by the Free Speech Clause.¹⁹ Devoid of any value that would justify protecting its content from censorship, unprotected speech does not appear to promote Science as that term was originally understood in the Copyright Clause. Therefore, to the

A JOURNAL FOR LUNAR OBSERVATIONS, BY WHICH THE CALCULATION OF LONGITUDE IS MUCH EXPEDITED; The MARINER being led through the Operation BY A regular printed Form in each Page, HAVING ONLY To fill the Blanks from the Nautical Almanac and proper Tables, as indicated by the leading Lines to the respective Numbers: CONTAINING ALSO, IN THE SAME PAGE, Blanks for calculating the LATITUDE from the MOON'S meridional Altitude. With Directions exemplified, &c.

See JAMES GILREATH, *FEDERAL COPYRIGHT RECORDS 1790–1800*, at 5 (James Gilreath ed. & Elizabeth Carter Wills compiler, 1987) [hereinafter *FEDERAL COPYRIGHT RECORDS*] (capitalization of words in title as originally registered).

Also in 1791, Doctor Nathan Dorsey registered for federal copyright protection his book entitled: *A NEW AND COMPLETE SYSTEM OF INSTRUCTIONS, FOR THE SAFE AND SUCCESSFUL ADMINISTRATION OF MEDICINES, IN THOSE DISEASES INCIDENT TO MARINERS*. See *id.*

18. In 1790, the year that the first Federal Copyright Act became effective, the *New York Magazine* published in January a lurid story entitled, *The Fatal Effects of Seduction*. 1 N.Y. MAG. 22, 22–23 (1790). The next month, it published a similar story that set forth acts of seduction, *Edmund and Harriot*. 1 N.Y. MAG. 86, 86–89, 137–39 (1790). In June, it followed up these earlier stories of seduction with, *The Country Squires's Revenge*. 1 N.Y. MAG. 354, 354–58 (1790). None of these stories, or the magazine publications, cited in note 18 are listed in the federal registration for copyright protection—a requirement at that time for protection. See *FEDERAL COPYRIGHT RECORDS*, *supra* note 17, at 101–15; Act of May 31, 1790, 1 Stat. 124, § 3 (requiring registration for copyright protection of publication). The decision not to copyright these stories lies with the authors or publishers—not any government body or institution. Hence, the decision not to copyright suggests an original *public* understanding of what was copyrightable and what was not. See *infra* note 68 (noting the scholarly approach to deriving the original meaning of words in the Constitution as an examination of the original *public* understanding).

19. See discussion *infra* Part IV.A.

extent that courts continue to rely on the original meaning of Science, they should recognize that Science is inconsistent with copyrighting unprotected speech.

This Article examines the original meaning of Science in the Copyright Clause and concludes that the meaning is inconsistent with copyrighting unprotected speech. Part II analyzes the modern interpretation of Science. It observes several irregularities and one fundamental error in the interpretive methodology of modern courts and scholars. Part III conducts an inquiry into the original meaning of Science in the Copyright Clause. It examines the legislative history surrounding the Clause, analyzes the text of the Clause itself, and observes evidence in the decades following the Constitution. Part III concludes that Science meant a system of knowledge that comprises, or derives from, branches of study. Part IV discusses the implications of this more accurate historical understanding. It argues that to the extent courts continue to rely on an original interpretation of the Copyright Clause, unprotected speech must lie outside the scope of copyright.

II. THE MODERN INTERPRETATION OF THE ORIGINAL MEANING

Modern courts, Congresses, and commentators uniformly subscribe to a meaning of Science in the Copyright Clause that purports to reflect its original meaning at the Framing.²⁰ That purported meaning is general knowledge or learning.²¹ More precisely, authorities uniformly teach that Science at the Framing was synonymous with possessing knowledge about anything, or similarly, gaining knowledge about anything.²² According to the authorities, then, general knowledge or learning represents the original meaning of Science that presently governs the Copyright Clause.²³ Yet as discussed below, this meaning admits irregularities in the hermeneutics of constitutional interpretation, which ultimately call into question the accuracy of the meaning.

20. See discussion *infra* Part II.A.

21. See *supra* note 3.

22. See *supra* notes 3–5, and 11.

23. See discussion *infra* Part II.A.

A. Authorities

Many examples illustrate this modern understanding of the original meaning of Science. I give only a few. Modern courts treat this definition as axiomatic. Most recently in the 2012 majority opinion of *Golan v. Holder*, Justice Ginsburg referred to the meaning of Science as knowledge and learning.²⁴ In 2003, Justice Breyer in *Eldred v. Ashcroft* explained the meaning of Science as follows: “‘Science’—by which word the Framers meant learning or knowledge”²⁵ Lower courts have repeatedly articulated this understanding, beginning with the Federal Court of Claims in 1973, which declared that Science in the Copyright Clause “is used in the sense of general knowledge rather than the modern sense of physical or biological science.”²⁶

Congressional understanding of Science seems to mirror that of the judiciary. Senate and House reports in 1952 address the scope of copyright protection under the Copyright Clause. Those reports both state: “[T]he word ‘science’ in this connection [has] the meaning of knowledge in general, which is one of its meanings today.”²⁷ Also indicative of congressional understanding is the current Copyright Act. The Act fails to impose a content-based limitation on the subject matter of copyright, which suggests an interpretation of Science that is broad and all-encompassing, consistent with general knowledge or learning.²⁸

Leading copyright historians have subscribed to this original understanding of Science, although without offering a historical analysis. William Patry has explained that Science in the Copyright Clause refers to “the eighteenth-century concept of learning and

24. 132 S. Ct. 873, 888 (2012).

25. 537 U.S. 186, 243 (2003) (Breyer, J., dissenting) (citing WALTERSCHEID, *supra* note 11, at 125–26). The majority in *Eldred* made similar statements in explaining that the public benefit of copyright was “the proliferation of knowledge,” which would “ensure[] the progress of science.” *Id.* at 212 n.18.

26. *Williams & Wilkins Co. v. United States*, 172 U.S.P.Q. 670, 683 (Ct. Cl. 1972), *rev’d on other grounds*, 487 F.2d 1345 (Ct. Cl. 1973), *aff’d by equally divided Court*, 420 U.S. 376 (1975); *see also* *Infodek, Inc. v. Meredith-Webb Printing Co.*, 830 F. Supp. 614, 622 n.8 (N.D. Ga. 1993) (“[T]he use of the term ‘science’ [in the Copyright Clause] relates to copyrights and is generally given its eighteenth century meaning of knowledge or learning.”).

27. *See* H.R. REP. NO. 82-1923, at 4 (1952); S. REP. NO. 82-1979, at 3 (1952).

28. *See* 17 U.S.C. § 102 (2006) (“Copyright protection subsists, in accordance with this title, in original works of authorship fixed in any tangible medium of expression”).

knowledge.”²⁹ Ray Patterson has stated that in the Copyright Clause, “the word science retains its eighteenth-century meaning of ‘knowledge or learning.’”³⁰ Craig Joyce, Dotan Oliar, Malla Pollack, and Edward Walterscheid—to name only a few—have all written that Science at the Framing meant knowledge or learning.³¹

B. Interpretive Irregularities

At first glance, the uniformity of this interpretation suggests its accuracy. If everyone has subscribed to the same view, it must be right. But on closer examination, the interpretation admits troubling irregularities. Taken together, these irregularities suggest problems with the uniform interpretation. They suggest a need for a comprehensive examination. This Section summarizes those irregularities.

1. First-entry fallacy

Where courts and commentators bother to cite authority for their interpretation that Science means general knowledge or learning, they most often rely on one particular source: Dr. Samuel Johnson’s 1786 *Dictionary of the English Language*.³² In the *Dictionary*, Dr. Johnson employed five entries to define science.³³ The first entry is “knowledge.”³⁴ If courts and commentators do not explicitly cite

29. 1 PATRY, *supra* note 5, at 123.

30. PATTERSON & LINDBERG, *supra* note 5, at 48.

31. See WALTERSCHEID, *supra* note 11, at 125 (“The use of the term ‘science’ [in the Copyright Clause] is straightforwardly explained by the fact that in the latter part of the eighteenth century ‘science’ was synonymous with ‘knowledge’ and ‘learning.’”); Dotan Oliar, *Making Sense of the Intellectual Property Clause: Promotion of Progress as a Limitation on Congress’s Intellectual Property Power*, 94 GEO. L.J. 1771, 1809 (2006) (“[T]he eighteenth-century meaning of ‘science’ was close to the meaning of ‘knowledge.’”); L. Ray Patterson & Craig Joyce, *Copyright in 1791: An Essay Concerning the Founders’ View of the Copyright Power Granted to Congress in Article I, Section 8, Clause 8 of the U.S. Constitution*, 52 EMORY L.J. 909, 947 (2003) (equating Science with learning and rejecting argument that Science imposes any sort of content-based restriction on the subject matter of copyright); Malla Pollack, *Dealing with Old Father William, or Moving from Constitutional Text to Constitutional Doctrine: Progress Clause Review of the Copyright Term Extension Act*, 36 LOY. L.A. L. REV. 337, 376 (2002) (“‘Science’ means ‘knowledge’ in an anachronistically broad sense.”).

32. See *supra* note 11.

33. 1 JOHNSON, *supra* note 11 (unpaginated).

34. *Id.*

the first entry, they implicitly must rely on it as support for their conclusion that Science meant general knowledge, for the other entries are narrower in meaning than knowledge.³⁵ Other entries include “[c]ertainty grounded on demonstration”; “species of knowledge”; and “[o]ne of the seven liberal arts.”³⁶ Only the first entry supports the all-encompassing interpretation of Science as general knowledge. Therefore, the first entry in Dr. Johnson’s *Dictionary*, knowledge, appears to be the principal source for interpreting the original meaning of Science to be general knowledge.

The problem with relying on this first entry in Dr. Johnson’s *Dictionary* is that there is no reason to choose the first entry over any of the other entries. Presumably, courts and commentators rely on the first entry because a first entry often reflects the most common usage of a word.³⁷ At the Framing, however, lexicographers—including Dr. Johnson—listed entries in order of their development in meaning—their chronological etymology—rather than any sort of usage pattern.³⁸ So because Dr. Johnson listed five entries for science, the first entry—knowledge—represented the most primitive meaning at the Framing—not necessarily the most commonly-used meaning. Hence, courts and commentators have committed a rudimentary error in assuming that Dr. Johnson’s first entry better reflects the meaning of Science at the Framing than does any of the other four entries.³⁹ Simply put, they don’t know how to read a dictionary—at least not one printed in 1786.

35. See *id.*

36. *Id.*

37. See, e.g., RANDOM HOUSE DICTIONARY OF THE ENGLISH LANGUAGE, UNABRIDGED, at xxxii (2d ed. 1987) (“[T]he most frequently encountered meaning generally comes before less common ones. Specialized senses follow those in the common vocabulary, and rare, archaic, and obsolete senses are listed last.”).

38. See 1 JOHNSON, *supra* note 11, at page 6 of preface; *supra* note 12.

39. This interpretative error is, unsurprisingly, not the first instance where the Court has incorrectly inferred importance of meaning from ranking of order in a dictionary. See Stephen C. Mouritsen, Comment, *The Dictionary Is Not a Fortress: Definitional Fallacies and a Corpus-Based Approach to Plain Meaning*, 2010 BYU L. REV. 1915, 1926–37 (analyzing fallacious reasoning of the Supreme Court in *Muscarello v. United States*, 524 U.S. 125 (1998), where the Court premised the importance or common usage of the meaning of the word *carry* on the fact that dictionaries listed a particular meaning as the first definition).

2. Widespread originalism

The modern interpretation of Science is further irregular in that it reflects a uniform approach of originalism. Uniformly, everyone looks to the meaning of Science at the Framing. Such an originalist approach diverges from the interpretive process that courts and scholars have applied to arrive at meanings of other words in the Constitution. The process of evaluating constitutional policy in view of circumstances that have changed since the Framing has informed the meanings of searches and seizures, private property, commerce, due process, establishment, and speech—to name only a few.⁴⁰ Why not Science? In short, the approach to interpreting Science represents an irregularity in that it fails to consider cultural differences in time and relevant policy.⁴¹ There is simply no argument in case law or the literature that today's changed circumstances or policy considerations require an evolution of meaning in the constitutional construction of Science. Instead, there is only one meaning that purportedly reflects the precise definition at the Framing. Science is irregular in the uniform application of originalism to arrive at its meaning.

This observation suggests that the meaning of Science should perhaps reflect changing circumstances of society. Science may be a word that contemplates an evolutive meaning, or at least it may contemplate room for discussion on whether its boundaries might change. This Article, however, does not offer that discussion. I discuss that possibility elsewhere.⁴² Here, I merely observe the

40. See, e.g., Akhil Reed Amar, *The Fourth Amendment, Boston, and the Writs of Assistance*, 30 SUFFOLK U. L. REV. 53, 63–65, 73–75 (1996) (discussing search and seizure); Thomas W. Merrill, *The Landscape of Constitutional Property*, 86 VA. L. REV. 885, 934, 969–81 (2000) (analyzing the constitutional meaning of property); Jack M. Balkin, *Commerce*, 109 MICH. L. REV. 1, 1–6, 15–18 (2010) (discussing commerce); Michael W. McConnell, *Establishment and Disestablishment at the Founding, Part I: Establishment of Religion*, 44 WM. & MARY L. REV. 2105, 2107–2110, 2131 (2003) (discussing establishment); David McGowan, *Approximately Speech*, 89 MINN. L. REV. 1416, 1416–20 (2005) (discussing the definition of speech); Edward L. Rubin, *Due Process and the Administrative State*, 72 CAL. L. REV. 1044, 1082–90 (1984) (discussing due process).

41. For an interesting account of the originalist and evolving approaches to constitutional interpretation, see Barry Friedman & Scott B. Smith, *The Sedimentary Constitution*, 147 U. PA. L. REV. 1, 9–32 (1998).

42. See Ned Snow, *The Regressing Progress Clause: Rethinking Constitutional Indifference to Harmful Content in Copyright*, 47 UC DAVIS L. REV. (forthcoming 2013), available at <http://ssrn.com/abstract=2212116>.

irregularity: uniform originalism. To the extent, then, that courts and commentators continue to pursue an originalist approach, this Article offers evidence of the original meaning.

That evidence is valuable in view of judicial and scholarly failure to conduct any sort of historical analysis of Science at the Framing. Most often they do not cite authority for the originalist interpretation that they offer. Where they do cite authority, that authority traces back to the first entry of Dr. Johnson's *Dictionary*, completely ignoring the other four entries.⁴³ There is no discussion of the cultural context surrounding Science at the Framing.⁴⁴ Nor is

43. With respect to Congress, the 1952 Senate and House report statement regarding the meaning of Science fails to cite any authority for its interpretation of Science as "knowledge in general." See *supra* note 27. With respect to the Supreme Court, other than the excerpt from Justice Breyer quoted in note 11 above, the Court has never cited any authority when it has equated Science with knowledge or learning. See, e.g., *Golan v. Holder*, 132 S. Ct. 873, 888 (2012); *Eldred v. Ashcroft*, 537 U.S. 186, 212 n.18 (2003). Justice Breyer's sole citation was to one commentator, Edward Walterscheid, for his interpretation of Science at the Framing. See *supra* note 11.

Commentators' interpretation of Science at the Framing is equally lacking. The extent of historical support in the literature for the proposition that Science means general knowledge or learning may be summarized in the citation by Edward Walterscheid, who cited to three sources as support for his one-sentence analysis of the original meaning of Science:

(1) Dr. Johnson's *Dictionary* published in the latter 1700s;

(2) a 1966 law review article by Arthur Seidel, who reached this same interpretation in three sentences, and for support, cited to Dr. Johnson's *Dictionary* definition for science, as well as one usage by Thomas Jefferson and one usage by Lord Coke (neither of whom were present at the Constitutional Convention), see Seidel, *supra* note 11, at 11-12 & n.14; and

(3) a 1962 law review article by Judge Giles Rich, who in less than one page interpreted Science to have originally meant "knowledge in any field," relying exclusively on Dr. Johnson's *Dictionary* for this interpretation. See Rich, *supra* note 11, at 396.

44. A scholar of science history, Professor Bernard Cohen, performed a comprehensive examination of science's effect on the Framers in his book *Science and the Founding Fathers*. In that book, he spent three pages analyzing the meaning of Science in the Copyright Clause. See I. BERNARD COHEN, *SCIENCE AND THE FOUNDING FATHERS* 306-08 (1995). His analysis appears cogent and consistent with the conclusions of this Article. Part of his ultimate conclusion, however, lacks support. He concluded that Science meant "theoretical or general principles of practice that are associated directly with useful inventions or that lead to economic benefits or financial rewards." *Id.* at 308 (emphasis added). Certainly Science as "theoretical or general principles of practice" is consistent with this Article's conclusion on the meaning of science. See discussion *infra* Part III. But his conclusion that Science is directly associated with "economic benefit" or "financial rewards" finds no support in either his analysis or this Article. Nevertheless, the main point of Cohen's conclusion, which he made explicit, is that Science in the Copyright Clause would have had a much narrower meaning than the broadest possible definition of that time. See COHEN, *supra*, at 308. This conclusion essentially contravenes the modern interpretation of courts and commentators. One commentator, Edward Walterscheid,

there discussion of the legislative history surrounding the Copyright Clause. Nor any textual analysis of the Clause itself.⁴⁵ Simply put, the purportedly originalist interpretation of Science fails to draw support from any rigorous historical inquiry.

3. *Lack of meaning*

The modern interpretation of the original meaning of Science presents an additional irregularity in that it implies the absence of meaning. A bedrock principle of constitutional interpretation is that words should be construed so that they convey practical, effective meaning rather than impotent surplusage.⁴⁶ To have meaning, words should discriminate by setting the boundaries of their subject matter. Yet an interpretation of Science that means general knowledge or learning fails to set those boundaries in the context of defining the purpose and scope of the copyright power. Any subject matter may be known or learned. Indeed, even expressions of fraud, obscenity, and terrorism give rise to knowledge and learning. So by encompassing anything that can be known or learned, Science encompasses everything. It discriminates against nothing. And an

disagreed with Cohen's conclusion, contending that Cohen was attempting to "read the copyright provision out of the clause." WALTERSCHEID, *supra* note 11, at 130. Yet Walterscheid failed to cite any contrary evidence that Cohen's conclusion was incorrect. *See id.* Indeed, the only reason that Walterscheid cited as a basis for disagreeing with Cohen was the fact that Cohen's conclusion was "obviously at odds with the usual judicial interpretation." *Id.*

45. I do recognize, however, that one legal scholar did perform a historical inquiry of sorts. Professor Solum derived a meaning from the Oxford English Dictionary, the 1790 Copyright Act, and one early case that considered its meaning. *See* Lawrence B. Solum, *Congress's Power to Promote the Progress of Science: Eldred v. Ashcroft*, 36 LOY. L.A. L. REV. 1, 47–53 (2002) (concluding that the original meaning of Science was "systematic knowledge or learning of enduring value"). Yet although he performed an admirable historical analysis, it was secondary to the primary focus of his article, which argues against retroactive term extension of copyright law. *See id.* at 3–4. Much more can be explored and analyzed that sheds further light on the meaning of Science. *See also* Dotan Oliar, *The (Constitutional) Convention on IP: A New Reading*, 57 UCLA L. REV. 421, 458 (2009) (contemplating briefly that Science could have meant either "useful knowledge," "knowledge," or "learning").

46. *See Kelo v. City of New London*, 545 U.S. 469, 496 (2005) ("When interpreting the Constitution, we begin with the unremarkable presumption that every word in the document has independent meaning, 'that no word was unnecessarily used, or needlessly added.'") (quoting *Wright v. United States*, 302 U.S. 583, 588 (1938)); *Holmes v. Jennison*, 39 U.S. 540, 570–71 (1840) ("In expounding the Constitution of the United States, every word must have its due force, and appropriate meaning; for it is evident from the whole instrument, that no word was unnecessarily used, or needlessly added.").

interpretation that leaves words without meaning—without discriminatory force—is irregular in constitutional hermeneutics.

Of course this irregularity would not raise concern if the phrase “To promote the Progress of Science and useful Arts” (the Progress Clause) were merely preambular in nature.⁴⁷ If the Progress Clause were preambular, the meaning of Science becomes irrelevant. As a preamble, the Progress Clause would not affect the scope of power granted to Congress.⁴⁸ Hence, Science as meaningless surplusage would not raise concern if the Clause itself represents meaningless surplusage—a preamble.

Some argue that the Progress Clause represents just that—a preamble of no effect on the grant of Congress’s copyright power.⁴⁹ I

47. See U.S. CONST. art. I, § 8, cl. 8 (“The Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . .”).

48. See *District of Columbia v. Heller*, 554 U.S. 570, 577–78 (2008) (“[A] prefatory clause does not limit or expand the scope of the operative clause.”).

49. See, e.g., MELVILLE B. NIMMER & DAVID NIMMER, 1 NIMMER ON COPYRIGHT § 1.03[A] at 1–91 (2010) (“[T]he phrase ‘To promote the progress of science and useful arts . . .’ must be read as largely in the nature of a preamble, indicating the purpose of the power but not in limitation of its exercise.”); Scott M. Martin, *The Mythology of the Public Domain: Exploring the Myths Behind Attacks on the Duration of Copyright Protection*, 36 LOY. L.A. L. REV. 253, 299 (2002) (construing the phrase, *promote the Progress of Science*, as indicating mere purpose without any limiting force on the actual power). Three federal circuits have adopted this view. See *Eldred v. Reno*, 239 F.3d 372, 378 (D.C. Cir. 2001) (rejecting the argument “that the introductory language of the Copyright Clause constitutes a limit on congressional power”) (internal quotation marks omitted); *Hutchinson Tel. Co. v. Frontier Directory Co. of Minn.*, 770 F.2d 128, 130 (8th Cir. 1985) (“We agree with Professor Nimmer that although the promotion of artistic and scientific creativity and the benefits flowing therefrom to the public are purposes of the Copyright Clause, those purposes do not limit Congress’s power to legislate in the field of copyright.”); *Ladd v. Law & Tech. Press*, 762 F.2d 809, 812 (9th Cir. 1985) (reciting its precedent as relying on Nimmer for the proposition that “the first phrase of the Copyright Clause expands rather than limits congressional authority”). The Supreme Court has employed language suggesting that the Progress Clause limits congressional authority. See *Graham v. John Deere Co.*, 383 U.S. 1, 5–8 (1966) (“The [Intellectual Property] Clause is both a grant of power and a limitation. . . . Congress in the exercise of the patent power may not overreach the restraints imposed by the stated constitutional purpose.”). On the other hand, most recently in *Golan v. Holder*, 132 S. Ct. 873, 888 (2012), the Court re-iterated its position that individual elements of a copyright regime need not “operate to induce new works” in accordance with the Copyright Clause, but rather the regime as a whole should serve the ends of the Clause, suggesting that the limiting force of the Progress Clause is weak. Compare *Eldred*, 537 U.S. at 212 (“[W]e have described the Copyright Clause as ‘both a grant of power and a limitation,’ and have said that the primary objective of copyright is to promote the Progress of Science.”) (quoting *Graham*, 383 U.S. at 5–8) with *id.* at 211 (“[P]etitioners do not argue that the Clause’s preamble is an independently enforceable limit on Congress’ power.”).

disagree. As an initial matter, I observe that the very presence of Science suggests that it is necessary in defining the grant of copyright power.⁵⁰ Certainly the Framers could have given Congress the power to legislate copyright without mentioning Science had they believed that copyright would promote Science as a matter of course. But they did mention Science. And the presence of a word in the Constitution presumptively suggests that the word is necessary.⁵¹ Furthermore, nothing in the text of the Copyright Clause or the history surrounding that Clause suggests that Science should be construed as superfluous. As a necessary term, Science must define the grant. Its meaning must matter.

I further observe that interpretive consistency in the Intellectual Property Clause suggests that the Progress Clause is not preambular. The Intellectual Property Clause consists of dual grants of power, i.e., copyright and patent, in the single clause.⁵² The word Science has been interpreted as applying to copyright and useful Arts to patent.⁵³ On the patent side, courts have treated useful Arts as a

50. See Edward C. Walterscheid, "Within the Limits of the Constitutional Grant": *Constitutional Limitations on the Patent Power*, 9 J. INTEL. PROP. L. 291, 326 (2002) (arguing against construing the Progress Clause as preambular in nature because to do so would "render it meaningless," which effect would be contrary to a well-established principle of constitutional interpretation).

51. See generally *Marbury v. Madison*, 5 U.S. (1 Cranch) 137, 174 (1803) ("It cannot be presumed that any clause in the constitution is intended to be without effect."). Cf. *Heller*, 554 U.S. at 578 n.3 (concluding that a clause should be construed as prefatory rather than operative where "the text of a clause itself indicates that it does not have operative effect, such as 'whereas' clauses in federal legislation or the Constitution's preamble").

52. See U.S. CONST. art. I, § 8, cl. 8 ("The Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . .").

53. See *Golan*, 132 S. Ct. at 888 ("Perhaps counterintuitively for the contemporary reader, Congress' copyright authority is tied to the progress of science; its patent authority, to the progress of the useful arts."); *Eldred*, 537 U.S. at 192–93 ("The Copyright and Patent Clause, U.S. Const., Art. I, § 8, cl. 8, provides as to copyrights: 'Congress shall have Power . . . [t]o promote the Progress of Science . . . by securing [to Authors] for limited Times . . . the exclusive Right to their . . . Writings.'" (ellipses in original); *Graham*, 383 U.S. at 5 ("[T]he federal patent power stems from a specific constitutional provision which authorizes the Congress 'To promote the Progress of . . . useful Arts, by securing for limited Times to . . . Inventors the exclusive Right to their . . . Discoveries.'" (ellipses in original); WALTERSCHEID, *supra* note 11, at 116–18 (linking *Science* with copyright and *useful Arts* with patent); Solum, *supra* note 45, at 12 ("[T]he structure of the Clause and its history of exposition makes clear the parallel structure that associates 'Science,' 'Authors,' and 'Writings' with the copyright power."). This is not to say, however, that Science does not inform the patent power. See Oliar, *supra* note 45 at, 468–67.

limiting term.⁵⁴ The Court has explained in *Graham v. John Deere Co.* that the phrase “promote the Progress of . . . useful Arts” exists as a constitutional standard that “may not be ignored” and controls patent validity.⁵⁵ So on the patent side of the Progress Clause, the Court has indicated that the Clause limits the scope of patent. It would therefore be inconsistent to interpret the copyright side of the Progress Clause—i.e., that relating to Science—as preambular.⁵⁶ To the extent that the term useful Arts requires utility or nonobviousness in patents, interpretive consistency would mandate that Science not be construed as a preambular introduction.

These observations of the Progress Clause are of course only cursory in nature, and thereby insufficient to definitively establish that the Progress Clause is not preambular. Yet others have persuasively and exhaustively argued against construing that Clause as a preamble, and I rely on their work.⁵⁷ They have argued that the Framers intended the Progress Clause as an actual grant of power to Congress, with copyright serving as the designated means for exercising that power.⁵⁸ Professor Lawrence Solum has reached this conclusion based on a thorough examination of the grammatical structure of the Clause in relation to all the powers granted to Congress under Article I Section 8.⁵⁹ His argument is that every other power in Section 8 grants a power in the first clause beginning

54. See *Graham*, 383 U.S. at 5–6 (“The Congress in the exercise of the patent power may not overreach the restraints imposed by the stated constitutional purpose.”) (describing the patent law as a “system which by constitutional command must ‘promote the Progress of . . . useful Arts’”) (ellipses in original); *Stiftung v. Renishaw PLC*, 945 F.2d 1173, 1180 (Fed. Cir. 1991) (“The utility requirement has its origin in article I, section 8 of the Constitution, which indicates that the purpose of empowering Congress to authorize the granting of patent is ‘to promote the progress of . . . useful arts.’”).

55. *Graham*, 383 U.S. at 6 (“This [the phrase ‘promote the Progress of . . . useful Arts’] is the *standard* expressed in the Constitution and it may not be ignored. And it is in this light that patent validity ‘requires reference to a standard written into the Constitution.’”) (internal citation omitted).

56. Cf. Edward C. Walterscheid, *Divergent Evolution of the Patent Power and the Copyright Power*, 9 MARQ. INTELL. PROP. L. REV. 307, 318 (2005) (“Early on, the phrase was interpreted as a limitation on both the patent power and the copyright power; while in the modern era it remains a limitation on the patent power, but has not been treated as an equivalent limitation on the copyright power.”).

57. See Oliar, *supra* note 31, at 1810–16; Solum, *supra* note 45, at 12–25. See also Snow, *supra* note 42.

58. See sources cited *supra* note 57.

59. See Solum, *supra* note 45, at 12–25.

with “To,” and so the Copyright Clause should not be construed differently.⁶⁰ He rejected the contention that the Progress Clause could be construed as a preambular introduction of the actual copyright power, calling the argument “simply unsustainable.”⁶¹ Similarly, Professor Dotan Oliar has concluded that the Framers intended the Progress Clause to be a limitation on Congress’s copyright power.⁶² His analysis has a historical focus, examining the textual transition from initial proposals at the Convention to the ultimate language in the Copyright Clause, as well as the political context of the time.⁶³

I agree with the ultimate conclusion of both Professors Solum and Oliar: the Progress Clause is not preambular in nature.⁶⁴ I further observe that if the Progress Clause is a grant of power, the word Science must define that grant, and by defining the grant, Science must set boundaries on the grant. This conclusion draws persuasive support from Professor Oliar’s historical work, where he argues that the Progress Clause limits congressional authority.⁶⁵ I therefore rely on the evidence and arguments of Professor Oliar for

60. *See id.*

61. *Id.* at 22–23 (“The erroneously labeled ‘preamble’ is actually the legally operative grant of power.”).

62. *See Oliar, supra* note 31, at 1810–16.

63. *See id.* at 1771.

64. Modern jurisprudence of the Supreme Court does not definitively address the issue of whether the Science Clause represents a limitation on congressional power or, alternatively, a nonlimiting preamble. In *Graham v. John Deere Co.*, 383 U.S. 1, 5–8 (1966), the Court explained in a patent case that “[t]he [Intellectual Property] Clause is both a grant of power and a limitation . . . Congress in the exercise of the patent power may not overreach the restraints imposed by the stated constitutional purpose.” This language suggests that the Court would view the Science Clause as a limitation. The Court re-iterated this rhetoric in *Eldred v. Ashcroft*, 537 U.S. 186, 212 (2003) (“[W]e have described the Copyright Clause as both a grant of power and a limitation, and have said that the primary objective of copyright is to promote the Progress of Science.”) (citations omitted) (internal quotation marks omitted). Yet also in *Eldred*, the Court employed language suggesting that the Science Clause might *not* be a limitation: “petitioners do not argue that the Clause’s preamble is an independently enforceable limit on Congress’ power.” *Id.* at 211; *cf. Oliar, supra* note 31, at 1831 (pointing out that because the petitioners conceded the issue, the Court in *Eldred* did not decide whether the Progress Clause limits congressional authority).

The Court made a statement in *District of Columbia v. Heller*, 554 U.S. 570, 577 (2008) that might suggest its viewpoint on this issue. The *Heller* Court described the structure of the Second Amendment as a division between an initial preambular clause and a subsequent operative clause; that division, the Court stated, “is *unique* in our Constitution.” *Id.* (emphasis added).

65. Oliar, *supra* note 45, *passim*; Oliar, *supra* note 31, *passim*.

the proposition that the Progress Clause limits the scope of congressional authority. Based on this premise, the meaning of Science would affect the scope of congressional power to legislate copyright.⁶⁶

Thus, as a word that defines the scope of congressional power, Science must have meaning. Yet as noted above, interpreting Science to mean general knowledge or learning would fail to impose any practical effect on the congressional power. That interpretation would leave the term meaningless in the Clause, offending the normal canons of constitutional interpretation.

III. THE MEANING OF SCIENCE AT THE FRAMING

These interpretive irregularities suggest a need to re-visit the original meaning of Science in the Copyright Clause. This need extends beyond insulated academic circles, for the Supreme Court routinely relies on historical evidence in construing copyright law.⁶⁷ This Part therefore examines several pieces of evidence to arrive at the likely meaning of Science at the time of the Framing. It explores the following: evidence of the general meaning of science at the Framing (not specific to the Copyright Clause); the proposals for a copyright power at the Constitutional Convention; textual connotations implied by the verbiage of the Copyright Clause; the first Copyright Act enacted in 1790; public records of copyright registration during the decade following that Act; and an opinion of an early Supreme Court Justice regarding the limitation of Science in the Copyright Clause.

66. See Oliar, *supra* note 31, at 1771. Related to this issue of whether the Progress Clause is a preamble or a limitation is the issue of whether the Progress Clause applies to individual works, or alternatively, only to the overall statutory regime of the Copyright Act. This related issue I address in another work, and I conclude that the Progress Clause should apply to individual works. See Snow, *supra* note 42.

67. See, e.g., *Golan v. Holder*, 132 S. Ct. 873, 890 (2012) (“[T]he Framers regarded copyright protection not simply as a limit on the manner in which expressive works may be used. They also saw copyright as an engine of free expression.”) (internal quotation marks omitted); *Eldred*, 537 U.S. at 213–14 (looking to the practice of Congress “since the founding generation” to determine legitimacy of retroactive extension of copyright term); *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 575–76 (1994) (relying on views of centuries-old jurists, Justice Story and Lord Ellenborough, to craft modern fair use doctrine); *Harper & Row Publishers, Inc. v. Nations Enters.*, 471 U.S. 539, 558 (1985) (reciting view of Framers in applying fair use).

These pieces of evidence indicate that the meaning of Science in the Copyright Clause was narrower than the conventional interpretation of general knowledge or learning.⁶⁸ The evidence indicates that Science meant a system of knowledge that comprises or derives from distinct branches of study.

A. A General Understanding of Science

The common understanding of science at the time of the Framing provides a starting point for understanding the specific meaning of Science in the Copyright Clause. This Section examines the meaning of science in both its historical context of the Enlightenment and as portrayed by one of the most well recognized lexicographers of the time, Dr. Samuel Johnson.

1. The Enlightenment

In a general sense, science at the Framing encompassed the tools of reason and experience, both of which had given rise to the Enlightenment.⁶⁹ Through science, reason and experience had yielded an organized method for understanding existence from

68. In examining the original meaning, I seek the likely public understanding of the word as used in the Constitution at the time of its ratification, rather than the original intent that the Framers may have had by including the word in the Constitution—although the latter intent may inform the former understanding. As between the original public understanding and the original intent of the Framers, the former represents the prevailing approach to an original textual analysis of the Constitution. See generally Vasan Kesavan & Michael Stokes Paulsen, *The Interpretive Force of the Constitution's Secret Drafting History*, 91 GEO. L.J. 1113, 1131 (2003) (introducing constitutional theory of “‘originalist’ textualism” as “faithful application of the words and phrases of the text in accordance with the meaning they would have had at the time they were adopted as law, within the political and linguistic community that adopted the text as law”); David Thomas Konig, *Why the Second Amendment Has a Preamble: Original Public Meaning and the Political Culture of Written Constitutions in Revolutionary America*, 56 UCLA L. REV. 1295, 1307 (2009) (quoting Kesavan & Paulsen, *supra*, at 1132) (setting forth a constitutional interpretive theory that requires an understanding of “how the words and phrases, and structure . . . would have been understood by a hypothetical, objective, reasonably well-informed reader of those words and phrases, in context, at the time they were adopted, and within the political and linguistic community in which they were adopted”); Laurent Sacharoff, *Former Presidents and Executive Privilege*, 88 TEX. L. REV. 301, 323 n.143 (2009). Although I agree with the original-public-meaning approach, I draw upon resources indicating original intent in addition to those that directly address original public meaning because the intent is relevant to the likely original public understanding.

69. See COHEN, *supra* note 44, at 60.

various perspectives.⁷⁰ Science unfolded the success of Francis Bacon in exploring the power of empirical thought; Isaac Newton in achieving an unsurpassable understanding of physics, natural philosophy, and mathematics; and Carl Linnaeus in developing an unheralded system of biological taxonomy.⁷¹ Many more—Rene Descartes, Baruch Spinoza, and George Berkeley to name only a few—had similarly achieved powerful explanatory theories relating to different aspects of existence, all through the scientific tools of reason and experience.⁷² At the time of the Framing, science represented the common trait of Enlightenment achievements—the process that would draw upon reason and experience to explain existence. Science yielded the Enlightenment.

The aspects of existence that science could explain at the Framing were not limited to the fields of nature and physics. Science at the Framing would have included subjects that dealt with human motives and interactions.⁷³ That is to say, the explanatory power of reason and experience in science would have been understood to be capable of explaining existence from any perspective.⁷⁴ Science could explain morality, government, and history just as well as it could physics, biology, or botany.⁷⁵ Its general understanding would have included the moral and ethical philosophies of Immanuel Kant as well as the political philosophies of Thomas Hobbes and John Locke. The same processes of reason and experience informed both the natural and the social subjects of science.⁷⁶ Insofar as reason and experience employed an organized methodology for explaining some aspect of existence, then, science was unbounded.⁷⁷

70. CLINTON ROSSITER, *SEEDTIME OF THE REPUBLIC* 130–31 (1953). For an interesting summary of the influence of science at the time of the Framing, see Mark R. Killenbeck, *The Physics of Federalism*, 51 U. KAN. L. REV. 1, 41–49 (2002).

71. See Killenbeck, *supra* note 70, at 41–49; COHEN, *supra* note 44, at 45–49, 57, 114–20, 147.

72. See generally S. MORRIS ENGEL, ANGELIKA SOLDAN & KEVIN DURAND, *THE STUDY OF PHILOSOPHY* (6th ed. 2008).

73. See ROSSITER, *supra* note 70, at 440–41. For instance, Thomas Jefferson wrote in a 1799 letter: “government, religion, morality and every other science.” Seidel, *supra* note 11, at 12 n.15 (internal quotation marks omitted).

74. See COHEN, *supra* note 44, at 20 (“[T]he American nation was conceived in a historical period that is generally known as the Enlightenment, or the great Age of Reason, and science was then esteemed as the highest expression of human rationality.”).

75. See ROSSITER, *supra* note 70, at 130–31.

76. See *id.* at 130, 133.

77. Relevant to the formation of the new government, influential thinkers at the time of

Through the tools of reason and experience, science had yielded a culture of liberty and freedom at the Framing.⁷⁸ In effect, the new nation was built on reason and experience—a republic of science.⁷⁹

the Framing would employ scientific analogies to argue their positions on government structure and policies. Consider a few examples. John Adams recognized the argument of James Harrington regarding the similarity between political balance and biological life sciences: Harrington argued that a bicameral legislature was like the two ventricles of the heart, each legislative house performing different functions like each ventricle of the heart. COHEN, *supra* note 44, at 21, 25, 218. James Wilson noted similarity between the common law and Newtonian physics, characterizing both as the “law of experience.” *Id.* at 38 (internal quotation marks omitted). James Wilson believed that “[t]he cultivation & improvement of the human mind was the most noble object” of government and society. 1 THE RECORDS OF THE FEDERAL CONVENTION OF 1787 605 (Max Farrand ed., 1911) [hereinafter RECORDS] (quoting Wilson at constitutional convention). Thomas Jefferson relied on principles of Newtonian physics in drafting the Declaration of Independence. COHEN, *supra* note 44, at 116–22 (arguing that phrases in the Declaration of Independence, such as “laws of nature” and “self-evident,” allude to principles of Newtonian physics) (internal quotation marks omitted). Madison and Hamilton employed scientific analogies throughout the Federalist Papers. *E.g.*, THE FEDERALIST NO. 10, at 58 (James Madison) (Jacob E. Cooke ed., 1961) (comparing liberty and faction to air and fire); THE FEDERALIST NO. 14, *supra*, at 87 (comparing states at the frontier to body parts farthest from the heart that circulates blood); THE FEDERALIST NO. 38, *supra*, at 242–43 (comparing the fragility of America to a sick patient). Benjamin Franklin recognized the similarity between the scientific method and democratic procedure, observing that both required pragmatism, free exchange of ideas, and free inquiry. See ROSSITER, *supra* note 70, at 133, 285–86. Such instances of scientific metaphors in political writings suggest the value that the Framers placed on the explanatory power of reason and experience as manifest in natural sciences while debating the social science of government.

78. See COHEN, *supra* note 44, at 57. George Washington explained the connection between science, knowledge, and liberty when he addressed the Senate in 1790:

[T]here is nothing which can better deserve your patronage than the promotion of science and literature. Knowledge is, in every country, the surest basis of public happiness. . . . To the security of a free constitution it contributes . . . by teaching the people themselves . . . to discriminate the spirit of liberty from that of licentiousness, cherishing the first, avoiding the last, and uniting a speedy but temperate vigilance against encroachments, with an inviolable respect to the laws.

First Congress, Second Session: President Washington’s Address, in LIBRARY OF CONGRESS, COPYRIGHT IN CONGRESS 1789–1904, at 115–16 (Thorvald Solberg ed., 1905).

79. Thomas Jefferson wrote: “Science had liberated the ideas of those who read and reflect, and the American example had kindled feelings of right in the people. An insurrection has consequently begun, of science, talents and courage against rank and birth, which have fallen into contempt.” Letter from Thomas Jefferson to John Adams (Oct. 28, 1813), in 2 THE ADAMS-JEFFERSON LETTERS 391 (Lester J. Cappon ed., 1959).

Jefferson similarly wrote:

All eyes are opened, or opening, to the rights of man. The general spread of the light of science has already laid open to every view the palpable truth, that the mass of mankind has not been born with saddles on their backs, nor a favored few, booted and spurred, ready to ride them legitimately, by the grace of God.

Letter from Thomas Jefferson to Roger C. Weightman (June 24, 1826), in THE JEFFERSONIAN

Given the role of science in the new democracy, it is unsurprising that the Framers felt obligated to continue its proliferation.⁸⁰ Science had gotten them where they were, and so its continued vitality would seem essential to holding their course. They chose copyright to fulfill that end.⁸¹

CYCLOPEDIA 245 (John P. Foley ed., 1900).

And finally:

We have spent the prime of our lives in [granting young men] the precious blessing of liberty. Let them spend theirs in shewing that it is the great parent of science and of virtue; and that a nation will be great in both always in proportion as it is free.

Letter from Thomas Jefferson to Joseph Willard (Mar. 24, 1789), in 14 THE PAPERS OF THOMAS JEFFERSON 699 (Julian P. Boyd ed., 1958).

80. See ROSSITER, *supra* note 70, at 130 ("Science and its philosophical corollaries were perhaps the most important intellectual force shaping the destiny of eighteenth-century America, and the men of America were quick to acknowledge and eager to repay the debt.").

81. Why did the Framers choose copyright? The answer to this question indirectly informs the meaning of Science in the Copyright Clause. Instrumental reasons that the Framers likely would have understood for enacting copyright laws at that time suggest the effects that the Framers would have expected copyright to yield, which presumably mirrors the effects that they would have expected the Copyright Clause to yield, i.e., the promotion of Science. Hence, an examination into the reasons for enacting copyright laws in colonial America might suggest contours that the Framers contemplated for Science in the Clause. That examination would include instrumental reasons set forth in colonial copyright statutes and instrumental reasons propounded by individual copyright advocates of that time. I briefly analyze these sources below.

Copyright Statutes

Reasons for enacting copyright laws at the time of the Framing are found in individual state copyright statutes. Between 1783 and 1786, twelve of the thirteen states had enacted copyright laws. See Copyright Acts of Connecticut, Massachusetts, Maryland, New Jersey, New Hampshire, Rhode Island, Pennsylvania, South Carolina, Virginia, North Carolina, Georgia, New York, in COPYRIGHT OFFICE, 1 COPYRIGHT ENACTMENTS: LAW PASSED IN THE UNITED STATES SINCE 1783 RELATING TO COPYRIGHT 1-21 (1973) [hereinafter COPYRIGHT ENACTMENTS]. Delaware was the only state that did not pass a copyright statute. See COPYRIGHT ENACTMENTS, *supra*, at 21.

The Framers were likely aware of these statutes, especially given that two members of the constitutional committee that drafted the Copyright Clause—James Madison and Abraham Baldwin—were themselves involved in passing their own states' copyright statutes. See E. MERTON COULTER, ABRAHAM BALDWIN: PATRIOT, EDUCATOR, AND FOUNDING FATHER 43-44 (1987) (reciting history of Baldwin); *infra* note 108 and accompanying text. Of the twelve statutes, eleven cited or alluded to instrumental reasons for enacting copyright protection. See state copyright statutes of all but Virginia in COPYRIGHT ENACTMENTS, *supra*, at 1-21. Those statutes' reasons reveal two common themes—scholastic learning and improvement of knowledge.

Among the state copyright statutes, the theme of learning in a scholastic or educational sense is perhaps the most prevalent. Several states emphasized learning as a benefit of copyright with respect to the sort of learning that a *learned* person has experienced, i.e., scholastic or educational attainment. See Copyright Acts of Connecticut, Georgia, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, and Rhode Island in COPYRIGHT ENACTMENTS, *supra*, at 2-21. Referring to a person as *learned* indicates that that person has

gained knowledge through study, not that the person has merely perceived a lot of information. Were it otherwise, all persons who have lived sufficiently long to perceive a lot of information would be considered learned. Hence, statutes that refer to copyright as existing to encourage the activity of learned persons suggest the sort of learning that is scholastic or educational.

References to this sort of learning are present in ten state copyright statutes. Connecticut, Georgia, and New York each explained that copyright encourages men or persons "of *learning* and genius to publish their writings." *Id.* at 1, 17, 19 (emphasis added). Massachusetts and Rhode Island likewise linked copyright with "the efforts of *learned* and ingenious persons"; and, similarly, New Hampshire linked copyright with "efforts of ingenious persons." *Id.* at 4, 8, 9 (emphasis added). Maryland portrayed the purpose of copyright as "for the encouragement of *learned* men," and Pennsylvania similarly portrayed copyright as "for the encouragement of *learned* men to compose and write useful books." *Id.* at 5, 10 (emphasis added). New Jersey placed perhaps the greatest emphasis on this sort of learning: "[L]earning tends to the embellishment of human nature, the honour of the nation, and the general good of mankind . . . [M]en of *learning* who devote their time and talents to the preparing treatises for publication, should have the profits that may arise from the sale of their works" *Id.* at 6–7 (emphases added). And although North Carolina never included the word learning in its statute, it cited the closely related synonym, genius, as a product of copyright. *Id.* at 15. Thus, learning in the scholastic or educational sense represented a prevalent theme throughout state copyright statutes—referred to in ten of the twelve statutes as an instrumental reason for copyright.

Knowledge also was a common theme among the state statutes. But not just any sort of knowledge. Specifically, Massachusetts, New Hampshire, and Rhode Island cited the *improvement* of knowledge as a reason for copyright, and North Carolina cited knowledge that was *useful*. *Id.* at 4, 8, 9, 15. None of the statutes referred to knowledge generally; all references to knowledge were qualified accordingly. Thus, four state copyright statutes cited the improvement of knowledge or the facilitation of useful knowledge as an instrumental reason for copyright.

Although the statutes included other instrumental reasons for copyright, most of those other reasons represented direct effects of the sort of learning and knowledge discussed above—e.g., the production of literature; the progress of civilization; the public weal of the community; the advancement of human happiness; and the promotion of useful discoveries. Only one instrumental reason listed in only one state statute appears less connected to learning and knowledge, and that is the promotion of commerce. North Carolina mentions commerce as a benefit of copyright, but tellingly, it describes commerce as merely a "general extension" of copyright, or in other words, an indirect benefit. *See id.* at 15. Hence, the fact that commerce appears in only one of the twelve statutes, coupled with the fact that the one statute that does cite commerce expressly qualifies its connection to copyright, suggests that commercial enterprise would not normally be associated with a benefit of copyright at the time of the Framing. Stated another way, copyright would not likely be thought of as a means to produce any sort of expression that would promote commerce.

Therefore, to the extent that the Framers construed instrumental reasons for enacting copyright law at the state level as corresponding with the stated reason for including copyright in the Constitution—promoting science—science would seem to encompass the two common themes of the state statutes: educational or scholastic learning and improved or useful knowledge.

Copyright Advocates

Consistent with these two themes found in the state copyright statutes are arguments of copyright advocates in colonial America. In 1782, during the Revolutionary War, Thomas Paine

2. The 1786 dictionary

Consistent with the Enlightenment's focus on reason and experience, dictionaries of the time shed further light on the public's general understanding of science.⁸² Arguably the most authoritative dictionary at the Framing was Dr. Samuel Johnson's *Dictionary of the*

addressed the issue of statutory copyright protection in his Letter to the Abbe Raynal. THE LIFE AND WRITINGS OF THOMAS PAINE: ESSAYS, LETTERS, ADDRESSES 182 (Daniel Edwin Wheeler ed., 1908). He argued that literature would never flourish if not protected by copyright, and that even though England and America were at war, literature was not "entitled to depredation." *Id.* In a footnote to that comment, Paine explained:

[W]hen peace shall give time and opportunity for study, the country will deprive itself of the honor and service of letters and the improvement of science, unless sufficient laws are made to prevent depredations on literary property. It is well worth remarking, that Russia, who but a few years ago was scarcely known in Europe, owes a large share of her present greatness to the close attention she has paid, and the wise encouragement she has given, to every branch of science and learning

Id. at 182–83. Copyright, as Paine observed, would allow for "service of letters" and "improvement of science." *Id.* Copyright, he concluded, would serve as a means for "wise encouragement" of "every branch of science." *Id.* at 183.

Perhaps the most influential advocate for enacting copyright laws in individual states was Noah Webster. See HARRY R. WARFEL, NOAH WEBSTER: SCHOOLMASTER TO AMERICA 53–59 (1966); FEDERAL COPYRIGHT RECORDS, *supra* note 17, at xviii. He argued that copyright proliferates useful knowledge for all citizens, and that this result was desirable to ensure a successful democracy rather than a failed experiment in government. *Id.* Webster viewed copyright as necessary for successful self-governance.

Another influential advocate for copyright was Joel Barlow. Barlow wrote the Continental Congress seeking copyright legislation, and his letter ended up in the hands of two members of that Congress—James Madison and Hugh Williamson—who later served on the constitutional committee that drafted the Copyright Clause. *Id.* at xviii, xix. In that letter to the Continental Congress, Barlow recognized a connection between copyright and "the sciences." Letter from Barlow to Boudinot (Jan. 10, 1783), in PAPERS OF THE CONTINENTAL CONGRESS, item 78, 4:369–70 (emphasis added). He argued that copyright was necessary in America because America lacked an aristocracy, which in the European countries had enabled persons to devote their lives to study. See *id.* Barlow thus viewed copyright as promoting the sciences in America because copyright created an incentive, necessary in America, for the sort of studying that was performed over a lifetime. See *id.*

Thus, instrumental reasons for copyright at the time of the Framing suggest a meaning that the Framers would have expected from Science in the Copyright Clause. The state statutes suggest that the meaning would be consistent with improvement of knowledge or useful knowledge and learning that is scholastic or educational; the arguments of copyright advocates suggest a meaning that is consistent with knowledge that enables self-governance and knowledge that would result from a life of study.

82. Dictionary sources of that time, other than Dr. Samuel Johnson's *Dictionary of the English Language*, are discussed below. See *infra* note 126 (observing entry for science in dictionary of Thomas Sheridan) and discussion *infra* Part III.C.1 (analyzing entry for science in dictionary of Noah Webster).

English Language.⁸³ In his editions of the *Dictionary* leading up to the Constitutional Convention, Dr. Johnson defined science as follows:

1. Knowledge.
2. Certainty grounded on demonstration.
3. Art attained by precepts, or built on principles.
4. Any art or species of knowledge.
5. One of the seven liberal arts, grammar, rhetorick, logick, arithmetick, musick, geometry, astronomy.⁸⁴

Dr. Johnson stated these entries in order of their progression in meaning through time, their chronological etymology—the first being the most primitive and the last being the most developed at that time.⁸⁵

Because Dr. Johnson arranged word entries according to their chronological etymology, the first entry for science—knowledge—reflects the most primitive meaning, not necessarily the word's most common use at the time of the Framing. As so many have done, it would be incorrect to assume that Science in the Copyright Clause must mean knowledge based solely on the fact that the first entry in the *Dictionary* is knowledge.⁸⁶ The order of entry does not suggest any usage pattern of the word.⁸⁷ Any conclusion that Science in the

83. See, e.g., *District of Columbia v. Heller*, 554 U.S. 570, 581 (2008) (employing Dr. Johnson's *Dictionary* to analyze meaning of word at time of Framing); *Eldred v. Ashcroft*, 537 U.S. 186, 199 (2003) (quoting from Dr. Johnson's *Dictionary* to arrive at meaning of *limited* in Copyright Clause); *Dep't of Commerce v. U.S. House of Representatives*, 525 U.S. 316, 347 (1999) (Scalia, J., concurring in part) (quoting Dr. Johnson's *Dictionary* to define *enumeration* at time of Framing); WALTERSCHEID, *supra* note 11, at 125 (relying on Johnson's dictionary for meaning of Science at time of Framing); Rich, *supra* note 11, at 396 (same). Although I believe there is better evidence than the *Dictionary* that speaks to the meaning of Science in the Copyright Clause, I begin with it because it is the primary source to which scholars and judges cite as determining the issue.

84. JOHNSON, *supra* note 11 (unpaginated). The quotation of the five entries for *science* does not include the examples that Johnson quoted from others who employed the term in one of the five ways indicated.

85. *Id.* at 6 of preface (unpaginated); see *supra* note 12; see also ROBERT DEMARIA, JR., JOHNSON'S DICTIONARY AND THE LANGUAGE OF LEARNING 54 (1986) (referring to the first definition for science in Dr. Johnson's *Dictionary* as a "primitive" meaning as compared to the subsequent entries).

86. See discussion *supra* Part II.B.1.

87. See *id.*

Copyright Clause must mean general knowledge because of the primacy of the first entry for science in the *Dictionary* is simply wrong.⁸⁸

Yet even if the first entry does not speak to science's usage pattern, that first entry is still relevant in understanding a general meaning of science at the Framing. Dr. Johnson's subsequent entries for a word build upon prior meanings for that word.⁸⁹ Therefore, the first entry for science should not be altogether ignored. Further examination of that entry, and the four subsequent entries, is in order.

Under the first entry, Dr. Johnson noted two examples that suggest a specific connotation for his entry of knowledge. The examples consist of a quotation from Henry Hammond that speaks of "God's sight or science" as "seeing every thing as it is" and a quotation from Joseph Glanville that refers to the "indisputable mathematicks" as "the only science Heaven hath yet vouchsafed humanity."⁹⁰ Both of these examples suggest the sort of knowledge that cannot be doubted—God's sight and the indisputable nature of mathematics. They suggest certainty of conclusion. According to Dr. Johnson, then, science in its most primitive form meant the sort of knowledge that results in certainty.

Dr. Johnson explained his second and third entries in a way that further supports this understanding of certainty in science. The second entry is: "Certainty grounded on demonstration."⁹¹ This

88. *See id.*

89. *See* JOHNSON, *supra* note 11, at 6 of preface (unpaginated).

90. JOHNSON, *supra* note 11 (unpaginated) (emphasis omitted).

The quotation that Dr. Johnson employed from Henry Hammond is the following:

[I]f we will but conceive God's sight or science before the creation of the world to be coextended to all and every part of the world, seeing every thing as it is . . . his prescience or foresight of any action of mine (or rather his science or sight) from all eternity, layes no necessity on any thing to . . . come to passe, any more then my seeing the sun move, hath to doe in the moving of it . . .

H. HAMMOND, OF FUNDAMENTALS IN A NOTION REFERRING TO PRACTISE 161 (1654) (emphasis omitted).

The quotation that Dr. Johnson employed from Joseph Glanville is the following: "[T]he indisputable Mathematicks, the only Science Heaven hath yet vouchsaf't Humanity, have but few Votaries among the slaves of the Stagirite." Joseph Glanvill, *Scepsis Scientifica: or, Confest Ignorance, The Way to Science*, in AN ESSAY OF THE VANITY OF DOGMATIZING, AND CONFIDENT OPINION 142 (John Owen ed., 1885) (emphasis omitted).

91. JOHNSON, *supra* note 11 (unpaginated).

suggests the sort of knowledge that arises from empirical evidence. The third entry is: "Art attained by precepts, or built on principles."⁹² The act of building upon principles and precepts implies the act of reasoning. Thus, Dr. Johnson's second and third meanings suggest knowledge deriving from experience and reason, consistent with the Enlightenment.⁹³

The fourth and fifth entries suggest a classification of knowledge. The fourth is: "Any art or species of knowledge"; and the fifth: "One of the seven liberal arts, grammar, rhetorick, logick, arithmetick, musick, geometry, astronomy."⁹⁴ Both of these entries suggest classifying knowledge into distinct bodies or groupings. They suggest an organized system.

Although these five entries portray distinctions in meanings, they are unified in theme and general meaning. Indeed, Dr. Johnson noted his intent that each subsequent entry in his *Dictionary* build upon the meanings in prior entries.⁹⁵ Therefore, the fifth and fourth entries, which suggest a classification of knowledge, build upon the third and second, which suggest experience and reason as the means for gaining knowledge, which builds upon the first, which suggests a certainty of knowledge. One unifying meaning that encompasses the primary meanings of all five entries would be the following: certainty of knowledge, which derives from reason and experience, that yields an organized grouping of subjects. Of course such an aggregated definition does not necessarily reflect the specific meaning of Science in the Copyright Clause. But the aggregation is helpful in understanding a general meaning that would encompass the themes of science at the time of the Framing. It represents a data point to compare against a specific meaning derived from the text of the Clause.

B. Legislative History

The history of the Copyright Clause began on August 18, 1787, when two delegates at the Constitutional Convention, James Madison and Charles Pinckney, each proposed a copyright power.⁹⁶

92. *Id.*

93. See discussion *supra* Part III.A.1 (noting reason and experience as tools of science in the Enlightenment).

94. JOHNSON, *supra* note 11 (unpaginated).

95. See *id.* at 6 of preface ("[E]very foregoing explanation should tend to that which follows, and the series be regularly concatenated from the first notion to the last.").

96. DOCUMENTS ILLUSTRATIVE OF THE FORMATION OF THE UNION OF THE AMERICAN STATES

Those proposals were submitted to the Committee on Detail, which ultimately drafted the final language reflected in the Clause.⁹⁷ As

563–64 (Charles Callan Tansill ed., 1927) [hereinafter *FORMATION OF THE UNION*].

97. See 2 RECORDS, *supra* note 77, at 473. Backgrounds of several Committee members are consistent with an interpretation of Science that suggests a scholastic denotation. Of the eleven members, at least nine had backgrounds suggesting that the group composed the educated elite of that time.

James Madison was the only Committee member who had proposed a copyright power. See *supra* note 96 and accompanying text. For that reason, he might be viewed as the most influential Committee member regarding the text of the Copyright Clause. But see discussion *infra* note 110 (introducing the possibility that Madison may not have been responsible for inclusion of Science in Copyright Clause). His background that is relevant to copyright and science I discuss *infra* in Part III.B.2, and that discussion suggests he would view science as connoting a field of study.

Abraham Baldwin came to the Constitutional Convention with experience in copyright, law, and formal education. As a member of the Georgia legislature, he sponsored Georgia's copyright statute, which purported to "encourage men of learning and genius to publish their writings." See COULTER, *supra* note 81, at 43–44 (internal quotation marks omitted). Baldwin declined a professorship at Yale University to develop an educational plan for secondary and higher education in Georgia, which led to the creation of Franklin College, now called the University of Georgia, of which he was the first president in 1786. *Id.* at 30, 53–56, 64, 76. His life devoted to study, Baldwin once noted that "public prosperity and even existence very much depends upon suitably forming the minds and morals of their Citizens." *Id.* at 54. An interpretation of Science as designating scholastic subject matter or fields of study would be consistent with the life of Abraham Baldwin.

John Dickinson was thought to be one of the most learned men of the Framers. See MILTON E. FLOWER, JOHN DICKINSON: CONSERVATIVE REVOLUTIONARY 12–19 (1983); M. E. BRADFORD, FOUNDING FATHERS: BRIEF LIVES OF THE FRAMERS OF THE UNITED STATES CONSTITUTION 99 (2d ed. rev. 1994). He warned against persons who would "slight learning." CHARLES J. STILLE, THE LIFE AND TIMES OF JOHN DICKINSON, 1732–1808, at 330–31 (1891). He once wrote: "'Foolish questions,' fables, and endless genealogies, profane and vain babblings, oppositions of science falsely so called, and winds of doctrine the apostle Paul has justly condemned, and these, to be sure, should be consigned to perpetual oblivion." *Id.* Thus, Dickinson not only appreciated learning, he loathed anything that distracted from it. It is therefore likely that Dickinson would not have viewed the purpose of copyright as promoting any sort of knowledge (e.g., fictional fantasy).

Hugh Williamson was a man of science. See BRADFORD, *supra*, at 175–76. Prior to the Constitutional Convention, he had served as a professor of mathematics at the College of Philadelphia; earned his medical doctor degree; became a member of the American Philosophical Society (an organization with a purpose to promote useful knowledge in the sciences and humanities through scholarly research); served on an official commission to observe the paths of Venus and Mercury; articulated a theory on climate in North America; and participated in electrical experiments with Benjamin Franklin. *Id.* If he were to view Science in the Copyright Clause as a term representative of his own life, it would represent established subjects of study. Rufus King graduated first in his class at Harvard College—first in mathematics; first in language; and first in oratory. ROBERT ERNST, RUFUS KING: AMERICAN FEDERALIST 20 n.25 (1968).

Gouverneur Morris attended the Academy of Philadelphia and King's College. MAX M.

discussed in the two subsections below, their proposals suggest that Science in the Clause has a meaning that is educationally or scholastically focused.

1. Pinckney's proposals

Charles Pinckney proposed two congressional powers that were relevant to copyright. They are the following: first, "To establish seminaries for the promotion of literature and the arts & sciences"; and second, "To secure to Authors exclusive rights for a certain time."⁹⁸

Pinckney's first proposal aids in understanding the meaning of Science in the Copyright Clause. Two observations are noteworthy. First, Pinckney's proposal is the only one to use the word science (in the plural form, though). Indeed, the proposal employs three words (or a form of those words) that appear in the Copyright Clause: *promotion*, *arts*, and *sciences*. The similarity between the phrase "promotion of the arts & sciences" in Pinckney's proposal and "promote the Progress of Science and useful Arts" in the Copyright Clause is remarkable.⁹⁹ The absence of any other proposal using the

MINTZ, *GOUVERNEUR MORRIS AND THE AMERICAN REVOLUTION* 16 (1970).

David Brearly, who was the chair of the Committee on Detail, attended the College of New Jersey (now Princeton). DONALD SCARINCI, *DAVID BREARLEY AND THE MAKING OF THE UNITED STATES CONSTITUTION* 44–46 (2005). The full extent of Brearly's studies is a source of debate.

Roger Sherman was educated in common schools, but was well read in the areas of theology, history, law, and politics. ROGER SHERMAN BOARDMAN, *ROGER SHERMAN SIGNER AND STATESMAN* 15–21 (Da Capo Press 1971) (1938); BRADFORD, *supra*, at 22.

Daniel Carroll attended the prestigious College of St. Omer in Flanders for six years, which provided advanced education for English Catholics. MARY VIRGINA GEIGER, *DANIEL CARROLL: A FRAMER OF THE CONSTITUTION* 24–25 (1943).

The extent of education of only two Committee members, Pierce Butler and Nicholas Gilman, is uncertain. Pierce Butler once served as an officer in the British Army and was a man of great wealth and considerable influence. LEWRIGHT B. SIKES, *THE PUBLIC LIFE OF PIERCE BUTLER*, *SOUTH CAROLINA STATESMAN* 2–3 (1979). Nicholas Gilman was educated in public schools. BRADFORD, *supra*, at 4. It is thought that Gilman said little, following the lead of those more decisive around him. *Id.*

98. *FORMATION OF THE UNION*, *supra* note 96, at 564. Between the two powers listed, Pinckney also presented two other powers: "To grant charters of incorporation" and "To grant patents for useful inventions." *Id.*

99. Similarly, the word "useful" in the Copyright Clause, which modifies the word describing patents—Arts—appears to originate in Pinckney's third proposal, "useful inventions." Professor Oliar notes the similarity in verbiage between the Science Clause and Pinckney's proposal. See Oliar, *supra* note 45, at 448 n.100.

three words *promote*, *science*, or *art*, coupled with the combination of the same three words in proximity to one another in both Pinckney's proposal and the Clause, suggests that the three words in the Clause share the same meaning as in Pinckney's proposal—and in particular, the meaning of Science.¹⁰⁰ It therefore appears that the Committee on Detail adopted science from Pinckney's proposal, implicitly adopting Pinckney's meaning.

Second, Pinckney's proposal indicates a precise meaning of science as he employed it. By proposing to establish seminaries for the promotion of the sciences, Pinckney employs *science* to communicate an educational or scholastic denotation.¹⁰¹ Furthermore, sciences in seminaries represent particular branches of study. Pinckney's proposal therefore conveys a meaning of sciences as suggesting the categories of study that are present in a scholastic context.

2. Madison's proposals

Madison proposed three powers relevant to copyright. They consist of the following (in the order proposed): first, "To secure to literary authors their copy rights for a limited time"; second, "To establish an University"; and third, "To encourage by premiums & provisions, the advancement of useful knowledge and discoveries."¹⁰²

Two observations about these proposals are noteworthy as they relate to the meaning of Science. First, Madison appears to have grouped all his proposed powers—not just the ones listed above—according to their similarity in substance. For instance, his first four proposed powers (not listed above) concern jurisdictions for territories or sovereignties that were not in the United States.¹⁰³ In

100. See Oliar, *supra* note 31, at 1809–10 (observing that *Science* and *Arts* in the Intellectual Property Clause derive from Pinckney's proposal).

101. See *id.* at 1806–07 (describing Pinckney's proposal as an "education" power).

102. FORMATION OF THE UNION, *supra* note 96, at 563.

103. Those first four proposals consisted of the following:

"To dispose of the unappropriated lands of the U. States"

"To institute temporary Governments for New States arising therein"

"To regulate affairs with the Indians as well within as without the limits of the U. States"

"To exercise exclusively Legislative authority at the Seat of the General Government, and over a district around the same, not exceeding ——— square miles; the Consent

the three powers listed above, the copyright power immediately precedes a power related to formal education and another to useful knowledge.¹⁰⁴ Consistent, then, with Madison's practice of grouping related powers, the proximity of the copyright power to two powers that deal with education and useful knowledge suggests the copyright power's general scope and purpose—a context of educational learning.

Second, Madison never used the word science in his proposals.¹⁰⁵ The meaning of Science cannot be directly linked to any of the proposals that Madison set forth. Instead, the suggestion of educational learning that the three proposals generally suggest may only indirectly speak to the meaning of Science in the Clause.

That Madison did not use the word science in his proposal, however, should not be understood to mean that his usage pattern of that word was not relevant to its appearance in the Copyright Clause. Madison was a member of the ten-member Committee on Detail that drafted the Copyright Clause.¹⁰⁶ And he was the only member of the Committee who had proposed a copyright power (Charles Pinckney was not a Committee member).¹⁰⁷ Also, prior to the Constitutional Convention, Madison had served as one of three Virginian legislators who prepared the Virginia copyright statute, and he had served on a three-member Continental Congress committee that had drafted a resolution recommending individual states enact copyright statutes.¹⁰⁸ After the convention, he is the only Framers to have discussed the copyright power in defending the Constitution.¹⁰⁹

of the Legislature of the State or States comprizing the same, being first obtained.”
Id. at 563.

104. *Id.*

105. *See id.*

106. 2 RECORDS, *supra* note 77, at 473.

107. *See id.*

108. COMMONWEALTH OF VIRGINIA, JOURNAL OF THE HOUSE OF DELEGATES (1781–86), S. October 17, 1785–January 21, 1786, at 39, 40 (Richmond, 1828); *see also* BRUCE W. BUGBEE, GENESIS OF AMERICAN PATENT AND COPYRIGHT LAW 121 (1967). Interestingly, neither of these pieces of legislation referred to science or any other reason—instrumental or otherwise—for copyright.

109. *See* THE FEDERALIST NO. 43 (James Madison) (Jacob E. Cooke ed., 1961). Not long after the Constitutional Convention, Charles Pinckney did publish a pamphlet entitled, “Observations on the Plan of Government Submitted to the Federal Convention in Philadelphia,” which referenced the copyright power. *See* 3 RECORDS, *supra* note 77, at 106.

These historical evidences suggest that Madison may have held a keen interest in the drafting of the Copyright Clause. Moreover, with his interest in copyright ostensibly well known by other Committee members, his views on the Copyright Clause likely would have carried great weight.¹¹⁰ Therefore, examining Madison's use of the word science in other works may further illuminate the meaning of Science in the Clause. That examination follows in the paragraph below.

Madison's use of the term *science* in writings prior to the Constitutional Convention suggests a specific meaning. My research revealed seven writings prior to the Convention where Madison employed *science* or *sciences*. The context of all seven writings indicate that Madison employed *science* to mean a branch of study or category of specialized knowledge as opposed to mere general knowledge (e.g., "the Science of Morals"; "the most sublime of all Sciences"; "the science of commerce").¹¹¹ Madison's use of *science* after the

110. Although Madison's view on the meaning of science is certainly worthy of consideration, it may not be the dispositive authority on the meaning of Science in the Copyright Clause. Tellingly, neither the copyright power that Madison proposed at the Convention, the Virginia copyright statute that he prepared, nor the Continental Congress copyright resolution that he helped draft—mention science. See sources cited *supra* notes 106, 108. Indeed, an instrumental reason for copyright protection appears in neither his copyright-power proposal, the Virginia copyright statute, nor the Continental Congress resolution. See *supra* notes 102, 106, 108. Madison apparently did not think it necessary to mention any reason for copyright—science or otherwise. Thus, the inclusion of Science in the Copyright Clause may not have reflected Madison's opinion. There is thus reason to think that others on the Committee may have been responsible for Science appearing in the Clause. Hence, the backgrounds of other Committee members should also be examined for further indications of Science's meaning. See *supra* text accompanying note 97.

111. Further excerpts of the seven instances are as follows:

In 1772, Madison wrote: "I think you made a judicious choice of History and the *science* of morals for your winter's study." Letter from James Madison to William Bradford (Nov. 9, 1772), in 1 THE WRITINGS OF JAMES MADISON 11 (Gaillard Hunt ed., 1900) [hereinafter MADISON WRITINGS] (emphasis added).

In 1773, Madison wrote: "[K]eep the Ministry obliquely in View whatever your profession be. This will lead you to cultivate an acquaintance [*sic*] occasionally with the most sublime of all Sciences" Letter from James Madison to William Bradford (Sept. 25, 1773), in 1 THE PAPERS OF JAMES MADISON 96 (William T. Hutchinson & William M. E. Rachal eds., 1962) [hereinafter MADISON PAPERS] (emphasis added).

In 1773, Madison wrote: "I intend myself to read Law occasionally and have procured books for that purpose so that you need not fear offending me by Allusions to that *science*." Letter from James Madison to William Bradford (Dec. 1, 1773), in 1 MADISON PAPERS, *supra*, at 100–101 (emphasis added).

In 1779, Madison wrote: "From a new arrangement of the college here nothing is in

Constitutional Convention suggests the same meaning: of sixteen instances after the Convention, fourteen clearly indicate a particular branch of study (e.g., “political science”; “science of government”; “mathematical science”; “law as a science”);¹¹² the other two

future to be taught but the higher & rarer branches of *Science*.” Letter from James Madison to James Madison, Sr. (Dec. 8, 1779), in 1 MADISON WRITINGS, *supra*, at 56 (emphasis added).

In 1783, Madison wrote: “That of G. B. [Great Britain] is in the *science* of commerce particularly worthy of our attention” Letter from James Madison to Edmund Randolph (May 20, 1783), in 1 MADISON WRITINGS, *supra*, at 467 (emphasis added).

In 1783, Madison wrote: “But his wish is to be introduced in the first instance into a Gentleman’s family where he may at the same time be employ’d in teaching the Languages & some of the more useful branches of *science*” Letter from James Madison to the Reverend James Madison. (Oct. 2, 1783), in 7 MADISON PAPERS, *supra*, at 365 (emphasis added).

In 1783, Madison wrote in a Virginia Committee Report: “[W]ar is become a *Science*” Report from James Madison to Congress (Sept. 19, 1783), in 7 MADISON PAPERS, *supra*, at 348.

112. The fourteen instances are as follows:

- (1) “[B]y dividing & subdividing the branches of *Science* now in the same group.” Letter from James Madison to Frederick Beasley (Dec. 22, 1824), in 9 MADISON WRITINGS, *supra* note 111, at 212.
- (2) “This has always been regarded by us as claiming an important place in so comprehensive a School of *Science*.” *Id.*
- (3) “Much may be expected from the progress and diffusion of political *science* in dissipating errors” Letter from James Madison to Unknown (Mar. 1836), in 9 MADISON WRITINGS, *supra* note 111, at 610.
- (4) “[A]nd to all who take an interest in the progress of political *science* and the cause of true liberty.” James Madison’s Will (Apr. 19, 1835), in 9 MADISON WRITINGS, *supra* note 111, at 549.
- (5) “Our history, short as it is, has already disclosed great errors sanctioned by great names, in political *science*” Letter from James Madison to Daniel Drake (Jan. 12, 1835), in 9 MADISON WRITINGS, *supra* note 111, at 546.
- (6) “[T]he system forming an innovation and an epoch in the *science* of Government no less honorable to the people to whom it owed its birth” Letter from James Madison to Andrew Stevenson (Nov. 27, 1830), in 9 MADISON WRITINGS, *supra* note 111, at 430 n.6.
- (7) “To appreciate your proposed expedient for a standard of measures & weights would require more time than I can apply, & more mathematical *Science* than I retain.” Letter from James Madison to A. B. Woodward (Sept. 11, 1824), in 9 MADISON WRITINGS, *supra* note 111, at 207.
- (8) “I know not a better service, that could be rendered to the *science* of political economy” Letter from James Madison to Thomas Cooper (Mar. 23, 1824), in 9 MADISON WRITINGS, *supra* note 111, at 179.
- (9) “[T]hat the progress of political *Science*, and the lessons of experience will not be lost on the National Council.” *Id.* at 181.
- (10) “Throughout the Civilized World, nations are courting the praise of fostering *Science* and the useful Arts, and are opening their eyes to the principles and the blessings of Representative Government.” Letter from James Madison to W. T. Barry (Aug. 4, 1822), in 9 MADISON WRITINGS, *supra* note 111, at 107.
- (11) “[T]here are some considerations to be taken into the account which have been little

instances are not as clear, but are at least consistent with the particular-branch-of-study meaning.¹¹³ Madison therefore appears to have consistently employed *science* in a manner suggesting particular branches of study.

Of course Madison's usage pattern of the word *science* does not directly speak to its meaning in the Clause. Yet it can at least be said that Madison's usage pattern would be consistent with an interpretation of *Science* in the Clause that suggests branches of study. And given Madison's history surrounding both copyright law generally and its implementation into the Constitution, consistency between Madison's usage pattern and the interpretation of the Clause becomes a relevant consideration.

C. Textual Analysis

In addition to historical evidence from the convention, the text of the Copyright Clause indicates a precise meaning of *Science*: a system of knowledge comprising, or derived from, distinct branches of study. This conclusion stems from two textual indicators: first,

Adverted to by the most oracular Authors on the *Science* of Govt" Letter from James Madison to John G. Jackson (Dec. 27, 1821), in 9 MADISON WRITINGS, *supra* note 111, at 76.

(12) "& as a source perhaps of some lights on the *Science* of Govt. the legitimate meaning of the Instrument must be derived from the text itself" *Id.* at 72 n.1.

(13) "It is not only desirable therefore that the national code should receive whatever improvements the cultivation of law as a *science* may impart but that the local codes should be improved in like manner" Letter from James Madison to Peter S. Du Ponceau (May 1821), in 9 MADISON WRITINGS, *supra* note 111, at 63.

(14) "But a Central Institution is just now on foot in the State of Virginia, which in its development will embrace an extensive circle of *sciences*" Letter from James Madison to Charles Keilsall (Oct. 1817), in 3 LETTERS AND OTHER WRITINGS OF JAMES MADISON 49 (J. B. Lippincott & Co. 1867).

Further instances of Madison's use of *science* may arise in a report he assisted in drafting for the Virginia General Assembly in 1818. See Report of the Board of Commissioners for the University of Virginia to the Virginia General Assembly (Aug. 4, 1818), in THE PAPERS OF JAMES MADISON 326-39 (J.C.A. Stagg ed.) available at <http://rotunda.upress.virginia.edu/founders/default.xqy?keys=JSMN-print&mode=TOC>. Those instances, however, cannot be ascribed to Madison personally, however, because 20 other committee members share responsibility for the report. See *id.* at 338-39.

113. The two other instances do not indicate a meaning contrary to branch of knowledge (i.e., referring to the University of Virginia as "a temple dedicated to *science*"; referring to Thomas Jefferson as a "luminary of *Science*"). See Letter from James Madison to Samuel Harrison Smith (Nov. 4, 1826), in 9 MADISON WRITINGS, *supra* note 111, at 258; Letter from James Madison to N.P. Trist (July 6, 1826), in 9 MADISON WRITINGS, *supra* note 111, at 248.

the juxtaposition of Science and useful Arts; and second, the inconsistency between the singular form of Science and the plural form of Arts. Together, these two textual evidences indicate a precise meaning.

1. The juxtaposition of Science and Arts

That the Copyright Clause conjoins Science with useful Arts implies meaning. On this point, the Oxford English Dictionary (OED) is instructive.¹¹⁴ Like Johnson's Dictionary, the OED does not order its entries for words according to most common usage.¹¹⁵ Rather, it orders them according to chronological etymology.¹¹⁶

The OED indicates that its third entry for science was in use during the time of the Framing.¹¹⁷ That entry states: "(a) A particular branch of knowledge or study; a recognized department of learning. (b) Contradistinguished from *art*."¹¹⁸ Subdefinition (b) indicates that where *science* is contrasted with *art*, *science* means a particular branch of knowledge or study; a recognized department of learning.

Such a contrast between *science* and *arts* appears in the Copyright Clause, implying that Science refers to the third entry definition in the OED—a particular branch of knowledge or study. The contrast is apparent from the adjective *useful* that precedes only *Arts*. The word *useful* is important in the Clause because, as a general matter, arts could be interpreted two different ways alongside science. On the one hand, *arts* could mean branches of study—as in the seven liberal arts¹¹⁹—which use of arts was common at the Framing.¹²⁰ On the

114. See 14 OXFORD ENGLISH DICTIONARY 648–49 (2d ed. 1989) [hereinafter OED].

115. DONNA LEE BERG, A GUIDE TO THE OXFORD ENGLISH DICTIONARY 28 (1993).

116. *Id.*

117. 14 OED, *supra* note 114, at 648–49.

118. *Id.* The third entry lists two more meanings, neither of which seem relevant in the Copyright Clause: "c. *the noble science (of defence)*: the art of boxing or that of fencing" and "d. A craft, trade, or occupation requiring trained skill. Obsolete." *Id.* Subdefinition (c) would not apply to the extent that the Copyright Clause does not suggest a meaning of boxing or fencing (although those arts would have required knowledge and skill). Subdefinition (d) also does not apply given that it is obsolete, the last use noted in 1660.

119. The OED explains: "In the Middle Ages, 'the seven (liberal) sciences' was often used synonymously with 'the seven liberal arts', for the group of studies comprised by the Trivium (Grammar, Logic, Rhetoric) and the Quadrivium (Arithmetic, Music, Geometry, Astronomy)." 14 OED, *supra* note 114, at 648.

other hand, *arts* could mean practical applications of knowledge¹²¹ — as in the art practiced by an artisan or craftsman. Hence, two meanings of *arts* were possible, and the Framers provided a clear indication of which meaning they intended. They employed *useful* next to *Arts* to convey the meaning of practical applications of knowledge. As practical applications of knowledge, useful *Arts* contrasts with the source of the theoretical knowledge that underlies it, i.e., *Science*.¹²² In short, the Copyright Clause contrasts *Science* with useful *Arts*. Accordingly, *Science* takes on the third entry in the OED—a particular branch of knowledge or study; a recognized department of learning.¹²³

The contrast between *Science* and *Arts* is further apparent in the balance and parallelism of the Copyright (and Patent) Clause—*Science*, *Authors*, and *Writings* each precedes useful *Arts*, *Inventors*, and *Discoveries*, respectively.¹²⁴ The first group corresponds to copyright and the second to patent, ultimately suggesting a distinction in meaning between *Science* and useful *Arts*, the former representing copyright and the latter patent.¹²⁵ That distinction in meaning suggests a contrast between *Science* and *Arts* in the Clause. As the OED indicates, such a contrast implies that *Science* means a particular branch of knowledge or study.

Lexicography sources at the Framing are consistent with interpreting *Science* as a particular branch of knowledge or study. As discussed above, Dr. Johnson's *Dictionary* is perhaps the most

120. For instance, four state copyright statutes that were enacted prior to the Constitutional Convention employed the term *science*, and did so in the phrase “arts and sciences” without employing *useful* next to either *arts* or *sciences*. See Copyright Acts of Massachusetts, New Hampshire, Rhode Island, and South Carolina in COPYRIGHT ENACTMENTS, *supra* note 81, at 4, 8, 9, 11. Ostensibly, the use of *arts* here served as a synonym with *sciences*, i.e., suggesting the liberal arts as the categories of scientific studies.

121. The OED defines the meaning of *art* that contrasts with *science* as a practical application of any science. See 14 OED, *supra* note 114, at 649.

122. See *id.* (“The distinction [between science and art] as commonly apprehended is that a science is concerned with theoretic truth, and an art with methods for effecting certain results.”).

123. See *id.*

124. U.S. CONST. art. I, § 8, cl. 8 (“The Congress shall have Power . . . To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . .”).

125. See sources cited *supra* note 53; cf. RICHARD C. DEWOLF, AN OUTLINE OF COPYRIGHT LAW 15 (1925) (introducing balanced nature of Copyright and Patent Clause).

authoritative source of that time. The fourth definition for science states: a “species of knowledge.”¹²⁶ The fifth definition states: “One of the seven liberal arts, grammar, rhetoric, logick, arithmetic, musick, geometry, astronomy.”¹²⁷ Dr. Johnson’s conception of science as species of knowledge and as particular subject areas of study is consistent with Science as branches of knowledge or study.

Noah Webster’s definition of science is also instructive.¹²⁸ Webster explained science as the collection of general principles or truths in a particular subject matter.¹²⁹ Science, according to Webster, represents the abstract principles in a particular subject that controls the practical application of knowledge in the art.¹³⁰ In his first dictionary, published in 1828, Webster stated: “In general, an *art* is that which depends on practice or performance, and *science* that which depends on abstract or speculative principles. The *theory* of music is a *science*; the *practice* of it an *art*.”¹³¹ Hence, Webster recognized the contrast between art and science, and he treated science as the particular focus of study.¹³²

126. JOHNSON, *supra* note 11. See also THOMAS SHERIDAN, A COMPLETE DICTIONARY OF THE ENGLISH LANGUAGE (6th ed. Philadelphia 1796) (unpaginated) (defining science as “Knowledge . . . any species of knowledge”).

127. JOHNSON, *supra* note 11.

128. See NOAH WEBSTER, AN AMERICAN DICTIONARY OF THE ENGLISH LANGUAGE (New York, S. Converse 1828) [hereinafter WEBSTER’S 1828 DICTIONARY] (unpaginated). In addition to his 1828 dictionary being the first dictionary published in the United States, Webster was an influential advocate for copyright at the time of the Framing. See WARFEL, *supra* note 81, at 53–59. Webster would have been well familiar with the focus on science and arts in the Constitution. FEDERAL COPYRIGHT RECORDS, *supra* note 17, at xviii.

129. Webster described science as follows:

In *philosophy*, a collection of the general principles or leading truths relating to any subject. *Pure science*, as the mathematics, is built on self-evident truths; but the term science is also applied to other subjects founded on generally acknowledged truths, as *metaphysics*; or on experiment and observation, as *chimistry* [*sic*] and *natural philosophy*; or even to an assemblage of the general principles of an art, as the science or *agriculture*; the science of *navigation*. *Arts* relate to practice, as painting and sculpture.

WEBSTER’S 1828 DICTIONARY (unpaginated).

130. See *id.*

131. *Id.*

132. See *id.* The same meaning appears in the 1752 edition of Ephraim Chambers’s *Cyclopaedia, or an Universal Dictionary of Arts and Sciences*, which meaning Professor Bernard Cohen associated with Science in the Copyright Clause. See EPHRAIM CHAMBERS, CYCLOPÆDIA, OR, AN UNIVERSAL DICTIONARY OF ARTS AND SCIENCES 32 (London 1728); COHEN *supra* note 44, at 306–08. Chambers noted that when science is used in opposition to art, it “is particularly used for a form’d System of any Branch of Knowledge; comprehending the Doctrine, Reason and Theory, of

Interpreting Science as branch of study rather than mere general knowledge is consistent with writings of then-influential thinkers.¹³³ In addition to the writings of James Madison that I discuss above, I give a few examples here.¹³⁴ In a letter to his wife, John Adams wrote: "The *science* of government it is my duty to study, more than all other *sciences*; the *arts* of legislation and administration and negotiation ought to take place of, indeed to exclude, in a manner, all other *arts*."¹³⁵ Here, government is the abstract branch of study, the science. The applications of that science are the practical activities of government, i.e., the arts of legislation, administration, and negotiation.

Alexander Hamilton referred to the "sciences of morals and politics."¹³⁶ Ben Franklin wrote: "Will not the Knowledge of the Mathematicks, Astronomy, and Natural Philosophy, those sublime *Sciences*, give a Right to the Character of a *Man of Sense*?"¹³⁷ Thomas Jefferson wrote of "government, religion, morality and every other science."¹³⁸

In sum, the contrast of Science and Arts in the Clause indicates that Science has a meaning that indicates a branch of study or category of knowledge. This meaning is consistent with dictionaries of the time and the writings of influential thinkers.

2. *The singular-plural inconsistency between Science and Arts*

The singular form of Science in the Copyright Clause suggests meaning. In the singular form, science as meaning branch of study usually signifies only one particular branch. Yet although the

the Thing, without any immediate Application thereof to any Uses or Offices of life." CHAMBERS, *supra*, at 32. Hence, Chambers observed that science, when contrasted with art, suggests a theoretic branch of knowledge.

133. These examples do not represent a comprehensive account of each writer's use of the word. The examples demonstrate only that Science as meaning particular branches of study would not have been foreign in the writings of influential thinkers of the time.

134. See discussion *supra* Part III.B.2.

135. Letter from John Adams to Abigail Adams (without date, 1780), in FAMILIAR LETTERS OF JOHN ADAMS AND HIS WIFE ABIGAIL ADAMS, DURING THE REVOLUTION 381 (Charles Francis Adams ed. 1875) [hereinafter FAMILIAR LETTERS] (emphasis added).

136. THE FEDERALIST No. 31, at 194 (Alexander Hamilton) (Jacob E. Cooke ed., 1961).

137. BENJAMIN FRANKLIN, A MAN OF SENSE (1735), *reprinted* in 2 THE PAPERS OF BENJAMIN FRANKLIN 16 (Leonard W. Labaree ed. 1960) (emphasis added).

138. Seidel, *supra* note 11, at 12 n.15.

Copyright Clause employs Science in the singular, presumably the Clause does not signify only one particular branch. So if Science represents branches of study, why isn't it in the plural?

This question becomes more pressing given that the Committee on Detail likely deliberately chose to place Science in the singular rather than the plural. As an initial matter, to the extent that the Committee was familiar with the state copyright statutes, it is relevant that the state copyright statutes that employed the term science (four in total) did so in the plural, referring to "the arts and sciences."¹³⁹ Furthermore, recall that the only reference to science in the proposals under consideration was Pinckney's proposal, and that proposal referred to the plural form—i.e., sciences.¹⁴⁰ Recall also that the Copyright Clause reflects great attention to stylistic consistency; however, *Science* in the singular form creates a glaring stylistic inconsistency as it appears next to the plural *Arts*.¹⁴¹ The inconsistency becomes more apparent when considering the fact that other than Science, all nouns in the Clause unique to either the copyright or patent powers are in the plural.¹⁴² Thus, the departure from the plural form in the state copyright statutes, the departure from the plural form in Pinckney's proposal, and the blatant stylistic inconsistency of the singular form all indicate a deliberate choice to make Science singular. Why?

By placing Science in the singular, the Committee on Detail apparently intended a meaning distinct from the plural *sciences*. That meaning consists of an abstraction from the particular sciences, i.e., the systemic whole of individual sciences. In the plural, *sciences* represents the particular subjects of study, whereas *science* represents the system comprising the particular subjects of study. The singular captures the collective whole as opposed to the collection of individual parts.

139. See *supra* note 120.

140. See discussion *supra* Part III.B; FORMATION OF THE UNION, *supra* note 96, at 564.

141. The words in the Clause relating to copyright precede the words relating to patent (Science, Authors, and Writings respectively precede useful Arts, Inventors, and Discoveries). See *supra* note 53.

142. See U.S. CONST. art. I, § 8, cl. 8 ("To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries."). Although "right" is in the singular, it is not specific to either the copyright or patent powers.

Such a connotation is apparent in an analogous context—the word, *law*. In the singular, *law* may represent the collective whole of all possible laws; it is a general abstraction of all the particular laws.¹⁴³ When we say “law restrains conduct,” we speak of law as a general concept encompassing the system of all particular laws. By contrast, in the plural, the word *laws* represents particular laws. When we say “laws restrain conduct,” we speak of laws as the actual, individual laws. Hence, there are two ways to express the entirety of a set of subjects—the singular abstraction (e.g., law or science) and the plural particulars (e.g., laws or sciences).

These two ways of expressing the collection of subjects admit a distinction in meaning. The meaning of the singular abstraction includes the collective whole of the particulars, but the meaning of the plural particulars does not. That is, a representation of the collective whole suggests more than its individual parts. The sum is greater than its parts. *Law* suggests more than *laws*. *Science* suggests more than *sciences*. *Science* as a representation of the collective whole of all specific branches of study captures a system that derives from all those specific branches. Whereas *sciences* in the plural represents only the individual sciences operating independently of the others, *science* in the singular represents the entire system of all possible particular sciences functioning together as one. Stated another way, *science* in the singular form represents the system of knowledge from which all the particular branches derive.

The Committee on Detail thus appears to have placed Science in the singular form to capture the abstract meaning of all branches of science, or in other words, the system from which the particulars derive.¹⁴⁴ This interpretation of Science in the singular is supported

143. See THE WOLTERS KLUWER BOUVIER LAW DICTIONARY 619 (Stephen Michael Sheppard ed., 2011).

144. This reason for placing Science in the singular further explains why the Committee kept arts in the plural, purposefully creating an inconsistency between *Science* and *Arts*. As discussed above, *useful Arts* means the practical applications that derive from the theoretic truth contained in the sciences. See 14 OED, *supra* note 114, at 649. Abstracting from the specific practical applications of the useful Arts implies the sciences that underlie those arts. Science captures the abstractions of the applications, arts. Accordingly, there is nothing to abstract from the specific applications of useful Arts that would not be captured within the abstract term of Science. It would make no sense to place *useful Arts* in the singular form as representing an abstraction of those Arts, for the abstraction is contained in *Science*. The Committee apparently intended that the meaning of all the individual applications of Science—i.e., the useful Arts—imply nothing more than all those individual applications.

by a writing of one of the members of the Committee on Detail, Hugh Williamson. Williamson wrote:

[T]he Grecians . . . exceeded all other nations in arts and learning. The Grecians, or rather the Athenians, were not indebted to soil or climate for the extraordinary progress they made in *science* and the *liberal arts*; they were merely indebted to the high degree of liberty they enjoyed.¹⁴⁵

Here, Williamson appears to employ both *science* and *liberal arts* as words meaning a group of theoretical studies. Both are collective nouns.¹⁴⁶ Yet *science* is in the singular and *liberal arts* is in the plural, suggesting that *science* represents the system of the grouping of studies, whereas *liberal arts* represents the seven specific groupings that then comprised all possible liberal arts (grammar, rhetoric, logic, arithmetic, music, geometry, and astronomy).¹⁴⁷

An implication of construing Science to mean a system that derives from a collective whole is that Science would include branches not yet in existence—i.e., evolving branches. The system as a whole contemplates additions and changes to the component parts. It is broader than its individual pieces. Science, then, would not be limited to only the branches of study that existed at the Framing; it would contemplate growing and evolving categories.

Support for this interpretation arises in the writing of John Adams. Adams alluded to this principle of evolving branches of knowledge in a letter to Abigail Adams in 1800, while President of the United States.¹⁴⁸ He wrote: “I must study politics and war, that my sons may have liberty to study mathematics and philosophy . . . geography, natural history and naval architecture, navigation, commerce, and agriculture, in order to give their children a right to study painting, poetry, music, architecture, statuary, tapestry, and porcelain.”¹⁴⁹ Adams thus spoke of a potential for

145. Hugh Williamson, *A Discourse on the Benefits of Civil History, delivered before the New-York Historical Society* (Dec 6, 1810), in 2 COLLECTIONS OF THE NEW-YORK HISTORICAL SOCIETY, FOR THE YEAR 1814, 30–31 (New York, Van Winkle & Wiley 1814) (emphasis added).

146. See *id.*

147. Compare *id.* with JOHNSON, *supra* note 11 (listing the seven liberal arts as the fifth entry for science).

148. Letter from John Adams to Abigail Adams (without date, 1780), in FAMILIAR LETTERS, *supra* note 135 (emphasis added).

149. *Id.*

expanding fields of study.¹⁵⁰ He recognized that the result of refining existent branches of study is the creation of more branches.¹⁵¹ And that idea appears to be present in the singular form of Science.¹⁵²

Thus, the Framers appear to have intended Science in the Copyright Clause to represent a system of knowledge comprising distinct branches of study. As discussed in the immediate preceding subsection, Science's meaning as distinct categories of knowledge or branches of study is apparent from the juxtaposition of Science and useful Arts.¹⁵³ As discussed in this subsection, Science's meaning as a system is apparent from its singular form that represents an abstraction of the entire set of branches of knowledge.¹⁵⁴ Science in the Copyright Clause therefore represents a system of knowledge comprising, or derived from, distinct branches of study.

D. Post-Constitution Evidence

Treatment of copyright law following the Constitutional Convention further suggests this meaning of Science. Distinct pieces of evidence during this time period suggest the understanding of the general public, a member of the Supreme Court, and Congress.¹⁵⁵ This Section discusses that evidence.

1. The public understanding

Perhaps the most valuable evidence regarding the original meaning of Science in the Copyright Clause consists of that which suggests the public's understanding. The prevailing approach to an original textual analysis of the Constitution examines the meanings of words from the perspective of the political and linguistic community that adopted them as law.¹⁵⁶ Under this approach, a word's public meaning at the time of the Framing is the most

150. *See id.*

151. *See id.*

152. This characteristic of evolving branches of study in the system of Science suggests that the system contemplates mere attempts at establishing a branch of knowledge, even if those attempts are unsuccessful.

153. *See discussion supra* Part III.C.1.

154. *See discussion supra* Part III.C.2.

155. *See discussion infra* Part III.D.1–3.

156. *See generally* sources cited *supra* note 68.

persuasive evidence of its meaning in the Constitution.¹⁵⁷ Hence, evidence of the public's understanding of either science generally, or more relevantly, Science in the Copyright Clause, is valuable in arriving at an originalist understanding of Science.

One key piece of evidence surrounding the public's understanding of Science in the Clause consists in the sort of material that the public initially registered for copyright protection following the Constitutional Convention.¹⁵⁸ In the decade following ratification of the Constitution, federal courts kept records of the sorts of works that the public registered for copyright protection.¹⁵⁹ Of course these registered works do not conclusively prove any meaning of Science; they support a meaning only to the extent registrants believed that their works would promote the Progress of Science. This assumption cannot be definitively established. Nevertheless, the sorts of works do share commonality, and that fact supports an inference regarding the public understanding of Science.

157. See Konig, *supra* note 68, at 1301–07 (describing his interpretive textual analysis as original public meaning rather than original intent of the Framers); Sacharoff, *supra* note 68, at 323 n.143 (explaining distinction between original intent and original public meaning).

158. Dictionaries of the time would of course inform the public understanding of Science at the Framing. Yet as discussed above, dictionaries of the time—like Dr. Johnson's *Dictionary*—did not arrange meanings by public usage patterns. See discussion *supra* Part II.B.1. Nor did they specify whether the entries reflected actual usage as opposed to purported proper usage. Their value is therefore limited in determining the most common public understanding of Science.

Dictionaries, however, do not represent the only means for tracking public usage patterns of words. The field of corpus linguistics offers resources to word usage patterns in the past two centuries. Corpus linguistics is a methodology that analyzes the use of language through various sources compiled in an electronic database called a corpus. See Mouritsen, *supra* note 39, at 1954. The Corpus of Historical American English (COHA) represents the largest freely-available corpus of the English language. See CORPUS OF HIST. AM. ENG. (COHA), <http://corpus.byu.edu/coha/> (last visited Feb. 15, 2013). It processes data that is available on Google Books, although its resources do not extend back to the decade of the Framing. See *id.*

When searching for the use of science during the 1810s and 1820s, COHA reveals that the most commonly used three-word phrase (in Google Books) that includes the word *science* is the phrase, “the science of.” See *id.* No other three-word phrase was even half as commonly used. See *id.* This data indicates that a few decades after the Framing, “the science of” was a common phrase. And the phrase “the science of” indicates that the next word or phrase will represent a particular field of study. Therefore, the prevalence of “the science of” suggests that a common public understanding of science related to particular fields of study. COHA supports the conclusion that a few decades after the Constitutional Convention, science was commonly found in a phrase indicating field of study. See *id.*

159. See FEDERAL COPYRIGHT RECORDS, *supra* note 17, at xxii.

Before examining those works, it is important to note that the registration process under the 1790 Act did not involve any governmental entity endorsing the registration.¹⁶⁰ Unlike the registration process of today,¹⁶¹ under the 1790 Act an author merely filed a record at a local federal district court without any governmental endorsement of the registration.¹⁶² The subjects of registration were not screened for content—although their content could be challenged after registration.¹⁶³ Thus, coupled with this background, the types of works registered at the time suggest, but do not establish, a public understanding of the sorts of works that copyright would protect.

Copyright registration records are available for the decade between 1790 and 1800.¹⁶⁴ Two scholars, James Gilreath and Elizabeth Carter Wills, performed a detailed examination of federal copyright records from that period. Gilreath observed a great imbalance in the types of works registered.¹⁶⁵ Regarding “serious imaginative works,” Gilreath noted that only a handful were registered.¹⁶⁶

By contrast, practical or commercially useful books constituted a majority of those registered.¹⁶⁷ Textbooks, manuals, geographical atlases, and commercial directories were common.¹⁶⁸ Interestingly, although such practical works constituted a high proportion of registered material, they did not reflect the same proportion of printed work of the time.¹⁶⁹ Imaginative works were noticeably underrepresented in the federal registration records.¹⁷⁰ On the other hand, imaginative works were well represented in *state* registration records.¹⁷¹ These observations suggest an understanding that federal

160. See Act of May 31, 1790, ch. 15, § 3, 1 Stat. 124, 125 (1790).

161. See 17 U.S.C. § 410 (2006).

162. See FEDERAL COPYRIGHT RECORDS, *supra* note 17, at xxii.

163. See, e.g., *Clayton v. Stone*, 5 F. Cas. 999, 1003 (C.C.S.D.N.Y. 1829) (No. 2872) (challenging copyright based on content of material).

164. See FEDERAL COPYRIGHT RECORDS, *supra* note 17, at xxii.

165. See *id.*

166. See *id.*

167. See *id.*

168. See *id.*

169. See *id.*

170. See *id.*

171. See *id.* (“[A] larger proportion of state copyright registrations than federal

copyright of that time did not extend to any subject matter, but rather only those subjects which were instructional or associated with specific branches of study.

2. A Supreme Court Justice

During the contemporary period of the Framers, there is no record of any judicial opinion that examines the meaning of Science in the Copyright Clause. There is, however, such an opinion that was written in 1829 soon after most of the Framers had died.¹⁷² The 1829 case, *Clayton v. Stone*, was written by Supreme Court Justice Smith Thompson, who was a young contemporary of the Framers.¹⁷³ Justice Thompson sat by designation as a Circuit Justice for the federal court in the Southern District of New York, hearing the *Clayton* case.¹⁷⁴ *Clayton* raised the issue of whether a price-current—a weekly publication of market prices—was copyrightable in view of the restricting term, Science, in the Copyright Clause.¹⁷⁵

Justice Thompson denied protection for the price-current on the grounds that it did not satisfy the meaning of Science.¹⁷⁶ He explained that because Congress passed the 1790 Copyright Act in execution of its power under the Copyright Clause, that Act's object was necessarily to promote Science and that the price-current did not do so.¹⁷⁷ In his words:

[I]t would certainly be a pretty extraordinary view of the sciences to consider a daily or weekly publication of the state of the market as

registrations were for imaginative works.”).

172. See *Clayton v. Stone*, 5 F. Cas. 999, 1000, 1003 (S.D.N.Y. 1829) (No. 2872).

173. See *id.* at 1000. See also Gerald T. Dunne, *Smith Thompson*, in 1 *THE JUSTICES OF THE UNITED STATES SUPREME COURT 1789–1969: THEIR LIVES AND MAJOR OPINIONS* 475 (Leon Friedman & Fred L. Israel eds., 1969).

174. See *Clayton*, 5 F. Cas. at 999.

175. *Id.* at 1003.

176. *Id.* Setting aside the question of whether the price-current complies with the original meaning of Science, it may or may not have been deemed to constitute copyrightable subject matter under modern copyright jurisprudence. On the one hand, the market prices would seem to reflect facts that are not copyrightable under *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 344–45 (1991). On the other hand, catalogues that have estimated prices have been viewed as statements of opinion, rather than fact, and therefore copyrightable. See *CCC Info. Servs., Inc. v. Maclean Hunter Mkt. Reports, Inc.*, 44 F.3d 61, 72–73 (2d Cir. 1994).

177. *Clayton*, 5 F. Cas. at 1003. Justice Thompson impliedly distinguished useful Arts from Science here. See *id.*

falling within any class of them. They are of a more fixed, permanent and durable character. The term *science* cannot, with any propriety, be applied to a work of so fluctuating and fugitive a form as that of a newspaper or price current, the subject-matter of which is daily changing, and is of mere temporary use.¹⁷⁸

Justice Thompson thus considered Science to reflect subjects that were “fixed, permanent and durable.”¹⁷⁹ He expressly opined that Science could not apply to works that were “fluctuating and fugitive,” “daily changing,” or of “mere temporary use.”¹⁸⁰ His interpretation of Science suggests an established field of study, precluding Science as general knowledge.¹⁸¹

Also notable about Justice Thompson’s opinion is that he recognized that public utility of a price-current, as well as the diligent labor that it took to produce it, does not give rise to copyright protection absent a connection with “learning and the sciences.”¹⁸² Science as a fixed, permanent, and durable subject is necessary for protection regardless of whether the expression is valuable according to some other means of measurement, so taught Justice Thompson.¹⁸³ Thus, the respected judicial contemporary of the Framers, Justice Smith Thompson, understood Science as requiring works to have a purpose that served an established branch of study.¹⁸⁴

178. *Id.* (emphasis added).

179. *Id.*

180. *Id.*

181. *See id.*

182. In Justice Thompson’s words:

Although great praise may be due to the plaintiffs for their industry and enterprise in publishing this paper, yet the law does not contemplate their being rewarded in this way; it must seek patronage and protection from its utility to the public and not as a work of science. The title of the act of congress is [“]for the encouragement of learning,[”] and was not intended for the encouragement of mere industry, unconnected with learning and the sciences.

Id. (citation omitted).

183. *See id.*

184. *See id.*

3. The 1790 Congress

Congress enacted the first federal copyright statute in 1790.¹⁸⁵ That 1790 Act might be interpreted as indicating an original understanding of the Copyright Clause given the Act's close proximity to the ratification of the Constitution.¹⁸⁶ And although the Act does not specifically define Science, it provides evidence of its meaning in its stated purpose: "the Encouragement of Learning."¹⁸⁷ Important here is the meaning of *Learning*. *Learning* did not mean the acquisition of any information at all. Rather, *learning* suggested the acquisition of information related to either scholastic knowledge or some sort of skill.¹⁸⁸ Dr. Johnson's *Dictionary* defines *learning* as:

Literature; skill in languages or sciences; generally

Scholastick knowledge.

Skill in any thing good or bad.¹⁸⁹

The first definition suggests either a skill or scholastic knowledge.¹⁹⁰ Likewise, the second definition implies some sort of a skill. Skill suggests an aptitude or ability;¹⁹¹ scholastic knowledge suggests an acquisition of educational information.¹⁹² Both imply

185. See Act of May 31, 1790, ch. 15, 1 Stat. 124.

186. See *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 57 (1884) ("The construction placed upon the Constitution by the first act of 1790, and the act of 1802, by the men who were contemporary with its formation, many of whom were members of the convention which framed it, is of itself entitled to very great weight . . .").

187. The full title of the 1790 Copyright Act reads: "An Act for the encouragement of learning, by securing the copies of maps, charts, and books, to the authors and proprietors of such copies, during the times therein mentioned." Act of May 31, 1790, ch. 15, 1 Stat. 124. See 1790 Federal Copyright Act in COPYRIGHT ENACTMENTS, *supra* note 81, at 22.

188. See JOHNSON, *supra* note 11 (unpaginated).

189. *Id.*

190. Johnson defines literature as "learning; skill in letters." *Id.*

191. See 15 OED, *supra* note 114, at 603 (defining skill as, inter alia, "[c]apability of accomplishing something with precision and certainty; practical knowledge in combination with ability; cleverness, expertness. . . . [A]n ability to perform a function, acquired or learnt with practice").

192. See 14 OED, *supra* note 114, at 630 (defining scholastic as, inter alia, "studious, learned;" "[h]aving the characteristics of the scholar or student, as distinguished from the man of affairs"); 8 OED, *supra* note 114, at 517 (defining knowledge as, inter alia, "[a]cquaintance

meanings narrower than mere acquisition of any sort of information. Hence, the title of the 1790 Copyright Act, “An Act for the Encouragement of Learning,” suggests the purpose of copyright as encouraging skills or scholastic knowledge. It does not suggest a purpose of encouraging the production of any and all information.

IV. THE MEANING OF SCIENCE RESTORED

As discussed above, Science in the Copyright Clause did not mean general knowledge of anything.¹⁹³ The modern interpretation of the original meaning is simply incorrect. Science connoted a system of knowledge that derives from branches of study.¹⁹⁴ It represented subjects that were worthy of study. At first glance, this more accurate understanding of Science might suggest that the scope of copyright law should be limited to educational material. If Science limits the scope of copyright to material that relates to subjects of study, it could be argued that copyright should be limited to material with a scholastic purpose. That interpretation, however, I do not propose. I propose that Science should preclude only expression that would fail to receive protection under the Free Speech Clause. That proposal and potential objections are discussed below.

A. An Interpretation that Excludes Unprotected Speech

As a system of knowledge, Science in the Copyright Clause encompassed a broad array of subjects in a vast range of settings.¹⁹⁵ Science was growing and expanding, ever changing both in subject matter and means of study.¹⁹⁶ That flexibility should control its application today. Science should recognize the explosion of fields that society now considers worthy of study. It should extend beyond the formal classroom, contemplating studies of culture, customs, and opinion. For instance, much of today’s entertainment may be seen as providing valuable insight about human behavior. Hence, my proposal for applying a more accurate meaning of Science would

with a branch of learning, a language, or the like; theoretical or practical understanding of an art, science, industry, etc.”).

193. See discussion *supra* Part III.

194. See discussion *supra* Part III.

195. See discussion *supra* Part III.C.2.

196. See discussion *supra* Part III.C.2.

preserve copyright protection for most expression that now enjoys that protection. Most expression may be viewed as an illustration of that which merits study. Flexible application of the original meaning of Science to modern culture suggests that copyright should encompass a broad array of expression.

This conclusion immediately raises the question of whether the more accurate interpretation of Science discussed in this Article would change anything in copyright law. Other than an academic exercise in history, would a more accurate understanding of the original meaning of Science affect the scope of copyright protection? What difference would it make? The answer to this question is that the more accurate understanding of Science should discriminate against at least a small group of expression that presently does receive copyright protection. Although most expression should fit comfortably within a flexible interpretation of the original meaning of Science, this should not hold for *all* expression. No matter how flexible Science might be construed, if Science represents a system of knowledge that derives from branches of study, Science should discriminate against that which, by definition, is not a part of—and indeed may be harmful to—that system. I propose that one distinct group of expression should categorically fall outside the meaning of Science—namely, expression that fails to receive protection under the Free Speech Clause.¹⁹⁷

By definition, unprotected speech under the Free Speech Clause lacks sufficient social value to protect it from censorship.¹⁹⁸ Censorship is condoned because value is absent. And that absence of value under free speech doctrine implies the absence of value in the system of knowledge that comprises branches of study, i.e., Science. Expression that lacks value sufficient to receive protection as speech

197. In another work, I contemplate whether Science (or the Progress Clause) should discriminate against one other category of works—those which are harmful to society yet protected by the Free Speech Clause. See Snow, *supra* note 42.

198. See, e.g., *Hustler Magazine, Inc. v. Falwell*, 485 U.S. 46, 52 (1988) (“False statements of fact are particularly valueless; they interfere with the truth-seeking function of the marketplace of ideas”); *Miller v. California*, 413 U.S. 15, 24 (1973) (defining obscenity as expression that “lacks serious literary, artistic, political, or scientific value”); *Chaplinsky v. State of New Hampshire*, 315 U.S. 568, 571–72 (1942) (recognizing that unprotected expressions “are no essential part of any exposition of ideas, and are of such slight social value as a step to truth that any benefit that may be derived from them is clearly outweighed by the social interest in order and morality”).

necessarily fails to augment a branch of study that would further Science's system of knowledge. Moreover, much unprotected speech results in various harms to society, and those harms arguably detract from Science's system of knowledge—the sort of system that is worthy of study and promotion.¹⁹⁹ Therefore, content that lacks value as protectable speech, and indeed often causes harm to society, must lack value as promotable Science. I thus propose that courts should preclude copyright protection of unprotected speech under the more accurate meaning of Science.

By withholding the monopoly of copyright from obscenity, libel, and expression that incites imminent lawless action, there would to a certain extent be a reduction of that expression. The absence of profit reduces the incentive to create and distribute. If, however, such expression does exist, and its creator claims a copyright, a defendant who allegedly violates one of the exclusive rights of the copyright may argue an affirmative defense²⁰⁰ to infringement based on its status as unprotected speech.²⁰¹ That affirmative defense would require the defendant to prove that the expression constitutes unprotected speech, consistent with the established tenant of First Amendment law that requires the party seeking to silence a speaker to show that the disputed speech is unprotected.²⁰² If the defendant

199. Harms may be overt, such as those which result from child pornography. See *New York v. Ferber*, 458 U.S. 747, 758 (1982) (observing the physiological, emotional, and mental harm that results from child pornography). They may also be subtle but nevertheless damaging. For example, *Miller*-standard obscenity or false defamatory publications may harm human dignity or reputational interests. See generally Ann Bartow, *Pornography, Coercion, and Copyright Law 2.0*, 10 VAND. J. ENT. & TECH. L. 799, 817–20 (2008) (noting harms to females that result from pornography production).

200. The defense would be an affirmative defense because it would apply only in the particular instance of the defendant's unauthorized use of the expression. Some unprotected speech, i.e., obscenity, requires a definition that is based on community standards, and as a result, the unprotected nature of the speech may vary across the country. See *Miller*, 413 U.S. at 25. Accordingly, a finding that the author of unprotected speech does not receive copyright protection in one instance would not necessarily suggest such a finding in another instance. Unprotected speech would therefore constitute an affirmative defense that would not necessarily preclude, at least in the case of obscenity, copyright enforcement in different communities.

201. For example, if a website copied and posted a libelous story from a newspaper, the website would not be liable for copyright infringement if it could establish the applicable elements for a libel cause of action against the newspaper.

202. See *Waters v. Churchill*, 511 U.S. 661, 669 (1994) (“[I]t is important to ensure not only that the substantive First Amendment standards are sound, but also that they are applied

makes that showing in the copyright suit, he would be excused from the consequences of having infringed.²⁰³

Although this proposal would not affect most expression that presently receives copyright protection, it would affect a distinct group of expression that is tied to free speech doctrine. To be clear, my proposal requires free speech doctrine to define a distinct boundary of copyright. And this reliance on speech doctrine in copyright makes sense. The theoretical tie between the Free Speech Clause and the Copyright Clause is already recognized in the law. According to the Supreme Court, the Framers viewed copyright as the engine of free expression.²⁰⁴ The Court has further recognized that copyright exists “to promote the creation and publication of free expression.”²⁰⁵ Copyright represents the economic incentive for speech production, and in that way, copyright furthers the marketplace of ideas. Indeed, to the extent that the marketplace theory underlies the Free Speech Clause, it would also appear to underlie the Copyright Clause. The Free Speech Clause promotes ideas into the marketplace by ensuring the absence of government suppression of a speaker’s speech, whereas the Copyright Clause promotes ideas into the marketplace by ensuring the presence of government suppression of a copier’s speech. Both Clauses exist to promote the production of speech, which ultimately yields a more

through reliable procedures. This is why we have often held . . . a particular allocation of the burden of proof . . . to be constitutionally required in proceedings that may penalize protected speech.”). Placing the burden on the defendant copier would help to ensure that copyright continue to incent speech at the margins of protection, thereby reducing an unwarranted chilling.

203. As a practical matter, if the outcome of the copyright suit is a finding that the disputed expression does not receive copyright protection because it constitutes unprotected speech, neither the copyright holder nor the defendant likely would continue to disseminate the expression. Once the copyright action had determined the expression to be unprotected, legal actions designed to discourage the proliferation of unprotected speech—e.g., a defamation or obscenity suit—would be much more ripe for prosecution.

204. See, e.g., *Golan v. Holder*, 132 S. Ct. 873, 889–90 (2012) (“[T]he Framers regarded copyright protection not simply as a limit on the manner in which expressive works may be used. They also saw copyright as an engine of free expression: By establishing a marketable right to the use of one’s expression, copyright supplies the economic incentive to create and disseminate ideas.”) (internal quotations omitted); *Eldred v. Ashcroft*, 537 U.S. 186, 219 (2003) (“[T]he Framers intended copyright itself to be the engine of free expression.”) (quoting *Harper & Row Publishers, Inc. v. Nations Enter. Inc.*, 471 U.S. 539, 558 (1985)).

205. *Eldred*, 537 U.S. at 219 (emphasis omitted).

fruitful marketplace. Thus, the purpose of copyright appears tightly aligned with the purpose of free speech.²⁰⁶ And their common purpose suggests a common limitation. That which limits speech production should apply at least as much in copyright as it does in free speech.

B. Objections to the Interpretation

Admittedly, this Article does not offer a comprehensive discussion on whether copyright should extend to expression that lacks protection under the Free Speech Clause.²⁰⁷ Much more could be said on this topic.²⁰⁸ In this Article I merely observe the

206. Although the purposes of the Free Speech and Copyright Clauses align, there is an important distinction between the two Clauses. Textually, the scope of expression contemplated by the Copyright Clause appears narrower than that contemplated by the Free Speech Clause. Compare U.S. CONST. art. I, § 8, cl. 8 (“The Congress shall have Power . . . To promote the Progress of Science . . .”) with U.S. CONST. amend. I (“Congress shall make no law . . . abridging the freedom of speech”). The Copyright Clause sets forth a substantive standard for its invocation (promoting the Progress of Science) whereas the Free Speech Clause does not. And this makes sense. Whereas the Free Speech Clause precludes government interference against speech, the Copyright Clause facilitates a government-created monopoly for speech. Hence, under the Free Speech Clause, government merely refrains from interfering, whereas under the Copyright Clause, government actively facilitates. Resources necessary to refrain from interfering with speech would seem less costly than those required to create and maintain monopolies. Hence, it makes sense that the Copyright Clause would not cover as broad a group of speech as the Free Speech Clause.

Whether Science restricts the Copyright Clause to less expression than that which the Free Speech Clause protects is a discussion for another day. For present purposes, it suffices to note that the presence of a term in the Copyright Clause that does not contemplate all expression (Science) implies that the Copyright Clause must be at least as restrictive as the Free Speech Clause, which lacks any such term. If both exist to produce speech, but only one contains a restrictive term, then the Clause with the restrictive term must be at least as restrictive as the Clause without that restriction. The Copyright Clause appears at least as restrictive as the Free Speech Clause—if not more so.

207. Space limitations in an article that endeavors to set forth sufficient evidence to establish a reliable understanding of the original meaning of Science necessarily preclude a comprehensive discussion regarding whether unprotected speech should receive copyright protection.

208. For a more comprehensive discussion regarding the policy question of whether obscenity, and indeed pornography generally, should receive copyright protection, see Ann Bartow, *Copyright Law and Pornography*, 91 OR. L. REV. 1, 1–54 (2012) and Ann Bartow, *supra* note 199, at 799–840. Professor Bartow argues that pornography lies “beyond the scope of the Intellectual Property Clause” on the grounds that pornography is “non-progressive and non-useful.” See Bartow, *Copyright Law and Pornography*, *supra* note 208, at 55. She does not, however, base her constitutional conclusion on the meaning of Science, instead relying on the conventional interpretation that Science means “knowledge.” See *id.* at 37–38 & n.180.

constitutional tension between the original meaning of Science and unprotected expression under the Free Speech Clause and I briefly suggest a proposal to relieve that tension. To that end, I summarily examine three possible objections to my proposal in this section: first, the proposal seems to produce greater uncertainty in copyright law; second, the proposal seems to require subjective views of judges and juries to determine copyrightable subject matter; and third, the proposal seems to yield a counterproductive result, the increased dissemination of unprotected speech.

1. Uncertainty

One objection to my proposal is that it would produce great uncertainty in copyright law. By importing the complexities of free speech doctrines into copyright, my proposal arguably muddies the already murky doctrine of subject-matter eligibility in copyright law.²⁰⁹ The definition of unprotected speech is determined on a case-by-case basis.²¹⁰ It is anything but certain. Accordingly, defining copyright eligibility according to the free speech doctrine of unprotected speech would do nothing to clarify, and indeed might regress, the morass of confusion over subject-matter eligibility.²¹¹ So it would seem that importing doctrines of free speech into copyright would only import greater confusion into the law.

My initial response to this objection is that any uncertainty that the proposal introduces into copyright would be relatively minimal.

209. See *infra* note 211.

210. See, e.g., *McKinney v. Alabama*, 424 U.S. 669, 683 (1976) ("There can be no question that uncertainty inheres in the definition of obscenity."); *Miller v. California*, 413 U.S. 15, 24 (1973) (applying community standards of jury to determine definition of obscenity); Alan E. Brownstein, *Rules Of Engagement For Cultural Wars: Regulating Conduct, Unprotected Speech, and Protected Expression in Anti-abortion Protests*, 29 U.C. DAVIS L. REV. 553, 624 n.140 (1996) ("Since the definitions adopted by courts to describe categories of unprotected speech are as ambiguous as they are, a generic ban will inevitably provide officials and juries considerable opportunity to pick and choose among the messages that arguably fall within the relevant prohibition."); Peter E. Quint, *Toward First Amendment Limitations on the Introduction of Evidence: The Problem of United States v. Rosenberg*, 86 YALE L.J. 1622, 1677–78 (1977) (commenting that juries may be influenced by political views in deciding whether speech is unprotected).

211. See Christina Bohannon, *Copyright Harm and Injunctions*, 30 CARDOZO ARTS & ENT. L.J. 11, 22 (2012) (recognizing the uncertainty in applying the subject-matter doctrine of idea-expression dichotomy); Rebecca Tushnet, *Worth a Thousand Words: The Images of Copyright*, 125 HARV. L. REV. 683, 684–85 (2012) (noting the "confusion and incoherence" that has developed in defining the subject matter of copyright).

It would arise only where expression could be reasonably challenged as lacking protection under the Free Speech Clause. Only the arguably obscene or libelous would be subject to the uncertainty of whether they are in fact obscene or libelous. Most expression presently eligible for copyright protection would not be affected by my proposal.

With regard to any uncertainty that Science would impose on arguably unprotected speech that is in fact protected, that uncertainty is not necessarily undesirable. This is because the uncertainty faced by authors of such expression would balance uncertainty faced by fair users. Users of copyrighted expression face uncertainty in assessing whether their use is permissible under the doctrines of fair use and the idea-expression dichotomy.²¹² In choosing to make a fair use or to use an idea underlying expression, such users are exercising their speech right under the Free Speech Clause.²¹³ And the vagueness of these doctrines creates uncertainty for those users as they attempt to bring their speech to the marketplace of ideas.²¹⁴ In view of this fact, the uncertainty that some authors would face in assessing whether their works comply with the meaning of Science would balance the uncertainty that fair users now face in assessing whether their copying constitutes a fair use, or similarly, an unprotected idea. Science would therefore bring balance to existent uncertainty faced by only one side in copyright law.²¹⁵ The balance would help ensure adequate breathing space necessary for copyright to promote free expression.

212. See Pierre N. Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1106–07 (1990) (describing the uncertainty surrounding fair use and the resulting reluctance to employ it); Joseph P. Liu, *Copyright and Breathing Space*, 30 COLUM. J.L. & ARTS 429, 434 (2007) (“The chilling effect on creative [fair-use] expression has been well-documented. This is exacerbated by the tendency of copyright owners to take advantage of the uncertainty to pursue aggressive copyright claims.”); Gideon Parchomovsky & Kevin A. Goldman, *Fair Use Harbors*, 93 VA. L. REV. 1483, 1497–98 (2007) (observing that vagueness of fair use deters permissible uses); Ned Snow, *Proving Fair Use: Burden of Proof as Burden of Speech*, 31 CARDOZO L. REV. 1781, 1789–91 (2010) (explaining uncertainty that inheres in fair use).

213. *Eldred v. Ashcroft*, 537 U.S. 186, 219–20 (2003) (explaining that the fair use and idea-expression doctrines in copyright constitute accommodations to satisfy First Amendment speech concerns).

214. See sources cited *supra* note 212.

215. Of course the uncertainty that copyright holders face would be much less consequential than the uncertainty faced by fair users: copyright holders would face the possibility that they would not receive a monopoly reward by misconstruing Science, whereas fair users would face the possibility of punitive-like financial penalties by misconstruing fairness.

2. Subjective judicial assessment

A second objection to my proposal is that it would require judges to impose their subjective beliefs in defining the proper subject matter of copyright. Under my proposal, judges (or juries) would define permissible content of copyright based upon their understanding of whether speech is protectable under the Free Speech Clause. Arguably this outcome might raise concern given the warning that Justice Holmes pronounces in *Bleistein v. Donaldson*: "It would be a dangerous undertaking for persons trained only to the law to constitute themselves final judges of the worth of pictorial illustrations, outside of the narrowest and most obvious limits."²¹⁶ Doesn't my proposal require judges to be the final arbiters of expression?

I respond to this objection by first affirming my agreement with Justice Holmes's admonition. For this reason I argue above that Science should be interpreted liberally so as to give place for various works of entertainment that at first glance might not seem to promote any branch of study.²¹⁷ Nevertheless, the nondiscrimination principle that Holmes preached was not absolute.²¹⁸ It included a limitation.²¹⁹ Holmes recognized that content evaluation is indeed necessary in "the narrowest and most obvious" of cases.²²⁰ And if any sort of expression represents such a narrow and obvious limit on copyrightable content, it must be expression that the Free Speech Clause deems worthy of censorship. Holmes's warning against content evaluation in copyright law is entirely consistent with Science as a term that discriminates against content that a judge or jury deems unprotected speech. Expression that lacks so much value, to the extent that the law damns it as unprotected speech, represents the narrowest and most obvious of limits on the nondiscrimination principle. My proposal is therefore consistent with Justice Holmes's admonition.²²¹

216. 188 U.S. 239, 251 (1903).

217. See discussion *supra* Part IV (arguing that Science should be flexibly applied in the Copyright Clause).

218. See *Bleistein*, 188 U.S. at 251.

219. See *id.*

220. See *id.*

221. In another article, I analyze the history surrounding the Progress Clause leading up to

3. Counterproductive result

A third objection to my proposal is that it might encourage the production of expression that does not promote Science—i.e., unprotected speech. Without a copyright monopoly, unprotected speech could be freely copied. The absence of any government-backed monopoly might therefore encourage the proliferation of that which Science deems unworthy of promotion.

My initial response to this objection is that it questions the fundamental premise underlying copyright law—i.e., that a monopoly of expression will incentivize more and better expression. The objection assumes that absent a copyright monopoly on unprotected speech, unprotected speech would proliferate. If this were true, it implies that absent copyright monopoly on any sort of speech, that speech would proliferate. And if that were true, there seems no cause for copyright in the first place. So as an initial matter, I note the doubtful premise of the objection—i.e., that copyright does not work.²²²

On the merits of the objection, even if it is true that the dissemination of unprotected speech would increase under my proposal, this does not represent a reason to misconstrue Science. Science in the Copyright Clause serves to incent certain sorts of works through a government-created monopoly system. Yet limited are government resources to maintain that monopoly system. Science therefore allocates the limited resources that are necessary to create and maintain legal monopolies.²²³ It discriminates against unprotected speech in its resource allocation of copyright.²²⁴ That is

and following *Bleistein v. Donaldson*, in order to demonstrate that Justice Holmes's articulation of the nondiscrimination principle did not affect the non-copyrightable nature of works that were obscene, libelous, or otherwise unprotected by the Free Speech Clause. See Snow, *supra* note 42.

222. See Bartow, *Copyright Law and Pornography*, *supra* note 208, at 38–39 (responding to economic argument of wider dissemination for unprotected, harmful works by arguing that benefits of precluding future harm outweigh costs of dissemination of existent works).

223. Cf. *In re McGinley*, 660 F.2d 481, 486 (C.C.P.A. 1981) (upholding Congressional choice to refrain from granting trademark protection to “scandalous” marks under 15 U.S.C. § 1052(a) on ground that Congress permissibly exercised its judgment regarding expenditure of public funds to maintain the costly monopoly system of trademark).

224. Cf. *Devil Films, Inc. v. Nectar Video*, 29 F. Supp. 2d 174, 176 (S.D.N.Y. 1998) (“Once a court has determined that copyrighted material is obscene, there seems no reason to require it to expend its resources on behalf of a plaintiff who it could as readily be trying for a violation of the federal criminal law.”).

all that matters. If unprotected expression proliferates as a result of the allocation of resources, that fact should not affect the allocation.

C. Test Case

Although most modern courts and commentators have settled on an anachronistic meaning of Science in the Copyright Clause, the issue is very much alive. A recent case filed in the Northern District of California, *Wong v. Hard Drive Productions, Inc.*, illustrates this point.²²⁵ The plaintiff, Liuxia Wong, sought a declaratory judgment against Hard Drive Productions, Inc. (HDP), stating that she was not infringing on its copyright by allegedly downloading pornographic images.²²⁶ Wong argued that HDP did not have a copyright in the images at issue because they constituted obscenity.²²⁷ Ultimately she prevailed, but the record provided only a one-sentence judgment.²²⁸ There was no opinion to guide future litigants.²²⁹ Although I believe the judgment was correct, an opinion is necessary.²³⁰ I therefore provide a brief analysis for the opinion that the court should have issued in the *Wong* case. As I discuss below, the judgment should have turned on the meaning of Science in the Copyright Clause.

The issue in *Wong* calls into question a 1979 decision by the Fifth Circuit, *Mitchell Brothers v. Cinema Adult Theater*, addressing whether obscene works are copyrightable.²³¹ The *Mitchell* court provided an opinion that defended the copyrightability of obscene

225. See Plaintiff's First Amended Complaint at 10–11, *Wong v. Hard Drive Prods., Inc.*, No. 5-12-cv-00469-HRL (N.D. Cal. Jan. 31, 2012).

226. *Id.*

227. *Id.*

228. See Stipulated Judgment, *Wong*, No. 4-12-cv-00469-YGR (N.D. Cal. May 31, 2012).

229. See *id.*

230. The necessity of an opinion that clarifies this issue is further evident by judicial uncertainty over whether copyright applies to obscene, or even pornographic but not legally obscene, material. See *Devil Films, Inc. v. Nectar Video*, 29 F. Supp. 2d 174, 176 (S.D.N.Y. 1998) (“It is far from clear that the Second Circuit will follow the Fifth and Ninth Circuits in rejecting the argument that obscene material is entitled to copyright protection.”); *Liberty Media Holdings, LLC v. Swarm Sharing Hash File*, 821 F. Supp. 2d 444, 447 n.2 (D. Mass. 2011) (questioning whether legal hard-core pornography is copyrightable, while refraining from deciding the issue).

231. 604 F.2d 852 (5th Cir. 1979).

works.²³² Although other courts have followed *Mitchell*, those other courts have provided minimal analysis on the issue.²³³ *Mitchell* thus stands as the seminal case for copyrighting obscenity, and by implication, unprotected speech generally.²³⁴ Hence, a well-reasoned opinion in *Wong* should address the points raised in *Mitchell*.

Fundamental to the *Mitchell* court's conclusion that obscenity is copyrightable was its interpretation of the Copyright Clause.²³⁵ The court interpreted the purpose of the Clause as promoting creativity and originality, consistent with an understanding of Science as promoting general knowledge.²³⁶ Creating anything gives rise to knowledge of something, so even obscenity would fulfill Science's apparent requirement of creativity—so reasoned the court.²³⁷ In short, the anachronistic meaning of Science enabled the *Mitchell* court to extend copyright protection to an unprotected form of speech, legal obscenity.²³⁸

The flaw of *Mitchell* lies in the court's explanation that the purpose of the Copyright Clause is to promote creativity rather than to promote Science.²³⁹ Only if Science were to mean general knowledge would creativity work as the purpose of copyright. But Science does not mean general knowledge. It means the system of knowledge that comprises branches of study. The correct

232. *Id.*

233. See, e.g., *Jartech, Inc. v. Clancy*, 666 F.2d 403, 404-05 (9th Cir. 1982) (relying on *Mitchell* to uphold copyright in obscenity); *Nova Prods., Inc. v. Kisma Video*, Nos. 02 Civ. 3850(HB), 02 (Civ. 6277(HB), 03 Civ. 3379(HB), 2004 WL 2754685, at *3 (S.D.N.Y. Dec. 1, 2004) (same).

234. See 1 NIMMER, *supra* note 49, § 2.17 at 2-197 (describing the court's reasoning in *Mitchell* as "the most thoughtful and comprehensive analysis of the [copyrighting obscenity] issue").

235. See *Mitchell Bros. Film Grp. v. Cinema Adult Theater*, 604 F.2d 852, 856, 860 (5th Cir. 1979).

236. See *id.*

237. See *id.*

238. It is well recognized that the *Authors* and *Writings* terms of the Copyright Clause require expression to exhibit originality or creativity to be copyrighted. See, e.g., *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., Inc.*, 499 U.S. 340, 347 (1991); *Burrow Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 58 (1884). Those terms, however, do not imply that the purpose of the Copyright Clause is to promote creativity. They do not imply that Science means creativity.

239. Other flaws appeared in the reasoning of the *Mitchell* court, including its reliance on the Necessary and Proper Clause and the Supreme Court decision in *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239 (1903). For an analysis of these flawed aspects of *Mitchell*, see Snow, *supra* note 42.

interpretation of Science would have changed the court's analysis. Rather than asking whether obscenity promotes creativity, the *Mitchell* court should have asked whether obscenity promotes the system of knowledge that comprises branches of study. It should have asked whether society deems obscenity worthy of study. And as unprotected speech, obscenity could not have been construed as a subject worthy of study, much less worthy of promotion or even protection. Under the correct interpretation of Science, *Mitchell* should have been decided differently. Accordingly, *Wong* should have corrected the reasoning of *Mitchell* by holding that Science precludes copyrighting obscenity.

V. CONCLUSION

This Article has established the paucity of historical support for construing Science in the Copyright Clause as general knowledge or learning. The evidence suggests a narrower meaning, i.e., a system of knowledge deriving from branches of study. And that meaning suggests that Science does not contemplate all content. Content that is so far removed from the system of study should not fall within the meaning of Science, and thereby should fall outside the scope of copyright.

The meaning of Science revealed, courts must either apply it or account for ignoring it. If they continue to apply it, expression falling outside the Free Speech Clause should not receive copyright protection. Courts must recognize that unprotected speech lacks the value that is necessary for expression to promote the system of knowledge comprising fields of study. What should not be protected should not be promoted. Science does not contemplate all expression.

