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Possession Is 99% of the Law: 3D Printing, Public Domain Cultural Artifacts and Copyright

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Symposium

Possession Is 99% of the Law: 3D Printing, Public Domain Cultural Artifacts and Copyright

Charles Cronin*

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INTRODUCTION

In 2015 the Palazzo Strozzi in Florence, the Getty Museum in Los Angeles, and, ultimately, the National Gallery in Washington, presented *Power and Pathos*, an exhibition of Hellenistic Era bronzes.¹ The exhibition contained fifty bronze sculptures from various European and American collections,

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1. See Eben Shapiro, *Blockbuster ‘Power and Pathos’ Exhibit to Open in Florence*, WALL ST. J. (Mar. 11, 2015), <http://www.wsj.com/articles/blockbuster-power-and-pathos-exhibit-to-open-in-florence-1426093935>.

including the Getty's, which contributed *Statue of a Victorious Youth*.² Normally, this work is on permanent display at the Getty Villa in Pacific Palisades, but it was relocated to the Getty Center Museum in Los Angeles while it was part of the *Power and Pathos* exhibition.³

The Getty permits visitors to photograph *Victorious Youth* when it is on permanent display at the Villa.⁴ The Getty withdrew this permission, however, while the work was part of *Power and Pathos*, even while it was displayed in this show on the Getty's own premises.⁵ The prohibition, in contrast to the Getty's generally magnanimous policies, applied to all works in the exhibition.⁶

Photography, even flash photography and laser scanning, poses no actual or potential harm to works of cast bronze.⁷ All of the bronzes in *Power and Pathos* are over 2000 years old, and none have ever enjoyed copyright protection.⁸ Therefore, although the Getty contributed the most to the exhibition, it prohibited visitors from taking photographs of the displayed works to accommodate the desire of other lenders to suppress activity they feared might compromise profits generated by their own, or their authorized, reproductions of images of these public domain works.⁹

2. *Id.* *Victorious Youth* did not travel to the exhibition in Florence because the Getty feared that Italian officials might abscond with the work. *See id.*

3. *See Power & Pathos: Bronze Sculpture of the Hellenistic World*, GETTY, http://www.getty.edu/art/exhibitions/power_pathos/ (last visited Mar. 7, 2016).

4. *The Getty Center: Plan a Visit: FAQs*, GETTY, http://www.getty.edu/visit/center/plan/faqs.html#center_plan_faqs_photography (last visited Mar. 7, 2016).

5. Kenneth Lapatin, Associate Curator at the Getty, informed visitors about this restriction at the outset of a public tour of the exhibition that the author attended on Oct. 29, 2015.

6. *Id.*

7. See Martin H. Evans, *Amateur Photographers in Art Galleries: Assessing the Harm Done by Flash Photography*, <http://people.ds.cam.ac.uk/mhe1000/musphoto/flashphoto2.htm> (last visited Mar. 8, 2016).

8. *See Shapiro, supra* note 1; *Power & Pathos: Bronze Sculpture of the Hellenistic World, supra* note 3.

9. The Getty contributed the greatest number of works to the exhibition, as well as material, administrative, and financial support. *See* LDM News, *Power and Pathos Exhibition at Palazzo Strozzi Florence*, YOUTUBE (Mar. 21, 2015), <https://www.youtube.com/watch?v=xEtWbSBzzyo>.

Until recently, owners have been concerned primarily about unauthorized—and more pointedly, uncompensated—copying and reproduction of public domain works they possess that are fundamentally two-dimensional: prints, drawings, paintings, etc.¹⁰ Since the advent of photography one can legally and relatively inexpensively create copies of public domain works that convey most of the information contained in the originals.¹¹ Using digital technologies—laser scanning and additive printing and subtractive manufacture—one can today, to an increasing extent, create copies of two- and three-dimensional objects that most observers would find indistinguishable from the originals.¹²

3D scan and print technologies make it possible not only to make precise and inexpensive copies of public domain sculptural works, but also to distribute them globally at little cost.¹³ Therefore, prohibitions on copying public domain artifacts, like the ban on photography imposed by the sponsors of *Power and Pathos*, provoke scrutiny as to whether they may ultimately, and regrettably, curtail the dissemination of knowledge about artistic works whose materiality hitherto inhibited their circulation.

The immediately following discussion (Part I) offers a high-level overview of 3D scan and print technologies, and the advantages they offer over earlier technologies once used to copy 3D cultural artifacts. Part II then considers the various physical, technological, and legal means by which owners of original three-dimensional cultural objects have maintained

10. See Grischka Petri, *The Public Domain vs. the Museum: The Limits of Copyright and Reproductions of Two-Dimensional Works of Art*, J. CONSERVATION & MUSEUM STUD., Aug. 28, 2014, at 1, 1–2, <http://doi.org/10.5334/jcms.1021217>.

11. See Paolo Cignoni & Roberto Scopigno, *Sampled 3D Models for CH Applications: A Viable and Enabling New Medium or Just a Technological Exercise?*, 1 ASS'N FOR COMPUTING MACHINERY J. ON COMPUTING & CULTURAL HERITAGE, Art. 2, at 1–2 (June 2008).

12. See *id.* at 20 (noting that “3D scanning can be considered a nearly mature technology”). However, the technologies now available to record and reproduce information on the color of objects are not as advanced as those for recording and replicating their shape. *Id.* at 14.

13. Cf. MICHAEL WEINBERG, WHAT'S THE DEAL WITH COPYRIGHT AND 3D PRINTING? 2 (2013), https://www.publicknowledge.org/files/What's%20the%20Deal%20with%20Copyright_%20Final%20version2.pdf (“People on opposite sides of the globe can . . . print out identical prototypes every step of the way.”).

control over the reproduction and use of these works, despite the fact that copyright does not provide them rights to such control. Part III appraises some of the recurring justifications that have been offered in defense of owners imposing copy and use restrictions on public domain works. Part IV concludes with the suggestion that institutional owners should generally accommodate the public's interest in obtaining and using public domain cultural artifacts for any purpose, rather than pursue their own economic betterment, when they make these works available as tangible or digital objects.

I. 3D TECHNOLOGIES AND REPRODUCTIONS OF THREE-DIMENSIONAL CULTURAL WORKS

Casting is a method of creating an original, or copy of an existing, three-dimensional object.¹⁴ The object is formed when a liquid, like molten metal or wet plaster of Paris, is poured into a mold, and subsequently solidifies in the shape of it.¹⁵ This technique has been known and used for millennia as a means of obtaining copies of sculptural works for decoration, personal delectation, and pedagogical purposes.¹⁶

Just as the Romans once used casting to obtain copies of Classical Greek statuary, the British, and then the Americans, used this technique in the nineteenth century to develop collections of copies of sculptural works in Italy.¹⁷ These copies were publically displayed, even in major museums, and used in teaching history of art, and applied art courses, at universities.¹⁸ Having obtained a good plaster copy of a sculptural work, the museum could then cast additional copies

14. See FRANK FORREST FREDERICK, *PLASTER CASTS AND HOW THEY ARE MADE* 43–61 (New York, William T. Comstock, 2d ed. 1899).

15. See *id.*

16. See *id.* at 11–18. Plaster casts were also once widely used for the more ghoulish purpose of capturing for posterity the shape of the face and other bodily parts of corpses of prominent individuals like Dante. *Id.* at 17.

17. See Lisa Hargrove et al., *The History of Plaster Casts*, GEO. MASON U. HIST. & ART HIST. DEP'T, http://chnm.gmu.edu/courses/mattusch/plaster/index_files/Page418.htm (last visited Mar. 7, 2016). Napoleon, who was notorious for having looted vast quantities of cultural artifacts from territories he conquered, obtained plaster casts of some works he was unable to appropriate. *Id.*

18. *Id.*; see, e.g., *Cornell Plaster Cast Collection: Past and Present*, CORNELL COLLECTION ANTIQUITIES, <https://antiquities.library.cornell.edu/casts/past-and-present> (last visited Mar. 7, 2016).

of it, which it could sell to educational establishments or individuals lacking the means to commission the original casting.¹⁹

The casting is relatively cumbersome and invasive, involving the creation of a mold, or “negative”, of the existing work.²⁰ This process requires direct contact between the work and the liquid plaster of the mold.²¹ It is, therefore, difficult or impossible to cast many three-dimensional cultural artifacts, for example, Aztec feathered headdresses or delicate gold-leaved wreaths of Classical Greece.

Furthermore, given the extraordinary solicitude with which museums today preserve works in their collections, museums are unlikely to allow any work in their collections, even those in essentially impermeable stone or metal, to be subjected to the considerable palpation required by casting.²² It is fortuitous then, that 3D scan and print technologies have advanced swiftly in this era of hyper-punctilious museum curators, because these developments make it possible to replicate without physical contact, three-dimensional works in many media.²³

3D scans provide data about the contour of an object by measuring the speed at which rays from a laser are reflected from infinitesimal increments of its surface.²⁴ From this data

19. See FREDERICK, *supra* note 14, at 17–18 (listing various European and United States museums and private dealers offering plaster cast reproductions at the turn of the twentieth century).

20. See *id.* at 56–61.

21. See *id.*

22. Today museums would not subject antiquities in their collections to the handling that the creation of plaster casts requires. In the nineteenth century, on the other hand, the Louvre authorized its own atelier to create a plaster cast of its *Winged Victory*, long one of the best-known sculptures in the world. See Britta Gehring, „Skulptur des Monats Januar 2005 Die sogenannte „Nike von Samothrake“, SKULPTURHALLE (2005), <http://www.skulpturhalle.ch/sammlung/highlights/2005/01/nike.html>. Thomas Bruce (aka Lord Elgin) himself made the first plaster casts of the marble sculptures he ultimately sold to the British Museum. See JOAN CONNELLY, THE PARTHENON ENIGMA 298 (2014). In 1937 the British Museum “conservators” obliterated much of the patina and remaining color on their Parthenon marbles using metal tools and acid cleansers. See JOHN HENRY MERRYMAN, THINKING ABOUT THE ELGIN MARBLES: CRITICAL ESSAYS ON CULTURAL PROPERTY, ART AND LAW 22 (2d ed. 2009).

23. See Cignoni & Scopigno, *supra* note 11, at 3–4 (providing an overview of the two main 3D scanning processes).

24. *Id.* at 3.

one can construct a 3D model of the object, i.e., a “polygon mesh,” which can be then rendered as a tangible copy through additive printing or subtractive manufacture.²⁵ A 3D copy of a simple tool, like a hammer, may be most effectively reified through additive printing using polymers, whereas a copy of a gargoyle to be used in restoring a thirteenth-century church would be more appropriately rendered through subtractive manufacture that carves the copy from a block of granite.

It is also possible through photogrammetry to create 3D digital models from two-dimensional images by manipulating digital data obtained from these images.²⁶ The greater the number of two-dimensional digital images (photographs) capturing a three-dimensional object from various angles, the more accurate the 3D model derived from their collective information using photogrammetry will be.²⁷

This technology makes it possible to construct very accurate reproductions of three-dimensional works that have been lost or destroyed. For instance, the Buddhas of Bamiyam, which the Taliban demolished in 2001, might be accurately rebuilt in their original massive three-dimensional form, using 3D models developed from two-dimensional photographs that tourists and historians have taken of them over the past century.²⁸

In short, digital technologies today enable more precise, and less costly, replication of three-dimensional cultural objects than previously possible. These copies can be created with minimal contact with the original work, or none whatsoever, when, for instance, they are built from information obtained

25. See *id.* at 4; see also *Standard Terminology for Additive Manufacturing Technologies*, ASTM INT'L, http://www.astm.org/FULL_TEXT/F2792/HTML/F2792.htm (last visited Mar. 7, 2016) (referring to a surface model, i.e. a “mathematical or digital representation of an object” as sometimes consisting of a “mesh of polygons”).

26. See JOE MICALLEF, *BEGINNING DESIGN FOR 3D PRINTING* 339, 341 (2015).

27. See *V-STARS: What Is Photogrammetry?*, GEODETIC SYSTEMS, <http://www.geodetic.com/v-stars/what-is-photogrammetry.aspx> (last visited Mar. 8, 2016).

28. See Armin Grün, Fabio Remondino & Li Zhang, *Photogrammetric Reconstruction of the Great Buddha of Bamiyan, Afghanistan*, 19 *PHOTOGRAMMETRIC REC.* 177, 177 (2004) (reporting “the results of [an] image-based 3D reconstruction [of one] of the [Buddha] statue[s], performed on three different data-sets in parallel and using different photogrammetric techniques and algorithms”).

from passively-acquired crowd-sourced photographic images.²⁹ With the remarkable potential of 3D scan and print technologies in mind, we consider next some of the means that have been used to control the use of public domain cultural artifacts, and their potential to check the capacity of these new technologies.

II. CONTROLLING REPRODUCTION AND USE OF PUBLIC DOMAIN THREE-DIMENSIONAL CULTURAL ARTIFACTS

A. INTELLECTUAL PROPERTY CLAIMS

A regrettably common tactic of owners of public domain cultural artifacts, and even of two- and three-dimensional reproductions of them, is to mislead the public through spurious assertions of copyright in these works.³⁰ Publishers of public domain literary works have long been known as practitioners of this ploy.³¹ Because copyright law provides little explicit protection for *users'* rights in non-copyrightable works, some publishers and, increasingly, some owners of tangible artifacts of public domain works, proactively assert copyright in reproductions of these works to distort readers' and viewers' understanding of the scope of the owners' legal right to control copying and use of these works.³² "Like a for-sale sign attached to the Brooklyn Bridge, the upside to attaching a false copyright notice is potentially huge—some naïve soul might actually pay up."³³

Museums, and other owners of public domain cultural artifacts, often assert copyright by placing copyright notices on

29. *See, e.g., id.* at 182 (discussing how a computer reconstruction of the now destroyed Great Buddha was completed "based on a 3D computer model derived from three metric images").

30. *See* Jason Mazzone, *Copyfraud*, 81 N.Y.U. L. REV. 1026, 1038 (2006) (suggesting that the "irresistible urge" for publishers to make spurious copyright claims stems from the fact that strong copyright protection for authors is not balanced by similar protection for users' unencumbered use of works in the public domain).

31. *Id.*; *see, e.g.,* Matthew Bender & Co. v. West Publ'g Co., 158 F.3d 674, 695–96 (2d Cir. 1998) (upholding a district court's finding that minimal rearrangement of factual information in public domain case reports did not constitute copyrightable expression in West's publication of these judicial opinions).

32. *See* Mazzone, *supra* note 30, at 1030, 1038.

33. *Id.* at 1038.

“authorized” reproductions of them.³⁴ Sales of these copies ultimately profit the museum, as well as various intermediating agents like photographers and retailers of the copies, who have negotiated with the museum to obtain exceptional access to the works in question, the museum’s imprimatur, etc.³⁵ These reproductions range from miniaturized postcard images of essentially two-dimensional works like paintings and drawings, to full-scale reproductions of three-dimensional sculptural works.³⁶

Reproductions of works of authorial expression involve two potential copyrights: one adhering to the original work and one to the reproduction. A sculpture created in the 1970s by the late Henry Moore, for instance, is protected by a copyright that gives his estate control over the creation and distribution of reproductions of his work, whether rendered as two-dimensional images or three-dimensional objects.³⁷ A separate copyright, however, may attach to a photograph, or three-dimensional reproduction, of the Moore sculpture, if the reproduction demonstrates “a distinguishable variation” from the underlying work.³⁸

On the other hand, owners of public domain works, like classical sculptures or bronzes by Rodin, have no legitimate

34. See, e.g., Robin J. Allan, Comment, *After Bridgeman: Copyright, Museums, and Public Domain Works of Art*, 155 U. PENN. L. REV. 961, 961 (2007) (noting that the Metropolitan Museum of Art, the Museum of Fine Arts, Boston, and the Philadelphia Museum of Art all engage in this practice).

35. *But see id.* at 969 (arguing that the consequences of public museums’ aggressive copyright assertions ultimately benefit the public by incentivizing museums to making high-quality reproductions of their works broadly available rather than limiting their circulation through contracts and licenses).

36. The Musée Rodin in Paris, for instance, sells full-scale reproductions of some of the sculptor’s best-known works. See *Sculpture Reproductions, MUSÉE RODIN*, <http://boutique.musee-rodin.fr/en/7-sculpture-reproductions> (last visited Mar. 31, 2016). To be sure, the reproductions are not rendered in the materials of the originals, but rather in resin coated with mysterious substances like marble patina. *See id.*

37. The English sculptor Henry Moore was born in 1898 and died in 1986. *Henry Moore, THE ART STORY*, <http://www.theartstory.org/artist-moore-henry.htm> (last visited Mar. 8, 2016). United States copyright law protects works that Moore created in the late 1970s for seventy years after his death, i.e., until the year 2056. See 17 U.S.C. § 302 (2012).

38. See *Bridgeman Art Library Ltd. v. Corel Corp.*, 36 F. Supp. 2d 191, 196 (S.D.N.Y. 1999). Because the underlying work is still protected, one would, of course, have to obtain authorization from the owner of the copyright in Moore’s work to create the reproduction in the first place.

copyright in the works in their possession, or copies derived from them. While these owners may, and often do, assert copyright in reproductions of these works, they confront an inconvenient conundrum in that most of the purchasers of these reproductions, whether private individuals or public cultural institutions, prize exact replications of the original.³⁹ While creation of an exact copy of an extant work may require considerably more “sweat of the brow” than that invested in producing a “restored”, garish, or distorted rendering of a well-known sculpture, this investment is not protectable as copyrightable expression under U.S. law.⁴⁰

Historically, it has been owners of two-dimensional public domain works who have been concerned about unauthorized copies of them, because for over a century photography has made it possible easily to obtain at little cost, good replicas of two-dimensional works.⁴¹ Since 1865, works of photography have been eligible for federal copyright protection in the United States.⁴² Federal case law addressing the issue of protection for these copies, however, has checked attempts by owners of public domain works who have tried to capitalize on this protection for their own reproductions of their originals.⁴³

In the decades immediately following the development of photography, capturing an image using this technology was

39. When the Supreme Court first entertained the scope of copyright protection for photographs in *Burrow-Giles Lithographic Co. v. Sarony*, it noted that the more exactly a photograph represented a preexisting scene, the less likely it would demonstrate copyrightable expression. 111 U.S. 53, 59–60 (1884).

40. See *Bridgeman Art Library Ltd.*, 36 F. Supp. 2d at 197 (denying copyright protection to plaintiff's phone directory, despite the industrious effort invested in its assembly, because the resulting work evinced no originality that could be attributed to the plaintiff).

41. See, e.g., *The Brownie Camera @ 100: A Celebration*, KODAK, <http://www.kodak.com/US/en/corp/features/brownieCam/> (last visited Mar. 18, 2016) (displaying pictures taken by the Brownie camera and noting that in 1900 the camera could be purchased for one dollar).

42. *United States Copyright Office: A Brief Introduction and History*, U.S. COPYRIGHT OFF., <http://copyright.gov/circs/circ1a.html> (last visited Mar. 8, 2016).

43. See, e.g., *Bridgeman Art Library Ltd.*, 36 F. Supp. 2d at 197 (“In this case, plaintiff by its own admission has labored to create ‘slavish copies’ of public domain works of art. While it may be assumed that this required both skill and effort, there was no spark of originality—indeed, the point of the exercise was to reproduce the underlying works with absolute fidelity. Copyright is not available in these circumstances.”).

practically as cumbersome as obtaining the shape of a three-dimensional work using plaster cast technique.⁴⁴ In some ways it was more difficult because the image being recorded typically involved not a static piece of bronze or marble, but rather living and moving subjects like humans, animals, and natural phenomena.⁴⁵ The limitations of early photography technology forced photographers to be significantly involved in not only the mechanical recording and ultimate rendering of copies of images, but also in *creating* the particular tableaux they sought to capture.⁴⁶

In 1884, in the now well-known case *Burrow-Giles Lithographic Co. v. Sarony*, the Supreme Court first considered whether photographs were eligible for copyright protection.⁴⁷ The Court based its determination that the photograph at issue was copyrightable on its finding substantial involvement by the photographer in the creation of the scene that was subsequently recorded with mechanical assistance.⁴⁸ But the Court also made clear that its determination of the copyrightability of photographs was limited to works like that of the plaintiff in the instant case, in which the photographer contributed original expression albeit, unlike a painter or sculptor, *prior* to its capture in another medium.⁴⁹ The Court distinguished the photograph by the plaintiff, Napoleon

44. See generally TODD GUSTAVSON, CAMERA: A HISTORY OF PHOTOGRAPHY FROM DAGUERREOTYPE TO DIGITAL (2009) (discussing how the evolution of photographic machinery and technologies allowed photography to develop into the most ubiquitous and accessible means of capturing and reproducing images).

45. See ROY MEREDITH, MR. LINCOLN'S CAMERA MAN: MATHEW B. BRADY 4 (2d ed. 1974) (noting that human subjects would have to "freeze" for several minutes to be captured by Brady's camera).

46. Matthew Brady, well known to Americans for his photographs of Civil War images, staged, to some extent, the scenes he captured because of the limitations of photographic technology at the time. See *id.*

47. *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 60 (1884) ("The question here presented is one of first impression under our constitution . . .").

48. *Id.* ("The third finding of facts says, in regard to the photograph in question, that it is a 'useful, new, harmonious, characteristic, and graceful picture, and that plaintiff made the same entirely from his own original mental conception, to which he gave visible form by posing the [subject] in front of the camera, selecting and arranging the costume, draperies, and other various accessories . . . arranging the subject . . . [and] arranging and disposing the light and shade . . .").

49. *Id.* at 58.

Sarony, from those produced by “simply the manual operation . . . of transferring to the plate the visible representation of some existing object, *the accuracy of this representation being its highest merit . . .* [I]n such a case a copyright is no protection.”⁵⁰

Photographic technologies have advanced enormously since *Sarony*. Today practically anyone using a smartphone camera can easily capture images with clarity unattainable by even the most skilled professional photographer a century ago.⁵¹ Most of these photographs enjoy minimal, if any, copyright protection.⁵² This is so, not because their creators invested minimal effort in capturing them, but rather because they had no involvement in the creation of the scene that they captured.⁵³

Over one hundred years after *Sarony*, in *Rogers v. Koons*, the Second Circuit affirmed a district court holding that a plaintiff’s photograph of a commonplace scene of a couple holding a litter of puppies was copyrightable expression.⁵⁴ Like the Supreme Court in *Sarony*, the Second Circuit in *Koons* based its finding of protectable expression on the creative input of the plaintiff photographer in creating the scene *before* its mechanical capture and replication through photography.⁵⁵

50. *Id.* at 59 (emphasis added).

51. See, e.g., *Apple’s ‘Shot on iPhone 6’ Campaign Goes Global with Billboards, Ad Spaces*, APPLEINSIDER (Mar. 02, 2015), <http://appleinsider.com/articles/15/03/02/apples-shot-on-iphone-6-campaign-goes-global-with-billboards-ad-spaces>.

52. See *Sarony*, 111 U.S. at 60 (requiring that a photographer play a significant and artistic role in setting the scene captured by the photographer for the photograph to be copyrightable).

53. See generally *id.* But see Thomas B. Maddrey, *Photography, Creators, and the Changing Needs of Copyright Law*, 16 SMU SCI. & TECH. L. REV. 501, 523 (2013) (“The most important lesson that copyright education can offer to the picture taking population is that a copyright is granted once a work is ‘fixed.’ This means that the moment a shutter is pressed or a phone tapped, the image is ‘fixed’ within that camera’s memory and entitled to copyright protection.”).

54. See *Rogers v. Koons*, 960 F.2d 301, 306–07 (2d Cir. 1992). The opinion also observes that the defendant sculptor Koons is minimally trained as an artist, and that his involvement in the creation of the disputed work amounted to little more than vague admonitions that he issued to the ceramicists creating the porcelain version of the plaintiff’s photo, to match the photo as closely as possible. *Id.* at 310–11.

55. See *id.* at 307 (“Rogers’ inventive efforts in posing the group or the photograph, taking the picture, and printing ‘Puppies’ suffices to meet the original work of art criteria.”).

Several years after *Koons*, in *Bridgeman Art Library, Ltd. v. Corel Corp.*, a federal district court in New York considered the plaintiff's claim to copyright in its photographs of works of art in the public domain.⁵⁶ The court's disallowance of the plaintiff's copyright claim in this case does not represent a departure from, or rejection of, the justifications for granting copyright to photographs that were given in *Sarony* and *Koons*.

The *Bridgeman* court based its withholding of copyright on the fact that the plaintiff contributed nothing to the creation of the expressive work being captured and, in fact, deliberately avoided doing so to create "slavish" copies of the public domain images.⁵⁷ Relying upon the seminal decision in *Feist*, the *Bridgeman* court reasoned that while the plaintiff may have invested time and creativity in creating their photographic transparencies, their copies contain no evidence of protectable expression beyond that which may attach to the underlying works.⁵⁸ *Sarony*, *Koons*, and *Bridgeman*, therefore, all support the proposition that the closer a photograph hews to an unprotected work that it captures, the less likely it is to contain copyrightable expression.

In 2008, the Tenth Circuit established in *Meshwerks v. Toyota* that this corollary applies equally to two- and three-dimensional copies.⁵⁹ Meshwerks, a digital imaging company, at the behest of Toyota's advertising firm, had scanned new models of Toyota automobiles.⁶⁰ Meshwerks then adjusted the data obtained from the laser scan of the models to have it represent even more exactly than was possible using the raw data, the appearance of the scanned automobiles.⁶¹ When Toyota subsequently used the scans in advertising campaigns purportedly beyond those contemplated by Meshwerks, the imaging company sued, claiming that Toyota's use infringed its

56. *Bridgeman Art Library, Ltd. v. Corel Corp.*, 36 F. Supp. 2d 191 (S.D.N.Y. 1999), *affg* 25 F. Supp. 2d 421 (S.D.N.Y. 1998).

57. *Id.* at 197.

58. *See id.* (citing *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 358–59 (1991)). *Feist* established that copyrightable expression must demonstrate at least a "spark" of creativity. *Feist*, 499 U.S. at 359.

59. *See Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc.*, 528 F.3d 1258, 1270 (10th Cir. 2008).

60. *Id.* at 1260.

61. *Id.* at 1260–61.

copyright in the scans it produced for Toyota's advertising agency.⁶²

In affirming the district court's grant of summary judgment on behalf of Toyota, the Tenth Circuit noted that Meshwerks' models obtained no copyright protection as they were "not so much independent creations," but rather "very good copies" of the shape of Toyota's vehicles.⁶³ While the designs of Toyota's models contained copyrightable expression, Meshwerks contributed nothing to the creation of the objects captured in their scans; this work "took place before Meshwerks happened along, and was the result of work done by Toyota and its designers."⁶⁴

Likewise, those who copy public domain cultural artifacts contribute nothing to the creation of the original work. This is true whether, like Meshwerks, they produce slavish reproductions, or even copies that deliberately depart from the originals. Accordingly, by placing a fig leaf on a reproduction of *David*, or scribbling a goatee on one of *Mona Lisa*, I acquire no legal interest in the underlying works. I might obtain only a most-likely worthless copyright in the particular goatee I scrawl, or the fig leaf I devise.⁶⁵

As noted earlier, some owners of public domain works, and their reproductions of them, have attempted to acquire de facto copyright for these works through overreaching or fraudulent copyright notices.⁶⁶ Other owners have sought to maintain

62. *Id.* at 1261.

63. *Id.* at 1264.

64. *Id.* at 1266.

65. A great deal of modern, contemporary, and conceptual art obtains similarly meager copyright protection because many works representative of these categories contain minimal original expression. The proprietors of Jackson Pollock's copyrights cannot legally prevent another from creating "drip paintings" that might readily be perceived as by Pollock; they can only legally prevent another from claiming that Pollock himself created these works. Monochromatic works, like Robert Rauschenberg's *White Painting* enjoy virtually no copyright protection because they represent nothing more than an unprotectable idea that anyone may copy. The vexatious issues of originality and authenticity for contemporary art works has engendered ever more humbuggery and chicanery in the art market, as deliciously exposed in the ongoing civil and criminal cases involving the Knoedler Gallery's fishy purchases and subsequent sales of forgeries attributed to Jackson Pollock, Richard Diebenkorn, and others. See Michael Shnayerson, *A Question of Provenance*, VANITY FAIR (May 2012), <http://www.vanityfair.com/culture/2012/05/knoedler-gallery-forgery-scandal-investigation>.

66. See *supra* notes 30–34 and accompanying text.

some measure of control over reproduction and use of public domain works, and their copies, by asserting moral rights in the originals.⁶⁷

The works of Auguste Rodin, who died in 1917, are in the public domain.⁶⁸ Nevertheless, the Musée Rodin relies on Rodin's moral rights to assert its authority over copying the artist's works in its collections.⁶⁹ According to the Musée, moral rights justify its requirement that all three-dimensional copies of sculptures must be clearly marked—on their exteriors, no less—as reproductions.⁷⁰ Moreover, given Rodin's moral right to respect of his name and work, the Musée has the right to prohibit reproductions and uses that it believes distort or deform the “form, spirit, integrity and details of his work.”⁷¹ In other words, although Rodin's works are in the public domain, the artist's beneficiaries still assert broad authority over the public's copying and use of his oeuvre.⁷² Relying on such authority the Musée could proscribe the public's creation of copies that vary at all from the originals, as well as the

67. Moral rights, as opposed to copyrights, provide authors control over the attribution and integrity of their works. See generally MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 8D.01 (2015). Unlike civil law countries like France, which provide moral rights to authors generally, U.S. copyright law protects the moral rights only of living artists of visual works. See Cyrill P. Rigamonti, *Deconstructing Moral Rights*, 47 HARV. INT'L L.J. 353, 361, 405 (2006).

68. Even if Rodin's work had been protected under the current—and lengthiest to date—copyright term of the author's lifetime plus seventy years (under both U.S. and French law) none of his works would have been protected after 1987. See 17 U.S.C. § 302 (2012).

69. Under U.S. law, an artist's moral rights, which the artist may waive, end when the artist dies. See Rigamonti, *supra* note 67, at 405. Under French law an author cannot waive his moral rights, and an author's survivors may continue to assert them after the author's death. See *id.* at 361.

70. See *Respecting Rodin's Moral Right*, MUSÉE RODIN, <http://www.musee-rodin.fr/en/musee-rodin/respecting-moral-right> (last visited Feb. 28, 2016).

71. *Id.*

72. Heirs have used this control to capitalize financially on an artist's works by selling copies of them, even when such conduct is contrary to the artist's wishes. See William D. Cohan, *Brass Foundry Is Closing, but Debate Over Degas's Work Goes On*, N.Y. TIMES, Apr. 5, 2016, at C1 (discussing Degas's heirs systematic exploitation both of over seventy casts of works that Degas did not want rendered in bronze, and also the distinction under French law between “originals” and “reproductions” that is essentially meaningless when applied to cast bronze reproductions).

commercial use of them, and even the commercial exploitation of exact replicas.⁷³

B. CONTRACT AND LICENSE

The absence of copyright protection for public domain cultural works, and copies of them, raises another quandary for owners of these objects. Because the prestige and associated economic value of a cultural artifact depend significantly on the public's awareness of it, the owner will typically seek to display the work to the largest number of viewers. Primarily for this reason, private owners of cultural works eagerly lend them to public museums.⁷⁴ The more a work is exhibited, however, the more difficult it is to control the creation and distribution of copies of it.

In an attempt to “have their cake and eat it too,” private collectors and museums resort to contract and license to wrest authority over the replication of their works that copyright does not provide, while garnering the prestige stemming from their public display.⁷⁵ They effect this control through

73. Query how effective the Musée Rodin has been in preventing demeaning or scabrous takes on Rodin's work—like two- and three-dimensional versions of his *Thinker* seated on a toilet or manipulating a cell phone. See, e.g., *Rodin's "Thinker" Reinterpreted*, TYWKIWDBI (June 7, 2012), <http://tywkiwdbi.blogspot.com/2012/06/rodins-thinker-reinterpreted.html> (quoting only an excerpt—trepidation about copyright infringement—of *The Geography of the House*, W.H. Auden's withering take on Rodin's iconic work).

74. These purportedly “win-win” arrangements can have ethically questionable consequences. For example, in 1985 the National Gallery of Art, whose operations are paid for by U.S. taxpayers, presented *Treasure Houses of Britain*. The exhibition, an unabashed accommodation of the anglophilia of its director and its chairman at that time, J. Carter Brown and Paul Mellon, respectively, enabled a number of impecunious erstwhile English aristocrats to enhance the value and prestige of objects loaned for the exhibition. American funds not only paid for transporting the objects, and their owners, to Washington, but in some cases their restoration as well. See generally NEIL HARRIS, *CAPITAL CULTURE: J. CARTER BROWN, THE NATIONAL GALLERY OF ART, AND THE REINVENTION OF THE MUSEUM EXPERIENCE* 362–98 (2013) (presenting an anatomy of the *Treasure Houses of Britain* exhibition).

75. See Mary Campbell Wojcik, *The Antithesis of Originality: Bridgeman, Image Licensors, and the Public Domain*, 30 HASTINGS COMM. & ENT. L.J. 257, 271 (2008) (claiming that many museums now rely on “contract and social pressure to maintain their tenuous hold on intellectual property rights to which they enjoy questionable legal claim”). The attempt by owners to capitalize upon expanding awareness of public domain works in their possession, while simultaneously controlling the distribution and use of copies of these works, is akin to that of well-known entertainers asserting “publicity

regulation of the public's interactions with tangible works in the museum's physical plant, and digital reproductions of them available online.⁷⁶

Visitors entering a public museum are bound to abide by the museum's regulations, just as visitors to a shopping mall or public beach are similarly obligated. These are typically reasonable and commonsensical terms that further the interests of both the museum and the public, by establishing a milieu that comfortably accommodates the greatest number of visitors while preserving the integrity of the displayed works. Along with prohibitions on, for instance, consuming food or smoking on the premises, one also typically finds proscriptions on flash photography (that would certainly also apply to laser scanning) and use of images, and three-dimensional copies, of objects in the collection other than for one's personal enjoyment.⁷⁷

rights." The financial success of performers like Bette Midler, Nancy Sinatra, and John Ratzenberger (who played the character of Cliff in the sitcom *Cheers*) depended upon widespread recognition of the public personas they assiduously cultivated with mainstream audiences. Accordingly, their attempts to control others' use of these personas, whose value was ultimately generated by the public, are arguably ethically indefensible. See generally Michael Madow, *Private Ownership of Public Image: Popular Culture and Publicity Rights*, 81 CAL. L. REV. 125, 127 (1993) (criticizing "the moral, economic, and consumer protection arguments commonly made in support of the right of publicity" and arguing that "the right [may] create[] socially undesirable incentives and promotes, rather than prevents, unjust enrichment").

76. Many of these regulations are entirely reasonable, and ensure that a thicket of easels and tripods in public galleries does not compromise visitors' access to displayed works. Some, however, are needlessly overweening, like those promulgated by the National Gallery of Art for copying using oil paints or other liquid media. Applicants are required to provide: documentation of their artistic bona fides; four reference letters; and two original samples of their work. The Gallery then screens applicants during a personal interview. Even more offensive is its prohibition on creating copies that are the same size as the original. See Nat'l Gallery of Art, *Rules Governing the Copying of Works of Art* (2011) (on file with author and the Minnesota Journal of Law, Science & Technology) (included within a packet of materials which can be obtained by emailing your name and mailing address to copyist@nga.gov, calling (202) 842-6232, or writing to: Registrar, National Gallery of Art, 2000B South Club Drive, Landover, MD 20785).

77. The Getty's regulations, which are typical of those at other major U.S. art museums, permit visitors to take photographs of public domain works. These can be obtained only using ambient light, and for personal, non-commercial use. See *The Getty Center: Plan a Visit: FAQs*, *supra* note 4.

Unlike prohibitions on, for example, handling of works on display or wielding umbrellas in public galleries, regulations controlling copying, and use of reproductions, of these works are less justifiable as means of safeguarding the collection. The bursts of light from flash cameras, for instance, do not damage paintings and drawings, and certainly not “Pharaonic Egyptian relics which had been exposed to tropical sunlight from time to time during the past 3000 years.”⁷⁸ Accordingly, the widespread prohibition of museum visitors’ use of flash photography and laser scanners may be justified by their potential to disturb other visitors, but not by any threat they pose to the integrity of the works they help capture.⁷⁹

Restrictions on copying and use of objects in physical collections are effectively enforced by monitoring visitors’ conduct, and by limiting their access to works through barriers like distance, dim lighting, and glass enclosures. In the digital realm these measures are unavailing, and owners of images rely on technological measures to control their use.

In another example of having their cake and eating it too, museums and other owners of digital renderings of public domain works use watermarks and thumbnails in their online dissemination of these works.⁸⁰ Use of these limiting technologies allows the owners to generate prestige for works through greater public awareness of them (and their ownership of them) without forfeiting the potential economic profit stemming from sales of genuinely useful copies. Adulterated versions of high-quality images of public domain works, which owners make available online, can be useful to those who, for example, are simply seeking to identify the current owner of a particular work. Like “trial” versions of software, however, they are also a gambit by which image owners hope to entice viewers to purchase digital renditions of public domain works.⁸¹

78. Evans, *supra* note 7.

79. *See id.*

80. *See, e.g.,* Jan Allinder, *Protecting Your Images on the Internet*, NATURE PHOTOGRAPHERS, <http://www.naturephotographers.net/ja1200-1.html> (last visited 2015) (suggesting the use of watermarks and thumbnails as a means of protecting your digital images online).

81. *See, e.g., id.* (“[P]eople mistakenly think our work is free . . . simply because it appears on Internet [sic] . . . We would gladly assist you in any image needs from this site, just drop us an email.”).

Another straightforward means of controlling the use and dissemination of digital copies of public domain cultural objects is to control the distribution of the digital information at its source. A former member of the computer science faculty at Stanford, for example, uses this approach to restrain access to, and use of, Stanford's digital rendering of Michelangelo's *David*.⁸²

Michelangelo's *David* has enjoyed universal familiarity for centuries, and has been the subject of innumerable reproductions and derivative works. These attributes make it an archetypal manifestation of the cultural patrimony of mankind, and not that of a particular political entity. Access to Stanford's digital *David*, however, is restricted to applicants whose educational credentials, and intentions for use of the data, are approved by a retired Stanford employee.⁸³ Any commercial use of the data has to be negotiated with the Italian authorities in possession of the original statue, and those given access to the data are enjoined to "[k]eep [] renderings and other uses of the data in good taste" because the artifacts in question "are the proud artistic patrimony of Italy."⁸⁴

The posted restrictive access and use provisions promulgated in connection with Stanford's digital *David* purportedly reflect concessions demanded by Italian authorities currently in possession of the original statue, before they would grant the Stanford team access to scan the work.⁸⁵ Accordingly, unlike owners who exert control over distribution and use of their *own* reproductions of public domain works in their possession, the Italian authorities in possession of *David* have gone one better by finding another party (Stanford University) to create a reproduction of their public domain work (and, with the support of Paul Allen, to fund the effort to the tune of two

82. See *The Digital Michelangelo Project*, STAN. U., <http://graphics.stanford.edu/projects/mich/> (last updated Mar. 27, 2015).

83. See *The Digital Michelangelo Project Archive of 3D Models*, STAN. U., <http://graphics.stanford.edu/data/mich/#Obtaining%20the%20data> (last updated Aug. 19, 2014).

84. See *id.*; see also Charles Cronin, *3D Printing: Cultural Property as Intellectual Property*, 39 COLUM. J.L. & ARTS 1, 38 (2015) (discussing the project's inapt designation of *David* as an object of Italian patrimony).

85. See *The Digital Michelangelo Project Archive of 3D Models*, *supra* note 83.

million dollars), while also maintaining the right to exploit the copy commercially, and to prohibit others from doing so.⁸⁶

It is possible to establish, through contract and license, copy and use control over a public domain work when the value of the work resides mainly in a single material manifestation of it. The owner of the manuscript of a known work by Mozart or Shakespeare, on the other hand, cannot control the copying, or commercial use and performance, of it because its information can be acquired elsewhere, and accurately replicated in various media. It is, therefore, difficult to exert such control over even newly discovered works, like the *Dead Sea Scrolls*, whose value depends relatively little on the media in which they are contained.⁸⁷

Owners of copyrighted works have used contracts and private agreements to subvert limitations on the scope of their rights, for example fair use,⁸⁸ which the copyright statute specifically imposes.⁸⁹ The copyright statute does not, however, delineate rights of users in public domain works.⁹⁰ Therefore, contracts and agreements that effectively secure copyright for public domain works do not apparently run counter to copyright public policy as legislated in the copyright statute.

86. *Id.* (listing the cost of the project as two million dollars and listing the Paul Allen Foundation for the Arts as a sponsor); *The Digital Michelangelo Project*, *supra* note 82. Amy and Christopher Blackwell have documented similar demonstrations of “hyperownership” of public domain works by museums and libraries. See Amy Hackney Blackwell & Christopher William Blackwell, *Hijacking Shared Heritage: Cultural Artifacts and Intellectual Property Rights*, 13 CHI.-KENT J. INTELL. PROP. 137, 141, 151–52 (2013).

87. It was the independence of the information from the medium in which it was originally recorded that ultimately led to the loss of exclusive access to the *Dead Sea Scrolls* by the owners of the originals, and a cadre of covetous academics. See Cindy Alberts Carson, *Raiders of the Lost Scrolls: The Right of Scholarly Access to the Content of Historic Documents*, 16 MICH. J. INT’L L. 299, 346–48 (1995).

88. See U.S. Copyright Act of 1976, 17 U.S.C. § 107 (2012).

89. Estelle Derclaye & Marcella Favale, *The Relationship Between Copyright and Contract Law: The State of the Art and a Research Agenda*, 18 J. INTELL. PROP. L. 65, 70 (2010) (“[S]ince copyright is also an instrument in the service of the general interest, a balance should be struck between the interests of the users and those of the authors . . .”).

90. See Mazzone, *supra* note 30, at 1030 (“[There is] no remedy under the [Copyright] Act for individuals who, as a result of false copyright notices, refrain from legitimate copying or who make payment for permission to copy something they are in fact entitled to use for free.”).

Accordingly, some commentators have suggested that copyright law should explicitly delineate both owners' and users' rights.⁹¹

Freedom of contract in the United States is based on the Constitution's prohibition of state laws that impair contractual obligations.⁹² Given this doctrine's lineage, courts have been reluctant to nullify contracts unless they involve illegal conduct or terms flagrantly at odds with public policy.⁹³ Many users may consider the terms of contracts and agreements that curb the public's use of public domain cultural works to be objectionable, but these curbs do not impinge on public health, safety, and access to housing—examples of fundamental human needs that have led to the invalidation of contracts on public policy grounds.⁹⁴

The public has the right to copy public domain cultural works, and to use copies for any legal purpose.⁹⁵ This is obvious when one considers the production of the untold number of unauthorized, and legally permissible, copies, derivations, and performances of well-known public domain literary and musical works.⁹⁶ When the owner of an original copy of any public domain work seeks to control, through contract or license, the copying of the work and use of copies of it, he appropriates the legal rights of users.⁹⁷

Digital technologies, and specifically 3D scan and print technologies, challenge the capacity of owners of public domain sculptural works to haggle concessions from users over their

91. See, e.g., Niva Elkin-Koren, *Copyright Policy and the Limits of Freedom of Contract*, 12 BERKELEY TECH. L.J. 93, 105 (1997) (suggesting that copyright law policy considerations may "support (or even require) limiting the freedom of contract when copyright transactions are involved").

92. See U.S. CONST. art I, § 10, cl. 1.

93. See Allan, *supra* note 34, at 987. See generally David Bernstein, *Freedom of Contract* (George Mason Univ. Sch. of Law: Law & Econ. Ctr., Research Paper No. 08-51, 2008), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1239749 (chronicling the evolution of the Supreme Court's interpretation of freedom of contract as a constitutional right).

94. Bernstein, *supra* note 93.

95. Mazzone, *supra* note 30, at 1058.

96. We would find risible any attempt by the owner of the original manuscript of a Mozart symphony or a Shakespeare drama to insist that copies and performances of these works be incomplete. We would have the same reaction to such attempts by owners of public domain works of fine arts were we not inured to the efficacy of such controls stemming from the physicality of these works. See Allan, *supra* note 34 and accompanying text.

97. See Elkin-Koren, *supra* note 91, at 107.

reproduction and use of them. Unlike mold casting, digital reproductions of statues, and other three-dimensional objects, can be accomplished relatively swiftly and with minimal contact with the artifacts.⁹⁸ The more that technology enables the unobtrusive capture of the information inherent in these public domain works, the less defensible are attempts to control the use of this information through contracts and licenses.

III. JUSTIFICATIONS FOR “HYPEROWNERSHIP” OF PUBLIC DOMAIN CULTURAL WORKS

A. PROTECT THE OWNER

While there are innumerable private collections of public domain artifacts, many—if not most—extant and highly significant cultural objects are in the possession of non-profit public institutions around the world.⁹⁹ The primary mission of these enterprises typically is to promote public awareness of, and knowledge about, their collections.¹⁰⁰ In evaluating the propriety of demonstrations of “hyperownership” of these public domain works, therefore, one should consider whether policies that appear overreaching from a copyright perspective might be justified if their implementation enhances rather than inhibits access to, and use of, these works.

Proponents of institutional owners’ control, through contract or license, over the copying and use of public domain works, have claimed that such control ultimately benefits the public by protecting both the owners and the objects.¹⁰¹ Public awareness of the contents of a collection determines its prestige and cultural value.¹⁰² Accordingly, a museum may be justified

98. Cignoni & Scopigno, *supra* note 11.

99. *See, e.g.*, the collections of the Metropolitan Museum of Art. THE MET, <http://www.metmuseum.org/> (last visited Mar. 8, 2016).

100. Blackwell & Blackwell, *supra* note 86, at 148.

101. *See* Allan, *supra* note 34, at 980; *see also*, Kristin Eschenfelder, *Controlling Access to and Use of Online Cultural Collections: A Survey of U.S. Archives, Libraries and Museums for IMLS*, 16 D-LIB MAG. 1/2 (2010) <http://www.dlib.org/dlib/january10/eschenfelder/01eschenfelder.html> (discussing various justifications offered by museums and libraries for “hyperownership” of public domain works in their collections).

102. When owners of the originals of public domain works require that all copies convey information on their ownership, they seek a benefit akin to an author’s moral right of attribution. *See supra* notes 67–73 and accompanying text.

in controlling unauthorized copying and distribution of their works, and in requiring licensees of authorized copies to identify the museum as their owner.¹⁰³ If a museum did not exercise such control, it might compromise, or not fully develop, public good will, and ultimately even risk alienating donors who want their works to be known as part of the collections of a particular institution.

Ready and inexpensive access to digital copies of cultural artifacts challenges this justification. A user's ignorance of the owner of the tangible public domain work from which a copy was derived may constitute a loss of potential prestige to the owner. However, the obstruction of universal access to a work to accommodate an owner's demand for recognition would likely result in a greater loss to the commonweal.¹⁰⁴

The Morgan Library owns the manuscript of Mozart's *Haffner Symphony*.¹⁰⁵ The Morgan's ownership is unknown, and irrelevant, to millions of individuals who have performed and listened to this work. Apart from a miniscule cadre of musicologists who may glean unknown information only from the tangible manuscript, the public has, for over 200 years, enjoyed this symphony through copies of it in print, audio, and digital media. If the various owners of the manuscript score had wanted to, and had been capable of, controlling the copying and use of the work, this ongoing global enjoyment of the work might never have occurred.

The fact that most of those who have enjoyed Mozart's *Haffner Symphony* are unaware that the Morgan Library owns the manuscript has not affected the Morgan's prestige, or for that matter, the symphony's renown. This is because the work's value is independent of any particular instantiation of it.

In some respects, digital technologies have compromised the prestige of some owners of public domain works. Harvard's enormous library collections, for instance, are arguably less prestigious than they were fifty years ago. Much of the print material that wealthy institutions like Harvard still collect is now, or could readily become, available in electronic formats

103. See Blackwell & Blackwell, *supra* note 86, at 148.

104. See, e.g., Carson, *supra* note 87, at 346–48 (noting the deleterious effect on scholarship from impeded access to the *Dead Sea Scrolls*).

105. See *Masterworks from the Morgan*, MORGAN LIBR. & MUSEUM, <https://www.themorgan.org/sites/default/files/pdf/press/MasterworksImages.pdf> (last visited Feb. 17, 2016).

that are less expensive to purchase, store, and maintain.¹⁰⁶ Moreover, public domain works once obtainable only at Harvard, are increasingly universally available in digital formats that bear less evidence of the owner than the physical book on Harvard's premises.¹⁰⁷ The good will, however, that redounds to Harvard when it actively supports efforts to make unique or rare items that it owns universally available should more than compensate for any loss of prestige stemming from the decline in the rarity of works in its collection.¹⁰⁸

To a greater extent than libraries, fine-arts collections have typically derived prestige from the rarity of their holdings. Before the digital era, it was far more difficult and expensive to obtain a copy of a painting or sculpture that effectively substitutes for the original, than to obtain a copy of a literary or musical work. Moreover, the value of paintings, sculptures, and other decorative art works is enhanced not only by their rarity, but also by the aura they acquire because the artists themselves once handled them.¹⁰⁹

3D scan and print technologies hold the potential to undermine the value placed on original cultural artifacts based upon their rarity and aura. These technologies will eventually enable the creation of digital and physical copies that are indistinguishable from the originals.¹¹⁰ In other words, these technologies will convert public domain works whose intellectual value has been confined in a physical object, into

106. See, e.g., Harvard-Google Project, HARV. U. LIBR., <http://hul.harvard.edu/hgproject/> (last modified Mar. 4, 2008).

107. See *id.*

108. See *id.* ("While physical access to Harvard's library materials generally is restricted to current Harvard students, faculty, and researchers, or to scholars who can come to Cambridge, the Harvard-Google Project will enable both members of the Harvard community and users everywhere to discover works in the Harvard collection.")

109. See Cronin, *supra* note 84, at 22–24 (discussing the latent capacity of 3D scan and print technologies for resolving repatriation disputes over tangible cultural artifacts).

110. Mold casting has long enabled the creation of indistinguishable copies of sculptural works that are rendered from molten metals and other liquefied materials. This is a nettlesome reality for those claiming ownership of the artist's "original" work. Accordingly, to protect the prestige and relative exclusivity of works in its collection, the Musée Rodin claims that only the first twelve copies produced from Rodin's plaster molds are legally designated "original works of art." See *Respecting Rodin's Moral Right*, *supra* note 70.

primarily informational works, like literary and musical expression, that can be rendered in various media.

B. PROTECT THE WORK

Owners of public domain cultural artifacts have justified their reliance upon contract and license to control copying and use of these works by claiming such control is necessary to protect the integrity of the physical object and its reputation.¹¹¹ As discussed earlier, flash photography and laser scanning does not damage stone or metal sculptural works, and the only rational basis for prohibiting their use is to avert disturbing other viewers' quiet enjoyment of the works.¹¹²

Owners claim that unauthorized copying and use of public domain works may unfairly damage the reputations of the works and, consequently, also those of the author and owner of the objects.¹¹³ It might even promote fraud in the art market because unauthorized copies, not identified as reproductions of works in the owners' collections, might lead potential buyers to believe that the copies are originals.¹¹⁴ However, a consideration of the effects of the unauthorized copying and use of public domain works of fine art, as well as literary and musical works, casts doubt on the legitimacy of "hyperownership" that is based upon concerns for the preservation and integrity of such works.

Since its first performance in 1783, Mozart's *Haffner Symphony* has been heard all over the world in thousands of performances of wildly varying quality. It has been published in print and electronic media in various editions and arrangements of similarly inconsistent quality. Various parties

111. See Wojcik, *supra* note 75.

112. Evans, *supra* note 7.

113. See Allan, *supra* note 34, at 980.

114. See Albert Elsen, Tribute, *John Henry Merryman: Founding the Field of Art Law*, 39 STAN. L. REV. 1086, 1091 (1987) (reporting Merryman's recommendation to the College Art Association, and similar organizations, that they prohibit their constituencies from creating copies of sculptures that are the same dimensions as originals); see also *Respecting Rodin's Moral Right*, *supra* note 70 (noting that unauthorized copies of Rodin's sculptures leads to confusion and "confusion thus created enables 'works' to be ascribed quality sought after by collectors: rareness").

have owned the work's original manuscript, including "Swan King" Ludwig II of Bavaria.¹¹⁵

The Morgan Library's inability to control the distribution and presentation of the symphony has not compromised the prestige of the work, or that associated with the Morgan's ownership of the manuscript. In fact, this lack of control has likely *enhanced* the prestige of the manuscript, and that of the Morgan, because it has enabled exposure of the work to a larger audience than it would have reached otherwise. Even Disney's unauthorized, and arguably crassly commercial, use of Rossini's overture to *Guillaume Tell* in connection with its *Lone Ranger* character has similarly augmented the renown of Rossini's work, and the significance of its manuscript that is owned by the Paris Conservatory.¹¹⁶

The more a cultural work is aesthetically significant and broadly appealing, the more resilient it is to reputational harm through incomplete, inaccurate, and even inflammatory renditions of it. Accordingly, a poor performance of Mozart's *Haffner Symphony* is valued more than a poor performance of a symphony by his contemporary Carl Stamitz.¹¹⁷ Likewise, an imperfect copy of a sculpture by Michelangelo is typically more valuable than an imperfect one by Cristoforo Solari, Michelangelo's mostly forgotten rival.¹¹⁸

Reproductions of a cultural artifact in which the work is defaced or derogated may offend the owner of the original copy, but they do not damage the work, or its original manifestation. Duchamp's scribbles on an image of the *Mona Lisa* have not injured Leonardo's work any more than grade-schoolers' performances have harmed Mozart's *Haffner Symphony*. Even the innumerable purely commercial, and often salacious, reproductions of *David* have not damaged Michelangelo's work,

115. See *Mozart at 250: A Celebration*, MORGAN LIBR. & MUSEUM, <http://www.themorgan.org/exhibitions/mozart-at-250> (last visited Feb. 17, 2016).

116. See generally THE INTERNATIONAL YEAR BOOK 533 (Frank Moore Colby ed., New York, Dodd, Mead & Company 1898) (noting that the Paris Conservatory Library obtained Rossini's score in 1898).

117. A minute sector of the audience for serious music might find a duffers' performance of a work by Stamitz more valuable than their performance of a work by Mozart but only because of the rarity of performances of Stamitz.

118. See RONA GOFFEN, RENAISSANCE RIVALS: MICHELANGELO, LEONARDO, RAPHAEL, TITIAN 118 (2002) (positing that a rivalry likely existed between Michelangelo and Solari).

the owners of the original, or the *amour propre* of Italians who may claim it as part of their national patrimony. Nor have they, ultimately, diminished public access to accurate copies of and authoritative information about this work.

3D digital technologies should enable the development of a market for reproductions of public domain works of fine art akin to the existing market for copies of public domain literary and musical works. This newly expanded market, like that for literary and musical works, would likely include large quantities of poor or offensive copies. These copies, however, like freely available corrupt or incomplete editions of literary or musical works, should kindle interest in obtaining or producing high-quality reproductions of public domain cultural artifacts. In fact, today, owners of these artifacts rely on copies disfigured by watermarks and cropping, which they make freely available, to generate sales of undiminished ones.

IV. CONCLUSION

Since time immemorial, owners of tangible cultural artifacts have relied on physical barriers, and cumbersome and limited available copying technologies, to limit access to, and copying of, these works. Over the past century, photography, digital photography, and 3D scan technologies have made it possible to obtain increasingly accurate and inexpensive copies of these works. At the same time, travel and communication technologies have improved, and their costs have declined. In an increasingly connected world, the prestige and economic value of these cultural works are affected by the extent to which the public is familiar with them.

Relying increasingly on contracts and licenses, owners of public domain works have managed to increase public awareness and the value of their originals while simultaneously maintaining control over the copying, and use of copies, of these works—activities more easily restricted before the digital era.¹¹⁹ Although the terms of these contracts and licenses take away users' legal rights to copy and use these works,¹²⁰ it is unlikely courts would void contracts restricting these rights as unconscionable, or violative of public policy.¹²¹

119. See Wojcik, *supra* note 75, at 271.

120. See *id.* at 270–71.

121. See Allan, *supra* note 34, at 987.

Accordingly, the question is not whether owners of public domain artifacts *can* legally exert such control, but rather whether they *should*. In other words, an owner's ability to limit the rights to copy and use public domain works may be legal, but—a question of particular significance when the owner is a public organization—is it ethical? A mulish driver deliberately maintaining fifty-five miles an hour in a freeway's left lane may not be breaking the law, but his infuriating other drivers by depriving them of their legal right to use that lane to move beyond him is unethical. Are owners of public domain works who contractually limit the public's legal rights in these works akin to the froward driver whose conduct has only negative consequences? Or are they more like the police car in the left lane travelling at the speed limit, our irritation at which is tempered by the greater good we associate with the police's maintenance of public order?

This Article has touched on some of the justifications that have been offered in support of the position that the exercise of "hyperownership" over public domain works may ultimately not only protect the works from physical and reputational depreciation, but also generate economic value for the owners, the benefit of which ultimately devolves to the public at large.¹²² Digital technologies, and the non-invasive copying of two- and three-dimensional works that they make possible, however, challenge such justifications. These technologies enable us to free cultural works from the physical materials in which they were originally embodied—marble, bronze, wood, etc.—and convert them into primarily works of information. As such, like public domain literary and musical works, they can be copied and disseminated at little expense to a global audience.

Moreover, three-dimensional public domain cultural artifacts that attract the interest and investment of those working with 3D print technologies tend to be objects best identified as the cultural legacy of humanity, and not that of a particular owner or geographical or political entity. By facilitating the widespread and inexpensive reproduction and distribution of such public domain cultural artifacts, 3D printing technologies advance more democratic access to

122. See *infra* Part III Justifications for "Hyperownership" of Public Domain Cultural Works.

geographically disperse cultural works, which, in turn, should promote the dissolution of divisive cultural and political hegemonies.