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## *An Evolutionary Look at the Law, Technology, and Economics of Sunken Treasure*

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### I INTRODUCTION

Ships have never been infallible, and adventurous treasure seekers have always made efforts to retrieve sunken ships. Today's sunken-treasure hunters employ new, sophisticated technologies. These technological advances, as well as other factors, have reshaped the economics of the sunken-treasure-hunting business. In this paper, I look at whether the shifts in the technology and economics of sunken treasure over the past few decades have found expression in sunken-treasure law, namely the body of law that allocates property rights in sunken ships.

Studies of the development of property rights have long been guided by the evolutionary paradigm formulated by Harold Demsetz. Demsetz posited that "property rights develop to internalize externalities."<sup>1</sup> The heart of my inquiry is whether the evolution of sunken-treasure law makes sense in Demsetzian evolutionary terms. I answer this question, like many previous case studies of evolving property-law regimes,<sup>2</sup> with a qualified "Yes:" the evolutionary framework may indeed explain the development of the law of sunken treasure, but not in the straightforward way Demsetz envisioned.

Demsetz predicted that technological and economic development would generate a shift from communal property, or, more accurately, "open access,"<sup>3</sup> toward private property. The sunken-treasure business has undergone a technological and economic boom in recent years, yet the law of

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Harold Demsetz, *Toward a Theory of Property Rights*, 57 AM. ECON. REV. (PAPERS & PROCS) 347, 350 (1967).

See sources cited *infra* Part II.

For terminological clarification, see Thomas W. Merrill, *Introduction: The Demsetz Thesis and the Evolution of Property Rights*, 31 J. LEGAL STUD. S331, S335 (2002); and Thrain Eggertsson, *Open Access Versus Common Property*, in *PROPERTY RIGHTS* 73 (Terry L. Anderson & Fred S. McChesney eds., 2003).

sunken treasure has shifted from open access toward *government* property. This dynamic may make evolutionary sense, however, given the contours of sunken treasure's development. Much of the increase in the economic value of sunken treasure has derived from a surge of interest in sunken treasure as cultural artifact. In this role, sunken treasure is a form of "cultural property," and to some extent, it is a public good. Consequently, it may, perhaps, be governed most efficiently as government property.

Put more generally, the story I tell here suggests that where the public-good facet of an asset grows in relative importance, the law may efficiently evolve toward a government-property regime. This paper thus points to the important roles that government property and public goods can play within the Demsetzian evolutionary calculus.

Part II of the paper outlines the evolutionary theory proposed by Demsetz and subsequent commentators. The paper's evolutionary analysis of sunken treasure is developed in Part VI. Parts III, IV and V supply the data for Part VI's analysis, by sketching key developments in sunken treasure's technology, economics, and law, respectively.

## II THEORY

I begin with a look at the evolutionary theory of property rights developed by Demsetz and subsequent commentators. This theory, in turn, begins with the concept of externalities. Externalities, broadly speaking, are harmful or beneficial effects of one person's actions on others that are not taken into account in that person's decision-making process.<sup>4</sup>

Decisions vis-à-vis assets can cause externalities. Private property rights, according to evolutionary theory, encourage efficient decision making by internalizing such externalities: if an asset is a person's private property, she bears the harms and benefits that her actions cause to it. For one, these harms and benefits are reflected in the market value of the asset.<sup>5</sup> For another, other persons can relatively easily negotiate agreements with her as to the actions she will or will not take regarding her property.<sup>6</sup> These effects do not hold

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<sup>4</sup>Demsetz notes the ambiguity of the concept of externalities, and settles on a broad, somewhat amorphous definition. Demsetz, *supra* note 1, at 348; see also Harold Demsetz, *Toward a Theory of Property Rights II: The Competition Between Private and Collective Ownership*, 31 J. LEGAL STUD. 5653, 5656 (2002).

<sup>5</sup>Demsetz, *supra* note 1, at 355.

<sup>6</sup>*Id.* at 356-58. The relativity of this advantage is stressed by Robert C. Ellickson, *Property in Land*, 102 YALE L.J. 1315, 1327-30 (1993); and by Hanoeh Dagan & Michael A. Heller, *The Liberal Commons*, 110 YALE L.J. 549, 560-61 (2001).

for open-access property, over which “a right . . . can be exercised by all members of the community.”<sup>10</sup>

Although property rights generate benefits in internalized externalities, they entail costs: defining and enforcing property rights are expensive endeavors. Property rights will develop, therefore, “when the gains of internalization become larger than the cost of internalization.”<sup>11</sup> The key factors that affect the relative costs and benefits of internalization are “changes in technology and relative prices.”<sup>12</sup>

Rising asset values, in particular, amplify the magnitude of externalities. Demsetz’s chief illustration concerns the effects of the commercial fur trade on the native population of the Labrador Peninsula. The advent of the fur trade increased both the value of game and the scale of hunting. The costs of externalities, primarily overhunting,<sup>13</sup> rose accordingly. The result was the genesis of private property in land.<sup>14</sup>

Subsequent studies have refined, and greatly complicated, Demsetz’s account. Some scholars have shed light on the wide range of factors that can affect the evolution of property rights. Examples of such factors include changing population densities, droughts, and the invention of barbed wire;<sup>15</sup> the sizes of the habitats of different animal breeds;<sup>16</sup> the political demands of competing constituencies;<sup>17</sup> and the volatility of commodity prices (as distinct from absolute prices).<sup>18</sup> Other studies have elaborated on the broad spectrum of property-right adjustments that may result from changed technological and economic circumstances.<sup>19</sup>

Some scholars, especially Terry Anderson and P.J. Hill, have pointed out, in line with Demsetz’s logic but contrary to his paradigmatic tale, that economic developments can sometimes lead to reduced “pressure” on a resource, and therefore to communization of private property.<sup>20</sup> Moreover, as

Demsetz, *supra* note 1, at 352.

*Id.* at 350.

*Id.*

Demsetz’s focus on the tendency to overexploit communal property just anticipated Garrett Hardin, *The Tragedy of the Commons*, 162 *Sci. Soc.* 1243 (1968).

Demsetz, *supra* note 1, at 351–53.

Terry L. Anderson & P.J. Hill, *The Evolution of Property Rights: A Study of the American West*, 18 *J.L. & Econ.* 163 (1975).

Dean Lueck, *The Economic Nature of Wildlife Law*, 18 *J. Legal Stud.* 291 (1989).

Gary D. Libecap & James L. Smith, *The Economic Evolution of Petroleum Property Rights in the United States*, 31 *J. Legal Stud.* 8589 (2002).

*Id.*

Anderson & Hill, *supra* note 12; Abraham Bell & Gideon Parchomovsky, *The Evolution of Private and Open Access Property*, 10 *THEORETICAL INQUIRIES L.* 77 (2009). Although Demsetz did not emphasize this point, it is implicit in his original analysis as well. Demsetz, *supra* note 1, at 358–59 (discussing slits in the structure of the corporation).

Anderson & Hill, *supra* note 12; Ellickson, *supra* note 6. Demsetz himself hints that in some cases, evolution may culminate not in private property but in government property. See Demsetz, *supra* note 1,

Barry Field has shown, a single economic development, such as population growth, may have opposite property-right effects under different historical circumstances: toward privatization, in one case, and toward communization, in another.<sup>16</sup> Daniel Fitzpatrick suggests further complications for the evolutionary paradigm: he argues that property-right development can itself affect economic forces, by increasing pressure on a resource. Additionally, Fitzpatrick contends that new legal property rights can conflict with established social norms, creating an unmanageable bog of transaction costs.<sup>17</sup>

These complications notwithstanding, the evolutionary paradigm continues to animate most modern studies of shifting property regimes. Demsetz's paper, in particular, has been described as "the point of departure for virtually all efforts to explain changes in property rights."<sup>18</sup>

### III TECHNOLOGY

This Part examines the evolving technologies that have been employed by treasure seekers over the years, with an emphasis on the advances of recent decades. Ancient treasure hunters identified sunken vessels by sight, from the surface of the water or near beneath it, and retrieved whatever they could by skin diving, or with nets, hooks, and the like.<sup>19</sup> Treasure-hunting technology has since advanced in three key areas: underwater endurance, underwater detection, and underwater exploration.

#### A. Underwater Endurance

The number-one problem facing divers, including treasure hunters, is how to breathe deep below the surface.<sup>20</sup> The first great solution to this problem

at 350; Merrill, *supra* note 3, at S337. But see Demsetz, *supra* note 4, at S653 (discussing the emergence of institutions that "have generally favored private ownership through the long sweep of history, but not always.")

<sup>16</sup> Barry Field, *The Evolution of Property Rights*, 42 *KYKLOS* 319 (1989).

<sup>17</sup> Daniel Fitzpatrick, *Evolution and Chaos in Property Rights Systems: The Third World Tragedy of Contested Access*, 115 *YALE L.J.* 996 (2006).

<sup>18</sup> Merrill, *supra* note 3, at S331. To some, in fact, Demsetz's "basic thesis seems obvious today." Richard A. Epstein, *The Allocation of the Commons: Parking on Public Roads*, 31 *J. LEGAL STUD.* S515, S515 (2002).

<sup>19</sup> KEITH MUCKLEBROW, *MARITIME ARCHAEOLOGY* 10 (1978); H. Peter Del Bianco, Jr., Note, *Underwater Recovery Operations in Offshore Waters: Aving for Rights to Treasure*, 5 *B.U. INT'L L.J.* 153, 153 n.1 (1987).

<sup>20</sup> Shallow diving for food and shells was prevalent as early as 4,500 B.C. Snorkels, too, originally made from reeds and bamboo, have been used since antiquity. CARL EDMONDS ET AL., *DIVING AND SUBAQUATIC MEDICINE* 1.2 (4th ed. 2005); Chris Acott, *A Brief History of Diving and Decompression Illness*, 29 *SPUMS J.* 98, 98-99 (1999).

was the "diving bell," a hollow, weighted chamber in which one or more people could be lowered into the water. The diving bell came into practical use in the sixteenth century.<sup>28</sup> A refined version, which used barrels to replenish the diver's air supply mid-dive, was patented by Sir Edmund Halley in 1691.<sup>29</sup> Later iterations, from 1788 onward, used a pump and a tube to push air into the diving bell.<sup>30</sup> Diving bells were used on several treasure-salvage operations.<sup>31</sup>

A more mobile alternative to the diving bell, the "open helmet," was developed in the late eighteenth and early nineteenth centuries. The open helmet covered the diver's head and shoulders. Air was pumped into the helmet from the surface, and excess air bubbled into the water out the bottom of the helmet.<sup>32</sup> An improvement on the open helmet, introduced in 1837 by Augustus Siebe, was the "standard diving dress," which added a flexible waterproof suit sealed to the helmet.<sup>33</sup> Diving helmets and diving dress were used by the Royal Engineers to reclaim several ships in British waters in the 1830s and 1840s.<sup>34</sup>

Using these technologies, divers were able to descend to depths that gave rise to a new problem: decompression sickness, which causes pain, paralysis, and even death when the pressure of deep waters causes gas bubbles to form in the body.<sup>35</sup> Around the turn of the twentieth century, it was discovered that a gradual ascent helps to prevent decompression sickness.<sup>36</sup> This technique allowed the United States Navy to salvage a submarine at a depth of ninety-three meters in 1914.<sup>37</sup>

A more aggressive approach to combating decompression sickness was the manufacture, as early as 1875, of "atmospheric diving suits" made of rigid shells.<sup>38</sup> The German firm Neufeldt and Kuhnke produced several popular models in the early 1920s.<sup>39</sup>

Arthur J. Bachrach, *The History of the Diving Bell*, HIST. DIVING TIMES, Spring 1998, at 4; Acott, supra note 23, at 99.

EDMONDS ET AL., supra note 23, at 3; John Bevan, *Early Diving Problems and Fatalities*, 29 SPUMS J. 143, 144 (1999).

Bachrach, supra note 24, at 8. Versions of this device are still in use. *Id.* at 9.

For instance, diving bells were used in 1535, to explore Caligula's Nemi Ships, between 1689 and 1695, to retrieve fifty bronze cannons from the Swedish warship *Vasa*, and in 1665, to recover the Portuguese galleon *Florencia*. Bachrach, supra note 24, at 5, 6; EDMONDS ET AL., supra note 23, at 3.

John Bevan, *The Diving Helmet*, 29 SPUMS J. 109 (1999).

*Id.* at 112; EDMONDS ET AL., supra note 23, at 3-4.

Bevan, supra note 28, at 112-13.

Bevan, supra note 25.

EDMONDS ET AL., supra note 23, at 4-5; Acott, supra note 23, at 103-05.

EDMONDS ET AL., supra note 23, at 5.

DAVID SCOTT, SIXTY-FATHOMS DEEP 26 (1931).

*Id.* at 27-30; J.W.G. de Groot, *The History of The Neufeldt and Kuhnke Armoured Diving Suit*, 100 INT. BREATHERSITE, Feb. 2009, [http://www.therebreathersite.nl/12\\_Atmospheric%20Diving%20Suits/1913\\_Neufeldt\\_und\\_Kuhnke/1913\\_Neufeldt\\_und\\_Kuhnke.htm](http://www.therebreathersite.nl/12_Atmospheric%20Diving%20Suits/1913_Neufeldt_und_Kuhnke/1913_Neufeldt_und_Kuhnke.htm).

In 1929, the Genovese salvage company Sorima used Neufeldt and Kuhnke suits on a voyage to salvage the English ship *Egypt* at four hundred feet.<sup>57</sup>

The modern solution to underwater endurance is scuba ("Self-Contained Underwater Breathing Apparatus") equipment. The first successful scuba device was the "aqualung," patented by Emile Gagnan and Jacques Cousteau in 1943. The aqualung featured a compressed-air tank and the first modern "regulator," a pressure-compensated demand valve that allows the diver's breathing to trigger the supply of new air.<sup>58</sup> A variation on the aqualung's "open circuit" technique is the "rebreather," which treats the diver's exhaled air and allows it to be inhaled again.<sup>59</sup> Both open-circuit and rebreather technologies are still in use today.

Additionally, a variety of exposure suits provide today's divers with some degree of thermal protection. Exposure suits were first developed for the United States Navy in the 1950s.<sup>60</sup> Most of today's suits, including those known as "steamers" and "wetsuits," are made of Lycra or neoprene. Others, called "drysuits," incorporate additional materials such as trilaminates, crushed neoprene, polyurethane, and rubber, and offer improved thermal protection by trapping air or other gases within them.<sup>61</sup>

### B. Underwater Detection

No matter how long a treasure hunter can remain underwater, she faces the challenge of locating the treasure she seeks. Sophisticated search operations generally begin with significant archival research into the location of a particular shipwreck.<sup>62</sup> But research provides, at best, a general notion of the vessel's location.

Sunken treasure can sometimes be spotted by sight from the shore or from near the water's surface.<sup>63</sup> In recent decades, visual searches have sometimes

<sup>57</sup> Scott, *supra* note 34, at 15-32; Philip Bowron, *Treasure of the SS Egypt*, 285 *NAVY & MAR. MAG.* 109 (2011).

<sup>58</sup> Edmonds et al., *supra* note 23, at 5-6.

<sup>59</sup> Acott, *supra* note 23, at 99-105.

<sup>60</sup> Carolyn Rainey, *Wet Suit Pursuit: Hugh Bradner's Development of the First Wet Suit*, [http://seilib.uesd.edu/sio/hustrainey/wet\\_suit\\_pursuit.pdf](http://seilib.uesd.edu/sio/hustrainey/wet_suit_pursuit.pdf) (last visited Mar. 10, 2013).

<sup>61</sup> Guy Williams & Christopher J. Acott, *Exposure Suits: A Review of Thermal Protection for the Recreational Diver*, 33 *SPUMS J.* 37 (2003).

<sup>62</sup> Roderick Mather, *Technology and the Search for Shipwrecks*, 30 *J. MAR. L. & COM.* 175, 175-76 (1999); John Colapinto, *Secrets of the Deep*, *NEW YORKER*, Apr. 7, 2008, at 44.

<sup>63</sup> Mather, *supra* note 40, at 176-77.

relied on aerial photography.<sup>42</sup> However, even with artificial lighting, underwater visibility is limited to twenty or thirty feet.<sup>43</sup> Treasure hunting has therefore relied increasingly on two search technologies developed over the course of the twentieth century: sonar and magnetometers.

Sonar ("Sound Navigation and Ranging") measures underwater sound waves to detect and chart submerged objects. A major catalyst for the invention of sonar was the disastrous voyage of the *Titanic* in 1912.<sup>44</sup> In 1914, Reginald Fessenden successfully tested a sonar device capable of detecting an iceberg from 3.2 kilometers away.<sup>45</sup> Sonar took off following World War I in response to the appearance of submarines and torpedoes, which were otherwise undetectable.<sup>46</sup> Later development, including increased sonar ranges, was also spurred by military advances, particularly during World War II and the Cold War.<sup>47</sup>

Today's treasure hunters employ several varieties of sonar devices. Simple "depth recording" sonars can detect ships lying on, but not deeply embedded in, the ocean floor. "Sub-bottom" sonars can penetrate some kinds of ocean-floor geologies. "Side-scan" sonars are configured so as to cover large areas of ocean floor, but can only detect protruding objects.<sup>48</sup> Both sub-bottom and side-scan sonars have been commercially available since the 1960s.<sup>49</sup>

The magnetometer, first conceived by Carl Friedrich Gauss in 1833, detects anomalies in the earth's magnetic field caused by ferrous objects. Magnetometers can be used to detect cannons, anchors, hull plating, and so on.<sup>50</sup> The development of the magnetometer, too, was stimulated by military needs, in this case World War II.<sup>51</sup> Magnetometers were first used by archaeologists in the 1950s, and marine explorers have used them since the 1970s.<sup>52</sup>

<sup>42</sup>Id. at 176.

<sup>43</sup>Del Bianco, supra note 22, at 153 n.1; *Modern Sea Search Uses Sonar, Television*, *Sci. News Letter*, Feb. 27, 1965, at 135.

<sup>44</sup>Angela D'Amico & Richard Pittenger, *A Brief History of Active Sonar*, 35 *AQUATIC MAXIMS* 426, 426 (2009).

<sup>45</sup>Id. at 426.

<sup>46</sup>Id.; Willem D. Hackmann, *Sonar Research and Naval Warfare 1914-1954: A Case Study of a Twentieth-Century Establishment Science*, 16 *HIST. STUD. PHYSICAL & BIOLOGICAL SCI.* 83 (1986).

<sup>47</sup>D'Amico & Pittenger, supra note 45, at 431; *Sonar Detected Subs*, *Sci. News Letter*, Apr. 13, 1946, at 231; John Lonnquest, Book Review, 65 *J. MILITARY HIST.* 529 (2001).

<sup>48</sup>Mather, supra note 41, at 179-80; Harold E. Edgerton, *Underwater Search with Sonar*, 10 *HIST. ARCHAEOLOGY* 46 (1976); HAROLD E. EDGERTON, *SONAR IMAGES* (1986).

<sup>49</sup>Mather, supra note 41, at 179; see also Donald M. Rosencrantz, M. Klein & Harold E. Edgerton, *The Uses of Sonar*, in *UNDERWATER ARCHAEOLOGY* 257 (1972).

<sup>50</sup>Mather, supra note 41, at 177-78; Carl J. Clausen & J. Barto Arnold III, *The Magnetometer and Underwater Archaeology: Magnetic Delineation of Individual Shipwreck Sites, a New Control Technique*, 5 *INST. J. NAUTICAL ARCHAEOLOGY & UNDERWATER EXPLORATION* 159 (1976).

<sup>51</sup>*Improved Magnetometer Is Developed*, *Sci. News Letter*, Oct. 22, 1949, at 260.

<sup>52</sup>Mather, supra note 41, at 178; see also Edward T. Hall, *Wreck Prospecting by Magnetometer*, in *UNDERWATER ARCHAEOLOGY*, supra note 50, at 285.

*C. Underwater Exploration and Retrieval*

Cutting-edge sunken-treasure-hunting technology now includes unmanned submersible vehicles, which are either towed by surface vessels ("tow fish") or controlled from a distance ("Remote Operating Vehicles," or "ROVs.") The robotics used in today's tow fish and ROVs were developed primarily in the oil and gas industry.<sup>54</sup> Advanced tow fish operate sub-bottom and side-scan sonar, magnetometers, and sophisticated cameras, at depths of up to 6,000 meters. ROVs can carry similar technologies, as well as mechanical arms, pumps, suction, and the like.<sup>55</sup>

One American company, Odyssey Marine Exploration, has been particularly active in putting advanced underwater technology to use toward sunken-treasure hunting.<sup>56</sup> Odyssey's main ROV, which it calls ZEUS, is an "eight-ton, two-million-dollar remote-controlled deep-sea robot."<sup>57</sup> ZEUS carries seven high-resolution cameras with sophisticated lighting devices and "two seven-function master/slave manipulator arms . . . a dredge pump, a specialized sediment sifting and collection device, and a limpet suction device."<sup>58</sup>

#### IV ECONOMICS

The economics of sunken-treasure hunting have changed a good deal in recent decades. This Part examines three sets of economic changes: the effects of the technological advances discussed in Part III; the emergence of sunken treasure as cultural artifact; and the conversion of the treasure hunt itself into an asset.

*A. The Economics of Advanced Technology*

Technological advances have dramatically increased the scope of the sunken treasure that is physically retrievable. A few decades ago, treasure

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Thomas E. King, *Robotic Archaeology on the Deep Ocean Floor*, in 3 ENCYCLOPEDIA OF ARCHAEOLOGY 1932, 1933 (Deborah M. Pearsall ed., 2008).

Mather, *supra* note 41, at 182-83; King, *supra* note 54, at 1937-38.

Sean Kingsley, *Odyssey Marine Exploration and Deep Sea Shipwreck Archaeology: The State of the Art*, MUSEUM, May/June 2003, at 33; William J. Broad, *On the Wreck of a Steamship, A Submersible Robot Dives for Gold*, N.Y. TIMES, Nov. 16, 2004, at F3; Colapinto, *supra* note 41.

Colapinto, *supra* note 41, at 44.

King, *supra* note 54, at 1937.



could be salvaged only if it lay at a depth of no more than a few hundred feet.<sup>57</sup> The “space age” technologies of recent decades have gradually made salvage operations possible at virtually any depth. Sunken-treasure finds have therefore increased in recent years, and they are expected to continue to increase in the future.<sup>58</sup>

The 1960s, in particular, witnessed several prominent treasure finds, particularly off the coast of Florida, by treasure seekers using relatively novel scuba and sonar equipment.<sup>59</sup> Savvy entrepreneurs have since become involved: “[T]reasure hunts are promoted on Wall Street and the Vancouver Stock Exchange. Their investors include some of the wealthiest men in the world. What we are seeing today is . . . an industry, not . . . a bunch of small-time adventurers.”<sup>60</sup>

Odyssey, which has been in business since 1994, was founded by an advertising executive and a real-estate developer.<sup>61</sup> It is publicly traded, and has, in fact, battled allegations of securities fraud.<sup>62</sup> A *New Yorker* story published in 2008 reported that Odyssey has an average monthly operating budget of about two million dollars, much of it raised from institutional investors.<sup>63</sup>

Governments have also noted today’s increased odds of successful sunken-treasure hunting, as well as the technological specialization required for such endeavors. In 2002, the English government entered into an innovative arrangement with Odyssey, with the hope of salvaging a British warship that sank off the coast of Gibraltar in 1694. The ship is presumed to carry treasure worth as much as four billion dollars.<sup>64</sup> Reportedly, Odyssey is to receive 80% of the first \$45 million dollars recovered, 50% of the next \$450 million, and 40% of anything above that amount.<sup>65</sup>

<sup>57</sup> King, *supra* note 54, at 1932–33 (“What if we need to find and excavate something on the floor of the really deep ocean . . . ? Until recently, the answer was a simple one: we don’t.”)

<sup>58</sup> John Paul Jones, *The United States Supreme Court and Treasure Salvage: Issues Remaining After Brother Jonathan*, 30 J. MAR. L. & COM. 205, 213–14 (1999); Mather, *supra* note 41, at 184.

<sup>59</sup> Peter Throckmorton, *The World’s Worst Investment: The Economics of Treasure Hunting with Real Life Comparisons*, in UNDERWATER ARCHAEOLOGY PROCEEDINGS FROM THE SOCIETY FOR HISTORICAL ARCHAEOLOGY CONFERENCE 6, 8 (Tom E. Carrell ed., 1990); ROBERT F. BURGESS, MAX: 12,000 YEARS UNDER THE SEA 114–39 (1980); A few 1950s finds are discussed by Mendel L. Peterson, *Wreck Sites in the Americas*, in UNDERWATER ARCHAEOLOGY, *supra* note 50, at 85, 88–90.

<sup>60</sup> Throckmorton, *supra* note 61, at 8.

<sup>61</sup> Colapinto, *supra* note 41, at 46.

<sup>62</sup> *Id.* at 49–51 (citing Daniel Foggo, *Sunken Treasure: Overvalued to Little Shares of Salvage Firm*, SIX TIMES, Nov. 1, 2007).

<sup>63</sup> *Id.* at 46. Interestingly, however, Odyssey turned a profit in only two of its first ten years of operations, and its average annual loss was nearly twenty million dollars. *Id.* at 84.

<sup>64</sup> *Id.* at 46.

<sup>65</sup> *Id.* at 51; William J. Broad, *British Approve Plan by U.S. Company to Recover Treasure Ship Sunk in 1694*, N.Y. TIMES, May 25, 2003, at N8. In October 2011, Odyssey reported that it had located the ship wreck. William J. Broad, *Latest Devices Open Up a New World of Shipwreck Recovery*, N.Y. TIMES, Oct. 11, 2011, at D3.

*B. Treasure as Cultural Artifact*

The classic sunken-treasure hunter hoped to recover objects of straightforward monetary value, such as precious metals and gems.<sup>57</sup> Increasingly, however, sunken treasure is perceived as a source not only of gold and silver, but of extraordinary cultural value.<sup>58</sup> This development has had several economic implications.

Most straightforwardly, articles retrieved from shipwrecks command higher prices than comparable items that lack the sunken-treasure cachet. Most of Odyssey's profits, for example, have come from sales of "mass-produced items . . . such as coins."<sup>59</sup> Further, the degree of popular interest in certain well-known shipwrecks, such as the *Titanic*, the *Constitution*, and the *Mary Rose*, is such that even mundane articles from these ships can be sold at a profit, including "pieces of the coal used for fuel or slivers of wood."<sup>60</sup>

The ascendant value of shipwrecks as cultural artifacts has also meant that treasure hunters can generate revenue by putting a shipwreck or its artifacts on display. This can be done through sales or leases to museums,<sup>61</sup> or by displays in situ. The rights to run tourist visits to the site of the *Titanic*, for example, and to display the wreck in other ways, have engendered protracted litigation.<sup>62</sup> So have the rights to the wreck of the *Lady Elgin*, discovered in Lake Michigan in 1989, though the wreck itself was considered unlikely to hold much in traditional pecuniary value.<sup>63</sup>

Shipwrecks also serve as artifacts-on-display as sites for sport scuba diving.<sup>64</sup> So-called "wreck diving," which can include low-tech searches for

<sup>57</sup> Ole Varner, *The Case Against the "Salvage" of the Cultural Heritage*, 30 J. MAR. L. & COM. 279, 292 (1999).

<sup>58</sup> See Anne G. Giesecke, *The Abandoned Shipwreck Act Through the Eyes of the Diver*, 30 J. MAR. L. & COM. 167 (1999); Joseph C. Sweeney, *An Overview of Commercial Salvage Principles in the Context of Marine Archaeology*, 30 J. MAR. L. & COM. 185, 201-03 (1999).

<sup>59</sup> Colapinto, *supra* note 41, at 46.

<sup>60</sup> Varner, *supra* note 68, at 292. In traditional terms, the cargo of the *Titanic* is "nearly worthless." James A.R. Nafziger, *The Titanic Revisited*, 30 J. MAR. L. & COM. 311, 317 (1999).

<sup>61</sup> See Throckmorton, *supra* note 61, at 7-8; Varner, *supra* note 68, at 292; Edward W. Horan, *Organizing, Manning, and Financing a Treasure Salvage Expedition*, 30 J. MAR. L. & COM. 235, 239-40 (1999).

<sup>62</sup> *R.M.S. Titanic, Inc. v. Haver*, 171 F.3d 943 (4th Cir. 1999); Nafziger, *supra* note 71, at 315, 317. Footage from the wreck also featured prominently in James Cameron's film *Titanic* (1997). See *An Audience with James Cameron*, FOX 10R E!FM, <http://www.eyeforfilm.co.uk/feature/2009/12/17/james-cameron-talks-about-avatar-aliens-and-his-titanic-career-feature-story-by-maria-realf/> (last visited Mar. 10, 2013).

<sup>63</sup> Paul N. Keller, *Salvor: Sovereign Relations: How the State of Illinois Destroyed the Lady Elgin*, 30 J. MAR. L. & COM. 245 (1999); Casey Bukio, *Court Designates Lady Elgin Owner*, CHI. TRIB., Apr. 16, 1999.

<sup>64</sup> D.K. Abbass, *A Marine Archaeologist Looks at Treasure Salvage*, 30 J. MAR. L. & COM. 261, 266 (1999); *MDM Salvage v. Unidentified, Wrecked and Abandoned Sailing Vessel*, 631 F. Supp. 308, 312 (S.D. Fla. 1986).

artifacts on shipwrecks, has become increasingly popular.<sup>5</sup> Some ships are now jettisoned intentionally, in fact, in order to attract wreck divers and other curious visitors.<sup>6</sup>

The idea that sunken treasure is a form of cultural artifact has not been purely beneficial to the treasure-hunting business. A robust strand of scholarship and advocacy seeks to remove shipwrecks from the realm of commercial interests, and to reserve access to them to preservation-oriented archaeologists.<sup>7</sup> The scientific field of “maritime archaeology,” like the commercial treasure-seeking endeavor, has been on the rise since the availability of scuba and sonar equipment in the 1960s.<sup>8</sup> The preservationist position is sometimes couched as an effort to preserve “cultural property.”<sup>9</sup> Several archaeological-protection statutes have been applied to this end in the maritime context.<sup>10</sup>

### *C. The Value of the Hunt Itself*

Finally, the broad cultural appeal of sunken treasure offers opportunities for secondary sources of revenue rooted in the entertainment value of the search itself. Treasure hunters have joined forces with entertainment-industry professionals to produce television shows, films, and books about modern treasure-hunting adventures.<sup>11</sup>

<sup>5</sup> See GARY GENTILE, *ADVANCED WRECK DIVING GUIDE* (1988).

<sup>6</sup> See, e.g., *Sinking Ship Will Boost Tourism, Group Says*, NBCNEWS, <http://www.nbcnews.com/id/18853363/#.U1XEHL1moyE> (last updated May 25, 2007); *Vandenberg Sinking This Morning*, NBC 2, <http://www.nbc2.com/story/10702477/vandenberg-sinking-this-morning> (last updated May 27, 2009).

<sup>7</sup> Abbass, *supra* note 75; Varner, *supra* note 68; Richard T. Robot, *Legal Protection for Underwater Cultural Resources: Can We Do Better?*, 30 J. MAR. L. & COM. 303 (1999).

<sup>8</sup> MITCHELROY, *supra* note 22, at 13-22; Frédéric Dumas, *Ancient Wrecks*, in *UNDERWATER ARCHAEOLOGY*, *supra* note 50, at 27, 27-28.

<sup>9</sup> Bernard H. Oxman, *Marine Archaeology and the International Law of the Sea*, 12 COLUMBIA J.L. & ARTS 353 (1988); Leonard D. Duboff, *Symposium Presented at the Annual Meeting of the Association of American Law Schools' Section on Art: Introduction*, 12 COLUMBIA J.L. & ARTS 335 (1988).

<sup>10</sup> *Lathrop v. Unidentified, Wrecked and Abandoned Vessel*, 817 F. Supp. 953 (M.D. Fla. 1993) (applying the Antiquities Act, 16 U.S.C. § 431 (2006)); *Klem v. Unidentified Wrecked and Abandoned Sailing Vessel*, 758 F.2d 1511 (11th Cir. 1985) (applying the Archaeological Resources Protection Act, 16 U.S.C. § 470aa (2006)); *United States v. Hampton, Crim. No. P169925* (S.D. Fla. July 18, 1986) (same). See Varner, *supra* note 68, at 281-82, 284-86.

<sup>11</sup> Horan, *supra* note 72, at 237; Justin S. Stern, *Smart Salvage: Extending Traditional Maritime Law to Include Intellectual Property Rights in Historic Shipwrecks*, 68 FORTHAM L. REV. 2489, 2528-41 (2000); Rachel J. Lin, Comment, *Salvage Rights and Intellectual Property: Are Copyright and Trademark Rights Included in the Salvage Rights to the R.M.S. Titanic?*, 23 FLA. MAR. L.J. 483 (1999). These secondary entertainment ventures can generate tertiary commodities, such as the IMAX movie about the *Titanic* film. Nafziger, *supra* note 71, at 311.

Odyssey's founders, for example, foresaw at the outset that "they would not only excavate shipwrecks and sell some of their finds to the public but also auction off film rights to the wrecks, sell tickets to shipwreck-themed 'attractions,' and publish books and magazine articles. 'It was in the business plan from the beginning . . .'"<sup>83</sup> Photographs taken on, and of, treasure-hunting expeditions have also proven to be commercially valuable.<sup>84</sup>

## V LAW

This Part discusses the law that applies to sunken treasure. It is oriented around the question, "Who owns this shipwreck?" I split my discussion between two kinds of shipwrecks: those still "unabandoned," and those that have been abandoned by their original owners. I limit my discussion to American law, with a couple of forays for context into English and international law.<sup>85</sup>

### A. *Unabandoned Shipwrecks*

Every sunken ship was once afloat, and at that time it had an owner. The traditional principle, which continues to apply today, is that "when articles are lost at sea the title of the owner in them remains."<sup>86</sup> That is, the original owner retains ownership indefinitely.

The finder of an unabandoned ship may be entitled to a "salvage award."<sup>87</sup> Salvage law originated from cases in which ships were saved from drowning, but this body of law is applied after a ship has sunk as well.<sup>88</sup> The size of the salvage reward is determined after the fact by the court, which considers factors such as the effort and skill expended by the salvor, the risk

<sup>83</sup>Colapinto, *supra* note 41, at 48.

<sup>84</sup>*R.M.S. Titanic, Inc. v. Wrecked and Abandoned Vessel*, 924 F. Supp. 714 (E.D. Va. 1996); *R.M.S. Titanic, Inc. v. Haver*, 171 F.3d 943 (4th Cir. 1999); Nafziger, *supra* note 71, at 314-15.

<sup>85</sup>Although a comparative study would certainly be instructive, too.

<sup>86</sup>*The Akaba*, 54 F. 197, 200 (4th Cir. 1893); For a recent statement, see *Sea Hunt, Inc. v. Unidentified Shipwrecked Vessel or Vessels*, 221 F.3d 634, 641 (4th Cir. 2000).

<sup>87</sup>FRANK L. MARAISI, THOMAS C. GALLIGAN & CATHARINE M. MARAISI, *MARITIME LAW* 774-75 (2003).

<sup>88</sup>*New Eng. Mut. Marine Ins. Co. v. Dunham*, 78 U.S. (11 Wall.) 1 (1871); *The Sabine*, 101 U.S. (11 Otto) 384 (1879); *Treasure Salvors, Inc. v. Unidentified Wrecked and Abandoned Sailing Vessel*, 569 F.2d 330, 337 (5th Cir. 1978); *Columbus-Am. Discovery Grp. v. A. Mut. Ins. Co.*, 974 F.2d 450, 459 (4th Cir. 1992).

incurred, the value of the salvaged property, and the degree of danger to the ship.<sup>88</sup> The salvage award can sometimes be considerable.<sup>89</sup>

The original owner's rights are extinguished only once she abandons the ship.<sup>90</sup> Thus, the key issue in a dispute between a treasure finder and an original owner is whether the ship has been abandoned. Abandonment is uncontroversial where the owner has explicitly pronounced her lack of interest in the vessel.<sup>91</sup> Generally, however, the only reason an owner explicitly relinquishes her rights is to transfer them to another party, usually an insurer.<sup>92</sup> In such cases, the original owner's abandonment means only that the finder must fight her claim against the insurer.

Courts have struggled to define abandonment absent an explicit pronouncement to that effect. The time elapsed since the ship was lost, coupled with its owner's inactivity, are clearly important factors, and some courts have taken them, "under certain circumstances, [to] give rise to an implication of intention to abandon."<sup>93</sup> Yet courts have also suggested that "the law is hesitant to find an abandonment" and that abandonment "must be proved by clear and convincing evidence."<sup>94</sup> Some courts, in fact, have required "express acts" to show abandonment against a competing claim by a past owner.<sup>95</sup> The resulting body of law is a swamp that probably merits a study of its own.<sup>96</sup>

<sup>88</sup>The *Blackwall*, 77 U.S. 1 (1869); *Columbus-Am. Discovery Grp., Inc. v. Atl. Mut. Ins. Co.*, 56 F.3d 556, 573 (4th Cir. 1995).

<sup>89</sup>Robert A. Koenig, Note, *Property Rights in Recovered Sea Treasure: The Salvor's Perspective*, 3 N.Y. J. INT'L & COMP. L. 271 (1982).

<sup>90</sup>*Eads v. Braselton*, 12 Ark. 499, 508-09 (1861); *United States v. Smiley*, 27 F. Cas. 1832 (N.D. Cal. 1864); *Wyman v. Hurlburt*, 12 Ohio 82, 87 (1834); *The Port Hunter*, 6 F. Supp. 1009 (D. Mass. 1934); *Howard v. Sharlin*, 61 So. 2d 181 (Fla. 1952).

<sup>91</sup>*Ninley v. M/V Dauntless Colocotronis*, 863 F.2d 1190, 1199 (5th Cir. 1989); *Columbus-Am. Discovery Grp. v. A. Mut. Ins. Co.*, 974 F.2d 450, 461 (4th Cir. 1992); *Martha's Vineyard Seaba Headquarters, Inc. v. Unidentified, Wrecked and Abandoned Steam Vessel*, 833 F.2d 1059 (1st Cir. 1987); 68 AM. JUR. 2D *Salvage* § 53 (1993).

<sup>92</sup>*Columbus-Am. Discovery Grp., Inc. v. Unidentified, Wrecked and Abandoned Sailing Vessel*, 742 F. Supp. 1327 (E.D. Va. 1990).

<sup>93</sup>*Wiggins v. 1100 Tons, More or Less, of Italian Marble*, 186 F. Supp. 452 (E.D. Va. 1960).

<sup>94</sup>*Columbus-Am. Discovery Grp. v. A. Mut. Ins. Co.*, 974 F.2d 450, 468 (4th Cir. 1992).

<sup>95</sup>*Sea Hunt, Inc. v. Unidentified Shipwrecked Vessel or Vessels*, 221 F.3d 634, 641 (4th Cir. 2000).

<sup>96</sup>*Sweeney*, *supra* note 69, at 194-96; *Jones*, *supra* note 60, at 214-15; Forrest Booth, *Who Owns Sunken Treasure? The Supreme Court, the Abandoned Shipwreck Act and the Brother Jonathan*, 11 U. S.F. MAR. L.J. 77, 92-93 (1998-99); BRIEF ON MARITIME LAW OF SALVAGE 292, 318 (John Reeder ed., 4th ed. 2003); see also, e.g., *Columbus-Am. Discovery Grp., Inc. v. Atl. Mut. Ins. Co.*, 974 F.2d 450 (4th Cir. 1992); *Deep Sea Resources, Inc. v. Brother Jonathan*, 102 F.3d 379 (9th Cir. 1996); *Fairport Int'l Exploration, Inc. v. Shipwrecked Vessel*, 105 F.3d 1078 (6th Cir. 1997); *Zych v. Unidentified, Wrecked and Abandoned Vessel*, 755 F. Supp. 213 (N.D. Ill. 1991).

*B. Abandoned Shipwrecks*

Once a vessel is abandoned, its original owner no longer has a claim to it. If it is found in international waters ("on the high seas"),<sup>131</sup> the finder obtains title to it.<sup>132</sup> If it is found in territorial waters, on the other hand, the finder is not the only candidate for ownership: the government is another.

In English law,<sup>133</sup> at least as early as the 1275 Statute of Westminster, the King was entitled to any "wreck of the sea."<sup>134</sup> This term referred only to property that had come ashore, however.<sup>135</sup> In *Constable's Case*,<sup>136</sup> decided in 1601, the King's prerogative was extended to "flotsam" (property still afloat at sea), "jetsam" (goods thrown overboard to save a ship), and "ligan" or "lagan" (buoyed jetsam).<sup>137</sup> Finally, a series of cases decided between 1798 and 1834 granted the King ownership of entire sunken ships.<sup>138</sup>

American courts, on the other hand, deemed abandoned ships the property of the finder, not the sovereign.<sup>139</sup> In other words, they subject shipwrecks to the ordinary "law of finds," which entitles finders to their finds.<sup>140</sup> The courts offered several theories for their divergence from the English common law.<sup>141</sup> Primarily, however, the courts granted that the sovereign may

Federal courts have been willing to assert admiralty jurisdiction over ships discovered in the high seas on the strength of artifact fragments brought before them. John P. Fry, Note, *The Treasure Below: Jurisdiction over Salvaging Operations in International Waters*, 88 *COLUM. L. REV.* 863, 864-65 (1988).

<sup>131</sup>Treasure Salvors, Inc. v. The Unidentified Wrecked and Abandoned Sailing Vessel, 640 F.2d 560, 567 (5th Cir. 1981); Klein v. Unidentified Wrecked and Abandoned Sailing Vessel, 758 F.2d 1511 (11th Cir. 1985); Martha's Vineyard Seuba Headquarters, Inc. v. Unidentified, Wrecked and Abandoned Steam Vessel, 833 F.2d 1059 (1st Cir. 1987).

<sup>132</sup>For this history, see John J. Kenny & Ronald R. Hrusoff, *The Ownership of the Treasures of the Sea*, 9 *W.M. & MARY L. REV.* 383, 384-92 (1967); O. John Alpizar, Note, *Sovereign Rights and Sunken Treasure: Treasure Salvors, Inc. v. Unidentified And Abandoned Sailing Vessel*, 7 *CAMP. U. L. REV.* 76-77 (1977); and Kenneth S. Beall, Jr., *State Regulation of Search for and Salvage of Sunken Treasure*, 4 *NAT. RESOURCES L.* 1, 15 (1971).

<sup>133</sup>Statute of Westminster, 1275, 3 *Edw. I, c. 4*. In fact, the statute granted "wreck" to the King even if its owner had not abandoned it, if the owner failed to prove her rights within a year and a day.

<sup>134</sup>1 *W. BLACKSTONE, COMMENTARIES* \*292.

<sup>135</sup>77 *Eng. Rep.* 218, 223 (K.B. 1601).

<sup>136</sup>1 *W. BLACKSTONE, COMMENTARIES* \*292.

<sup>137</sup>*The Aquila*, 165 *Eng. Rep.* 87 (Adm. 1798); *The King v. Property Derelict*, 166 *Eng. Rep.* 136 (Adm. 1825); *The King v. Two Casks of Tallow*, 166 *Eng. Rep.* 414 (Adm. 1837).

<sup>138</sup>*Wyman v. Hurlburt*, 12 *Ohio St.* (1843); *Eads v. Brazelton*, 22 *Ark.* 499 (1861); *United States v. Tyndale*, 116 *F.* 820 (1st Cir. 1902); see H.B. Chernside, Jr., Annotation, *Rights in and Ownership of Wrecked or Derelict Vessels and Their Contents Not Cast Upon the Shore*, 63 *A.L.R.2d* 1369 (1959).

<sup>139</sup>See Lecanna Izuel, *Property Owners' Constructive Possession of Treasure Trove: Rethinking the Finders Keepers Rule*, 38 *UCLA L. REV.* 1659, 1672 (1991). The law of treasure trove (money hidden by an unknown owner), as portrayed by Izuel, developed analogously to abandoned shipwreck law: in English law, treasure trove was a prerogative of the Crown, whereas American courts developed a "finders keepers" rule. *Id.* at 1666-70.

<sup>140</sup>Kenny & Hrusoff, *supra* note 100, at 393-94; Alpizar, *supra* note 100, at 78-79; Beall, *supra* note 100, at 16.

assert ownership over abandoned maritime property, but held that both the states and the federal government, unlike the English King, had simply not done so.<sup>108</sup>

This changed in the 1960s, however, as state legislatures began to pass laws asserting state ownership over abandoned shipwrecks.<sup>109</sup> Florida's Archives and History Act, passed in 1967, served as a model for several other states. The act gives the state title to all "artifacts, treasure trove, and objects of antiquity which have . . . historical value or are of interest to the public, including . . . sunken or abandoned ships."<sup>110</sup> In the 1970s, similar statutes were passed in Georgia, Texas, Massachusetts, and the Carolinas.<sup>111</sup> By 1985, twenty-four states had passed some kind of legislation increasing state ownership over abandoned shipwrecks.<sup>112</sup>

In 1988, the federal Abandoned Shipwrecks Act (ASA) was enacted.<sup>113</sup> ASA asserts the federal government's ownership of a broad swath of abandoned shipwrecks in American waters, including any shipwreck that is: "(1) embedded in submerged lands of a State; (2) embedded in coralline formations protected by a State on submerged lands of a State; or (3) on submerged lands of a State and . . . included in or determined eligible for inclusion in the National Register."<sup>114</sup> ASA then transfers the federal government's ownership to "the State in or on whose submerged lands the shipwreck is located."<sup>115</sup> As a result, each state now owns most shipwrecks in its waters.<sup>116</sup> In 1998, the Supreme Court upheld ASA's constitutionality.<sup>117</sup>

<sup>108</sup> *United States v. Lyndale*, 116 F. 820, 823 (1st Cir. 1902); *Thompson v. United States*, 62 Ct. Cl. 516 (1926). An exceptional decision is *State ex rel. Ervin v. Massachusetts Co.*, 95 So. 2d 902 (Fla. 1956). See Apizar, *supra* note 100, at 78.

<sup>109</sup> See Adam Lawrence, *State Antiquity Laws and Admiralty Salvage: Protecting Our Cultural Resources*, 32 U. MIAMI L. REV. 291, 300-02 (1977); Anne G. Giesecke, *Management of Historic Shipwrecks in the 1980s*, 12 J. FIELD ARCHAEOLOGY 108, 110 (1985); Denise B. Feingold, *The Abandoned Shipwreck Act of 1987: Navigating Turbulent Constitutional Waters?*, 10 U. BRIDGEPORT L. REV. 361, 378-81 (1990).

<sup>110</sup> Archives and History Act §§ 267.061(1)(a), 267.061(1)(b), 267.12(3), 1967 Fla. Laws c. 67-50.

<sup>111</sup> For more detail, see Lawrence, *supra* note 110, at 301-02.

<sup>112</sup> For a complete list, see Giesecke, *supra* note 110, at 111 app. A.

<sup>113</sup> 43 U.S.C. § 2101 (2006). ASA was foreshadowed by an unsuccessful attempt by the government to persuade a federal court that "objects of antiquity recovered by persons subject to the jurisdiction of the United States are taken in the name of the sovereign and become property of the people of the United States." *Treasure Salvors, Inc. v. Unidentified Wrecked And Abandoned Sailing Vessel*, 308 F. Supp. 907 (S.D. Fla. 1976).

<sup>114</sup> 43 U.S.C. § 2105(a).

<sup>115</sup> *Id.* § 2105(c).

<sup>116</sup> Giesecke, *supra* note 69; Anne G. Giesecke, *The Abandoned Shipwreck Act: Affirming the Role of the States in Historic Preservation*, 12 COLU. VLA J.L. & ARTS 379 (1988); Feingold, *supra* note 110.

<sup>117</sup> *California v. Deep Sea Research Co. (Brother Jonathan)*, 523 U.S. 491 (1998). *Brother Jonathan* held also that a state cannot win a suit against a finder who possesses a wreck, under ASA, merely by stating that the wreck has been abandoned. Rather, it must prove abandonment according to the usual admiralty law rules. See also Jones, *supra* note 60.

In light of ASA, ownership of abandoned shipwrecks turns heavily on the reach of the states' territorial waters. The area of the United States' federal territorial waters was expanded in 1988 by presidential proclamation from three to twelve nautical miles.<sup>118</sup> This shift accords with the latest United Nations Convention on the Law of the Sea, proposed in 1982 and in force as of 1994.<sup>119</sup> The expansion of federal territorial waters does not automatically extend state waters (in which ASA applies). State waters continue, as a rule, to reach three nautical miles out from the coast.<sup>120</sup> The expansion of federal territorial waters does mean, however, that state waters could be extended in the future.

## VI ANALYSIS

The last three Parts offer a body of data about the past and present states of the technology, economics, and law of sunken treasure. This is not a comprehensive corpus. Nonetheless, can any sense be made of it in light of Demsetzian evolutionary theory? And does it, in turn, shed any light on the evolutionary paradigm? The answers I offer to these questions focus on the evolution of the law of *abandoned* shipwrecks.

### A. *Evolutionary Preliminaries for Sunken Treasure*

In the evolutionary paradigm, shifts between property regimes are rooted in the economic costs entailed by these regimes: open access is cheap to police but encourages externalities, whereas private property is expensive to police but internalizes externalities.<sup>121</sup> How do these factors play out in the sunken-treasure context?

Since sunken treasure cannot reproduce, treasure seeking does not entail the kind of overconsumption concern characteristic of fox hunting, for example. As Richard Posner puts it, "the problem is slightly different in the animal and treasure cases. In the first, it is too rapid exploitation; in the sec-

<sup>118</sup>Pres. Proclamation No. 5928, 54 Fed. Reg. 777 (1989); Philip A. Berns, *A Sovereign's Perspective on Treasure Salvage*, 30 J. MAR. L. & COM. 274 (1999).

<sup>119</sup>United Nations Convention on the Law of the Sea, Dec. 10, 1982, 1833 U.N.T.S. 396, see also Sweeney, *supra* note 69, at 200-01; Del Bianco, *supra* note 22, at 162-72. The United States has not signed this treaty.

<sup>120</sup>The waters of Texas, part of Florida, and Puerto Rico reach nine nautical miles from the coast. John Briscoe, *The Effect of President Reagan's 12-Mile Territorial Sea Proclamation on the Boundaries and Extraterritorial Powers of the Coastal States*, 2 TERR. SEA J. 225, 228-29 (1992).

<sup>121</sup>See *supra* notes 5-9 and accompanying text.



ond, too costly exploitation.”<sup>132</sup> In other words, open access to sunken treasure can entail deadweight “competition losses.” If a certain shipwreck is retrievable, little value can be gained by rival treasure hunters undertaking competing searches. The costs of these searches largely overlap, while the rewards generally do not increase (although in some cases, competition might lead to accelerated finds.)<sup>133</sup>

Would the competition costs entailed by treasure hunting aptly be characterized as “externalities?” I offer two answers. One remains loyal to the strict notion of externalities. On this approach, each treasure seeker imposes costs on the others by forcing them to compete with her. Each competitor, instead of pursuing treasure according to her own cost-benefit schedule, is forced to take the prospect of preemption into account. In this sense, competition costs may, perhaps, be viewed as externalities.

Another tack would be to take a broader view of the evolutionary perspective. Demsetz’s basic insight is that private property serves to eliminate the costs endemic to open access.<sup>134</sup> Treasure seeking’s competition costs fit well into this paradigm. These costs arise in open access situations, but would disappear in a private property regime, in which a single owner does not have to compete with others for finds, and can instead follow her own set of expected costs and benefits.

### *B. The Evolution of Abandoned-Treasure Law*

The law of abandoned sunken treasure has undergone a noticeable shift in recent decades, from the law of finds, which grants ownership to the finder, toward increasing government ownership. Beginning in the 1960s, a wave of state statutes asserted state ownership over shipwrecks abandoned in state waters; and ASA, in 1987, granted all states the ownership of (most) ships in their territorial waters. I focus my evolutionary analysis on this shift.

In Demsetzian terms, the “finders keepers” rule is an “open access” regime—that is, one “in which things are eligible for claiming through first possession.”<sup>135</sup> Like the early-stage Labrador-Peninsula hunters, early treasure seekers could legally appropriate shipwrecks by establishing physical control over them.

<sup>132</sup> RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 45 (8th ed. 2011).

<sup>133</sup> *Id.* at 42–43; cf. Fry, *supra* note 98, at 864–65; Dean Lueck, *The Rule of First Possession and the Design of the Law*, 38 *J.L. & ECON.* 393 (1995); David D. Haddock, *First Possession Versus Optimal Timing: Limiting the Dissipation of Economic Value*, 64 *WASH. U. L.Q.* 775 (1986); Joseph W. Dellapenna, *Global Climate Disruption and Water Law Reform*, 15 *WISCONSIN L. REV.* 409 (2010).

<sup>134</sup> See Merrill, *supra* note 3, at S331, S335–36.

<sup>135</sup> THOMAS W. MERRILL & HENRY E. SMITH, *PROPERTY* 95 (2007).

Government ownership was not the only possible alternative to open access in the abandoned-treasure case. In principle, a private property regime could also apply to this category of assets. The straightforward tack toward implementing a system of private property in this context would be that adopted by the Labrador Peninsula hunters. There, the economics and technology of the fur industry led to private property in land. Analogously, the sunken-treasure industry could conceivably generate private property in portions of the sea.

Private ownership in the seas would be a radical innovation. However, private property in abandoned shipwrecks could also be generated by way of a more moderate approach: the rights to shipwrecks could be severed from the ownership of the sea itself. The American system of oil and gas rights would provide a useful model for this approach. In that system, a "mineral interest" in oil and gas is severable, by lease, from surface ownership.<sup>136</sup> A "shipwreck interest" could similarly arise as a privately owned, alienable right.

### C. Cultural Property and Evolution

Given these preliminary investigations, does the evolution of the law of abandoned sunken treasure make sense in Demsetzian terms? One prominent feature of this tale does not fit the paradigmatic storyline that Demsetz had in mind. Demsetz imagined that technological and economic advances would generally push property regimes toward private property. At first glance, the case of abandoned treasure is therefore surprising, in that its technological and economic boom has been accompanied by a shift toward increased *government* property.<sup>137</sup>

However, several features of the economics of sunken treasure suggest that the general Demsetzian presumption that property tends to evolve toward private property is less applicable here. For one, improved technology does not necessarily increase sunken treasure's deadweight costs. Some technological innovations may simply reduce the costs of exploration, although others may indeed increase competition and waste.<sup>138</sup> Similarly, improved treasure-seeking technology does not merely increase consumption, and thereby reduce future supply, as in the case of fox hunting. Instead, it entails both increased consumption and increased supply (at least tem-

<sup>136</sup> JOHN S. LOWI, *OIL AND GAS LAW IN A NUTSHELL* 39-40 (5th ed. 2009).

<sup>137</sup> This would not necessarily be surprising on broader Demsetz-inspired accounts. See *supra* notes 18-19, 125 and accompanying text.

<sup>138</sup> Deadweight losses rise if each competing treasure seeker employs newly available technologies (ROVs, for example), but rewards do not increase accordingly. Losses may also rise if new treasure hunters enter the fray. Cf. Del Bianco, *supra* note 22, at 175.

porarily), since it renders a larger store of shipwrecks, once considered unavailable, potentially recoverable.

The broader evolutionary thesis holds that shifts in property-right regimes, whether or not they strengthen private property, tend to serve efficiency. Can the shift in the law of abandoned treasure toward governmental property be explained in these terms?

The answer I suggest to this problem flows not from treasure hunting's technological advances, but from another aspect of sunken treasure's developing economics: the shift that shipwrecks have undergone from fungible assets to cultural assets.<sup>127</sup> In recent decades, sunken treasure has attracted mounting interest as a culturally significant phenomenon. The manifestations of this trend include the rise of sunken-treasure museum exhibitions, the self-proclaimed "nascent discipline" of underwater archaeology,<sup>128</sup> and the political and academic lobby against commercial shipwreck retrieval. In short, sunken treasure has increasingly come to be viewed as cultural property.<sup>129</sup>

To some degree, cultural property, including sunken treasure, may be analyzed as a non-excludable, non-rivalrous public good.<sup>130</sup> On this view, cultural property provides benefits to the general public by its very existence. Peter Wendel, discussing relics of antiquity, recently expressed this conception of cultural property: "An antiquity reflects, and represents, the architecture, history, culture, and/or values of the people. Once knowledge of the newly discovered antiquity has been disseminated, the community/country as a whole receives an intangible cultural benefit that is shared and enjoyed by all."<sup>131</sup>

Sunken treasure, in its cultural aspects, fits this description. The public as a whole, or at least the portion of it that finds shipwrecks interesting, enjoys the very availability of undestroyed shipwrecks and shipwreck artifacts. The

Another possible explanation would frame government ownership as a kind of "second best." Private ownership of portions of the sea would be revolutionary. And there may well be functional reasons that explain why government ownership of the seas persists, particularly the seas' relative plenituousness and the relative difficulty of demarcating and policing borders at sea. Cf. Carol Rose, *The Comedy of the Commons: Custom, Commerce, and Inherently Public Property*, 53 U. CHI. L. REV. 711, 717-18 (1986). Perhaps, then, governmental ownership is a cheaper, and not entirely ineffective, means for combating the limitations of open access. However, I think that the availability of more moderate methods of creating private property in sunken treasure (see text accompanying supra note 127) renders this explanation unsatisfactory.

*A Nascent Discipline* is the subtitle of UNDERWATER ARCHAEOLOGY, supra note 50.

See sources cited supra note 80.

See generally N. GEOFFREY MANKIW, PRINCIPLES OF ECONOMICS 224-25 (3d ed. 2004); ROBERT COOPER & THOMAS ULIN, LAW AND ECONOMICS 40-43, 106-07 (3d ed. 2000).

<sup>127</sup> Peter T. Wendel, *Protecting Newly Discovered Antiquities: Thinking Outside the "Fee Simple" Box*, 76 FORHAM L. REV. 1015, 1031-32 (2007).

public's enjoyment stems both, prosaically, from various sources of sunken treasure-driven entertainment, and, more ephemerally, from sunken treasure's contribution to the fuel that drives the public imagination.

Private owners wielding control over retrieved sunken treasure are unlikely to take full account of these public benefits. Peter Byrne makes this point vis-à-vis historic buildings, noting that "[t]he cultural heritage conveyed by a community's historic buildings is a public good, the value of which is not fully internalized in private property rights."<sup>134</sup> The uninternalized cultural value of sunken treasure could therefore result in deficient incentives to "create," or find, shipwrecks, and to supply them to the market.

A more likely consequence, however, is that seekers of sunken-treasure will cause excessive, inefficient damage to shipwrecks and artifacts. Carol Rose has written, in the context of library books, that the public's interest is "to have the book stay intact as a whole, so that all the readers can use all its pages. We want this because we think the value of the book is at its highest when used as a unity."<sup>135</sup> Similarly, disassembling shipwrecks for sale in parts, or careless but quick excavation, might maximize the finders' own utility, but concurrently decrease the aggregate public utility, which derives, in part, from the ship's value as a cohesive unit.<sup>136</sup>

This form of public good-generated market failure could be tackled by a variety of methods, including regulatory oversight.<sup>137</sup> One classic solution, however, would be government ownership.<sup>138</sup> The government, as a representative of the public, may be able to take the externalities of sunken treas-

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<sup>134</sup> J. Peter Byrne, *Historic Preservation and Its Cultured Despisers: Reflections on the Contemporary Role of Preservation Law in Urban Development*, 19 *CITY MARSHALL L. REV.* 665, 675 (2012); see also Wendel, *supra* note 134, at 1032 ("It is difficult, if not impossible, to exclude the community or country from this benefit. . . . The intangible architectural, historical, and/or cultural characteristics of an item are primarily what qualify it as cultural property. It is these exact qualities which generate the positive externalities and define the newly discovered antiquity as a public good.")

<sup>135</sup> Carol Rose, *Energy and Efficiency in the Realignment of Common-Law Water Rights*, 19 *J. LEGAL STUD.* 261, 292 (1990).

<sup>136</sup> Wendel, *supra* note 134, at 1035-36; Varmer, *supra* note 68; cf. BRUCE ON MARITIME LAW OF SALVAGE, *supra* note 97, at 268; John C. Whitehead & Suzanne S. Finney, *Willingness to Pay for Submerged Maritime Cultural Resources*, 27 *J. CULTURAL ECON.* 231 (2003).

<sup>137</sup> Varmer, *supra* note 68; Wendel, *supra* note 134, offers a novel solution: he would grant a life estate to finders and a remainder to the government (or other representatives of the public.)

<sup>138</sup> See Rose, *supra* note 130, at 718-20; Byrne, *supra* note 135, at 675 ("Because private owners cannot fully capture the value of historic preservation, public ownership or regulations are necessary to protect the public's interests in their heritage."); Wendel, *supra* note 134, at 1037 (discussing "state ownership/retention rules" to "minimiz[e] the negative externalities associated with the act of the finder taking possession.") For a somewhat analogous argument, see Rose, *supra* note 136, at 290-96.

ure into account, and to maintain an efficient supply of adequately preserved shipwrecks and shipwreck artifacts for various culture-related ends.<sup>139</sup>

In short, a possible hypothesis is that government ownership of cultural-property goods like sunken treasure serves to reduce the externalities that private ownership of these goods would entail. On this hypothesis, increased government ownership of sunken treasure might be an efficient evolutionary step: as the cultural-property aspect of sunken treasure grows in importance, the weight of cultural-property externalities does too. The shift toward government ownership might be an efficient step toward curtailing these externalities.

#### *D. The Government's Role in Evolution*

The optimistic account offered in the last Section suggests that government ownership can play a helpful role in an efficiency-oriented evolution of property-right regimes, with regard to assets that become increasingly cultural property-oriented over time. Government ownership may therefore play a constructive role alongside open access and private property, the more prominent elements in Demsetz's triad of ownership forms,<sup>140</sup> in the evolutionary framework.

This hypothesis offers a new angle on a persistent critique of the evolutionary model. Several commentators have insisted that evolutionary theory does not account fully for the difficulties, both theoretical and practical, of effecting transitions from one property regime to another, even assuming that the new regime is uncontroversially superior under given economic circumstances.<sup>141</sup> This challenge looms significantly smaller where an efficient shift would expand government property. The government is at once a key promulgator of property regimes and the beneficiary of government-property regimes. In its capacity as legislator and regulator, the government can effect

<sup>139</sup> ASA purports to seek improved availability of "recreational and educational opportunities to sport divers and other interested groups, as well as irreplaceable State resources for tourism, biological sanctuaries, and historical research." 43 U.S.C. § 2103(a) (2006). It instructs the states to "develop appropriate and consistent policies so as to: (A) protect natural resources and habitat areas; (B) guarantee recreational exploration of shipwreck sites; and (C) allow for appropriate public and private sector recovery of shipwrecks consistent with the protection of historical values and environmental integrity of the shipwrecks and the sites." *Id.*

<sup>140</sup> For Demsetz's treatment of government ownership, see Demsetz, *supra* note 1, at 350; and Demsetz, *supra* note 4; see also Merrill, *supra* note 3, at S337.

<sup>141</sup> See, e.g., GARY D. LIBECAL, *CONTRACTING FOR PROPERTY RIGHTS* 128 (1989); Carol M. Rose, *Property as Storytelling: Perspectives from Game Theory, Narrative Theory, Feminist Theory*, 2 *YALE J.L. & HUM. RES.* 37 (1990); James E. Krier, *The Tragedy of the Commons, Part Two*, 15 *HARV. J.L. & PUB. POL'Y* 325, 336-38 (1992); Merrill, *supra* note 3, at S336-37.

changes that serve both its own interest and, on the optimistic evolutionary account, the public good.

A shift toward government ownership entails an obvious counter-worry, however. The idea of "evolution" toward desirable results fits most comfortably with uncoordinated, unconscious processes.<sup>142</sup> Where a property regime undergoes change as the result of government fiat, on the other hand, the new regime is naturally suspect. It can be hard to tell whether such shifts represent efficient evolutionary steps or government overreaching, perhaps to the benefit of powerful interest groups.<sup>143</sup> While I have offered a possible interpretation of the shift toward government ownership as a constructive evolutionary move, I do not know whether this shift does, in fact, represent evolution, expropriation, or some combination of the two.

A final note about the government's role in evolution is that it may be transitional.<sup>144</sup> Government ownership may be viewed not as an efficient end, but as a station on the track toward private ownership. Once ownership is vested in the government, it can be carved up into private, alienable rights. England's recent partnership with Odyssey<sup>145</sup> might offer an example of this kind of move toward private "shipwreck interests." In that transaction, England granted Odyssey a portion of the prospective rights to a certain shipwreck. Fully private property in abandoned shipwrecks would require additional steps, however. Most importantly, private owners would need to acquire the rights to any shipwreck found in a certain area. Additionally, the rights of these owners would ideally (from a private-property standpoint) be freely alienable.<sup>146</sup> Time will tell if the ownership of abandoned treasure is to take these further steps from government ownership toward private property.

## VII CONCLUSION

The sunken-treasure business has witnessed radical technological and economic development in recent decades. The law of sunken treasure has

<sup>142</sup> Cf. Demsetz, *supra* note 1, at 350; Merrill, *supra* note 3, at S333.

<sup>143</sup> Cf. Fred S. McChesney, *Government as Definer of Property Rights: Tragedy Exiting the Commons?*, in *PROPERTY RIGHTS*, *supra* note 3, at 227, 239-52; Terry L. Anderson & Peter J. Hill, *The Evolution of Property Rights*, in *PROPERTY RIGHTS*, *supra* note 3, at 118, 138. For the focus on interest-group politics, compare Thomas Merrill, *Explaining Market Mechanisms*, 2000 *U. ILL. L. REV.* 275; and Saul Levmore, *Two Stories About the Evolution of Property Rights*, 31 *J. LEGAL STUD.* S421 (2002).

<sup>144</sup> Cf. Rose, *supra* note 136, at 262-63.

<sup>145</sup> See *supra* text accompanying notes 66-67.

<sup>146</sup> See Demsetz, *supra* note 1, at 356-58.

also changed during this period. The old common law reserved rights in abandoned shipwrecks to the English crown; American law, which once disowned this doctrine, has gradually embraced it, in a series of state and federal statutes enacted since the 1960s.

The trend in sunken treasure law toward government ownership strays from Demsetz's core paradigm of property-law evolution, which predicted that economic development would be accompanied by a shift toward private property. This trend may, however, make evolutionary sense given the increasingly significant cultural-property aspect of sunken treasure. Where cultural property is involved, government ownership may be an efficient mode of internalizing externalities.

I conclude with a contrarian query. Sunken treasure is extremely appealing. "To many the recovery of artifacts from sunken ships has an air of mystery and romance."<sup>17</sup> "To speak of 'treasures of the sea' evokes for most of us visions born in childhood, of pirates and buried chests and all the trappings of the Robert Louis Stevenson tales."<sup>18</sup> It seems to me quite plausible that the popular appeal of sunken treasure is related to its very "capturability": Sunken treasure is a kind of *res nullius*, waiting to be captured by bold adventurers.

The recent shift toward government ownership of sunken treasure undermines sunken treasure's capturability. This shift may represent an effort to preserve the public-good cultural value of sunken treasure. But might it, at the same time, be eroding another public-good aspect of sunken treasure—the mystery and romance that fuel our collective imagination?

<sup>17</sup> BRIDGES ON MARITIME LAW OF SALVAGE, *supra* note 97, at 267.

<sup>18</sup> Kenny & Hrusoff, *supra* note 100, at 383.