

defended confidently on the basis of current knowledge. The concerns we highlight have rather to do with such things as optimal management of existing stocks of intellectual property, congestion externalities, search costs, rent seeking, and transaction costs.<sup>31</sup>

The complexity of the subject and the degree to which economic analysis of intellectual property remains inconclusive, if not indeterminate,<sup>32</sup> should warn the reader not to expect this book to be much like our other, similarly entitled book, *The Economic Structure of Tort Law* (1987), though they are alike in being the first book-length economic analyses of their respective fields of law. A nonstatutory field, tort law comprises a relatively small body of general doctrines that have an impressive intellectual unity. A reasonably straightforward and intuitive economic analysis can make that unity perspicuous and show it to be (or so we argued, and continue to believe) generally efficient. In contrast, intellectual property law is a complex amalgam of frequently amended federal statutes, together with common law principles, both state and federal, and some state statutes; and the economic issues are considerably more intricate. Still, economics has much to contribute to an understanding of intellectual property law—much of which does seem, as in the case of tort law, to be shaped by efficiency considerations—and to its incremental reform, though definitive recommendations for *fundamental* change cannot be supported on the basis of existing knowledge.

One of the major contributions of economic analysis to law has been simplification, enabling enhanced understanding. Economics is complex and difficult but it is less *complicated* than legal doctrine and it can serve to unify different areas of the law. We shall demonstrate how economics can bring out the deep commonality, as well as significant differences, among the various fields of intellectual property law and between intellectual property law and the law governing physical property. Economics can reduce a mind-boggling complex of statutes, amendments, and judicial decisions to coherency. By cutting away the dense underbrush of legal technicalities, economic analysis can also bring into sharp definition issues of policy that technicalities may conceal. That too is an aim of the book.

31. Edmund W. Kirch deserves recognition for his early effort to shift thinking about intellectual property from the creation of incentives to other economic ends. See Kirch, "The Nature and Function of the Patent System," 20 *Journal of Law and Economics* 265 (1977). We question the particulars of his analysis in Chapter 11 but not its significance in the history of economic thought about intellectual property.

32. The literature on the economic effects of patents is especially inconclusive. See, for example, Vincenzo Denicolò, "Patent Races and Optimal Patent Breadth and Length," 44 *Journal of Industrial Economics* 249 (1996), and Chapter 11 of this book.

## I

## The Economic Theory of Property

The economics of property rights in physical property are now well understood, and its basic elements can be summarized fairly briefly.<sup>1</sup> These elements provide, though only with adjustments, the tools for understanding the essential economic characteristics of intellectual property and for evaluating the pros and cons, the scope and limits, of property rights in intellectual goods. With intellectual property scholarship becoming more and more specialized, there is a danger of losing sight of the continuity between rights in physical and in intellectual property and thus the utility of using what economics has learned about the former to assist analysis of the latter.

The danger is exacerbated by a tendency among economic analysts of intellectual property to reduce the entire problem of intellectual property rights to a tradeoff between "incentive" and "access." Because intellectual property is often copiable by competitors who have not borne any of the cost of creating the property, there is fear that without legal protection against copying the incentive to create intellectual property will be undermined. At the same time, legal protection against copying, by enabling the creator of the intellectual property to charge a price for copies (of which his property right makes him a monopolist) in excess of his marginal cost, prevents access to (use of) the intellectual property by persons who value that access at more than the marginal cost but less than the price. We shall argue that to reduce the problem of intellectual property to this tradeoff is to oversimplify greatly; to ignore entire bodies of intellectual property law, notably trademark law; and, of particular pertinence to this chapter, to obscure the legal and economic continuity between physical and intellectual property. Not that the incentive-access tradeoff is nonexistent or even unimportant; but there is much else to consider in an economic analysis of intellectual property law.

1. See, for example, Richard A. Posner, *Economic Analysis of Law*, ch. 3 (6th ed. 2003); for a fuller treatment, see *Property Rights: Contract, Conflict, and Law* (Terry L. Anderson and Fred S. McChesney eds. 2003).

A property right is a legally enforceable power to exclude others from using a resource—all others (with exceptions unnecessary to get into here, such as the government when exercising its eminent domain power), and so with no need to make contracts with would-be users of the resource forbidding their use. If *A* owns a pasture, he can, with the backing of the courts and the police, forbid others to graze their cattle on it. He does not have to negotiate with them an agreement entitling him to exclusive use; that would be an infeasible alternative because the whole world could threaten to graze their cattle on his property in order to be paid by him not to do so. Conversely, if *B* wants to have the exclusive use of the pasture, he must acquire it on terms acceptable to *A*. Thus a property right includes both the right to exclude others and the right to transfer the property to another.

### Benefits

Property rights confer two types of economic benefit, static and dynamic. The former is illustrated by a natural (that is, uncultivated) pasture. If the owner cannot exclude others from using his pasture, there will be overgrazing. Unless law or contract (or maybe custom) intervenes, users of the pasture will ignore the costs they impose on each other in reducing their animals' weight by making the animals expend more energy in grazing in order to find enough to eat.<sup>2</sup> This is not, by the way, a hypothetical example. The enclosure movement in England transformed common pastures into private property. Although much criticized on grounds of distributive (in)justice, the movement increased agricultural productivity enormously,<sup>3</sup> though less by eliminating crowding of pastures than by reducing transaction costs. Enclosure made it unnecessary to get the agreement of all users of the pasture before it could be put to other uses,<sup>4</sup> thus facilitating movement from lower-valued to higher-valued uses of land. Reducing transaction costs is the very

2. This argument for property rights comes from Frank Knight, "Some Fallacies in the Interpretation of Social Cost," 38 *Quarterly Journal of Economics* 582 (1924), though the example he used was traffic congestion. Although we are using the pasture example as an example of a static benefit of property rights, it has a dynamic dimension as well, since overgrazing will deplete the pasture prematurely. We return to this point in discussing intellectual property congestion externalities in Chapter 8.

3. See, for example, J. R. Wordie, "The Chronology of English Enclosure, 1500-1914," 36 *Economic History Review* (n.s.) 483, 504-505 (1983).

4. See Donald N. McCloskey, "The Persistence of English Common Fields," in *European Peasants and Their Markets* 73, 85-87 (William N. Parker and Eric L. Jones eds. 1975); Carl J. Dahlman, *The Open Field System and Beyond: A Property Rights Analysis of an Economic Institution* 175 (1980).

raison d'être of property rights, as we just saw in contrasting them with contract rights.

The counterpart to the common pasture in intellectual property is the public domain (the *intellectual* public domain, that is, for there is also a public domain in physical things, mainly roads, parks, and waterways).<sup>5</sup> The term refers to the vast body of ideas and expression that are not copyrighted, patented, or otherwise propertized. Because the enclosure movement has been criticized, some critics of intellectual property law would like to see the public domain enlarged emphasize the analogy between the common pasture and the public domain and between the enclosure movement and the movement, which has been gathering steam since the mid-1970s and which we will encounter again and again in this book, to enlarge the scope and duration of rights in intellectual property.<sup>6</sup> It is important therefore to emphasize the contribution that the enclosure movement made to agricultural productivity. But it does not follow that rampant propertization of information and other intellectual goods would have similarly beneficent effects. Indeed, we doubt that it would. It is easy to imagine agriculture without common pastures but difficult to imagine a system under which, for example, every possible combination of words, symbols, colors, and other marks of identification were owned, so that to launch a new brand one would have to buy a trademark.

The dynamic benefit of a property right is the incentive that possession of such a right imparts to invest in the creation or improvement of a resource in period 1 (for example, planting a crop), given that no one else can appropriate the resource in period 2 (harvest time). It enables people to reap where they have sown. Without that prospect the incentive to sow is diminished. To take an example from intellectual property, a firm is less likely to expend resources on developing a new product if competing firms that have not borne the expense of development can duplicate the product and produce it at the same marginal cost as the innovator; competition will drive price down to marginal cost and the sunk costs of invention will not be recouped. This prospect provides the traditional economic rationale for intellectual property rights, though it involves as we shall see a significant degree of oversimplification. The possibility that such rights might also confer static benefits, eliminating congestion externalities comparable to those of the common pasture with which we began, has been neglected because of the widely held belief that intellectual property, not being physical, cannot be worn out, crowded,

5. See Carol M. Rose, "The Comedy of the Commons: Custom, Commerce, and Inherently Public Property," 53 *University of Chicago Law Review* 711 (1986).

6. See, for example, James Boyle, "Fencing Off Ideas: Enclosure and the Disappearance of the Public Domain," *Daedalus*, Spring 2002, p. 13, and references cited there.

or otherwise impaired by additional uses. It is a “public good” in the economist’s sense that consumption of it by one person does not reduce its consumption by another. More accurately, it has public-good characteristics, for we shall show that in some circumstances pro-*tertizing* intellectual property can prevent overuse or congestion in economically meaningful senses of these terms.

The very term “public good” is misleading, moreover. It sounds like a good produced by the government as opposed to the private sector. That is true of public goods that people cannot be excluded from having the benefit of even if they don’t contribute to the cost of supplying the goods. The clearest example is national defense. Many public goods, however, including intellectual property, are excludable in the sense that it is possible to condition access to them on payment. Such goods need not be provided by government.

Both the static and the dynamic benefits of property rights presuppose, as we noted at the outset, that there are too many potential users of the property for transactions with all of them to be economical. When transaction costs—which in general, though not in every case, rise with the number of contracting parties—are low, Ronald Coase’s well-known analysis of transaction costs implies that enforceable contract rights are all that society needs, beyond some underlying set of entitlements so that the parties have something to contract about, to attain optimal use and investment.<sup>7</sup> That is not the only situation in which property rights may be dispensable, even undesirable, from a social standpoint. If, though tradable at low cost, a good, however valuable it may be in the sense of utility conferred on the possessor, is not scarce (that is, if it has no *exchange* value),<sup>8</sup> if the costs of enforcing property rights are disproportionate to the value of the rights, or if the costs of appropriating someone’s valuable good are prohibitive quite apart from any legal sanctions, the social value of property rights will be slight or even negative.<sup>9</sup> These qualifications will loom large in this book; we shall see that “depro-*tertizing*” intellectual property rights may sometimes be the soundest policy economically. Even the strongest defenders of property rights acknowledge the economic value of preserving public domains—that is, of ar-

7. See R. H. Coase, “The Problem of Social Cost,” 3 *Journal of Law and Economics* 1 (1960). The entitlements required to get the contract process going need be no more elaborate than simple possessory “rights.” So long as *A* “has” something that *B* wants, and vice versa, there is the possibility of a transaction.

8. Goods may be very valuable, but if they are in infinite supply their price will be zero and so they will have no exchange (market) value. That was Adam Smith’s distinction between water and diamonds.

9. See Harold Demsetz, “Toward a Theory of Property Rights,” 57 *American Economic Review Papers and Proceedings* 347, 350–353 (May 1967), where these tradeoffs were first clearly identified.

cas in which property is available for common use rather than owned—even in regard to physical property and *a fortiori* in regard to intellectual property.<sup>10</sup>

Consider the following, we trust uncontroversial, example. Judicial decisions are not copyrighted; they are all in the public domain and thus a “commons” available for all to use without a license. Because they are produced as a byproduct of the operation of a court system, it is unlikely that more would be produced if they were copyrighted. Nor is it likely that more would be better. It is true that if judges were paid according to the use others make of their opinions, for example by citing them, the quality of judicial opinions could well increase; but the quantity would probably rise as well and this would increase lawyers’ research costs and might make the law less knowable and coherent than if there were fewer opinions, because an increase in the number of opinions increases the likelihood of inconsistent rulings. Most important, the transaction costs of obtaining licenses by the myriad of lawyers, litigants, judges, and law professors who make copies of judicial decisions would be immense.

It does not follow that government should never assert copyright in its documents, though that is the law at present. The conventional argument that if the government copyrighted the documents it produces or patented its inventions the public would pay twice, first in the taxes used to finance the creation of the document or invention and second in the part of the purchase price that reflected the copyright or patent monopoly,<sup>11</sup> is incorrect. If correct, it would mean that government should never charge a fee for any service. It would be correct only if the government permitted private persons or firms to copyright government documents. Something like this is the government’s policy with respect to patents, as we shall see in Chapter 11. But if instead government asserted copyright in order to be able to sell its documents for higher prices by forbidding their being copied, it could reduce taxes. In other words, copyrighting of government documents would merely be a switch from taxes to user fees as the method of financing the government’s expressive works. Such a switch is often a way of economizing on the costs of government and might be so with regard to many kinds of government doc-

10. See, for example, Richard A. Epstein, “Steady the Course: Property Rights in Genetic Material” (University of Chicago Law School, John M. Olin Law and Economics Working Paper No. 152 [2d ser.], May 22, 2002).

11. A caveat is necessary here: in using the conventional terms “copyright monopoly” or “patent monopoly” we do not mean to suggest that every copyright and every patent should raise warning flags for antitrust enforcers. Most copyrights and patents do not confer enough market power to raise any kind of antitrust issue, as we shall emphasize in Chapter 14, where we discuss the application of antitrust law in intellectual property markets.

ument. True, the higher prices charged for such documents would cause a deadweight loss by deflecting consumers to substitutes for the copyrighted document that might cost society more to produce. But it would not necessarily be a greater deadweight loss than that brought about by the higher taxes required to finance the creation of the documents when lower prices are charged for them.

### Costs

The costs of property rights are severalfold. First is the cost of transferring such rights (transaction cost). If it is too high, a property right may prevent optimal adjustments to changing values. Suppose that a factory is assigned a property right to the use of a river that runs beside it because the river is more valuable as a sewer than for recreation, but that as the years go by the relative values of these uses reverse. If the recreational users are numerous, the transaction costs of their buying the right to use the river from the factory may exceed the value of the right to them. In such a case a liability rule would be better, whereby the factory could be induced to discontinue its use of the river by being made to pay damages equal to the costs of the pollution to recreational users. The rule would reallocate the use of the river in accordance with changed values without requiring a transaction.

Transaction costs tend to be high in the case of intellectual property even when there are only a few transactors, actual or potential, in the picture. The reason is the frequent difficulty of identifying such property because by definition it has no unique physical site. This is true even of unique works such as paintings, since a painting may be photographed or otherwise copied, and the copies sold as prints or affixed to other salable objects such as mugs and calendars. What the original and the copies have in common—"the picture," we might call it, or even "the work of art"<sup>12</sup>—is a nonmaterial object separate from the painting itself. The transaction costs involved in selling the original are not likely to be especially high; the problem comes with the transfer of interests in the picture itself, that is, the transfer of the right to make copies (the copyright) and subsets of that right. Such rights are difficult to define because while the original itself is a definite, visible, physical object, what we are calling "the picture" is not, so there might be a question whether something that looked very much like the original was a copy that infringed the copyright or an independent creation that merely resembled the original.

The second major cost of a property rights system, and again one of partic-

12. See Oswald Hanfling, "The Ontology of Art," in *Philosophical Aesthetics: An Introduction* 76 (Oswald Hanfling ed. 1992).

ular importance to intellectual property, arises from a common motive for obtaining a property right, the motive that economists refer to as "rent seeking." Economic rent is a return over and above the cost of generating the return; it is pure profit, and so worth incurring costs to obtain, even if the costs exceed the social benefit from the undertaking, as they will often do. Suppose a sunken ship has a salvage value of \$1 million that could be realized at a cost of only \$100,000. The potential gain to the salvager—the economic rent or pure profit from salvaging the sunken ship—is thus \$900,000 if a property right in the sunken ship can be acquired. The competition to realize that gain by acquiring the property right may gobble up all or most of the potential rent, transforming it into a deadweight social loss unless the pell-mell competition speeds up the salvage process enough to produce an increase in present value that offsets the added cost.

The example assumes that the original owner of the ship abandoned it, so that it is unowned. If it has not been abandoned, the owner can auction off the right to salvage the ship to the lowest bidder, that is, the salvage company that demands the least for salvaging the ship. There will be no rent-seeking problem because competition among bidders will drive the price of the salvage down to its cost, including a reasonable profit measured by the opportunity cost of the resources used in the salvage—and that profit is not a rent but merely the reimbursement of a cost.

In the case of abandonment, property law ameliorates rent-seeking problems by sometimes giving the first committed searcher the exclusive right to conduct the search operation. Thus in *Treasure Salvors, Inc. v. Unidentified Wrecked & Abandoned Sailing Vessel*,<sup>13</sup> we read that "persons who actually reduce lost or abandoned objects to possession and persons who are actively and ably engaged in efforts to do so are legally protected against interference from others, whereas persons who simply discover or locate such property, but do not undertake to reduce it to possession, are not . . . The law acts to afford protection to persons who actually endeavor to return lost or abandoned goods to society as an incentive to undertake such expensive and risky ventures; the law does not clothe mere discovery with an exclusive right to the discovered property because such a rule would provide little encouragement to the discoverer to pursue the often strenuous task of actually retrieving the property and returning it to a socially useful purpose and yet would bar others from attempting to do so." By shifting rent-seeking activity to an earlier stage and eliminating duplicative expenditures on search at later

13. 640 F.2d 560, 572–573 (5th Cir. 1981). We thank James Krier for this reference. Similar cases, involving capture of whales, are discussed in Robert C. Ellickson, *Order without Law: How Neighbors Settle Disputes* 196–296 (1991), and Richard A. Posner, *Frontiers of Legal Theory* 210 (2001). See also the *Hadram* case, discussed later in this chapter.

stages, a committed-searcher doctrine may limit overall expenditures on rent seeking. This is not certain, however, as we shall point out in considering the patent law version of the doctrine in Chapter 11.

The legal protection of intellectual property gives rise to serious problems of rent seeking because intellectual goods are waiting, as it were, to be discovered or invented, just like the sunken ship whose owner has abandoned it. The term "patent race" has been coined to describe an intellectual property counterpart to the salvage example. Well before the term "rent seeking" had entered the economics lexicon, George Stigler observed that "the prospects of monopoly pricing [of patents] will lead to such a scale of investment in producing knowledge that it will return only the competitive rate of return on average."<sup>14</sup> The excess over the optimal investment, minus any social benefit produced by the additional investment, is the waste produced by rent seeking.

The third cost of property rights is the cost of protection. It includes not only the expenses incurred by police, property owners, and courts in enforcing laws against trespass and theft but also the cost of a fence used to mark boundary lines, the cost of a toll booth used to enforce a property right in a road or a bridge, and the cost of a registry used to record land titles. In some instances the total costs will exceed the benefits of proprietization. The owner of a shopping center who does not charge separately for the use of the shopping center's parking lot, instead treating it as a commons, has decided that the cost of charging for the use of the lot would exceed the benefit in enabling him to build a smaller lot by encouraging more economical use of it by his customers.

Intellectual property tends to be particularly costly to protect. An idea or other intellectual product cannot be seen in the way a piece of land can be or described with the precision possible in a map. The land may have been transferred by inheritance for many generations, but, unless it is located on a shifting shoreline, it is the same piece of land, recorded in the same land registry on a map with unchanged specifications. To trace the descent of an idea (or image, verbal formula, and so on), which has no spatial limits, is much more difficult. Moreover, the public-good character of intellectual property, of which more below and in the next two chapters, can make it difficult to prevent misappropriation and to exclude free riders in the absence of special legal protections. A related point is the greater difficulty of detecting unauthorized uses. If *A* steals *B*'s car, *B* will discover the theft quickly because the theft prevents his using his car. He will report the theft promptly and take ac-

14. George J. Stigler, "A Note on Patents," in Stigler, *The Organization of Industry* 123, 124 (1968). Stigler's paper was published for the first time in his 1968 book; we do not know when it was written.

tion to get his car back. Not so for intellectual property. If *A* reproduces *B*'s copyrighted work, *B* may not discover this for a long time (or ever) because the reproduction does not deprive him of the use of his work but only of the exclusive use of it. Moreover, this reproduction may take place in another state or country.<sup>15</sup>

A fence or other measure taken to enforce a property right may reduce output by restricting the use of the property, and if so this is as much a cost of the property right as the cost of the fence is. Suppose the owner of a shopping center does charge for the use of his parking lot; then, given that the demand for the use of the lot will not be perfectly inelastic other than perhaps in the very short run (if it had zero elasticity in the long run, the profit-maximizing price would be infinite), there will be less use of the lot than if access to it were "free." Some waste will result, for example, on days in which, the lot being empty, an additional user would impose no cost yet might be deflected by the price charged by the owner to a more costly activity, such as shopping at a less convenient shopping center that offers free parking. Granted, that waste may be more than offset on days when there is substantial traffic at the shopping center. If there is a charge for parking, then on those days instead of shoppers queuing up for scarce parking spaces, fewer drivers (not necessarily fewer shoppers) will choose to park at the mall and this will make it easier for those willing to pay to find a space. Substituting a price for queuing saves real resources, because price is a transfer from drivers to the owner of the shopping center whereas queuing imposes a social cost because it involves an expenditure of time. Such a saving is less likely in the case of intellectual property because of its public-good character. If price deflects users of a zero-marginal-cost good (such as space in an empty parking lot) to costly substitutes, there is no offsetting benefit from reducing crowding. And so to the extent that the use of intellectual property by one person does not interfere with its use by others, there is no crowding effect that one might want to alleviate by imposing a price for such use.

The public-good character of intellectual property is pronounced. In the case of farmland, whether cultivated or uncultivated, adding a user will, as we pointed out in discussing the example of the overgrazed pasture, impose costs on the existing user(s). So the fact that a fence keeps additional users out need not impose a net cost on users as a group, and if not, the only cost of the property right will be the fence. In our shopping-center example—which distantly echoes the discussion by Harold Hotelling and other economists in the first half of the twentieth century of the optimal pricing of goods, such as bridges, that have a very high ratio of fixed to marginal

15. These points were noted by Justice Holmes in *White-Smith Music Publishing Co. v. Apollo Co.*, 209 U.S. 1, 18–20 (1908) (concurring opinion).

costs<sup>16</sup>—charging for the use of the parking lot may have some misallocative effect. For once the lot is built, if it is large enough to accommodate customers at peak shopping hours it will often have excess capacity, at which times the marginal cost of providing parking for additional shoppers may, as we saw, be zero. At those times the lot is a public good and the marginal cost of another user will be zero (ignoring trivial wear and tear). When the lot is crowded, marginal cost will turn positive because the use of the lot by some customers will be depriving others of that use.

Often and not merely exceptionally, adding users will impose no costs on previous users of intellectual property. One farmer's using the idea of crop rotation does not prevent any other farmer from using the same idea. It is true that when more farmers use crop rotation, output will rise and price will fall, hurting farmers already using crop rotation. But the price effects of the diffusion of the idea are purely pecuniary externalities because the losses to the farmers are completely offset by the gains to consumers; there is no reduction in the aggregate value of the society's economic resources.<sup>17</sup> However, when the marginal cost of using a resource is zero, excluding someone (the marginal purchaser) from using it by charging a positive price for its use creates a deadweight loss, in addition to the out-of-pocket cost of enforcing exclusion by fences, security guards, police, lawyers, and registries of title deeds, because the price deflects some users to substitute goods that have a positive marginal cost. This loss is rarely significant in the case of physical property because, as we said, it brings with it a benefit: it avoids crowding in the pasture and shopping-center cases, and worse when joint consumption is not possible. More broadly, it allocates scarce resources to their highest-valued uses. Two people can't eat the same radish or wear the same pair of shoes at the same time. There must be a mechanism for allocation, and normally the most efficient is the price system. Hence Plant's point that intellectual property rights create scarcity whereas property rights in physical goods manage scarcity.

But the point is incomplete. Unless there is power to exclude, the incentive to create intellectual property in the first place may be impaired. Socially desirable investments (investments that yield social benefits in excess of their social costs) may be deterred if the creators of intellectual property cannot recoup their sunk costs. That is the *dynamic* benefit of property rights, and the result is the "access versus incentives" tradeoff: charging a price for a public good reduces access to it (a social cost), making it artificially scarce (Plant's

16. We abstract from any costs of congestion. Just as in the overgrazing case, the effect of traffic congestion on a bridge is that each driver imposes a cost (a time cost, in this case) on the other drivers. This is a marginal cost because it varies with the amount of use of the bridge.

17. When an externality results in a net reduction in the value of output, as in the case of pollution, rather than merely in a transfer of wealth, it is referred to as a "technological" externality.

point), but increases the incentive to create it in the first place, which is a possibly offsetting social benefit.

### The Cost-Benefit Tradeoff

The fact that intellectual property rights tend to be more costly, in all the ways we have indicated, than rights in physical property has several implications that form the core of our inquiry in this book. First, we can expect intellectual property law, to the extent it is guided by a concern with economic efficiency, to endeavor to reduce the costs of these rights. Second, we can expect that one way the law will do this is by imposing limitations on intellectual property rights that go beyond what is found in the domain of physical property. An example is the requirement that an invention, to be patentable, must not be an obvious application or extension of existing technology. This requirement prevents the obtaining of a property right in circumstances in which deadweight loss and excessive rent seeking would be serious problems. "Obviousness" implies a low cost of discovery and development and so a large potential gap between value and cost and therefore a rich opportunity to obtain economic rents. As a precondition to obtaining a property right, the requirement of nonobviousness has no counterpart in the law of physical property.

Another example is the limited duration of patents, which has only a distant cousin in that law (the doctrine of adverse possession, which, as we'll see shortly, enables title to physical property to be extinguished by the passage of time under special conditions). The durational limitation further limits rent seeking by putting a ceiling, though a high one, on a patent's expected value. It also responds to the high cost of tracing an idea over a long period of time in which it may have become embodied in a great variety of products and processes. That is a transaction cost because it increases the cost of licensing the idea.

Third, an extension of the second point, the high social costs of intellectual property rights create uncertainty as to whether on balance such rights are, from an overall social standpoint, cost-justified at all.<sup>18</sup> Intellectual property rights are an add-on to the physical property rights that the creators of intel-

18. The leading skeptic remains, as noted in the Introduction, Arnold Plant. See the two articles by him cited there in notes 2 and 5. See also, for example, Stephen G. Breyer, "The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs," 84 *Harvard Law Review* 281 (1970), and Adam B. Jaffe, "The U.S. Patent System in Transition: Policy Innovation and the Innovation Process," 29 *Research Policy* 531, 539–540 (2000). These two articles take a moderately skeptical position on copyright and patent, respectively—not calling for abolition but opposing extension. Many similar articles could be cited and some will be in later chapters.

lectual property uncontroversially possess. A writer has a property right in his time, his word processor, and his original manuscript. An artist has a property right in his painting. An inventor has a property right in his time, his laboratory, his equipment, his drawings. These property rights, together with certain personal rights such as the right to bodily integrity and the right not to be defrauded, enable the writer, the artist, and the inventor to create intellectual property, which none of them could do if, for example, it were lawful to break into a writer's laptop and steal and publish under one's own name the compositions found there. Because the producers of intellectual property have these rights, a great deal of intellectual property would be created even if there were no property rights in intellectual goods as such. We know this because an enormous quantity (and quality) of intellectual property was produced before there were such rights and because even today a great deal of the intellectual property that is produced would be produced even if they did not exist—some because produced with no hope of significant financial gain, some because financed by means other than sale, and some because the costs can be recouped before competitors can duplicate it, since, as we just pointed out, the preparatory stages in the creation of intellectual property are protected by the normal rights that people have to privacy and physical property. It is true that when these rights are used to protect intellectual property, they are discussed under the rubric of “trade secrecy,” normally regarded as a branch of the law of intellectual property. But we shall see in Chapter 13 that trade secrecy law doesn't, for the most part anyway, create intellectual *property* rights.

A further reason for skepticism about the social value of expansive intellectual property rights is the access versus incentives tradeoff: these rights reduce the demand for intellectual property by inserting a wedge between price and marginal cost, creating deadweight loss that must be balanced against the disincentive effects of denying the creator of such property a remedy against copiers. Another point, emphasized by Arnold Plant who in this respect was anticipating a much later economic literature on the rent seeking of cartels and other monopolists, is that intellectual property protection might result in too much intellectual property being produced rather than too little (or perhaps both, for different types of intellectual property). Such protection creates a monopoly, in the literal sense in which a person has a monopoly of the house he owns but occasionally in a meaningful economic sense as well because there may be no good substitutes for a particular intellectual work. Monopoly profits are not available in most endeavors, so the prospect of obtaining such profits, just as in our sunken-ship example, attracts into the creation of intellectual property resources that might be socially more productive in more competitive sectors of the economy where they would earn only a nor-

mal return on investment. If someone has the bright idea that a particular intersection is a good location for a gas station, and builds one at one corner of the intersection, he cannot prevent someone else from appropriating his idea by building a gas station at the opposite corner. A fundamental principle of American law is that competition is not a tort, that is, an invasion of a legally protected right. Freedom to imitate, to copy, is a cornerstone of competition and operates to minimize monopoly profits.

Plant remarked that publishers defend intellectual property by pointing to the many books that fail in the market, their costs being defrayed by the profits generated by the occasional success. The implicit assumption underlying this defense is that either those failed books are a “success” in a meaningful though not commercial sense because they confer an external benefit by increasing the stock of knowledge, or that there is such profound uncertainty about which books will “make it” in the marketplace that publishers could not afford to publish books unless the successful ones generated revenue far in excess of the fixed costs of producing them, in just the same way that the revenue from a gusher must cover the costs of the dry holes that any sound plan of exploring for oil must anticipate. An alternative possibility, however, is that the costs of the failed books are, at least to a considerable extent, just like the costs of the unsuccessful treasure hunters—they are waste induced by competition for economic rents.<sup>19</sup>

On the other side of the question whether to recognize rights in intellectual property is the potentially debilitating effect of free riding on the production of goods that involve a high ratio of fixed to marginal costs, a characteristic of intellectual property related to its public-good character.<sup>20</sup> Coase and others pointed out in criticism of Hotelling that if the owner of a bridge were forbidden to charge users because the marginal cost of their use was zero, the question how to finance the construction of the bridge in the first place would be acute.<sup>21</sup> The government would have to pay for it and how would the government discover whether the demand for the bridge was sufficient to warrant the cost of building it? If users are willing to pay in the aggregate an amount sufficient to cover its cost, at least we'll know that the

19. One possible but not terribly attractive response to Plant's point would be to provide similar legal protection to substitute activities. That is an argument for “business method” patents (see Chapter 11): if ideas for new business methods cannot be patented while new technological methods can be, there may be an inefficient diversion of intellectual talent and other resources from the first type of innovation to the second.

20. Some public goods, such as air, do not involve any costs of production. But of course the fact that a good has a zero marginal cost does not mean that it cost nothing to produce. Its costs of production will, however, be by definition fixed costs.

21. See, for example, R. H. Coase, “The Marginal Cost Controversy,” 13 *Economica* (n.s.) 169 (1946); Posner, note 1 above, at 370–371.

market values the bridge more than alternatives. That is one of the social advantages of a public good's being excludable.

Likewise, if the fixed costs of intellectual property—the costs incurred before a single sale is made—are very high and the marginal costs very low, and if, as implied by marginal costs being low, the costs of duplication are slight, then in the absence of intellectual property rights either the intellectual property will not be created or the government may have to finance it through a system of grants or rewards to writers and inventors. (We say “may,” not “will,” because there may be alternative sources of funding, such as private patronage.) Apart from the objection that such a system would be bound to be politicized, as it would involve substituting a governmental determination of the value of particular types of intellectual property for a market determination, it would not solve the access problem (that is, the misallocative effect of charging a price in excess of marginal cost). Or rather it would solve it only at the cost of creating another access problem. The money for the grants and rewards would have to be raised by taxation, and all feasible forms of taxation drive a wedge between price and marginal cost, just like the pricing of intellectual property when rights in such property are recognized. This is the same issue as whether to finance the production of government documents by taxation or by the government's copyrighting the documents, thus enabling them to be sold at a price that covers the costs of creating them.

Ideally, in deciding how broad or narrow an intellectual property right to recognize, one would want to classify different forms of intellectual property according to the output likely to be produced with and without the recognition of such a right and grant such recognition only to those forms in which output would be seriously suboptimal without it. So in areas of intellectual property where fixed costs were low or other incentives besides the prospect of royalty income were present in force, intellectual property protection would be slight or would even be withheld altogether. Unfortunately, the empirical studies required to make such a classification have never been undertaken; and there is a danger that such a classification could become a political football, with politically favored producers of intellectual property being granted broader rights than others (to some extent this may already be happening). Note finally that when costs of duplication are high, free riding may be eliminated, and intellectual property protection may therefore become relatively unimportant. (“Relatively” because intellectual like physical goods may create congestion externalities.) This was true for works of visual art until such derivative works as prints, decorative plates, statuettes, postcards, mugs, and T-shirts, sold in museum shops, became a source of significant income for owners of copyrighted art.

### Paper versus Possessory Titles

A crucial issue in the economics of property, including intellectual property, is the choice between possession and paper titles as grounds of ownership. Both methods are used, and for both physical and intellectual property. Either would be inefficient if universalized. A universal system of paper titles assumes that everything is already owned<sup>22</sup> and permits transfers only by formal conveyance (for example, the delivery of a deed); it is therefore useless for establishing rights over property newly created, never owned, or once owned but abandoned. Such a system would also leave undefined the status of non-owners who nevertheless have the exclusive use of property, such as tenants or licensees. And it would be helpless to deal with the inevitable mistakes to which a system of paper rights gives rise. The other polar regime, in which rights to the exclusive use of property are made to depend on physical control of the property or, in the case of trademarks, on sale in commercially meaningful quantities of the product or service that the trademark designates, entails heavy investments in the maintenance of such control. It also makes no provision for rights to future as distinct from present use. For example, the appropriation system of water rights that is in force in the western states of the United States, under which one acquires a right to water by possessing, that is, using, water (in irrigation, for example), encourages wasteful present use as a method of staking a claim to the future use of the water. The future use may be sufficiently valuable to the possessor to make the present wasteful expenditure worthwhile from his standpoint even though a system of paper rights would be more efficient from an overall social standpoint. That is a danger in conditioning the right to enforce a trademark, as U.S. law does, on the trademark holder's having actually begun to sell the trademarked product, though the problem is alleviated somewhat by permitting “intent to use” trademark registrations (see Chapter 7).

An efficient legal regime of property rights thus is likely to be a mixed system, combining paper rights with possessory rights. Consider, for example, whether unowned property should be obtainable only by possession or also by grant or some other nonpossessory method. The general answer is, only by possession. Suppose a new, and to simplify analysis an uninhabited, continent were discovered. It would not be efficient to give the discoverer title to the entire continent before he had taken possession of it in the sense of occupying all or at least most of it. Such an enormous reward would induce excessive investment in exploration, assuming competition in the exploration mar-

22. An exception—the acquisition of title by a grant—is discussed below.

ket. The explorer who discovered the continent just one day before his rivals would obtain the continent's entire value. The prospect of obtaining a value so greatly in excess of his cost of discovery would induce him, and likewise his rivals, to incur additional costs (above the minimum cost of discovery) that would exceed the marginal benefit of those additional exertions.

Recall the earlier example of maritime salvage and assume that the exclusive right to exploit the newly discovered continent is worth \$X and that if there were only one potential discoverer he would spend \$.1X to discover it and discovery would take him two years. If there are ten potential discoverers, each with an equal chance of winning the race, each will (assuming they are not risk-averse) spend up to \$.1X to come in first. But now suppose that the race would cause the continent to be discovered a year earlier; given the time value of money, early discovery would increase the discoverer's present value, say to \$1.1X. But the increase in value (\$.1X) would fall far short of the added cost (\$.9X). The race would thus be wasteful from a social standpoint, though if one of the contestants has much lower costs than the others, so that it is apparent from the start that if there is a contest (and the contestants have equal access to the capital markets to finance the expense of the contest) he will win, the others will forbear to compete, and so there will be no race.<sup>23</sup>

An alternative, which resembles the committed-searcher doctrine noted earlier and which we consider in Chapter 11, is to grant the first searcher the exclusive right to the discovery—but then rents may be incurred to become the first searcher.

Probably the most efficient alternative to basing ownership of previously unowned property on either discovery or a grant is to base it on physical occupation. This reduces the net reward to being first and so alleviates to some extent the problem of excessive investment by forcing the would-be owner to incur the costs of occupation. It also tends to allocate resources to those persons best able to use them productively, for they are the people most likely to be willing to incur the costs involved in possession. A discoverer who could obtain title to the entire continent just by declaration or filing would promptly turn around and sell off most or all of the land because he would not be the most efficient developer of all of it. Transaction costs are minimized if the people who are actually going to possess the land are given the ownership right in the first place. That was the procedure followed in the Homestead Act. Parcels of 160 acres were granted to people who wanted to

23. See Dean Lueck, "First Possession," in *New Palgrave Dictionary of Economics and the Law*, vol. 2, p. 132 (Peter Newman ed. 1998).

farm. An alternative would have been to give a real estate company the whole public domain and let the company subdivide it; transaction costs would probably have been higher.

An analogy from intellectual property is the American rule against obtaining a trademark simply by registration, with no present or imminent use. Or consider patent rights: the patent grant is a piece of paper, but you cannot get it until you have actually invented something. We shall see in Chapter 11 that there is debate over how far along in the inventive process one should be required to be in order to be entitled to the critical piece of paper.

Oliver Wendell Holmes discussed a case in which the plaintiff entrusted a safe to the defendant to sell for him and the defendant found some banknotes, evidently the plaintiff's, in a crevice in the safe before he sold it. The plaintiff was held entitled to get the banknotes back; the defendant was not their "possessor" in the eyes of the law.<sup>24</sup> Finding lost property is a valuable service and should be encouraged.<sup>25</sup> But just as with the discovery of new continents, giving a finder the entire value of his find could lead to overinvestment in trying to find things of value. (A discoverer is a kind of finder.) If the agent in Holmes's case had been a specialist in finding forgotten items in safes, then he could have negotiated to purchase the safe and any contents found in it. That is the way in which connoisseurs profit from their skills—they buy from owners who do not realize the full value of their art.

An additional problem with a legal rule of "finders keepers," which has no counterpart in the case of discovery of a new continent, is that giving the finder of lost property its entire value may lead owners to overinvest in safeguarding their property. That problem has been discussed with reference to proposals to give title to finders of long-lost works of art.<sup>26</sup> Better than giving the finder ownership is entitling him, under the law of restitution, to com-

24. Oliver Wendell Holmes, Jr., *The Common Law* 225–226 (1881). For a modern case, involving a painting, see *Mucha v. King*, 792 F.2d 602 (7th Cir. 1986).

25. Oddly, though, this is less true of currency than of other valuable goods. A successful hunt for sunken artifacts enriches the world's stock of valuable goods, whereas a successful hunt for sunken currency (assuming it has no historical value) merely shifts wealth to the finder by increasing the stock of money and giving him the amount by which it has increased, so that the entire resources consumed in the hunt are a deadweight loss. Hence the rule that "treasure trove" (currency and bullion) escheats to the government rather than becoming the property of the finder. See Posner, note 1 above, at 36–37. This is an example of a legal doctrine that, like the committed-searcher doctrine, can be interpreted as being designed to minimize rent seeking.

26. See William M. Landes and Richard A. Posner, "The Economics of Legal Disputes over the Ownership of Works of Art and Other Collectibles," in *Economics of the Arts* 177 (Victor A. Ginsburgh and Pierre-Michel Menger eds. 1996).

penation from the owner for the costs of finding and returning the property.<sup>27</sup> That is also better than dividing the found property between the original owner and the finder. Unless the property is readily divisible, a division will reduce its total value (not a problem with a sheaf of banknotes, however), and so the parties would have to expend resources on negotiating a transfer of one party's share to the other, or both parties' shares to a third party, in order to preserve the property's integrity and economic value. The extreme case of inefficient division would be giving the head of a recovered statue to the finder and the rest of the statue to the original owner.

In the case discussed by Holmes, the owner of the safe owned the banknotes. Suppose he didn't. Or suppose someone leaves his wallet, containing money, at a supermarket checkout counter; a customer picks up the wallet; and the owner never claims it. Should the customer be entitled to retain possession of the wallet and money, or should the supermarket be entitled to it? The argument for the customer is that since it was he who found it, he deserves a reward; the supermarket did nothing. But if, knowing that he will be able to keep the wallet if the owner doesn't claim it, the customer walks off with it, it is less likely to be returned to the owner than if it were left to be found by a supermarket employee. For when the owner of the wallet discovers its loss he will check in the places he has visited that day, and the search will quickly lead him back to the supermarket.

The supermarket case illustrates the legal distinction between lost and mislaid items, "lost" meaning that the owner doesn't realize the property is missing. Not realizing that, he is unlikely to search for it, and so the law awards lawful possession of lost property to the finder rather than, as in the case of mislaid property, to the owner of the place where it is found. Still, lost property is not abandoned property, so as between the finder and the owner, the latter has the superior right. But abandoned property is an important category, especially of intellectual property, given the durational limitations of patents and copyrights and the frequent forfeiture of trademarks. When property is abandoned, the law's choice is between "depropertizing" it, so that anyone can use it but no one can establish an exclusive right to its use,

27. See *Nadalin v. Automobile Recovery Bureau, Inc.*, 169 F.3d 1084 (7th Cir. 1999), and cases cited there; William M. Landes and Richard A. Posner, "Salvors, Finders, Good Samaritans, and Other Rescuers: An Economic Study of Law and Altruism," 7 *Journal of Legal Studies* 83 (1978); Saul Levmore, "Explaining Restitution," 71 *Virginia Law Review* 65 (1985). A case similar to that of the safe, also discussed by Holmes, is where "a stick of timber comes ashore on a man's land" (presumably without his knowing it). "He thereby acquires a 'right of possession' as against an actual finder who enters for the purpose of removing it." Holmes, note 24 above, at 223 (footnote omitted). The optimal solution may be to give the finder a reward while giving the property right to the landowner—assuming the stick of timber was unowned when it washed ashore.

and allowing it to be reappropriated, which may make for more efficient use but also may incite rent seeking by competing would-be reappropriators.

Rent seeking incited by excessive rewards provides another argument against allowing the customer-finder in our supermarket example to keep unclaimed mislaid property: his reward may greatly exceed his cost. True, it is only ex post that the customer-finder obtains this reward; that is, it is only if the owner did not claim his property. And this means that the finder's *expected* reward may have been small, since most people who lose valuable property make an effort to recover it. But since an employee of the supermarket would probably have found the wallet shortly after the customer did, the value of the customer's finding it may have been slight—in fact negative, for the owner will have more difficulty reclaiming it from a customer than from the supermarket even if the customer is required to leave his name and address with the supermarket.

The case of the safe with the hidden banknotes sheds light on whether physical control should be required for the maintenance as well as acquisition of ownership. The general answer is "no" because such a requirement would lead to wasteful expenditures and also discourage specialization. To grasp the second point, imagine that a tenant were deemed the owner of the leased premises because the landlord, by virtue of the lease, loses physical control over them (that is, the landlord cannot barge into the premises during the term of the lease). It is more sensible to recognize the joint possession of landlord and tenant and to parcel out the right to take legal action to protect their possessory interests between them in accordance with comparative advantage in particular circumstances. So in cases in which disposition by an intruder takes place so late in the term that the tenant has little incentive to sue, or cases in which the infringement is more harmful to the landlord than to the tenant (for example, if the tenant is dispossessed by a dealer in illegal drugs, who proceeds to frighten away the other tenants), or cases in which the tenant simply lacks the resources to litigate against the infringer, the landlord though not in possession should be permitted to sue.

Not that joint possession is unproblematic. Transaction costs are higher if the law, rather than placing the right to the use of property in one person, requires two or more people to agree with each other on how the property is to be used. The law deals with this problem by allowing each joint owner to insist on the partition of the property so that it becomes reconfigured as separate parcels each controlled by only one person. Of course this won't be permitted if the partition would greatly reduce the value of the property, as in our earlier example of the statue. In such cases—which are common in the case of intellectual property—efficiency requires a presumption that the entire object is the thing possessed. The blanket licenses issued by performing-

rights organizations such as ASCAP are a dramatic example of minimizing transaction costs by aggregating control, in that case by treating a multitude of bits of property (individual songs) as a single lump under one management. Another example is that while copyrights and patents are indivisible, when they are jointly owned the law allows each joint owner the full use of the property right, thus minimizing transaction costs. The difference between this example and that of the statue is the public-good character of intellectual as distinct from physical property. Each joint owner of a copyright can incorporate elements of the copyrighted work into his own future intellectual property, and each joint owner of a patent can work to improve the invention, without interfering (at least physically) in the activity of the other joint owner or owners.

Suppose that a tract of land was previously unowned, unclaimed, and unoccupied, and there is no paper title to it. The first possessor is therefore the owner. But what if he isn't continuously present on the land? If someone now occupies the land, is *he* the possessor? Surely not, as otherwise owners would make wasteful expenditures on fencing and patrolling land. It is one thing to condition acquisition of title to newly found property on possession. But once title is acquired by this route, it should be enough for the maintenance of that title to record it in a public registry of deeds in order to warn away accidental trespassers. That is a cheaper method of notice than elaborate signage and fencing, let alone the kind of present, pervasive use that might reasonably be required to obtain title to *terra incognita*. It is another example of why a system of purely possessory property rights would be uneconomical. It is also an example of the perils of generalizing about the law and specifically about moving too quickly by the route of analogy from physical to intellectual property. For in the case of trade secrets, the possessor in order to be allowed to complain about the theft of his secret information *is* required to have taken active measures to keep it secret. The social purpose of trade secrecy would be thwarted if trade secrets had to be recorded in public registries, and so an alternative method of warning off infringers is necessary and it involves the possessor's taking measures that make clear to the world that the information in question is indeed a secret and may not be used without his permission. This in turn implies, in contrast to the law of physical property, that finders of trade secrets *are* keepers. If you leave your trade secret, as distinct from your wallet, "lying around," rather than as it were under lock and key, someone who "finds" your secret invention becomes a rightful possessor of it—but of course not its exclusive rightful possessor, since it is no longer secret.

Title records are not infallible. Nor do they ordinarily record abandonment. If a new occupier of land formally owned by another makes clear that

he is claiming the land and the owner does nothing to contest the claim for years, the law shifts the ownership of the land to the new occupier, who is said to have acquired ownership by "adverse possession." The requirement of adverseness (implicit in our stipulating that the new occupier "is claiming" the land) is essential. Otherwise a tenant whose lease extended for the period of years required to obtain ownership by prescription (that is, by passage of time) would, at the end of that period, have become the owner of the leased property.

The tenant's possession is not "owner-like"; the adverse possessor's is. The root difference lies in the possessor's intent, which can often be inferred from such objective indicia as the existence of a lease, the behavior of the owner (whether itself "owner-like"), and the behavior of the possessor (for example, whether he makes permanent improvements to the property, implying that he thinks himself the owner). We shall see something akin to adverse possession at work in the trademark field; sellers are often dispossessed of their trademarks because a trademark has become in the public mind the name of something other than the particular seller's brand.

Adverse possession, understood as a method of shifting ownership without benefit of negotiation or a paper transfer, is one answer to the question when should property be deemed abandoned, that is, returned to the common pool of unowned resources. Economics teaches that this should happen when it is likely to promote the efficient use of valuable resources. The clearest case of abandonment is when a possessor deliberately "throws away" the property, in effect voluntarily returning it to the common pool. His act signifies that the property has no value in his hands. And so by deeming the property abandoned and therefore available for reappropriation by someone else, the law encourages the reallocation of the property to a higher-valued use without burdening the system with negotiation costs. Similarly, the owner who does not react to the adverse possession of his property for years is indicating that he does not value the property more than the cost of taking the minimum steps necessary to maintain his property right; that is the economic meaning of abandonment.

In allowing property rights to be obtained in abandoned property, the law tracks the economist's presumptive preference for proppedertized property over commons. It allows property to be withdrawn from the public domain and privatized. But as we have already noted, this is a source of potential worry when the public domain in question consists of intellectual property. The more costly property rights are to transact over—and we have seen that intellectual property rights are likely to be highly costly to transact over—the greater the danger that allowing goods that are in the public domain to be privatized will have inefficient results. In the extreme case, if transaction costs

were prohibitive, allowing the public domain to be privatized would eliminate it as a source of inputs into future intellectual property created by anyone other than the owner of the particular bit of formerly public, now privatized intellectual property.

When an owner actually throws away his property—something done all the time, even with land, as when an owner defaults on his mortgage or allows his land to be seized by the government for nonpayment of real estate taxes—this indicates that after deducting the costs of owning the property, he values it at zero dollars or less, and so any finder who bothers to take the property is certain to be someone who values it more. Negotiation is not required in such a case in order to certify that the appropriation of the property by the finder is indeed a value-maximizing transaction; the costs of negotiation would be a deadweight loss. In other cases market transactions are a more efficient method of moving property to its highest-valued use than coerced transactions are, provided transaction costs are low. But often they are high even when the property in question is as conventional as a parcel of land. The owner may be unknown. More commonly, the exact boundaries of his property are unknown, which is why the adverse possessor doesn't know that he's encroaching or the owner that his property is being encroached upon. Such problems are particularly acute in the case of intellectual property. It is not bounded in space or, except for its beginning, in time, and not being physical it is indestructible as well as having no spatial limits.

The law treats the abandonment of intellectual property differently. Once it is abandoned, it becomes part of the public domain and property rights cannot be obtained in it. The difference in legal treatment is explicable by reference not only to the higher transaction costs of intellectual compared to physical property, but also to the traditional emphasis on the role of intellectual property rights in providing incentives to create such property. Once it has been created and abandoned, there is no felt need, from the standpoint of incentivizing, to allow its reappropriation. This may be too limited a standpoint, however, as we shall explore in subsequent chapters, particularly Chapter 8.

We noted that the right of adverse possession is confined to cases in which the adverse possessor is acting in good faith—that is, he really believes the property is his. Otherwise the doctrine would encourage coercive property transfers in settings of low transaction costs. Confined to cases in which the true owner cannot easily be identified or found or seems clearly to have abandoned the property, the doctrine fulfills a basic function of law conceived economically, that of mimicking the market in cases in which high transaction costs either prevent it from bringing about an efficient allocation of resources or, as in the case of abandonment, would be a pure waste. Yet we shall point

out repeatedly in this book instances in which the law allows intellectual property to be taken deliberately, without claim of ownership, and without compensation to the current owner, because of high transaction costs—which may indeed be the most important factor that explains the differences between the law of intellectual property and the law of physical property.

Adverse possession can also be thought of as a method of correcting paper titles in settings in which market-transaction costs are high;<sup>28</sup> it improves rather than challenges the system of property rights. By the time an undiscovered owner, or the owner of property of unknown scope, wakes up and asserts his rights, evidence may have faded and the adverse possessor may have relied on a reasonable belief that he is the true owner of the property in question. Thinking the property his he may have made an investment in it that will be worthless if he loses the property to the original owner—to whom, however, the property may be worthless, as indicated by his having slept on his rights. When there is a gross disparity in the value that the only competitor vies for the largest possible share of that value. Suppose the land is worth \$1 million to the adverse possessor (perhaps because he believes there are mineral deposits on it) and only \$10,000 to the original owner (who disbelieves this). Then at any sale price between \$10,000 and \$1 million both parties will think themselves made better off by a sale. But each will be eager to engross as much of the difference as possible, and that may make it difficult for them to agree on a price without protracted bargaining; ultimately they may not agree, especially if they want to obtain or maintain a reputation for being hard bargainers.

The doctrine of adverse possession is rarely if ever invoked in intellectual property cases. Yet something quite like it operates in the trademark area, we shall see an example in the “March Madness” case discussed in Chapter 7, where a senior user lost a trademark right to a junior one. Trade secrecy law contains an echo of adverse possession because by failing to take precautions to keep his invention (or customer list, business plans, or other information) secret, the possessor of the trade secret shows that he doesn't value it highly. And the fixed duration of patents and copyrights, a very rough counterpart to adverse possession, has among other purposes simplifying the system of paper titles to intellectual property so that the creation of new and the use of old intellectual property are not encumbered by excessive costs of transacting with existing owners. The fixed duration corresponds to the period of prescription (or statute of limitations) at the end of which physical property is

28. Thomas W. Merrill, “Property Rules, Liability Rules, and Adverse Possession,” 79 *Northwestern University Law Review* 1122 (1985).

lost to an adverse possessor. In both cases the effect is to clear the decks of stale paper titles. A major difference, however, is that adverse possession shifts ownership from one person to another, whereas the expiration of a fixed-duration intellectual property rights eliminates ownership and makes the work a part of the public domain.

Sometimes an intention to abandon property can be inferred from negligence in the use of it. The neglectful possessor both implies by his conduct that the property is not worth much to him and creates the impression among potential finders that the property has indeed been abandoned and is therefore fair game. Deeming the property abandoned in these circumstances becomes a method of reducing transaction costs and increasing the likelihood that the property will be shifted to a more valuable use. Our trade secrecy example illustrated this point.

The close relation between, as well as the interdependence of, possession and paper titles as methods of establishing property rights should be clear by now and also the historical priority of the former. Just like a deed of title recorded in a public registry, possession, provided it is "open and notorious," as the cases on adverse possession say, is a way of notifying the world of the existence of a claim.<sup>29</sup> It was the only feasible way in the earliest stages of society. The fence is prior to the paper title as a method of announcing a property right and something like it continues to figure in trademark and trade secrecy law, and in copyright law as well. Before a 1988 amendment to the Copyright Act of 1976, notice had to be affixed to the published work for it to be copyrighted. The amendment dispensed with the requirement of formal notice. But because by virtue of the 1976 Act copyright now attaches automatically to any expressive work once it is fixed in a tangible medium, the work itself is notice of the property right. The decision whether to require a physical act in order to obtain or maintain a possessory right involves trading off the costs of the particular act that communicates a claim against the benefits of clear communication. The more elaborate the required acts, the more unmistakable the communication, which is efficient because the clear public definition of property rights lowers transaction costs and tends to optimize investment; but also the more costly this form of notice becomes.

The costs of the most elaborate acts of notice by possession—acts of complete, continuous, and conspicuous occupation—will often outweigh the benefits. That is why, to recur to an earlier point, a lesser degree of active possession will suffice to maintain a property right than would be neces-

29. This function of possession is emphasized in Carol M. Rose, "Possession as the Origin of Property," 52 *University of Chicago Law Review* 73 (1985).

sary to acquire it, a point illustrated by the colorful old case of *Hastem v. Lockwood*.<sup>30</sup> The plaintiff had raked horse manure dropped on the public streets into heaps that he intended to cart away the next day, which was the earliest he could obtain the necessary transportation. The defendant beat him to the punch. The plaintiff sued for the return of the manure and won. The original owners of the manure, who were the owners of the horses that had dropped it, had abandoned the manure; the plaintiff had found it. He took possession by raking it into heaps, and the heaps were adequate notice to third parties, such as the defendant, that the manure was no longer abandoned property available to be reappropriated. To have required the plaintiff, in order to protect his property right, to go beyond the heaping of the manure—to fence it, or watch continuously over it, or arrange in advance to have a cart in place to remove the manure as soon as it was heaped—would have increased the cost of the transaction by which manure worthless to the original owner became a valuable commodity, without generating offsetting benefits.

When property is stolen, it is not deemed abandoned. The purchaser from the thief, even if wholly and reasonably ignorant of the tainted source of his possession, has no right against the original owner. This rule can be defended as reducing the gain from and hence the likely incidence of theft; but there is more to a sound economic analysis, as is brought out by the issue of property rights in stolen art.<sup>31</sup> Many works of art were stolen during World War II, which ended more than half a century ago. It can be argued that if the original owner has done nothing to try to recover the work in all that time, his title should be cut off lest the current owner be reluctant to exhibit the work for fear of alerting his dormific predecessor; the work should be deemed "abandoned." Were this the rule, original owners would have an incentive to take additional precautions to prevent the theft of their art.

But creating such an incentive is not the unalloyed benefit that it may seem. The cost of these precautions, precautions that might include refusing to allow the art to be exhibited widely, have to be balanced against the cost of additional efforts by the purchaser to prevent the discovery of the theft. They also have to be balanced against the additional search costs that an original owner will incur to discover his stolen art if he is entitled to get it back even from a bona fide purchaser from the thief. If the costs in concealment by the purchaser and search by the owner, under a system in which the original owner prevails, do not greatly exceed the costs in owners' precautions under

30. 37 Conn. 500 (1871).

31. See Landes and Posner, note 27 above.

a system in which the bona fide purchaser prevails, the undesirability of making stolen goods more readily marketable is likely to tip the balance against allowing the purchaser to acquire title.

Yet we have noted several times now that trade secrecy law strikes the opposite balance. This is a reminder that the traditional law of property, economically understood, though invaluable as a source of insights for understanding intellectual property law in economic terms, cannot be mechanically extrapolated to that law. The differences are as important as the similarities. Neglect of this point may be responsible for the possibly uncritical expansion in intellectual property rights that we try to explain in the last chapter.

A final difference of great importance between physical and intellectual property is that, despite our example of continental discovery and our reference to the Homestead Act, almost all physical property available for private ownership is already owned. The government is no longer in the business of giving away property rights to land, and as a result all transactions involving land (and personal property as well, that is, physical property that is not land) are private. But in the case of intellectual property, the government remains very much in the business of making ad hoc grants. Every year, government creates hundreds of thousands, maybe millions, of new property rights in intellectual property by issuing copyrights, patents, and trademarks. Government's much deeper involvement in intellectual than in physical property makes it perilous to extrapolate uncritically to the domain of intellectual property from the deservedly high repute in which the system of property rights in land and other physical property is held.

## 2

### How to Think about Copyright

In this chapter we present an informal economic model of optimal copyright protection that will be formalized in the next chapter, and in succeeding chapters we consider how well the principal doctrines (such as fair use) and other features (such as limited duration) of copyright law line up with our economic analysis. We discuss in this chapter the technological, cultural, legal, and economic factors that determine the number and character of expressive works created and then examine the modes of exploitation of the created works. These are the building blocks of the formal model developed in the next chapter.

By "expressive work" we mean any work that might be a candidate for copyright protection under modern law. The term is not ideal, though we haven't been able to think of a better one. Copyright protection is not limited to works of the imagination, such as novels and operas and paintings, but extends to nonfiction, certain data compilations, and even machine-readable computer software. The protection, however, is of the form or configuration in which an idea is expressed, as distinct from the idea itself, the protection of which is the domain of patent and trade secret law rather than of copyright law.

#### The Creation and Distribution of Expressive Works

The cost of producing a book or other expressive work (we start by talking just about books and later branch out to other forms of expression) has two components. The first is the cost of creating the work. We assume that it does not vary with the number of copies produced or sold, since it consists primarily of the author's time and effort plus the cost to the publisher of soliciting and editing the manuscript and setting it in type. Consistent with copyright usage, we call the sum of these costs the "cost of expression." It is, to repeat, a fixed cost. The second component, the cost of producing the actual copies, increases with the number of copies produced, for it is the cost of printing, binding, and distributing individual copies. It is thus a variable cost.