1. The plasticity of property: legal transitions between property rights regimes for different resources

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1. INTRODUCTION: TWO MAJOR CHALLENGES—PROPERTY RIGHTS IN PRIVATE AND PUBLIC LAW SYSTEMS

My assignment in this chapter is to address the multiplicity of forms that emerge in the broad range of property rights, in order to explain how they function, both separately and in combination. In many cases, these property regimes emerge as hybrid arrangements from earlier, simpler forms. The purpose of this chapter is to describe the mechanisms that enable these newer forms of property rights to emerge, for better or worse. The tale is one of some difficulty because of the many different types of tangible resources that are subject to property ownership: land, air, water, minerals, animals, and more. The physical properties of different resources often call for different property arrangements, so the pattern of transformation may vary by resource. It is impossible to trace every transition, but I hope to provide a reasonably full set of examples of how the process works and to explain when these transitions should or should not require that compensation be supplied to losers of previously vested rights, and, if so, by whom. The entire study is an exercise in forced exchanges introduced by law, some of which are benevolent, and some not.

In dealing with this issue of property transitions, it is important to overcome two inveterate mistakes. The first is to stress the role of private property
while ignoring or underrating a second form of property—the commons. It is a theme on which I have written a lot, especially in recent years, but chiefly for American audiences. But the theme is surely one that is critical for an international audience because all relevant considerations revolve around such basic economic conceptions as externalities and holdouts that cut across different legal systems, even if particular solutions may vary due to differences in national institutions or environmental conditions, or some combination of the two. Nonetheless, the wide variety of common, private, and mixed property right regimes for different resources calls for some overarching explanation of what resources are governed by what arrangements and why.

The initial distinction in this area is that between private and common property, which dates back to Roman law. This distinction sets out two polar opposites that, in turn, lead to a discussion of the emergence of intermediate solutions that blend some elements of both. Speaking generally, the law of private property has received more attention, especially from lawyers, than that of common property. Yet what is still needed is an integrated theory that links the two together. It is attention to this multiplicity of forms for different resources that lends force to the title of this chapter—“The plasticity of property.”

The second issue is every bit as important as the first. The protection of property rights has two dimensions. The first involves private disputes. The second involves disputes between the sovereign and its citizens. In an absolute dictatorship, the sovereign always wins. But once there is some form of protection against confiscation, it becomes critical to see how and if the transformation of property rights by government action, whether through the legislature, the executive, or the courts, is permissible or not. The problem here

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does not only deal with the taking of land but also covers other resources, such as water and the beach, which have played a large role in the development of eminent domain law. In this portion of the chapter I shall look at the cases that I know best, namely, some of the major United States Supreme Court cases on the subject. The focus on these cases is not because they are American, but because they present issues that necessarily arise in every legal system that must draw the line between those transformations of property rights that do need explicit compensation and those which do not.

That second task is difficult because of the many different types of property interests that a robust system of private law can generate, all of which are subject to modification by further state action. Speaking generally, virtually every resource of value to human beings receives some form of protection from some type of property rights system. We can think of land as perhaps the single most important resource. But it would be a mistake to think of land as some unitary whole. Thus, a single plot of land can have, starting from bottom to top, mineral rights, surface rights, and air rights, all of which must be coordinated by easements that allow access from the surface to the subsurface, grant air rights, and impose duties of support on lower layers for the benefit of higher ones. Indeed, different types of minerals may call for different forms of property rights, so that the rules for following a vein of silver may well differ from those which are used for minerals such as coal, which are in turn different from the rules that are used to deal with oil and gas, which in turn are different from those which are used to deal with air rights, whether used for construction or for aviation. Land is also divisible along the plane of time so that there can be life estates under the Anglo-American system and usufructs under systems of Roman origin. But every mature legal system also recognizes leases, trusts, mortgages, and easements and covenants, all of which have distinctive features.

Similarly, there are multiple systems of water rights—English riparian rights, American reasonable use doctrine, and the prior appropriation system, for starters—that work on principles quite different from those for land and are quite different from each other. There are also rules that govern wild animals, all of which involve a general rule whereby acquisition is taken (as with land and chattels) by occupation. But animals are self-propelled, land is fixed, and chattels are often what is called movable. Hence, the rules of property must adapt to these physical and behavioral differences as well.

It is tempting to look at this dizzying array of property interests and throw up one’s hands in frustration without first trying to make sense out of the

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5 For the leading exposition, see Robert C Ellickson, “Property in Land,” 102 Yale L J 1315 (1993).
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overall system. But that approach would be a huge intellectual and institutional mistake. The rules of property govern countless trillions of dollars and euros in assets worldwide. Yet the amount of litigation with respect to these holdings is a tiny fraction of the overall holdings; that observed stability could not develop in any legal system where the rights were poorly aligned with their intended purposes. The day-to-day success of these property rights regimes cannot be treated merely as a matter of luck or happenstance. There must be some guiding principles to explain how the system is organized in both static and dynamic terms. Such disparate rules will often lack a nice doctrinal tidiness. But these often bloody imperfections will, in general, be ironed out over time so that the story about the internal development of property rights is by and large a happy one, at least on the private law side. Unfortunately, the public law side presents a very different problem because the state no longer acts as an arbitrator between private interests but still has an active role to promote its collective ambitions through a variety of actions. Hence the transitions from sound private law principles to sound public law principles are difficult to achieve, as is evident from one simple maneuver, namely the willingness to start over with new definitions of property rights in the public sphere that do not track with those in the private one.

In order to develop these materials, I shall proceed in four stages. Stage one addresses the two types of structural obstacles that must be overcome by any well-formed property system: externalities, chiefly in the form of trespasses and nuisances, and holdout and coordination problems when the combined efforts of two or more individuals are needed to unlock the value potential of any given resource. In a world of zero transaction costs, the solution to all these problems is a matter of indifference. From any given point of departure, the optimal reconfiguration could be achieved costlessly and instantaneously. But, as Ronald Coase himself insisted, there is never any zero-transaction cost setting. That is commonly true even in two-party situations, which are governed either by the law of contract or tort. So, it must be even more true that these transactional difficulties will increase exponentially given that property rights operate in rem so that they are created to bind the world, typically to forbear others from entering the property of the person (or joint owners) of a particular property. Hence the transaction cost issues in these large number settings are paramount, for which the rule of nonentry affords a powerful focal point and scalable solution. Since these costs can never be wished away, the

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objective in all these cases is to figure out what protocols achieve the optimal result in the most cost-effective manner.

Accordingly, in section 2, I shall discuss the origins and evolution of common property within this framework. Here the system that starts as an open access regime evolves over time to become a mixed system with public and private elements. In section 3, I shall discuss the public trust doctrine. In section 4, I shall conduct the parallel analysis as it applies to private property, which starts as a system of exclusive rights, only to evolve to embrace certain common elements. In section 5, I examine a theme that is implicit in the earlier work, which is the use and, sadly, abuse of eminent domain powers as ways to facilitate these transitions when done through purposive legislative actions.

In conducting this inquiry, it must always be remembered that the emergence of strong and stable property rights systems antedated the formation of the state, both historically and analytically. It is for that reason that the Roman system speaks of property rights under the heading of natural law, which means nothing more pretentious than the simple statement that these rights were widely respected prior to the creation of the state on the grounds that they are conducive to human flourishing. In so doing, the applicable legal regime must bind numerous individuals so that its emergence is driven by the best proxy for complex multi-party contracts, namely by customary practices whose efficiency characteristics are powerful enough to withstand the unilateral threats by particular individuals seeking some short-term advantage.

In practice, the basic methodology runs as follows. Given the high transaction cost environment, an iterative process begins with a good initial collective first-guess that is modified thereafter to take into account various difficulties, whether caused by externalities or blockades, as they arise.8 In some situations, these modifications are carried out by judicial decision, usually without any compensation to the parties who are stripped of all or some fraction of their property rights. But in other cases, the law of eminent domain is invoked—and its requirement of just compensation—to effectuate the needed change. In virtually all of these apparently diverse situations, the driving cause for the reconfiguration of property rights rests on a narrow conception of necessity—placing persons and property in imminent peril of deprivation.

Throughout this analysis, the goal in all cases is social. Life under an initial distribution of property rights is better off than life in a state of nature where there are no property rights at all. Nonetheless, further changes can be made when further social gains are possible. The difficulty is figuring out which cases fall on which side of the line, which is what this chapter attempts to do.

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2. THE EVOLUTION OF THE COMMONS

Per Justinian, common property, or *res communes*, is the polar opposite of a regime of exclusive rights. Thus, in its simplest form, it provides that *all* persons have the right to access the common asset, but *no one* has the right to exclude anyone else from equal access to that resource. *Justinian’s Institutes* does not begin its exposition of property rights in Title II with private property, but with *res communes*—those things that are open to all. Thus, in a famous passage, he writes:

> By the law of nature, these things are common to mankind—the air, running water, the sea, and consequently the sea-shore. No one, therefore, is forbidden access to the sea-shore, provided he abstains from injury to houses, monuments, and buildings generally; for these are not, like the sea itself, subject to the law of nations.9

It is worth noting that this initial configuration is not treated as a matter of positive law, but as part of the law of nature—that is, a body of customary rules that exists prior to the rise of the state and thus applies generally to all persons, wholly without regard to any notion of citizenship—a conception that only becomes applicable after the creation of some territorial state.10 The rules of the water, as they develop, are the inverse of those for land. With land, again from Roman times, it is commonly held that occupation is the way in which land, chattels, and animals are reduced to private ownership.11 But with the sea, the exact opposite conclusion forms the initial starting point. Diversion of waters from the common is universally regarded in riparian systems as a form of theft from the commons, and thus subject to categorical prohibitions.12 The implicit social judgment is that a river serves many functions that will be utterly destroyed if it is put into a barrel under a principle of occupation. Roads, in contrast, are created (converted from animal trails) for single purposes—transportation—and thus do not present a similar set of trade-offs for their sound operation.

It is, of course, impossible to obtain an agreement from all people on the face of the globe for joint usage, or even all riparians, to limit the amount of water that they can take from any river or stream. Given these high transaction

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10 For the citizenship complication, see Epstein, *Property Rights and Governance Strategies*, supra n 2 at 187–92. In modern law, citizenship does give a leg up. See, e.g., *McCreary v Virginia*, 94 U.S. 391 (1876) (in which the Supreme Court allowed Virginia to exclude noncitizens from raising oysters in the state’s tidewaters).
12 *Stratton v Mt Hermon Boys’ School*, 103 N.E. 87 (Mass. 1913).
costs, the heavy lifting on this point must be borne by the background rule that sets the initial position among all relevant parties. There are, as noted, many different systems of water rights, so it is useful to start with the simple riparian system that was not articulated in the Roman texts but which is clearly articulated in English law. The basic position has two components. By the first, no one is entitled to engage in the complete diversion of the river. That negative command prevents anyone from destroying the commons. But by the same token, that prohibition does nothing to allow for its utilization. Yet in the state of nature, no state exists to wield its institutional powers over the use of the water. So the next move must be simplicity itself: everyone has an equal right of access to the waters in question.

These two maneuvers create an environment far superior to one where any single person could divert the river, leaving little left for use by others. But by the same token, the shortcomings of this position are so serious that further adaptations are needed to wring greater efficiency out of the scarce common resource. The first maneuver, which can take place in a state of nature, extends the commons and moves cautiously toward individual rights. Thus, under customary practices, the commons extend not only to the waters but “consequently” to the beach beside it. Why the “consequently”? Because in both primitive and modern times, the beach is a natural pathway that allows for the lateral movement of ordinary people for extended distances. By definition, the beach tends to move up and down with shifts in water level so that it is not possible to locate it by metes and bounds, as with farmland. A fixed location, formerly the beach, becomes useless when covered with water. Alternatively, new land emerges when the waters abate. Hence, the key point is to secure a solid interconnection between the waters and the beach, regardless of the precise boundary location. Indeed, it is all too easily forgotten that access rights from private to public property are one of the key elements of value in land. It is worth noting, therefore, that this access element of ownership is wholly ignored in perhaps the most famous essay on the subject of ownership and its attributes, by AM Honoré.

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14 AM Honoré, “Ownership,” in Oxford Essays in Jurisprudence: A Collaborative Work 107–26 (AG Guest ed, 1961). His list of the elements of ownership reads as follows: (1) the right to possess; (2) the right to use; (3) the right to manage; (4) the right to the income; (5) the right to the capital; (6) the right to security (immunity from expropriation); (7) the power of transmissibility; (8) the incident of absence of term; (9) the prohibition of harmful use; (10) liability to execution; and (11) the residual rights on the reversion of lapsed ownership rights held by others.
So here is the key trade-off. On the one side, privatization through occupation, if it could be executed at all, would destroy the value of the beach for movement and transportation. Yet the production losses from keeping the beach in the commons are tiny, given that a shifting beach is not fit for cultivation or habitation. Hence, there is original assignment of common property rights to avoid holdout problems. Nonetheless, choosing this original corner represents only a starting point from which social improvements can come from recognizing limited customary private rights. The short-term necessity—imminent peril to life or property—leads to the temporary suspension of private rights. Thus, custom allows boatmen to set up huts in order to protect themselves and their equipment on the beach during a storm. The logic of this rule, which still holds true today, is that no one uses a beach for transportation during a storm, while its use as a temporary refuge confers enormous value. Hence this carefully crafted exception toward privatization ends when the storm passes so that the beach is again available for movement and transportation. Indeed, the whole process is so seamless that the implementation of the rule does not give rise to the slightest difficulty. The equilibrium is entirely stable because no one wishes to change it. And there is, with this particular transformation, no talk of compensation. The overall gains are so great that it is pointless to try to guess which individuals, if any, are helped or hurt by the general rule. It is far better to just leave the status quo ante.

Notwithstanding the explicit Roman acknowledgement of the commons in water and the beach, they did little to develop a coherent body of water law for either Italy or any other part of their empire. But to the extent that they did speak on these issues, they tended to use the term “usufruct” to describe the relationship that an individual private person had to any given body of common water. And that term has been commonly used in modern legal systems to describe the more limited rights in water as “usufructuary,” in contrast with the more robust set of rights associated with ownership or dominium. A moment’s reflection will show, however, that the term usufruct functions differently in the land and water contexts. For land, a usufructuary interest entitles someone, not the owner, to the use and fruits of the land. It is an inalienable life estate in possession that is carved out of the “bare proprietorship.” The chief challenge posed by the law of usufructs is to decide what actions the usufructuary can take with respect to the land without interfering with the proprietary rights retained by the bare proprietor of the property. The agricultural image sets out the basic division. The usufructuary is entitled to the annual produce from trees and vines but is not entitled to cut them down for his own use. It is just that metaphor that describes income as the fruit of the
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tree. How that intuition carries over to mines and homes is one of the central challenges faced by that body of law.

With respect to water, the term usufruct functions differently because there is no bare proprietor of the water, analogous to the holder of the land. So now, the term is intended to capture the limited rights that all users of the water have vis-à-vis each other on such matters as navigation, fishing, and recreation. All of these internal uses of the water make it clear that the common uses dominate the early English riparian system, in large part because, at least in circumstances of low intensity use, instream uses are more important than consumptive uses, given the ample supply of water that is obtainable from wells and rainwater. But it hardly follows that the optimal use of a river precludes all out-of-stream uses. Rivers can run high. Their waters are replenished from ground water sources, and through the merger of smaller creeks into larger rivers. Removing some of the water for riparian use has huge positive gains for households and simple domestic uses. At the same time, it is equally clear that steps must be taken to protect the entire waterway from pollution and other forms of nuisances. On this score, there is a complex mix of public and private remedies that closely parallel those for private nuisances.

The question is how to establish this mixed regime that has both private and common rights. It is very clear that the steps must be taken by custom, as it is not possible to envision any set of contracts between all riparians and all users that could allow for this movement. That point was well understood by John Locke when, in speaking about the origin of property generally, he wrote that no system of actual consent could justify any common practice. He thus denied that it was improper for any person to take acorns or apples from the common “without the consent of all mankind,” saying that “[i]f such a consent as that were necessary, men, in general, would have starved, notwithstanding the plenty that God had provided them with.” Put otherwise, overconsumption beats no consumption every time.

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15 See, e.g., Lucas v Earl, 281 U.S. 111, 115 (1930). The decision in Lucas prevented income splitting when an employer paid a salary earned by A directly to B. Hence this typical Holmes flourish: “we think that no distinction can be taken according to the motives leading to the arrangement by which the fruits are attributed to a different tree from that on which they grew.”

16 For my earlier treatment of this issue, see Epstein, Why Restrain Alienation? supra n 2.

17 See infra at n 95 for a discussion of special damages in public nuisance cases.

18 John Locke, Second Treatise of Government ¶ 28 (1689). Note that Locke retains his initial theistic version on the origins of property, which gets him into all sorts of trouble with the labor theory of value, where the Roman term “occupation” is far more accurate. See Richard A Epstein, “The Basic Structure of Intellectual Property Law,” in The Oxford Handbook of Intellectual Property Law 25, 29–36 (Rochelle C Dreyfuss
This point follows quickly from the proposition that all rights in rem have to bind the world, which makes their individuated specification impossible. The baseline in question must be clean enough so that individual bargains can be struck to deviate from the initial entitlements for land, animals, and chattels. Water rights are more complex in that riparians stand in an asymmetrical relationship with the individuals entitled to instream use. One possible way of solving this problem is to adopt the Lockean theory on how things are removed from the commons—a gift of God shared by all individuals—which is by taking it. His solution, which was applied to land and water alike, envisioned that one could take what he needed so long as there was “as much and as good” left over. But that qualification clearly cannot bear the weight attached to it. Given scarcity, it is never possible to leave as much again and as good whenever anything is taken from the commons.

In reality, the practical task is quite different: namely, to establish at the margin the point where the gains to appropriators exactly offset the losses to the rest of the public—no easy task. This principle cashes itself out in different ways for land and water—a distinction that Locke develops nowhere. For land, there are normally no limitations on initial acquisitions in a state of nature. The de facto limitation comes from the need to establish defensible borders, not only against other individuals but also against wild animals. But the taking of land out of the commons often does not prejudice others, given that the reduction of land to private ownership expands the possibilities of others for trade without depleting the quality of any common pool asset.19

By the same token, the qualification is also wrong for water because it fails to make two needed adjustments. The first requires that someone set some total limit on how much water can be taken out of the river for private use. The second asks how to allocate the water to various riparians, none of whom are in a position to bargain with each other. On the first task, the usual answer is to allow withdrawal unless and until it impedes other instream uses. Modest amounts almost always meet the standard in the absence of drought. The question then arises as to how it should be divided among the various users, to which the standard answer is pro rata across all users, regardless of the time

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that they became active riparians. Thus, the principle of prior in time is higher in right that applies to land, animals, and chattels is systematically rejected in water cases, and for good reason. First, it is exceptionally difficult to determine the time when any one riparian came to the river, and the extent of their initial and subsequent uses. Second, it is a mistake to articulate a system that encourages people to make unnecessary use of water to protect their future priorities against other riparians. At some time, perhaps even from the outset, riparian systems by trial and error rejected the corner solution that denied all removal. The second question then sets an imperfect set of priorities for domestic over agricultural use. Clearly there are some agricultural uses more valuable than domestic ones; and clearly, each class of uses has different weights for different riparians. These refinements are left untouched because no institutional structure exists to support an efficient pricing system. Such a system is unnecessary when water is purchased from a single vendor, but in their absence, rough and ready classifications are better than no classifications at all.

We move on to the American reasonable use case. The modification of common rights is sensitive to the length and size of rivers. American rivers are, in general, longer and wider than English ones and often fall off more steeply, which allowed them to be used to power mills in the days before electricity. The key to operating a mill is to make sure that the water can drop far enough to power the mill. Alas, no river has space for an infinite number of mills, so rules that determine total capacity and location are necessary. The negative solution is to insist on parity so that no one can use a mill, but that leaves huge potential resource gains untapped. Hence the customary/political decision to allow at least some mills to be built, which increases total output but yields uneven returns, no matter who gets to build a mill of any size at some given location. The difficulties are even greater because various riparians are either upper or lower, creating a fundamental asymmetry that resists the type of pro rata solution possible under English riparianism. Here is one effort to resolve the problem:

The person owning an upper mill on the same stream has a lawful right to use the water, and may apply it in order to work his mills to the best advantage, subject, however, to this limitation: that if in the exercise of this right, and in consequence of it, the mills lower down the stream are rendered useless and unproductive, the law, in that case, will interpose and limit this common right so that the owners of the lower mills shall enjoy a fair participation.

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20 See, e.g., Lake Williams Beach Ass’n v Gilman Bros. Co., 496 A.2d 182 (Conn. 1985).
However, this prudent formulation does not adequately address the presented challenge. First, it only covers the extreme position where the downstream properties “are rendered useless and unproductive.” It therefore does not deal with the common situation where use is not destroyed but impaired. Second, given the fundamental asymmetries, it is not easy to convert what looks to be a Kaldor-Hicks improvement, by which the winner from the deal could, if such was required, compensate the loser for his loss and still remain better off. But there is no practical way to translate that into a Pareto improvement where both sides are able to share in the gain. Here are the grim choices. First, it is not possible to make any calculation so that at the margin, the inconvenience to the two owners is identical. Second, it is not possible to work any obvious compensation scheme whereby the party allowed to make the mill is required to compensate the other party for the losses and possibly give him a pro rata share of the gain. All of the valuation issues are too difficult to handle, especially in a common law setting. Nonetheless, everyone agrees that difficulty on the equitable issues is no reason to block any net improvements. So, what happens in the end, is that the topological features that drive the change require some type of administrative solution, which during the nineteenth century came in the form of the Mill Acts, whereby an administrative body made these decisions, subject to a generally deferential standard of review.22

Regarding the case of prior appropriation, one lesson from the transition from English riparian to American reasonable use is that when a Kaldor-Hicks formulation is the only way to make some social gain, the political divisions are greater because the losers are not bought off by any form of compensation. Just that situation applied in the even more dramatic transformation of the western United States, where the dominant system that emerged on the large, rapidly moving mountain rivers was a prior appropriation system that shed the last connection with riparian rights.23 Now diversion becomes the mode to acquire rights, in that first appropriators have rights not only to the water they capture, but also to the annualized flow in future periods. Again, it was physical facts on the ground that drove the transformation of legal rights. It is easy to conceive how someone could take his herds of cows and sheep to the water’s edge on the gentle English rivers. It is quite another to imagine how animals


could productively tumble over sheer cliffs into the turbulent waters below. These riparians have little use for their rights. If they received the traditional riparian priorities, economic stagnation would ensue because no one could organize a market that would allow literally hundreds of riparians to transfer their rights to an as of yet undefined group of appropriators. In this context, the losses on the one side are small, if measurable at all, while the gains on the other side are orders of magnitude larger. Yet high transaction costs stand in their path, as the holdout risk substantially dominates expropriation risk. The principle of necessity thus transforms these rights by government decree. Sure enough, the decisive case that stands for just that proposition is *Coffin v Left Hand Ditch Co.*, which invokes (twice, no less) the phrase “imperative necessity” to introduce what I have elsewhere termed “Kaldor-Hicks constitutionalism.” That phrase does not stand for the proposition that so long as the winners can pay off the losers in principle, no compensation is ever required. Any exception that broad would thoroughly eviscerate the just compensation requirement that is routinely incorporated in all regimes of eminent domain. But, suitably limited, it does mean that where the net gains are large and the transaction costs prohibitive, that switch is justified as a last resort.

The operation of this new system has huge internal complexities of its own. At the very least, it requires some centralized authority to measure the amounts of water available to rival users at each point along the stream. In addition, when the fluctuations in water levels are extreme, periods of free access to water are permitted because now the risk of flooding displaces the risk of insufficient water. Prior appropriation faces further challenges with return flows whenever appropriated water seeps back into a stream. One common solution allows the appropriator to capture escaped water unless it has returned to the natural stream from which it was derived. All of these details are worked out within the general prior appropriation framework so that none of them present the major transitional issues when *Coffin* was decided at the formative stage of the prior appropriation system.

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25 *Coffin*, at 447, 449.
27 For a glimpse of a problem, see *Empire Lodge Homeowners’ Ass’n v Moyer*, 39 P.3d 1139 (Colo. 2001).
3. THE PUBLIC TRUST DOCTRINE

A second transformation, the rise of the public trust doctrine, is of great significance. As with prior appropriation, implementation efforts require an extensive state infrastructure. Natural bodies of water do not maintain themselves in the face of heavy use. So, even if some use is better than none, too much use of the wrong type could easily negate a significant fraction of the gains from an open commons. But no private person is able to prevent pollution from destroying a river, deal with silting up, post needed buoys and other navigational aids required by shipping lanes, provide safe spaces for recreational uses, limit fish catches, and the like. That task will only be discharged if some state monopoly can take over the management function, itself a laborious process. But for that transformation to be successful, it must benefit the public at large, which in turn leads to the emergence of a public trust doctrine, which gives the state—in England, the King—these management powers, but only as a trustee, not as a personal owner. At this point, it is critical to stress how private trusts shape the duties of public trustees by imposing generalized duties of loyalty, which typically include the following elements: “A. The Duty to Follow Instructions and Remain Within Authority; B. The Duties of Loyalty and Good Faith; C. The Duty of Care; D. The Duty to Exercise Personal Discretion; E. The Duty to Account, and F. The Duty of Impartiality.”

In both public and private contexts, these duties are created to meet well-known constraints. They must leave the management team with sufficient discretion to achieve its needed business and management goals without excessive guessing. At the same time, the trust obligations must prevent the impermissible giveaway of public resources to private hands. It therefore follows that the general business judgment rule should be supplemented by a higher standard of dealing—commonly called the fair value rule—such that

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30 Lloyd Cohen, “Property Law Symposium—The Public Trust Doctrine: An Economic Perspective,” 29 *Cal WL Rev* 239, 252 (1992): “From ancient times to the present the King has held title to much real property. Some of this property was intended for the King’s private benefit and some was for the public’s benefit. And so, not only was it necessary as it is for us that the law distinguish private property from government property, but it is also necessary that it distinguish property held by the government for the benefit of the people from property held for the benefit of the King.”

whenever there is a conflict of interest between the Crown (or other public body), the trustee is under a duty to show that the government receives full value for the loss of the property interest in question, under a rule that I have termed the converse of the Takings Clause: “Nor shall public property be transferred to private use, without just compensation.”

It is not that this constraint necessarily applies without a hitch. Indeed, one consequence of the seminal decision of the United States Supreme Court in *Illinois Central R.R. Co. v Illinois* was to impose a misguided inalienability constraint between the state and any private party on all transactions over present and formerly submerged land, regardless of terms. For these lands, the *Illinois Central* rule bars even those transactions that would satisfy all the standard elements of fiduciary duties. The supposed, if overstated, justification for this prohibition is to prevent public/private collusion. Predictably, that rule, when applied with its full rigor, results in the invalidation of transactions that seem to meet the highest fiduciary standards. Statement of the rule in that form, moreover, leaves it unclear as to what should be done with deals made with respect to public trust lands that have never been submerged. The pre-*Illinois Central* cases uniformly provided that the ordinary business judgment rule could invalidate transactions where the government received only “trifling” compensation, such as the award of a franchise to build a railway in New York City on dry land down the middle of Broadway.

One open, difficult, question is whether *Illinois Central* stands for the converse proposition that the legislature has virtually *carte blanche* to do what it will in cases where submerged lands are not involved. This was the position taken by Judge John Robert Blakely in recent litigation which held that the Obama Presidential Center could be built in Jackson Park, as the applicable public trust doctrine for non-submerged lands allowed any transaction authorized by the legislature to go forward so long as there is any public benefit whatsoever. But the better view is one that uses a uniform public trust doc-

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33 146 U.S. 387 (1892).
36 See, e.g., *Lake Michigan Federation v U.S. Army Corps of Engineers*, 742 F. Supp. 441 (N.D. Ill. 1990), in which Judge Marvin Aspen prohibited a mutually beneficial deal between Loyola University and the City of Chicago on just these grounds.
38 *Protect Our Parks, Inc. v Chicago Park Dist.*, 385 F. Supp.3d 662 (N.D. Ill. 2019). For the record, I wrote an amicus brief for the plaintiff in the trial court, and
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The plasticity of property...39 so long as it takes into account that the alienation of coastal lands carries with it the added risk of interfering with navigation, which should be factored into the equation. As is so often the case, a uniform public trust doctrine that (a) covers all types of public lands equally and (b) carries over the rules applicable to private transactions functions far better than rules that seek to draw subtle distinctions that do not stand up under examination. The basic argument, in this case, is that the transition from an unregulated commons to a sound public trust system meets the best standard of social welfare—it creates a Pareto improvement that does not obviously favor one group over the other in the division of the social surplus.40

4. PRIVATE PROPERTY

4.1 The Right to Exclude

The second side of the story deals with a similar set of transformations that start from the opposite pole, whereby it is said that the essence of private property lies in the right to exclude others from the use of a particular resource. One early articulation of this position is found in the following grandiose assertion in Blackstone’s Commentaries: “There is nothing which so generally strikes the imagination, and engages the affections of mankind, as the right of property; or that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe.”41

A more modern version of the same point was offered by the notable philosopher Morris R. Cohen, who, in his oft-quoted lecture Property and...
Sovereignty, wrote in 1927 that “the essence of private property is always the right to exclude others.” And more recently, Thomas Merrill echoed the same theme:

The Supreme Court is fond of saying that “the right to exclude others” is “one of the most essential sticks in the bundle of rights that are commonly characterized as property.” I shall argue in this Essay that the right to exclude others is more than just “one of the most essential” constituents of property—it is the sine qua non. Give someone the right to exclude others from a valued resource, i.e., a resource that is scarce relative to the human demand for it, and you give them property. Deny someone the exclusion right, and they do not have property.

Blackstone’s famous passage treats the rules of property as part of the basic system of laws that “are common to all men.” Like Blackstone, Gaius insists that these rules are universal over all times and all places. That proposition, however, is only defensible if the institution of private property satisfies some common human impulse that is not met with equal effectiveness by any alternative form of social institution. Historically, it is the case that land was not the key example of private property. In hunter-gatherer societies, survival is only possible when small bands or groups are ceaselessly on the move to find new fruits and vegetables to gather and new wildlife to hunt or fish. Land is something to which it is pointless to claim anything other than short-term title. It is only when agriculture becomes possible that investment in the land requires that he who prepares the land and plants the crops be able to harvest them. Blackstone himself well understood this through the transition from usufructuary to permanent property. It is for just this reason that we then have long-term interest in land that covers not only the primary agricultural uses, but also the other trades and activities that can grow up in fixed locations, often in towns surrounded by walls to keep out the enemy. We thus have an early example of a change in property rights systems driven by the first of the great social revolutions, the agricultural one.

With that regime in place, exclusive rights in land truly matter, and so Blackstone’s use of the term “despotic” conveys the same absolute tendency that is found in claims of government sovereignty expressed in the maxim “Quod principi placuit, legis vigorem habet,” or “that which is pleasing unto

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45 Gaius’ Institutes 1.1 (SP Scott, ed, trans. 1932).
the prince has the force of law.”\textsuperscript{47} The point of despotism is that it is regarded as an assertion of absolute power within a given domain. That equation of sovereign power and private property is a dangerous commonplace in the literature. In “Property and Sovereignty,” Cohen picks up on this theme when he notes the “character of property as sovereign power,” so that individual ownership is treated as an equivalent of the \textit{imperium} given to the Roman emperors.\textsuperscript{48}

At this point, one could ask, why insist on the asserted equivalence between despotic private property and despotic government sovereignty? Writers such as Cohen were anxious to assert that asymmetry because it gave them an entry point to undermine “the extreme position of the laissez faire doctrine.”\textsuperscript{49} And the answer to that challenge comes straight from basic economic theory, nowhere in evidence in the work of Cohen, and by more modern thinkers as well. The despotic government has no immediate competitor and thus exerts a monopoly of jurisdiction within a large territory, as per Max Weber’s definition of the state as that “human community that (successfully) claims the monopoly of the legitimate use of violence within a given territory.”\textsuperscript{50} But that is decidedly not the case with private property. The confines of land ownership are limited, for each owner has multiple neighbors with equal “sovereign” power over their own property. The property of those owners is by definition close by, and often it has similar characteristics. Once that is understood, the key point concerning government sovereignty and private sovereignty is this: the former necessarily results in the monopoly of the use of force in the state, which is a power, when unlimited, that is capable of strong abuse. But the latter in its pristine form leads to the creation of a competitive market, where the power of abuse is sharply limited by the number of available close substitutes. This is so at least when the ability to exploit any given plot of property is capable without the cooperation of other property owners, which is by no means a uniform condition, as the law of common carriers and public utilities vividly shows.\textsuperscript{51}

\textsuperscript{47} Justinian’s Institutes: Book I, 6. The translation given in legal history sources, archived at https://perma.cc/N32U-LUD4—“That which seems good to the emperor has also the force of law”—sanitizes the passage by making it appear as though some moral constraints limit the emperor’s choice. The word “\textit{placuit},” meaning “pleasing to,” indicates that the prince has no such constraint, although it is easy to see why everyone would want to convert an absolute into a limited one in the name of an as yet nascent constitutional movement.


\textsuperscript{49} Ibid at 11.

\textsuperscript{50} Max Weber, \textit{Wirtschaft und Gesellschaft} (Economy and Society) 29 (1922).

\textsuperscript{51} For my take on this huge topic, see Richard A Epstein, \textit{Principles for a Free Society: Reconciling Individual Liberty with the Common Good}, 279–318 (1998).
The explanation for these key distinctions runs as follows: as a first approximation, the right to exclude works well in those settings where its application leads to the formation of competitive markets, which tend to maximize the overall value of social resources. But it works badly in those cases in which the right to exclude creates a monopoly position where one person is necessarily dependent on someone else for services that are necessary for their own well-being and survival. In those cases, the output that is generated falls below that which is obtained in a competitive market, so that some form of government regulation that calls for a different configuration of rights, or indeed a reconfiguration of rights, becomes an attractive proposition if it can be effectively executed. In some instances, it could be done by custom or practice; in other cases, it can be done by regulation of rates and other terms of service; and in still others, it can be done through the exercise of the eminent domain power, often upon the payment of just compensation to the parties whose property has in fact been taken. The public utility and common carrier are thus halfway houses between coercion, which should be categorically prohibited, and competition, which should be categorically enforced. This middle form is systematically underappreciated in many works of political economy, of which Friedrich Hayek’s *The Constitution of Liberty* is perhaps the most famous.

Sorting out the connection between competition and monopoly is not easy. In theory, the two are introduced as polar opposites. But in fact, many resources, most notably water, have both common and private uses that must be harmonized within a single system. In these situations, compound regimes of property rights are required, such that a variation of property regimes emerges because of the need to structure legal relationships to deal with these two extremes, and every possible permutation between them.

There is yet another way in which, as a descriptive matter, Blackstone’s majestic utterance is false, or at least seriously incomplete. Even with private property, there are some short-term situations where competition among

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52 Friedrich Hayek, *The Constitution of Liberty* (1960), which tries to use the term “coercion” to cover both the public utilities and common carriers on the one side, and the threat of force on the other. For a discussion of that error, see Richard A Epstein, “Hayek’s Constitution of Liberty—A Guarded Retrospective,” 30 Rev Austrian Econ 415, 422–26 (2017). For the constitutional implications, see Richard A Epstein, *Bargaining with the State* (1993), detailing the doctrine of unconstitutional conditions in an effort to explain which conditions may be attached to government grants and which may not. In general, those conditions that promote efficiency are allowable while those that encourage monopoly are not, just as antitrust theory would hold. So, by way of simple example, a condition that insists that out-of-state drivers litigate accidents on state roads is valid, while one that says that the driver agrees to be sued for any and all wrongs within the state, regardless of its source, is not. See *Opinion of the Justices*, 147 N.E. 681 (Mass. 1925).
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landowners is eliminated by short-term necessity. Thus, the classic example is that under conditions of necessity, mobility of others is so sharply limited that there is only one landowner who has the resources which are necessary to prevent the imminent loss of life or property of other individuals. At this point the market shape shifts immediately from competitive to monopoly, and with that the rules of engagement change so that the owner is no longer allowed to exclude outsiders for the duration of the emergency. But the entry allowed is offset in most cases by a duty of compensation for the property taken. In general, the law sets up a privilege in the law of trespass as it otherwise applies to a person, land, or chattel (animals included). The shift here is the inverse of that, which takes when common property along a beach can be privatized on a temporary basis by individuals seeking refuge from a storm for themselves and their property.

Another way of expressing this point is that property rights are not absolute in the sense that Blackstone described, but are, as with the commons, limited by a narrow principle of necessity, which covers not only privileges to enter land but also privileges to set aside contracts for excess compensation when driven by necessity. This issue arises in connection with transactions for rescue at sea, where in the early case of *Post v Jones* the United States Supreme Court rejected outright the defense that the party who paid for the rescue could not object because he had consented to a transaction that had left him better off than he would have been without any rescue at all. Consent is present in all cases of monopoly, but has never been regarded as a license to violate competition, or antitrust law: the baseline against which the correct comparisons are made is the competitive solution, not the status quo ante. Both property and contract rights, then, have long been subject to qualification in cases of necessity, a point that cuts first against Blackstone’s claim of despotic power and second against Cohen’s false equivalence of property with sovereignty. It is the effort to juggle the structure of property rights to strengthen competition

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53 *Ploof v Putnam*, 71 A. 188 (Vt. 1908).
54 *Vincent v Lake Erie Transportation Co.*, 124 N.W. 221 (Minn. 1910).
55 *Restatement (Second) Torts*, § 197.
56 See supra n 53.
57 See *Post v Jones*, 60 U.S. 150, 159–60 (1856): “The contrivance of an auction sale, under such circumstances, where the master of the Richmond was hopeless, helpless, and passive—where there was no market, no money, no competition—where one party had absolute power, and the other no choice but submission—where the vendor must take what is offered or get nothing—is a transaction which has no characteristic of a valid contract […] It has been contended, also, that the sale was justifiable and valid, because it was better for the interests of all concerned to accept what was offered, than suffer a total loss. But this argument proves too much, as it would justify every sale to a salvor.”
and control monopoly that is the key to understanding our topic—the plasticity of property rights.

There is yet a further weakness to the equation of exclusion with property rights. All the complex divisions of property rights by contract and conveyance are not made for exclusion but for disposition and use. Thus, the law of land allows for the creation of life estates and remainders, leases, mortgages, and covenants. Bailments of chattels, moreover, have long been organized into six basic categories, initiated in the Roman law and adopted into the English.58

First, any system of private property that was limited solely to the right to exclude would be impoverished from birth, for the right to exclude does not entail necessarily either the right to use or to dispose of property. Indeed, the right to exclude others is logically consistent with a legal regime that does not allow the party who has the right to exclude the right to enter the property from which all others are excluded. Any conception of property that is so limited does not meet the key consequentialist test of explaining how private property will maximize, or even facilitate, the efficient use of any resource. Accordingly, one well-known formulation of this account of property is found in United States v General Motors:59

The critical terms are “property,” “taken”, and “just compensation.” It is conceivable that the first was used in its vulgar and untechnical sense of the physical thing with respect to which the citizen exercises rights recognized by law. On the other hand, it may have been employed in a more accurate sense to denote the group of rights inhering in the citizen’s relation to the physical thing, as the right to possess, use and dispose of it. In point of fact, the construction given the phrase has been the latter.60

It should be noted immediately that these added rights of use and disposition are not absolute. However, the same is also true of the right of exclusive possession, which can be suspended in cases of genuine necessity, as is consistent with the basic theme of allowing nonowners to have right of access to private property in order to avoid imminent peril to life or property. Nonetheless, the convergence of these three rights is critical to the overall enterprise of a property situation, for if no rights of use and disposition are vested in the party, then we are left with two wholly unpalatable institutional arrangements.61

By the first, no one has, and no one is able to acquire, these rights with any particular tangible (or intangible) thing so that all productive use of natural

59 323 U.S. 373 (1945).
60 Ibid at 377–78.
resources and intellectual property comes to a halt. By the second, the state retains control over these two rights, which it can then in turn cede to the party in possession of the land or other resource. But that model of grant is in turn fraught with huge holdout risk from government action, for it presupposes that the government, as the grantor of rights, is entitled to condition its receipt on the willingness of the grantee to accept certain terms and conditions in order to claim those property rights. But that claim, in turn, requires some account of what set of conditions are acceptable and what set of conditions goes over some line by becoming so onerous or arbitrary that they drain the property transferred of all or most of its value.

In contrast, the natural law tradition of property rights gets at least this point correct. The rights do not come from the state, but the state is in turn allowed to limit some of these rights in order to acquire the resources needed to protect the rights of property (and, of course, personal liberty) that remain. So, at this point, the state is offering some justification for its imposition of rules, which leads quite naturally into a consequentialist account of property rights. Those uniform limitations on property rights must work to the long-term average advantage of all those who are governed, so the state is never a free agent but is always bound by some strong set of fiduciary duties to the citizens whose property it both takes and regulates.

Within this basic framework it becomes necessary, as with common property rights, to note the variations in the rules in question, which at root all relate to the need to allow the system to operate without expropriation or holdout problems. Just that element is present in many iterations of the system, starting with the rules on acquisition of private property by occupation and the transformation of property rights in the face of changes in technology or economic circumstances.

### 4.2 Occupation

The rules dealing with the acquisition of ownership in a state of nature are all “bottoms up” insofar as they deny that property rights originate in a grant of ownership from the sovereign. All these acquisitive activities necessarily rely on *unilateral actions* by individuals to acquire property rights, which are good against the world. In this environment, it is also necessary to determine how the rules of acquisition address the twin problems of expropriation and holdouts in connection with different asset classes: land, animals, and chattels. The two are inversely related so that the stronger the property right, the greater the holdout risk, and so too the risk of starvation. Yet conversely, the weaker the right, the greater the expropriation risk, and so too the tragedy of the commons.

The problem is aggravated due to the necessary plasticity of a system that must accommodate many different sorts of resources. Land is fixed, and
animals are capable of moving by themselves; chattels are movable but have no self-location. These differences matter in articulating the rules for the acquisition of property rights. For land, the question is how best to demarcate the boundaries so that the rest of the world knows where the title lies. For animals, the rules for capture must deal with a wide range of possibilities, and it is here that the greatest differences emerge. For chattels, acquisition is typically nonproblematic, so that the difficult question is how to protect them from theft and destruction.

4.3 Foxes

In dealing with the hunting of what Justinian terms “wild beasts,” there has long been a dispute as to what actions are necessary to perfect title by capture, where the alternatives range from final capture, to wounding, to hot pursuit.62 In dealing with the basic problem, the general appeals to “natural reason” in Justinian63 and “natural law” in Gaius64 quickly exhaust their explanatory power to discriminate among these various rules. Justinian reaches what I regard as the wrong solution by concluding that even wounding of a wild beast is not sufficient to claim ownership “because many accidents may happen to prevent your capturing it.”65 The weaknesses of that rule become apparent by examining the dueling opinions of Judges Tompkins and Livingston in the fabled American case of *Pierson v Post*.66 Post was in hot pursuit of a fox when Pierson rode up at the last moment to snatch the fox away from him. Post claimed that his hot pursuit was sufficient to claim at least an inchoate title to the fox (that would be perfected with capture or lost if the fox escaped). Pierson claimed ownership by actual capture. Judge Tompkins relied on the classic texts to reject Post’s claim based on hot pursuit. Judge Livingston took the opposite position and concludes that this “is a knotty point, and should have been submitted to the arbitration of sportsmen, without poring over Justinian, Fleta, Bracton, Puffendorf, Lock, Barbeyrac, or Blackstone.”67

Much as I admire these great writers of both ancient and modern times, Livingston is correct. Using custom, in general, is a reliable way to collect information that results from decentralized trial and error.68 In this context, it

62 On which the most famous case is *Pierson v Post*, 3 Cai. R. 175 (N.Y. 1805).
63 *Justinian’s Institutes*, Book II, Ch 12.
64 *Gaius’ Institutes*, Book II, 66, noting occupation by natural law.
65 *Justinian’s Institutes*, Book II, Ch 12.
66 3 Cai. R. 175 (N.Y. 1805).
67 Ibid at 180 (Livingston, dissenting).
allows for information that pertains to hunting foxes on horseback to influence the decision. Since we are not concerned with the effects of the custom on any third parties, the custom involves the embodiment of case-specific information relevant to the decision. And in *Pierson*, the two major, if unspoken, advantages to the customary practice, when taken together, are decisive. The first involves the implicit expropriation of labor. If the hot pursuit is not allowed to continue until either capture or escape, there are large returns to a strategy whereby one hunter lays back until the last moment, and then swoops in to capture an animal whose stamina has been worn down by the efforts of the other. The second involves the serious risk of collision as the two hunters on horseback converge on a moving target. The custom will be sensitive to these risks, but the generalized rules that discuss wild beasts out of context will not.

There is still the externality question to be addressed, which is whether the overhunting of foxes will destroy the stock. In this instance, the perceived externalities from killing foxes were positive, for as Judge Livingston notes, both parties have regarded them, as the law of nations does a pirate, “*hostem humani generis,*” or “an enemy of human race,” whose extermination is to be regarded as a welcome event. Hence any rule that leads to the destruction of more foxes is to the good. But in all too many cases the extermination of a given species is regarded as a cost rather than a benefit, and in these circumstances an efficient solution for conflicts between the rival hunters has the unfortunate consequence of aggravating the well-known external risk of overfishing and overhunting.69 But the key lesson to learn here is that it is not possible to control the external risk by fiddling around with the rules governing the acquisition of rights. Instead, an entirely different approach must be taken, which is to attack the question of overhunting or overfishing directly by imposing some sort of limitation that reduces the catch to some sustainable level. These levels must be worked out empirically, and the restated problem now asks how to minimize the sum of the costs of capture and the amount of capture.

4.4 Whales

A similar story can be told with whales, only here the dominant risk involves holdout problems. Justinian deals with the rules for the acquisition of bees, peacocks, pigeons, and deer, but unsurprisingly he does not address the question

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of the rules to determine the ownership of whales captured on the high seas, where the cooperative actions of independent individuals and groups is typically imperative. On this score, the best explanation for the whaling rules is the necessity to develop rules that incentivize the activities of all parties whose participation is needed to capture the whale. Hence the basic proposition is that whales will only be captured when their expected value exceeds the total cost of all the participants. Thus, the need to calibrate the appropriate reward per individual depends heavily on the ability to get an accurate measure of each participant’s contributions, so that some customary standards can emerge. On this point, the famous American case of Ghen v Rich is instructive because it denied to the finder of a beached whale outright ownership, which remained with the men on the ship at sea that had harpooned the whale. The finder was only entitled to a fee for services in excess of his costs. If the finder had been allowed to keep the whale, hunting would cease. Therefore, we have radically different returns for radically different investments. This customary rule bears no connection with the early Roman law musings on capture. Sadly, the more efficient rules for hunting whales create the larger risk of their extermination by overcapture, which can, as with fish and other animals, only be addressed by rules that explicitly and directly limit catch opportunities. These are, however, more difficult to implement for whales because their natural movements take them in and out of territorial waters, so that the prohibitions need to be imposed by global treaty, which can often be frustrated by solo activities of individual nations to capture whales in international waters, thereby benefiting from the larger stock that the reduced hunting by other nations created.

A final illustration of the transition of property rights in animals is contained in Harold Demsetz’s famous article Toward a Theory of Property Rights, which details the change in property rights regimes dealing with the capture of beavers as described by Eleanor Leacock’s memoir on the fur trade. As Demsetz tells the story, before the sharp increase in demand stoked by the arrival of French traders, a rule of capture governed the acquisition of property

70 See e.g., Oliver Wendell Holmes, Jr, The Common Law 212 (1881).
72 8 F. 159 (D. Mass. 1881).
75 57 Am Econ Rev 347 (1967).
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rights in beavers and their valuable furs. But with the huge increase in the external demand, the risk of extinction became more pronounced, so that a system of hunting territories emerged to prevent the risk of overconsumption brought on by rise of exogenous demand. Demsetz famously describes this transition as an effort to “achieve a greater internalization of externalities.” Once these territories are organized, the holders of those territories have an incentive not to overhunt because, since beavers live in fixed locations, the land owners internalize the full gain from both immediate and deferred capture.

What Demsetz describes is the control of the standard common pool problem by a system of territories instead of catch quotas. What is missing from this account is a discussion of two discordant elements: distributional consequences and transitional difficulties. On the first, the transformation that Demsetz describes necessarily creates fewer territories than hunters, so that its distributional consequences are likely to prove unsustainable in any small community if some hunters lose all their livelihood. The best way to deal with that problem is to allow all hunters to continue to hunt at the same levels they did before the transformation, allocating to the new territorial owners only the surplus that is created by allowing the surplus. Another is to allow only a few hunters to capture, but to require them to share the yield with the excluded parties who, in essence, are given a fraction interest in the combined property, which could either be a lien or a fractional interest.

Yet this initial solution to collective hunting rights leads to the second question: who is assigned ownership rights to the various territories, and how? That transition is likely to be perilous in this situation, unless some hierarchical features of the local tribe allow for a political solution to the allocation question. There are two examples that illustrate the same pattern whereby the removal of land from the commons has created huge levels of political contention. The first is the British Enclosure movement, with the contentious debate summarized as follows: “For over 500 years, pamphleteers, politicians and historians have argued about enclosure, those in favour (including the beneficiaries) insisting that it was necessary for economic development or ‘improvement’, and those against (including the dispossessed) claiming that it deprived the poor of their livelihoods and led to rural depopulation.” The author of these words, Simon Fairlie, described the historical transition as a “smear campaign against common property institutions.” And clearly, the con-

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Conflict was exacerbated by the absence of any compensation paid to the losers. The same situation applies to the range wars in the American West that arose over the question of whether to enclose common grazing lands to allow for agriculture.⁷⁹ In a word, just as it is possible to control a river through sensible management techniques, so too it is possible to control common lands, at least if powerful political forces can be kept at bay.

Turning to oil and gas leases, the same question of how to collectivize production arises in the oil and gas industry.⁸⁰ The traditional maxim “Cuius est solum, eius est usque ad coelum et ad inferos” (Whosoever owns the soil also owns to the heavens and to the depths [literally to hell]) lets everyone identify a unique owner for each barrel of oil that is taken to the surface.⁸¹ But as is the case with whales, that rule of capture leads to a systematic overconsumption from the field. The problem arises due to differences in scale. Farming is often efficient on relatively small plots of land. But oil fields are typically far larger, spanning different plots of land. In addition, oil and gas move around underground, so that the unvarnished capture rule allows anyone who drills straight down to siphon off oil and gas from under other farmlands. The noncooperative solution thus had parties placing their wells so as to create picket fences around the edges of their property—both to protect their interior oil and gas supplies and to draw up “fugacious” oil and gas from under someone else’s land. This noncooperative behavior resulted in both higher costs for, and lower output by, all group members. In response, pooling resources helped stop the problem by allowing for the entire field to be treated as though it had a single owner.

The process works in two stages. First, well-spacing relationships take place when the entire field was put under common management of a single lessee from many lessors. “Following unitization of an oil field, the royalty clause of an oil and gas lease is modified and the lessor becomes entitled to a royalty based on a pro rata share of the production attributable to its land, regardless of whether production is from that land or another tract included within the unit.”⁸² This scheme gives the lessee the correct incentives to drill in the best locations, because no surface owner has an incentive under this allocation to direct drilling, either toward or away from his land. The one caveat to this proposition arises because surface easements are needed to build the rig and


⁸⁰ For a general discussion, see Gary D Libecap, Contracting for Property Rights (Political Economy of Institutions and Decisions) 93–114 (1989).

⁸¹ For its application to air rights, see infra at section 4.5.

⁸² Amoco Production Co. v Heimann, 904 F.2d 1405, 1411 (10th Cir. 1990).
create easements of access to it. Side payments are needed to prevent a dispro-
portionate impact for parties on whose land the wells are placed. Indeed, today,
horizontal drilling reduces the number of entry points, and thus increases the
overall efficiency of the system by allowing drilling to extract oil and gas from
under-populated or built-up areas.\textsuperscript{83} The net result is higher output with no
income distortion, as the basic theory requires.

\subsection{4.5 Air Rights}

The same two-tier pattern applies just as well with respect to air rights, which
also involve making transformations from the original \textit{ad coelum} rule in order
to deal with the blockade problem that also arises from a mismatch in territo-
ries more dramatic than that for oil and gas. Airplanes must fly over countless
tracts of land to get from one place to another. The routes, moreover, are
intrinsically uncertain because of the imprecision of navigation and the effects
of wind. To allow any landowner to enjoin flyovers without compensation
would stop air traffic in its tracks to the benefit of absolutely no one. Hence
there has been a uniform acceptance of the proposition that wholly without
any legislation, no land owner has the right to block any airplane from the use
of the upper air space. Thus, a new system of upper air rights has emerged
organically. Those rights, moreover, do not remain undifferentiated. Instead,
the new system creates out of whole cloth a highway in the upper airspace
that must be regulated by various rules of the “road,” which everywhere in the
world are enforced to maximize the movement of air traffic while eliminating
the risk of collision. That system must space long flights, as well as provide
resource-intensive solutions to the high intensity uses of space near airports,
where landing and takeoffs face the added risk of congestion.

As with mineral rights, the mechanics of executing transitions between
property rights regimes in airspace also requires added care and attention. The
case law tends to offer a variety of unsatisfactory explanations for the shift
away from the \textit{ad coelum} rule. One explanation is that the maxim never quite
meant what it says. In \textit{Hinman v Pacific Air Transport},\textsuperscript{84} the court observed:
“This formula was never taken literally, but was a figurative phrase to express
the full and complete ownership of land and the right to whatever superja-
cent airspace was necessary or convenient to the enjoyment of the land.”\textsuperscript{85}
Similarly, in \textit{Swetland v Curtiss Airports Corp.}\textsuperscript{86} the Court offered a sensible,

\textsuperscript{83} Hobart M King, “Directional and Horizontal Drilling in Oil and Gas Wells,”
\textit{Geology.com}, archived at https://perma.cc/5W42-GANQ.
\textsuperscript{84} 84 F.2d 755 (9th Cir. 1936).
\textsuperscript{85} Ibid at 757.
\textsuperscript{86} 55 F.2d 201, 203 (6th Cir. 1932).
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functional explanation for limiting the outcome by noting that it only applies “in connection with occurrences common to the era, such as overhanging branches or eaves.”87 Hence the property owner “has a dominant right of occupancy for purposes incident to his use and enjoyment of the surface, and there may be such a continuous and permanent use of the lower stratum which he may reasonably expect to use or occupy himself as to impose a servitude upon his use and enjoyment of the surface.”88 With that logic in hand, the Sixth Circuit enjoined the flight of airplanes below 500 feet, but refused to do so over that height.

These cases were correct when they were decided, and they are still correct today. But their reasoning is suspect because it is not true to the original rule, which said what it meant and meant what it said. It is easy to treat the case by denying that property rights exist because then any claim is stopped in its tracks. But it is far more difficult to dismiss a case easily when the deprivation is conceded and therefore must be justified in some way. That point was not lost on the early courts. Thus in Hinmann, the judges fretted out loud about their fears that, if property rights were recognized, “there might be serious doubt as to whether a state statute could change it without running counter to the Fourteenth amendment to the Constitution of the United States.”89 Yet early on, the maxim meant just what it said because there was no reason to incur the major costs of asking just how high the right of possession went when there was no competing use for the upper airspace. The technical conditions of the time did not set the stage for any holdout issue, so the fundamental trade-off was easy. The arrival of air transportation raised the unstable situation where landowners had no use value but (like Colorado waters) high holdout potential.90 At this point, the correct approach is to concede the taking, but to then demonstrate that full implicit in-kind compensation has been supplied to all landowners, who each share in the massive social gains from free movement in the upper air space, thereby meeting the fears about the upper airspace. With upper airspace, moreover, there is no reason to calibrate the compensation exactly in costly administrative proceedings that can only leave everyone worse off, as well as allowing for the real risk that some landowners might be able to game the overall system for partisan advantage.

87 Ibid.
88 Ibid. Citing, correctly, Portsmouth Co v United States, 260 U.S. 327 (1922), which found that consistently firing artillery over and near the plaintiff’s resort constituted a taking.
89 Hinman, 84 F.2d at 257.
The choice of approach, moreover, makes a real difference in subsequent cases. Once the definition of a property is made robust in all dimensions, the takings inquiry—transnationally—will, as becomes clear in the next section, expand to cover a wider range of issues that allow legal analysis to distinguish more clearly between Pareto improvements and naked wealth transfers. Thus, with air rights, the question then arises: What should be done about low-level flights under 500 feet, where damage to use values becomes much greater? Since few landowners do, or even could, occupy that space, should these flights be allowed by default? It is much easier to put in place a hard trespass line—as with simple rules for a complex world—that marks the lower limit at which planes can fly without having to compensate surface owners, taking into account the height over both vacant land and built-up land, especially within cities.

With these lower overhead flights, the dangers of noise and vibration are greater, and it has long been easier to constrain these with a hard-edge injunction by using the theory of trespass instead of by nuisance. The lower one goes, the greater the intrusion, at which point the operative question is whether the intrusion on space has a disproportionate impact on the landowners consequent to a physical invasion.

In *United States v Causby*, 91 army and navy aircraft passed over the plaintiff’s land at a height of 83 feet in order to land at a nearby airfield, generating wind, noise, light, and dead chickens, all to the detriment of the surface owner. The owner could not enjoin any government action (given the public use), but sued in trespass for compensation for these losses. The government put its position in stark terms: no trespass, no compensation. “The United States concludes that when flights are made within the navigable airspace without any physical invasion of the property of the landowners, there has been no taking of property.” 92 Justice Douglas made it quite clear that highways in the sky had to be protected against “countless trespass suits.” 93 But the disproportionate impact meant that government had to bear the cost of the damage to the land below. In principle, such actions could rely on a theory of nuisance liability, but that has proved more porous in practice because of the common ambiguity associated with the “reasonableness” requirement in these cases, which on one reading could allow the social gains from low overhead flights to negate the duty to compensation. 94

91 328 U.S. 256 (1946).
92 Ibid at 260.
93 Ibid at 261.
94 See e.g., *Restatement (Second) Torts*, § 826 Unreasonableness of Intentional Invasion (1966).
Just that position was alluded to by Justice Douglas in *Causby* in relation-
ship to *Richards v Washington Terminal Co.*,95 which introduced a further key
distinction. The localized damages in *Richards* stemmed from railroad activi-
ties operated near, but not adjacent to, the plaintiff’s land. To deal with them,
Justice Mahlon Pitney introduced the classic distinction from the law of public
nuisance,96 namely that between general (or background) interferences, and
special interferences that strike one or a small number of landowners equally.
He thus allowed recovery for “so much of the damage as is attributable to
the gases and smoke emitted from locomotive engines while in the tunnel,
and forced out of it by the fanning system therein installed.”97 That approach
could have been applied in *Causby*, where it has the added advantage of pro-
tecting landowners from nuisances even when there is no physical invasion
of property, which *Causby* did not address. The considerations here apply not
only to American cases but more generally, and lead to the proposition that
changes in property rights that have disproportionate impact on a single or
small group of owners are not those in which it is likely to find implicit in-kind
compensation, so that direct compensation should be allowed. That distinction
lies at the heart of any system of eminent domain law that seeks to figure out
which transformations of property rights require government compensation
and which do not.

5. PROPERTY TRANSFORMATIONS AND THE
EMINENT DOMAIN POWER

One recurrent issue in the previous section is the question: when the change
of a property rights regime is imposed either by judicial action or legislation,
must the state supply explicit compensation to parties who are aggrieved by
the shift? For these purposes, I shall not address the very difficult question
of whether a certain taking is for a public use; nor shall I address the distinct
question of whether some “police power” justification—chiefly in the form
of nuisance prevention—exists, which provides that the government action
no more requires compensation than any private action undertaken to enjoin
a nuisance.98

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95 233 U.S. 546 (1914), cited in *Causby*, 328 U.S. at 262.
96 The distinction goes back to Anonymous, Y.B. Mich. 27 Hen. 8, f. 27, pl. 10
(1536), but was picked up in *Baltimore & Potomac R.R. Co. v Fifth Baptist Church*, 108
U.S. 317 (1883).
97 *Richards*, 233 U.S. at 551.
98 For a longer discussion of both issues, see Epstein, *Takings: Private Property
and the Power of Eminent Domain*, supra n 22 at chs 9 and 10 (police power); ch 12
(public use); chs 13–14 (explicit and implicit in-kind compensation).
So limited, this inquiry reduces to a question of how to finance different changes in property rights within the legal system. The correct view is one that looks at both sides of the equation in each and every case. It asks both about which individuals are hurt by the loss of legal rights, and which individuals are benefited by them. Here there are two polar differences. On the one side, the individuals who are burdened are also the individuals who are benefited, and in the same proportion as their losses. The correct approach offsets the loss of the takings with the gain from the parallel restrictions on other individuals. In those cases, in which the positions of all persons are identical with respect to the restriction in question, cash compensation should not be provided because the political process will provide the needed protection. If faced with a situation in which all are in, each person knows that he or she cannot export the losses on outsiders, and hence when they vote, the only way in which they can advance their own position is to advance the position of everyone else. But where the benefits run to one group of individuals and the burden to a separate and distinct class, the use of a general rule is now dangerous because it allows for the wholesale transfer of wealth from one group to another, which means that the transaction should be voided unless the parties benefited pay the losses inflicted on the losers within the political system, not the entire public. It is, therefore, a major mistake to make in advance of knowledge of a particular set of outcomes, a global judgment that large and powerful parties need not receive constitutional protection because they have the political wherewithal to protect themselves. But there is no reason to draw that conclusion in the abstract, when it is possible to wait for the political process to run its course to see whether or not, in this particular instance, the abuse took place. The key advantages of this wait-and-see approach are twofold. First, it avoids the costs of political contestation, which are likely to be highest when a legislative scheme, such as rent control, introduces huge wealth transfers. Second, the more reliable information will discipline the legislature, thereby reducing the likelihood that such wealth-destroying transactions will take place at all.

99 For that view, see Saul Levmore, “Takings, Torts, and Special Interests,” 77 Va L Rev 1333, 1345 (1991): “most taxes and rent control schemes are not compensable takings because they are the products of political exchanges; taxpayers and landlords are left to protect themselves in the political arena. In contrast, individuals who are subjected to ‘spot zoning’ are often politically unprotected because they are burdened in a way that makes it unlikely that they can find political allies, and takings law will often protect them from majoritarian exploitation.” Note that spot zoning was protected in Penn Central Transportation Co. v City of New York, 438 U.S. 104, 132, 139–40 (1978). For my critique, see Richard A Epstein, “The Unfinished Business of Horne v. Department of Agriculture,” 10 NYU J Law & Lib 734 (2016).
It is, therefore, useful to see how this framework works out in particular situations. I shall stress American Supreme Court cases here, but the choices that they illustrate are identical to those found everywhere. The simplest way to make the point is to contrast two general approaches to this problem. The first is a categorical approach, as adopted by a majority of the Supreme Court in *Armstrong v United States*. There, Justice Hugo Black wrote: “The Fifth Amendment’s guarantee that private property shall not be taken for a public use without just compensation was designed to bar Government from forcing some people alone to bear public burdens which, in all fairness and justice, should be borne by the public as a whole.” The second quotation comes from *Penn Central Transportation Co. v City of New York*, where Justice William J. Brennan adopted a more contextualized approach that took dead aim at *Armstrong*:

This Court, quite simply, has been unable to develop any “set formula” for determining when “justice and fairness” require that economic injuries caused by public action be compensated by the government, rather than remain disproportionately concentrated on a few persons. Indeed, we have frequently observed that whether a particular restriction will be rendered invalid by the government’s failure to pay for any losses proximately caused by it depends largely “upon the particular circumstances [in that] case.”

In engaging in these essentially *ad hoc*, factual inquiries, the Court’s decisions have identified several factors that have particular significance. The economic impact of the regulation on the claimant and, particularly, the extent to which the regulation has interfered with distinct investment-backed expectations are, of course, relevant considerations. So, too, is the character of the governmental action. A “taking” may more readily be found when the interference with property can be characterized as a physical invasion by government than when interference arises from some public program adjusting the benefits and burdens of economic life to promote the common good.

The real question raised by all these cases is whether the costs in question should be paid by the targeted landowner or by the public at large. To see how

100 364 U.S. 40 (1960).
101 Ibid at 49.
the differences shape out, it is useful to start with these two cases, and then add in a few other cases dealing most notably with water and mineral rights.

*Armstrong* involved two navy vessels berthed in Maine territorial waters for repairs. One of the subcontractors did not get paid by the general contractor. He had not signed any lien waiver, and thus, in accordance with standard restitution principles, was allowed to place a lien on the vessel to gain recompense for the value added. That lien is a full-fledged property right. The United States dissolved the lien by sailing the boat into international waters. The takings claim essentially was that even if fleeing the state could dissolve the lien, it did not defeat the lienor’s claim as a general creditor. Since the boat was used for national defense, no one citizen should bear the disproportionate cost of its repair. Compensation thus put that cost back on the public at large. Hence the force of Justice Black’s proposition, not only in the US but everywhere else, is that special harms cannot be paired with general benefits.

*Penn Central* raises the identical issues with a different set of property rights. The New York City Landmarks Commission designated the Grand Central Terminal in New York City as a landmark, after which it prohibited the company from constructing a 55-story office building by use of its air rights. Under New York law, these air rights are full-fledged property rights which can be (and are) routinely sold, mortgaged, leased, and given away like any other asset. Their effective exercise requires that they have support rights on the ground and any structure below. Single ownership guarantees that connection, as was the case in *Penn Central*. No one doubts that New York could condemn those air rights for public use in order to improve view-scapes throughout New York City so long as just compensation is paid. Nor could anyone claim that the construction of this garden-variety office building counts as a nuisance—unless the same could be said about every other skyscraper in New York City. The benefits of the new project redound for all citizens, not just for the owner of the land and existing structure. The parallel to *Armstrong* is exact, so that the taking of *any* partial interest in land requires just compensation.

Justice Brennan’s appeal to an “ad hoc” approach allowed him to beat back that conclusion by deflecting attention to collateral matters: did rents from the existing building recover its costs without the utilization of the air rights? Did the ability to receive “transferrable development rights” (without clear support easements) over some building change the outcome? Did it matter that the new structure fit into the character of the neighborhood? How do “investment-backed expectations” differ from ordinary property rights? And why do all owners not routinely expect to obtain maximum value for each stick in the overall bundle of rights? None of these questions were answered, but *Penn Central* set in place a dynamic whereby restrictions on use were treated wholly differently from government *occupation*, even though servitudes are universally regarded as property interests under the private law. Hence the
dominant no-compensation solution in all landmark preservation cases was established.\textsuperscript{104}

That point is made painfully clear by the decision of the Supreme Court in \textit{Lucas v South Carolina Coastal Council},\textsuperscript{105} in which the Supreme Court held that a decision to prevent any landowner from engaging in any construction on his land was tantamount to a taking for which full compensation was owed. The decision gives no indication of what should be done from a set of restrictions on land use which may reduce the value of land to some number greater than zero, but far less than its value. Given the basic formula from \textit{Armstrong}, the only correct way to treat variations in the power of a restriction is to reduce the valuation as the restrictions become less onerous. But under the logic of \textit{Penn Central} the question of compensation or not becomes discontinuous. Someone has to set some arbitrary line to determine which regulations call for compensation and which do not. What is instructive is the consequence in this case of finding a taking. The trial judge forced South Carolina to buy the land for its market value, where, without development rights, it was a useless liability on its base. The state had an opportunity to sell the property to the owner of a neighboring lot for about 60 percent of the original value (which meant that it was not really worthless to begin with), but it still could not close the budget hole. Therefore, South Carolina restored the original zoning to get full value. The takings decision put the expenditure on-budget, forcing the political institutions to commit to funding the appropriation to allow the taking to go through. It is a modified price system, and since financial incentives matter, the most important function of the takings clause is not to provide compensation when property is taken but to make sure that it is not taken when the value of the asset in public lands is less than its value in private hands.

The water rights cases are too complex to go into detail here,\textsuperscript{106} but the basic story is the same. It is often necessary to transform water rights, but that

\textsuperscript{104} For the other side, see \textit{Loretto v Teleprompter Manhattan CATV Corp.}, 458 U.S. 419 (1982): “We conclude that a permanent physical occupation authorized by government is a taking without regard to the public interests that it may serve.” Ibid at 426. The formulation covers private occupation pursuant to government order, but somehow, not rent control. See \textit{Yee v City of Escondido}, 503 U.S. 519 (1992). The original United States case that sustained rent control laws was \textit{Block v Hirsh}, 256 U.S. 135 (1921), where a short-term rent control statute was upheld as a legitimate response to the crowding of Washington in the aftermath of World War I. Its three-year extension was struck down; \textit{Chasleton Corp. v Sinclair}, 264 U.S. 543 (1924).


result should require compensation when there is a disproportionate impact not justified under the police power. In at least one case, *United States v Cress*,\(^{107}\) Justice Pitney took the position that whenever the government interfered with an existing dam in ways that would render a private party liable under the reasonable use system, the government had to provide compensation in full in order to prevent its scheme from being enjoined. That rule constrains disguised wealth transfers through government construction. But *Cress* was sapped of all validity in *United States v Willow River Power Co.*\(^{108}\) Justice Jackson started with the proposition that “not all economic interests are ‘property rights,’” which is right as far as it goes. But his opinion then ruptures the essential connection between private and public rights when it states: “Rights, property or otherwise, which are absolute against all the world, are certainly rare, and water rights are not among them. Whatever rights may be as between equals such as riparian owners, they are not the measure of riparian rights on a navigable stream relative to the function of the Government in improving navigation.”\(^{109}\)

At this point, the public interest always wins on the ground that a superior “navigation servitude” necessarily trumps all private interests. But that argument is incoherent. The reference to absolute property rights is beside the point. We have already seen that all property rights, including all water rights, are subject to suspension in the event of necessity. But it hardly follows that a government can repackage the system of property rights to its own benefit in order to evade its obligation to compensate, without giving so much as a clue as to what those may be. The transitional rules developed in the private law context apply every bit as much here. It is no accident that Jackson’s severance between public and private rights in *Willow River* was cited in *Penn Central* as one of “the decisions in which this Court has dismissed ‘taking’ challenges on the ground that, while the challenged government action caused economic harm, it did not interfere with interests that were sufficiently bound up with the reasonable expectations of the claimant to constitute ‘property’ for Fifth Amendment purposes.”\(^{110}\) The quotation marks give the game away. The transformation of property rights with disproportionate consequences is the fatal weaknesses in modern law. Cases that cite *Armstrong* result in compensation. Those that cite the “ad hoc” formulas in *Penn Central* do not.

The consequences of this radical transformation can be seen in other cases that deal with the interaction of property rights along the beach. Thus, in

\(^{107}\) 243 U.S. 316 (1917).

\(^{108}\) 324 U.S. 499 (1945).

\(^{109}\) Ibid at 510.

\(^{110}\) *Penn Central*, 438 U.S. at 125.
The changing role of property law

The changing role of property law

United States v Rands,111 the federal government walled off an entire river so that all former riparians had no access at all. The Supreme Court held that this loss of port access was not a compensable interest because of the “paramount navigation” easement, thus removing, as noted earlier, an essential element from the bundle of rights. Similarly, Stop the Beach Renourishment, Inc. v Florida Department of Environmental Protection112 featured the same disconnection between private and public rights. In order to deal with the problem of beach erosion, the Florida Beach and Shore Preservation Act113 imposed a scheme to protect the beach, which involved the following two elements. First, a fixed erosion control line replaced the traditional fluctuating high-water line as the demarcation between public and private property, which is a clear deviation from the basic distribution of beachfront rights dating back to Justinian. But its consequences were not all that clear. The line was used to locate a wall that prevented the further erosion of the beach and thus provided beachfront owners with protection against further erosion. No similar protection was available privately for these narrow plots of land since water could easily go around these separate barriers. So already, there was both gain and loss from the situation. Second, the statute made it clear that the former beachfront owners had preservation of both their rights of access and view to the seaward side of the wall. Put otherwise, the state did not take an absolute ownership interest in the property. Looked at as a whole, the set of rights that each property owner received for its loss of direct beach access looks very much like a fair exchange which leaves each property owner as well off as before. Hence the best way to understand this case is one in which a taking is matched with just compensation, so that the transition in property right should be allowed.

Justice Scalia reached the correct conclusion, but with the same erroneous approach used in Swetland and Hinman to deal with air rights—he denied that any taking had taken place at all. His explanation was that the Florida decision of Martin v Busch,114 where the affected party retained ownership of the lakebed, held that the state did not need to compensate anyone when it drained a lake from which it had shore access. That decision is surely wrong given that diversions from public waterways are the arch tort when committed by private parties and hence count as a taking. He then reasoned that Stop the Beach somehow involved a judicial taking, given the decision of the state legislature. No one doubts that these can happen: just think of the response if the

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111 389 U.S. 121 (1967).
114 112 So. 274 (Fla. 1927).
state, in the exercise of its ordinary jurisdiction, refused to allow any remedy against deliberate entry, thereby turning every bit of property into a commons. But even though the state had decided this issue the wrong way, he thought it imperative to follow its decision, and thus concluded not that the taking was compensated but that it never happened at all. That odd reading of the law led to the “counterintuitive” conclusion that the government could do what it wanted with the “State’s artificial creation of an avulsion.” But avulsions are necessarily acts of God, not human actions. Translated to land, Justice Scalia’s assertion treats destruction of property by arson and lightning as the same. In his view, moreover, there is nothing to prevent the state from removing rights of access and view given that there was no taking at all. So the case gets the right answer for the wrong reasons, and accordingly sets the law off in the wrong direction.

The last variation on takings law deals with the treatment of mineral rights. Properly understood, there is no difference between the analytical framework relevant here to that applicable in the previous cases of water and air rights. Thus in the famous case of Pennsylvania Coal Co. v Mahon, the coal company in 1878 conveyed away rights to the surface, but withheld the support rights so as to allow it greater flexibility in mining. Yet in 1921 the Pennsylvania legislature passed the Kohler Act, which restored the support rights to the surface owners without offering compensation to the mine owners. In consequence, the miners lost flexibility in their operations and left columns of coal in situ to support the surface estates, although, in principle, they could have removed all the coal if they had supplied some alternative source of support.

There is good reason for passage of the statute if two plausible conditions are satisfied: first, if the surface had become more valuable for home construction, and second, if mining techniques had improved in the interim 43 years, such that the cost of supplying support went down. Provided that both of those ifs are true, then the only way to work the exchange is to do it through state compulsion, given the holdout risks of some parties refusing to pay for the support in the hopes that other parties will sign on for the deal. So it is, as in so many other cases, yet another all-or-nothing situation. But it hardly follows that the reconveyance of surface rights should be without compensation, for then the mining companies are required to surrender something for nothing.

115 260 U.S. 393 (1922).
Hence the case for compensation is sufficiently clear that it should not take any Supreme Court decision to supply it. Justice Holmes was surely on the right note when he observed that the case lacked the “average reciprocity of advantage,”\(^{118}\) which is an elegant, if roundabout, way of saying that the parties who were burdened by the statute were not benefited from it. But from there on, the decision is all confusion. Justice Holmes is at a loss to give a clear property rights analysis, so he says that in takings cases, the line between takings that do or do not fall under the police power is just a matter of degree, so that “while property may be regulated to a certain extent, if regulation goes too far it will be recognized as a taking.”\(^{119}\) His point must be wrong, as liability rules should operate like on/off switches, and not as matters of degree. Questions of degree, in contrast, are appropriate for measuring the level of just compensation once the taking has been established.

Yet ironically, Holmes gets that analysis wrong as well, when he writes: “What makes the right to mine coal valuable is that it can be exercised with profit. To make it commercially impracticable to mine certain coal has very nearly the same effect for constitutional purposes as appropriating or destroying it.”\(^{120}\) This suggests that the losses in question should be confined to the coal that must be left in place, when the correct measure is the reduction in the value of the coal that can be extracted from the entire mine by virtue of the restrictions imposed by the legislation. Pennsylvania Coal also raises the question as to whether landowners whose property is taken owe some duty to mitigate their losses. In dealing with the mining issue, the question boils down to whether there was a more efficient system of subjacent support, which seems unlikely in this case.

Of equal importance is that a regulation that mandates the use of support devices should not be categorically different from one that orders that coal be kept in place. Yet Holmes, in Pennsylvania Coal, creates an incipient wedge that leads to the categorical distinction in Penn Central between regulations—that is, takings of servitudes or other partial nonpossessory interests—and actual occupations—the keeping of coal in place—by or under government authority.\(^{121}\) The net result is a systematic violation of all the rules for sound transformations from private to common property, or in the reverse.

\(^{118}\) Pennsylvania Coal, 260 U.S. at 415.

\(^{119}\) Ibid.

\(^{120}\) Ibid at 414.

6. CONCLUSION

In this chapter I have sought to develop a set of rules that help explain the variety of property rights found in all legal systems, both ancient and modern. The method in question starts with simple cases of polar opposites and then explains how it is that each of these systems creates perceived defects that in turn require additional adjustments to the system that help make it more efficient than it was before. The program here involves both private and public rights. In the private domain, it is commonly held that property rights are acquired by occupation or first possession. That system seems simple when the rule is applied to wild animals, but it becomes far more complex when coordinated activities are required, as with the capture of whales. In addition, the rules of open access create problems on a different dimension, where the overhunting or overfishing of wildlife can result in the destruction of common pools. Hence legal regimes must adapt to those challenges as well. Similar types of problems arise in connection with land as one traces the transformations due to the agricultural revolution on the one hand, and those resulting from the rise of transportation by river, road, and air, each with their own distinctive demands on property rights, on the other.

The many transformations in the private sector were often followed by conscious changes in government policy in dealing with the rights of these same resources. In some instances, the regimes worked to overcome holdout or common pool problems that would otherwise arise in the absence of rules by imposing a public trust doctrine on the use of aquatic resources, and different regimes for mineral, water, and air rights. The acid test in all these cases is whether the change in question produces some social improvement, which in the majority of cases involves legal regimes that raise the welfare of all parties simultaneously, or on rare occasions, when the aggregate gains are so large, allow large gains to some but with, necessarily, small losses to others. In dealing with these public interventions the risk of partisan politics arises, so that there is a constant struggle to decide which of these transitions are welfare enhancing and which are not. The somber truth is that too often the public choice difficulties of collective decisions are underestimated, so that government action too often results in wealth-reducing initiatives that could have been avoided if the principles regulating transitions in legal regimes between private parties were carried over to government actions. The realignment of private and public property rights is the central challenge worldwide in setting up stable and prosperous societies.