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The Evolution of Property Rights: A Synthetic Overview

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James E. Krier

INTRODUCTION

"Evolution" refers, in the most general sense of the term, to a process of gradual change, so it goes without saying that property rights have, in this sense, evolved. There were at the very beginning no such rights among humans, then some primitive rights appeared, followed eventually by developments that culminated in the full-blown property systems of modern times. A project that aimed merely to describe the course of events would be an evolutionary study of sorts, and would no doubt provide fodder for an evolutionary theory, but it would not amount to one. An evolutionary theory aims to explain why and how what happened, happened. I focus here on two contrasting approaches to explaining the evolution of property rights.

For convenience, I refer to the first approach as COOP, because it relies, at least implicitly, on cooperative collective action, and to the second as CON, because it rests, instead, on a process whereby individual actions simply happen to converge on conventions of behavior.[1] Other labels would be equally apt. COOP could be called the social engineering view, because it sees property as a human invention achieved by design. CON, in contrast, could be called the natural engineering view, because it suggests that property rights emerged, in the first instance, by happenstance, given resource circumstances. Finally, COOP could be labeled the conventional view, because it is far and away the dominant take on our

[1] In other words, cooperation refers to individuals working in concert with a shared purpose to achieve some state of affairs *S*, whereas convergence refers to individuals ending up together at *S* without any concerted effort or purpose to do so.

subject, holding a virtual monopoly on the legal literature despite its well-known (and not so well-known, and, in a few instances, hitherto unknown) deficiencies. CON is the "other" view, routinely neglected or marginalized notwithstanding its virtues.

One aim of the discussion that follows is to make CON salient to legal scholars, particularly those who teach and write about property, more particularly still those who write about the evolution of property rights – who (as we shall see later) usually ignore CON entirely, occasionally mention it in a footnote, or, give it a nod in a paragraph of text. It deserves more. A second and related aim is to extend the reach of CON, which as it stands now is limited more than needs be, chiefly because the CON literature is mostly the product of biologists and game theorists unfamiliar with the wonderful complexities of property regimes. A third aim is to provide a brief intellectual history of COOP and CON alike, together with a more thoroughgoing discussion of modern versions of each of the two viewpoints; and a fourth is to provide a synthetic overview of our subject, the evolution of property rights. My account is synthetic in that it draws together the COOP and CON viewpoints (themselves grounded in a variety of disciplines) and integrates them in a fashion that provides a more satisfactory evolutionary account than can either COOP or CON on its own. And the account is an overview in that it provides a primer on the subject as a whole. Those who know nothing, or virtually nothing, about the evolution of property rights should find their reading rewarded by a good grasp of the basics. Those who already know a great deal are encouraged to skip whatever they find familiar and concentrate on whatever they find fresh (I would be surprised to learn that the time invested carried no payoff). And all readers should be pleased to see that my treatment, despite its multiple aims, has one very welcome characteristic: It is brief.

The order of march is as follows. Part I begins with COOP, briefly tracing its roots and summarizing its contemporary statement, then examining the shortcomings of the COOP account. Attention turns in Part II to a similar treatment of CON in terms of its roots and the lines of its argument, followed by

an analysis that expands the compass of CON and indicates how neatly it responds to several of the problems with COOP – several, not all. Part III concludes with observations that serve to summarize and extend the discussion and indicate its implications for ongoing study of the evolution of property rights.

Any number of novel insights will appear along the way, including (but not limited to) the following:

1. Strictly speaking, COOP is not an evolutionary explanation, whereas CON is. The difference between the two approaches is identical in essential respects to the difference between intelligent design and Darwinian theory as accounts of the origin of species.

2. COOP does not provide a distinctive explanation of property rights *in particular*, whereas CON does.

3. A central theme in COOP is that increasing resource values provoked the development of property rights, whereas CON suggests that increasing resource values threatened the collapse of property rights.

4. COOP assumes but does not explain why, at the genesis, units taken from the shared *common* resource stock became, once taken, the *individual* property of the taker, no longer subject to sharing. CON explains the phenomenon.

5. COOP suggests that common ownership was the natural default position and that collective efforts were necessary to overcome inertia and move to individual ownership. Beyond that, COOP maintains that a governing authority was necessary to define and enforce property rights. CON, on the others hand, suggests that under certain circumstances common ownership changed to individual ownership naturally and became the new default. In addition, and under the same certain circumstances alluded to above, the new default could have included the essential rights of a basic property system (to exclude, to use, and to transfer) and could have gone forth with no governing authority to define and enforce those rights.

I. COOP

A. The Argument

The roots of COOP can be traced back several hundred years, to Thomas Hobbes, John Locke, and William Blackstone.[2] For our purposes, a very condensed distillate of their views will suffice. Each of them imagined an original situation of open access to a common stock of resources, no ownership, and no civil government (the state of nature). Hobbes figured that any commoner taking a thing out of the common stock would thereafter treat it as has own, but would have to stand ready to defend his possessions against grabbing by intruders. Commoners might try to enhance the security of their holdings by making contracts among themselves, promising not to interfere with the possessions of others so long as others promised the same in return, but self-help was the only means of restraining promisors from reneging. Hence, Hobbes concluded, life would be marked by ongoing battles.[3] Locke agreed. His labor theory dictated that anything taken from the commons rightly belonged to the taker, provided there was enough and as good for everyone else,[4] but conceded that commoners

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[2] See Thomas Hobbes, Leviathan (1651) (Basil Blackwell 1947); John Locke, Two Treatises of Government (1690) (Cambridge University Press, rev. ed 1963, Mentor Paperback); William Blackstone, 2 Commentaries on the Law of England (1765-1769). All of these appear in any number of editions produced by various publishers over the years, and so far as I know there is no standard edition to be cited. This presents no problem in the case of Blackstone, because virtually every edition has star pages, and I cite to these. As to Hobbes and Locke, I cite by page to the editions I used but add, for the sake of those without access to the particular volumes, parenthetical citations to chapters in the case of Hobbes, and to sections in the case of Locke. This is convenient enough because the chapters in Hobbes and the sections in Locke are usually short. I take the same approach in the case of Hume, who figures later.

[3] Hobbes, supra note 2, at 81-84 (ch. 13).

[4] Locke, supra note 2, at 328-29 (§ 27). See also id. at 330 (§ 28) ("it is the taking of any part of what is common, and removing it out of the state nature leaves it in, which begins the property . . . ."). Locke's view is reflected in the rule of capture familiar to modern property law, according to which wild animals in their natural condition belong to the first person to kill them, capture them in hand, trap them, or mortally wound them. See, e.g., Pierson v. Post, 3 Cai. R. 175,

might regularly disregard this principle, with a "state of war" being the likely consequence.[5] Hobbes and Locke both thought that the only solution was a governing authority, arising by mutual agreement among all.[6]

Blackstone's account differs a little from the foregoing, especially with respect to the status of possessors. Any commoner who took something from the open stock, he said, acquired "a kind of transient property" that lasted only for the period of use, "or, to speak with greater precision, the *right* of possession continued for the same time only that the *act* of possession lasted."[7] Subsequently, more permanent rights – meaning, given the context, rights that did not depend on minute-by-minute actual physical possession – developed in such items as food, clothing, and shelter, the purpose being to forestall grabbing and the ensuing conflict, and to provide incentives to create commodities for oneself.[8] Eventually, land itself underwent the same transformation from temporary to permanent, under the pressure of scarcity. "As the world by degrees grew more

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179 (N.Y. Sup. Ct.1805). The dissent in *Pierson* argued for an alternative rule whereby ownership would vest in the first person to pursue with a reasonable prospect of capture, id. at 182, and Locke might well have agreed. See Locke, supra, at 331 (§ 30) ("the hare that anyone is hunting, is thought his who pursues her during the chase. For being a beast that is still looked upon as common, . . . whoever has employed so much labor about any of that kind, as to find and pursue her, has thereby removed her from the state of nature, wherein she was common, and hath begun a property.").

[5] Locke, supra note 2, at 391 (§ 117).

[6] Hobbes, supra note 2, at 94 (ch. 15) (need for a governing authority), 109-13 (ch. 17) (governing authority established by force or mutual agreement), 112 (ch. 18) (power of governing authority to make and enforce rules); Locke, supra note 2, at 320-22 (§§ 18-20) (need for a governing authority), 454 (§ 211) (governing authority established by mutual agreement), 460 (§ 222) (power of governing authority to make "rules set as guards and fences to the properties of all the members of the society").

[7] 2 Blackstone, supra note 2, at *3.

[8] Id. at *4-7.

populous," Blackstone testified, "it daily became more difficult to find out new spots to inhabit," and constant occupation of the same locations rendered them fallow; "the fruits of the earth were consumed, and its spontaneous produce destroyed, without any provision for a future supply or succession."[9] These conditions encouraged the development of agriculture, which, in turn, "introduced and established the idea of a more permanent property in the soil"; land had to be worked, "but who," Blackstone asked, "would be at the pains of tilling it, if another might watch an opportunity to seize upon and enjoy the product of his industry, art, and labor?"[10] So there emerged a system of "separate property in lands, as well as moveables, . . . vested in some individuals . . . ."[11]

Blackstone made no mention of the ongoing aggression and retaliation imagined by Hobbes and Locke; to the contrary, he appeared to suppose that commoners *respected* the (transient, and later permanent) property rights in question and behaved accordingly. But he joined his predecessors by depending, in the end, on a governing authority to make and enforce rules. "Necessity begat property; and, in order to insure that property, recourse was had to civil society" – a system of "government, laws, punishments . . . ."[12]

I have mentioned these bits of intellectual history so that readers might appreciate how they resonate in the modern version of COOP, the prototype of

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[9] Id. at *7.

[10] Id.

[11] Id.

[12] Id. at *8.

which is Harold Demsetz's *Toward a Theory of Property Rights*,[13] celebrated as "seminal," "path-breaking," a "point of departure for virtually all efforts to explain changes in property rights"[14] since its publication some forty years ago, and the occasion for a conference on The Evolution of Property Rights convened in 2001.[15]

Demsetz is an economist. The thesis stated in his article is "that the emergence of new property rights takes place in response to new benefit-cost possibilities" as resource values change.[16] Put another way, Demsetz argued that property rights develop in a society when the benefits of having them exceed the costs of getting them.[17] As an example of his thesis, Demsetz drew from

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[13] Harold Demsetz, Toward a Theory of Property Rights, 57 Amer. Econ. Rev. Papers & Proc. 347 (1967).

[14] See, e.g., Douglas W. Allen, The Rhino's Horn: Incomplete Property Rights and the Optimal Value of an Asset, 31 J. Legal Stud. S339, S339 (2002) ("seminal"); Thomas W. Merrill, Introduction: The Demsetz Thesis and the Evolution of Property Rights, 31 J. Legal Stud. S331, S331 (2002) ("point of departure"; "path-breaking"); Richard A. Posner, Economic Analysis of Law 35 n.3 (7th ed. 2007) ("pathbreaking").

[15] The conference papers were subsequently published in a collection of articles. See Symposium, The Evolution of Property Rights, 31 J. Legal Stud. No. 2, Pt. 2 (2002). "The purpose of the conference was to reexamine the Demsetz thesis, consider possible alternatives or elaborations to it, and develop further empirical evidence either to confirm or disconfirm it." Merrill, supra note 14, at S331.

[16] Demsetz, supra note 13, at 350. See also id. at 350 (property rights develop when the gains thus achieved become larger than the costs thus entailed), 353 (discussing "the value and cost of establishing" property rights).

[17] Regarding property rights, Demsetz pictured three "idealized forms of ownership"– communal, private, and state. Id. at 354. Later I shall note some inconsistencies among his definitions. A point for now is that Demsetz regarded individual ownership and private property as both referring to the same thing, but they do not; private property includes, but is not limited to, ownership by a single individual. The distinguishing characteristic of private ownership is the right of the owner(s) to exclude nonowners. In the case of a universal open-access commons, there is no private property because no one has the right to exclude anyone, whereas in the case of an

anthropological studies of an Indian tribe inhabiting Canada's Labrador Peninsula.[18] Initially the tribe treated hunting lands as a commons open to all its members, who used it for various purposes, including hunting beaver for furs. For a time, the rate of hunting was naturally limited by the Indians' modest needs, but matters changed when a commercial fur trade with European settlers developed in the early 1700s. The demand for furs, the rewards from hunting, and thus the rate of hunting, increased. The run on beaver posed a threat of scarcity. In response, the tribe developed a system of private hunting territories that were allocated to individual families of tribal members; holders of a territory had the right to retaliate against trespassers.[19]

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even slightly less open commons there is, because the owners of the limited-access commons are entitled to exclude nonowners. Suppose you and I and twenty friends own Ouracre as tenants in common. Is it not our private property, relative to any but ourselves? And so too if we number one hundred, or one thousand? It would be appropriate to say that such situations involve ownership that is common on the inside, private on the outside. See Carol M. Rose, The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems, 83 Minn. L. Rev. 129, 155 (1998) (referring to "commons on the inside, property on the outside."). Some property law scholars hold the view that private ownership can be taken to mean ownership by "one person or a small number of persons." Thomas W,. Merrill, Property and the Right to Exclude, 77 Neb. L. Rev. 730, 733 (1998). I consider this a misleading usage.

[18] See Demsetz, supra note 13, at 351 n.3, citing Eleanor Leacock, The Montagnais "Hunting Territory" and the Fur Trade, 56 Am. Anthropologist No. 5, Pt. 2, Memoir No. 78 (1954). As Demsetz noted, Leacock was in essence building upon, and to some extent disagreeing with, an earlier work, Frank G. Speck, The Basis of American Indian Ownership of Land, Old Penn Weekly Rev., Jan. 16, 1915, at 491.

[19] Demsetz, supra note 13, at 351-53. Regarding trespass, Demsetz misread the evidence. Leacock's Memoir, supra note 18, at 2, reported that trespass meant one thing only, namely an intrusion arising "when hunting for meat or fur *to sell*. . . . [A] man finding himself in need of food on another's land may kill the beaver – even all the beavers in a lodge – although *he cannot kill them to sell the fur*." See Henry E. Smith, Semicommon Property Rights and Scattering in the Open Fields, 29 J. Legal Stud. 131, 143 (2000) (calling the regime described by Leacock a semicommons – a property rights configuration that combines common and private property – in which the right to hunt beaver for other than sale was common property, but the right to hunt beaver for sale was private property). Another way to put the point might be in terms of Smith's distinction between exclusion rights and governance rights. See Henry E. Smith, Exclusion versus Governance: Two Strategies for Delineating Property Rights, 31 J. Legal Stud. S453 (2002) [hereinafter cited as Smith, Exclusion.] In these terms, the hunting territories could be seen as a

It is apparent in his article that Demsetz supposed these measures were a sufficient response to the problem of over-hunting. (He was wrong).[20] His reasoning will sound familiar, as indeed it was. He based his analysis on the economics of common ownership, the details of which were well understood at least a half-century before Demsetz wrote,[21] and the essence of which was expressed by Hobbes, Locke, and Blackstone several centuries before that.[22] When a resource is held in common, any commoner who exploits the resource gains the benefits of doing so, whereas the costs spill over onto all the commoners. In contrast, individual rights, where each member of the community is entitled to a separate resource packet, to the exclusion of other members,

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form of limited-access common ownership subject to a governance rule that restricted the trapping of beaver for sale to one particular individual or family.

[20] See Thráinn Eggertsson, Economic Behavior and Institutions 251-52 (1990), discussing John C. McManus, An Economic Analysis of Indian Behavior in the North American Fur Trade, 32 J. Econ. History 36 (1972). McManus learned from historians of the fur trade "that beaver populations were sharply reduced after the introduction of the fur trade in the area," id. at 39, and that the Hudson Bay Company, the only buyer of furs for a time, had to take its own measures to conserve the beaver population, id. at 46. He attributed the overhunting of beaver to, in part, the narrow prohibition on trespass discussed in note 19 supra, which, in his view, had been adopted to provide a form of social insurance against threats of starvation. Id. at 51. One can imagine at least one other contributing factor as well, but I take that up later. See infra note 41 and accompanying text.

[21] See Smith, Exclusion, supra note 19, at S457 n. 9 (noting that the "problem of overuse characteristic of a commons was first systematically studied" in 1911, citing literature). But one can go back much further. Aristotle and Aquinas, for instance, both understood that common ownership promotes not just overuse of the resource in question, but also underproduction. See, e.g., Aristotle, Politics, Book 2, Part 5 (c.350 B.C.); Thomas Aquinas, Summa Theological, Second Part of the Second Part, Question 66, Article 2 (1265-1274).

[22] See Carol M. Rose, Evolution of Property Rights, in 2 The New Palgrave Dictionary of Economics and the Law, at 93, 94 (Peter Newman ed. 1998), referring to the accounts of Hobbes, Locke, and Blackstone, and saying that Demsetz told the same story "once again" – an observation which, though on the mark to some extent, neglects Demsetz's distinctive insight into the relationship between property rights and transaction costs, on which see infra note 24 and accompanying text.

concentrates costs and benefits and thus creates constructive incentives. Anyone who decides to use his packet in a given way reaps the benefits but also bears the costs, equal to the value of opportunities forgone by exploitation as opposed to conservation.

What Demsetz added to this understanding was a fuller appreciation of the economies realized by individual ownership.[23] Notice that even with individual ownership – say of separate parcels of land – still it is unlikely that *all* costs and benefits of any owner's uses will thereby be felt exclusively by him. For example, uses by *A* of his parcel might affect the parcels of others, as when *A* builds a dam that causes a stream on his land to flood the lands of *B* and *C*. *A* does not feel the brunt of the flooding directly, as he would were the dam to end up submerging his own parcel under water, but *A* can be made to feel it through a process of transactions whereby *B* and *C* offer him inducements to stop using his land in a way that floods theirs. Demsetz's distinctive contribution was to demonstrate how separate exclusive holdings reduce the costs of the negotiation process by reducing the total number of people who have to negotiate. When a resource is held in common, everybody has to negotiate with everybody else. Individual property rights, in contrast, economize on these transaction costs, because only the neighbors with affected parcels (in our example, *B* and *C*) need negotiate with *A*.[24]

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[23] Demsetz's argument built on Ronald Coase, The Problem of Social Social Cost, 3 J.L. & Econ. 1 (1960), which demonstrated that in the absence of transaction costs, all spillover effects of an activity will be taken into account through negotiations among the affected parties.

[24] Hume, whom we shall have occasion to consider more fully a little later, seems to have anticipated Demsetz's point by several centuries. See David Hume, A Treatise of Human Nature 538 (Book 3, Part 2, § 7) (1740) (Oxford, Clarendon Press, 1965):

> Two neighbours may agree to drain a meadow, which they possess in common; because it is easy for them to know each others mind; and each must perceive, that the immediate consequence of his failing in his part, is the abandoning the whole project. But it is very difficult, and indeed impossible, that a thousand persons should agree in any such action; it being difficult for them to concert so complicated a design, and still more difficult for them to execute it; while each seeks a pretext to free himself of the trouble and expence, and would lay the whole burden on others.

Negotations would bring home to *A* the costs that his activities impose on others, transforming the costs to them into an opportunity cost to *A* that he would compare to the benefits he stood to realize were he to continue in his ways.

In contrast to his careful explanation of the manner in which individual rights of ownership economize on transaction costs, Demsetz said little about the process by which rights developed. He supposed that they resulted from "gradual changes in social mores and common law precedents," themselves to some degree the product of "legal and moral experiments" – "hit-and-miss procedures" that selected in favor of cost-minimizing approaches, at least in societies that placed a premium on efficiency.[25] In a later article, however, he said that there would have to be a governing authority involved in the creation and enforcement of property rights; "a right defining and conflict-resolving institution, such as the court system, the legislature, or some community authority, is inevitably part of any property rights system."[26] By this appeal to civil government, Demsetz placed himself yet again in league with Hobbes, Locke, and Blackstone, who, by the way, go unmentioned in his article.

B. Assessment

Despite ambiguities in each of the COOP accounts, and points of difference among them, they reflect the same general take on the evolution of property rights.[27] Consider the three main lines of the argument, and the shortcomings of

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[25] Demsetz, supra note 13, at 350.

[26] Harold Demsetz, Property Rights, in The New Palgrave Dictionary of Economics and the Law, at 144 (Peter Newman ed. 1998).

[27] I focus most closely on the lines of Demsetz's account, because it is the most systematic, but I try to indicate points of (possible) agreement between Demsetz and his predecessors, an exercise which at times requires interpretive readings of the early work. And let me note that whether or not the views of Hobbes and Locke in particular should be taken as descriptive evolutionary accounts, the fact is that their general assumptions about the early situation of humans, and their positive arguments about property rights and the origins of

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each, in turn.

1. From Common to Individual. — The COOP account makes two assumptions about the move from common to individual property rights. The first assumption is that, in the original situation, groups of humans behaved according to a practice of shared entitlement whereby any natural stock of resources was regarded as an open commons freely accessible to all members of the group. No individual had a divided claim to all or part of any particular item in the stock. Rather, each had a claim to all, subject to like claims in the rest (this is precisely the definition of a commons). The second assumption is that the practice of sharing did not extend to any unit once taken out of the stock. When a commoner chopped a tree and took possession of it, it belonged to the taker individually, in severalty. (The rest of the stock of trees remained open to all commoners, including any who might already have taken possession of some of the trees).

The first assumption is probably correct, simply as a matter of logic. It seems sensible to suppose an initial practice that treated resource stocks as accessible to all commoners, because it is impossible to conceive what else the initial practice, the default rule right at the genesis, could possibly be. The second assumption – that any item severed from the common stock belonged to its possessor[28] – is

government, have become baselines in much work on the evolution of property rights among humans, as witness Blackstone and Demsetz. For discussion, see Itai Sened, The Poltical Institution of Private Property 11-18 (1997).

[28] In just what sense something *belonged* to its possessor varies from account to account. Hobbes supposed only that might makes right. What belonged to the possessor was whatever he could defend, and for as long as he could do so – tenuous, to be sure, but the important feature to note is that Hobbes anticipated defense, not sharing, of the thing taken. In other words, he assumed a practice whereby possessors would *act* as though what they had taken then belonged to them. Locke went a little further, at least in theory. He reasoned that possessors were rightly *entitled* to what they took (subject to his proviso), but he fell into accord with Hobbes by acknowledging that non-possessors might regularly and wrongfully ignore this principle. Blackstone went further still. It seems he believed that all commoners respected the possessions of each. Takers, he said, had a *right* of possession (at first transient but eventually permanent). See supra notes 7-12 and accompanying text. Demsetz too obviously assumed that sharing ended with severance; his argument depended on it. Any commoner, he said, would "tend to overhunt and

another matter entirely. Why would that have been the practice? There might be a good explanation, but it is neither mentioned nor immediately apparent. The COOP accounts neglect the question altogether, which they can ill afford to do. If the practice of sharing did in fact persist after severance, then the COOP argument loses its moorings. If sharing persisted after severance, the ongoing battles that troubled Hobbes and Locke would be less likely to materialize. The incentives to overwork the common stock, a feature of all the accounts, would be reduced by sharing; indeed, they would be replaced by incentives to shirk in the working of the stock.[29]

2. Costs and Benefits. — The COOP argument is that behavioral practice and resource value were interrelated, each affected by the other in terms of costs and benefits. The practice of sharing before severance but not after created incentives to misuse the stock (too little husbandry, too much consumption). Stock value increased as stock supply declined (and also as demand increased, thanks to population growth, new opportunities brought on by technological changes, and so on). Likewise, increasing stock value motivated changes in practice, particularly in the direction of abandoning sharing altogether by partitioning the common stock into individual shares held in severalty. These new property rights developed when and as they became worthwhile.

The interplay among these variables is to some degree only implicit in Hobbes and Locke, a little clearer in Blackstone, explicit in Demsetz. Hobbes, for

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overwork the land . . . because some of the costs of his doing so are borne by others." Demsetz, supra note 13, at 354. But this would be so only on the assumption that severed items were not shared.

[29] Notice from these observations that the so-called tragedy of the commons is not just a function of common ownership, but a function as well of the rule that severance from the common stock vests individual ownership in the taker. Hence the tragedy can be remedied, at least to some degree, from adjustments at either end. I learned from recent reading of a work in progress that a few others have noted this very important connection. See Lee Anne Fennell, Commons, Anticommons, Semicommons at 6-7 (unpublished manuscript, 2008, on file with the author); Dean Lueck, First Possession as the Basic of Property, in Property Rights: Cooperation, Conflict, and Law 200, 202 (Terry L. Anderson & Fred S. McChesney ed. 2003).

example, saw the state of nature as a situation of each against all, with "no propriety, no dominion, no *mine* and *thine* distinct; but only that be every man's, that he can get: and for so long as he can keep it.[30] A costly consequence (and with this Locke agreed) was that commoners engaged in ongoing battles over possessions.[31] But Hobbes and Locke would have done well to qualify their point about constant contests over possessions. Presumably, potential contestants would have considered not only the benefits of winning the resource in question, but also the costs of fighting for it. Contests would be expected only when the value of the resource was high enough to justify the risks, and resource value would be a function, in part, of resource supply. The more abundant and accessible the stock, the more likely that anyone would be inclined to favor drawing from it rather than challenging the possessor, and the more likely that possessors, when confronted by aggressors, would abandon their holdings rather than fight for them. Hobbes and Locke perhaps understood this point, in which case we should grant that they were addressing themselves to a state of nature that had reached conditions of scarcity.[32]

Whatever we might choose to make of Hobbes and Locke, it seems fair to conclude that their successor Blackstone sensed the interrelationship of behavior and resource value, costs and benefits. He mentioned "transient property" that

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[30] Hobbes, supra note 2, at 83 (ch. 13) (emphasis in original).

[31] Another consequence was shirking in the maintenance and enhancement of the resource stock; there was "no place for industry, because the fruit thereof is uncertain: and consequently no culture of the earth . . . ." Id. at 82. Blackstone made the same observation. See supra note 10 and accompanying text.

[32] Recall Locke's view that commoners were entitled as a matter of principle to take from the stock, as long as the supply left would be sufficient to provide for others in like manner (as much and as good for all), but worried that this principle would not be observed, that there would be grabbers. Perhaps he sensed that the tendency to grab would increase as scarcity (or demand) did so.

belonged to a possessor only so long as it was actually in hand. He supposed that later such transient rights became permanent (first in personal items, later in land), a transformation he attributed to population growth and other factors that increased the demand for (and value of) resources.[33] This suggests why the transformation occurred, but it does not explain how. Quite clearly, in his view, a governing authority was not the agent of change; government, he thought, appeared later, in order to insure the rights that had emerged earlier.[34]

Now consider Demsetz. He too put resource value at the center of the story, but treated it (unsurprisingly) in a much more sophisticated way than did Blackstone. Withal, however, his argument is problematic in various respects, only a few of which we need address here.[35]

As already noted, Demsetz argued that the development of property rights turned on "the value and cost of establishing" them.[36] We have to unpack this simple statement in order to see its sense. Suppose a background situation of an open commons, no governing authority, and (for the sake of simplicity) a menu of two alternative property regimes – limited-access commons, and individual shares.[37] Next, distinguish between the "value of establishing" an alternative, on the one hand, and the "cost of establishing" that alternative, on the other. The

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[33] See supra notes 7-11 and accompanying text.

[34] See supra note 12 and accompanying text.

[35] See Merrill, supra note 14, at S333-S337 (briefly discussing some of the questions left unresolved by Demsetz's article).

[36] See supra note 16 and accompanying text.

[37] Given my assumption of no governing authority, I put state ownership aside. Demsetz listed state ownership as one sort of property, see supra note 17, but made no effort to account for the existence of the state, a central problem with COOP to be discussed shortly.

value, v, of establishing an alternative refers to the net benefits (if any)[38] of the alternative once it is in place. The cost, c, of establishing an alternative refers to the costs of putting it in place – its set-up costs. So Demsetz's argument amounts to the proposition that the development of property rights was driven[39] by a three-step decision process: estimate the value and the set-up costs of alternative property-rights regimes;[40] eliminate any alternatives as to which $v < c$; and choose from the remaining alternatives the one that maximizes $v - c$.

For reasons already suggested, and others soon to be considered, Demsetz was most certainly correct in arguing that the evolution of property rights was affected in part by the relationship between v and c. That relationship has to be considered with great care, however, to determine the likely evolutionary path in any given instance. In particular, there is no reason to suppose that increased resource value usually stimulated the development of individual property rights, as opposed, say, to a limited-access commons. Demsetz's discussion might easily be taken to suggest otherwise because of its exclusive focus on transaction costs, as to which individual ownership has a comparative advantage.[41] But transaction costs are

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[38] The benefits are measured in net terms because any alternative will have advantages and disadvantages, pluses and minuses – independent of the costs of establishing the alternative – so these have to be summed up.

[39] Driven, at least, in societies that put a premium on efficiency. Demsetz, supra note 13, at 350.

[40] Since set-up costs are a one-time thing, and benefits an over-time thing, the latter would have to be capitalized in some way in order to compare them to the former.

[41] In this respect, it is odd that Demsetz cited the development of Indian hunting territories as a relevant example of his argument. According to his reading of the anthropological evidence, the hunting territories were held by *families*, which is to say they were communal (each territory was a limited-access commons). Communal ownership can give rise to high transaction costs even if the owners are few in number, thanks especially to opportunistic behavior (freeriders, holdouts) that provokes costly haggling, as in bi-lateral monopoly situations. This is why modern property law grants tenants in common and joint tenants the unilateral right to partition their

hardly the only item that would have been considered if, as Demsetz argued, early societies aimed to find and choose the most efficient property rights regime; presumably they would have figured in a number of other relevant variables.[42] Even if changes in *v* and *c* operated center stage, that of itself would predict no particular and dominant evolutionary line. To the contrary, diverse lines would be expected. Changes in values and costs might have induced any of the following: no response; moves from common rights to individual rights (and vice versa); moves from more-inclusive to less-inclusive common rights (and vice versa); development of governance rules that kept common ownership intact but regulated resource use. This is the logical conclusion, and it is supported by substantial evidence.[43]

3. Governing Authorities. Consider now the most familiar and fatal difficulty

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holdings and convert them into ownership in severalty. In this connection, a close reading of the anthropological evidence cited by Demsetz suggests that the family territories were subsequently partitioned off to *individual* family members – perhaps for the reasons just suggested. See Leacock, supra note 18, at 1 (there was "continual readjustment of band lands to fit the needs of band members. *Each Indian* has a right to trapping lands of his own . . . .") (emphasis added). That the hunting territories were, prior to partition, a commons, though one limited to family members (which could be few or many), might be another reason the beaver stock was overhunted, as discussed in note 20 supra.

[42] For discussion of the various costs and benefits of individual versus group ownership, see Robert C. Ellickson, Property in Land, 102 Yale L.J. 1315 (1993). On the benefits of individual ownership, see id. at 1327-30 (benefits include, for example, constructive incentives of owners; low transaction costs; and ease of monitoring boundaries as opposed to monitoring behavior of group members in the case of group ownership); on the benefits of group ownership, see id. at 1332-34 (economies of scale; risk spreading). In connection with risk spreading, recall the discussion of the narrow prohibition on trespass described in notes 19 & 20 supra On other benefits of group ownership (e.g., enhancing sociability, satisfying tastes for working in groups) and references to some of the literature, see Jesse Dukeminier et al., Property 49-50 (6th ed. 2006).

[43] See, e.g., Dean Lueck, The Extermination and Conservation of the American Bison, 31 J. Legal Stud. S609, S649 (2002) (no response to increasing value of bison because costs of assembling and enforcing property rights remained prohibitive); Barry C. Field, The Evolution of Property Rights, 42 Kyklos 319 (1989) (moves from individual to common ownership, and changes in size and number of commonses); Smith, Exclusion, supra note 19 (governance rules); Ellickson, supra note 42, at 1330 (invention of barbed wire reduced the costs of enforcing individual ownership and stimulated the parcelization of previously open grazing lands).

of COOP, namely its failure to explain "the mechanism by which a society moves from a state of open access to property (or vice versa)."[44] It is one thing to argue that the relationship between *v* and *c* prodded the evolution of property rights, and another thing to explain how. Who, for example, did the accounting and made the choice of regime? The COOP argument relies, in the end, on collective agreement to enable the move from an open commons to some new property regime. Commoners as a group had to organize themselves in order to move out of the commons and into an alternative system. They had to cooperate, whether by acting together as a whole, or (as most COOP accounts would have it) by agreeing to establish and submit to some sort of centralized governing authority.[45] Yet it was their inability to act cooperatively in using common stocks of resources that was the very problem to be solved. Hence COOP begs a central question, and in no account do we find an answer to it. Instead of transparent explanation, there is "a black box."[46]

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[44] Merrill, supra note 14, at S336.

[45] Hobbes noted that a governing authority might arise by force rather than agreement, Hobbes, supra note 2, at 112-13 (ch. 17), a view echoed to some degree in Stuart Banner, Transitions Between Property Regimes, 31 J. Legal Stud. S359, S360 (2001). This move does not avoid the collective action problem; rather it pushes it back to the question of how any group managed to organize itself into a force.

[46] Merrill, supra note 14, at S336. This central flaw is well-known to the legal literature on the evolution of property rights. See, e.g., Banner, supra note 45, at S362 n.8 (providing citations). See also Sened, supra note 27, at 16 (observing that the flaw characterizes social contract theories generally.) For post-Demsetz articles that suffer the same problem, see, e.g., John Umbeck, A Theory of Contract Choice and the California Gold Rush, 20 J.L. & Econ. 421 (1977) (assuming rational contracting and no strategic behavior); Terry L. Anderson & Peter J. Hill, The Evolution of Property Rights: A Study of the American West, 18 J.L. Econ. 163 (1975) (assuming parties can organize effectively, and assuming the presence of government). See also Eggertsson, supra note 20, observing that Anderson and Hill's account "does not deal with the free-riding problems that plague group decision," id. at 254, and finding this a characteristic feature of the "naive theory of property rights," which "seek[s] to explain the development of exclusive property rights without explicitly modeling social and political institutions. . . . Demsetz's 1967 paper . . . is the classic reference for the naive theory of property rights." Id. at 250.

II. CON

A. The Argument

Like COOP, the CON approach can be traced back several centuries – in this case to views expressed by Hume in his *Treatise of Human Nature*.[47] But in sharp contrast to COOP, CON suggests that the creation and enforcement of property rights depended neither on cooperative collective action nor on any sort of governing authority. Property rights, on this view, are "conventions"[48] that arise spontaneously from "a general sense of common interest; which sense all the members of the society express to one another, and which induces them to regulate their conduct by certain rules. . . . [T]he actions of each of us have a reference to those of the other, and are performed upon the supposition, that something is to be performed on the other part."[49]

A modern statement of Hume's view is this: A convention is a social practice generally adhered to by the members of a particular social group; without any explicit agreement or external enforcement; thanks to a general expectation that the practice will be followed; which expectation is one of the reasons any individual follows the practice; such that the practice is taken by all to reflect a shared understanding or implicit agreement.[50] Hume's view, thus understood,

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[47] Hume, supra note 24. The portions of Hume's discussion of most interest here are found in Book 3 (Of Morals), Part 2 (Of Justice and Injustice), § 2 (Of the Origin of Justice and Property).

[48] Id. at 490 (Book 3, Part 2, § 2).

[49] Id.

[50] See Robert Sugden, Conventions, in 1 The New Palgrave Dictionary of Economics and the Law, at 453, 454 (Peter Newman ed. 1998).

anticipated the much later development of modern game theory,[51] in which conventions "are mutual best response outcomes that are sustained by the fact that virtually all players believe that virtually all other players will best respond."[52]

With respect to property rights, rights of individual ownership in particular, Hume saw them as the remedy to problems of exploitation. Without property rights, whatever anyone gathered, grew, or built would be vulnerable "to the violence of others,"[53] but all the while it would be in the interest of each person "to leave another in the possession of his goods, *provided* he will act in the same manner with regard to me."[54] So there develops "a convention entered into by all the members of the society to bestow stability on the possession of . . . external goods, and leave every one in the peaceable enjoyment of what he may acquire by his fortune and industry."[55] The convention, Hume said, "arises gradually, and acquires force by a slow progression, and by our repeated experience of the inconveniences of transgressing it."[56]

Hume thought that animals (humans aside) "are incapable of . . . property."[57]

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[51] See Sened, supra note 27, at 19 ("Hume's logical analysis preceded by two centuries similar contemporary game theoretic arguments").

[52] Samuel Bowles, Microeconomics: Behavior, Institutions, and Evolution 43 (2004).

[53] Hume, supra note 24, at 487 (§ 2).

[54] Id. at 490 (§ 2).

[55] Id. at 489 (§ 2).

[56] Id. at 490 (§ 2).

[57] Id. at 326 (Book 2, Part 1, § 12).

Biologists say otherwise. They observe that members of many species – various spiders, insects, birds, and mammals, for example – commonly resolve territorial disputes by a simple rule: "the resident always wins."[58] The rule is a product of evolution, and the core explanation of why and how it developed is usually credited to the biologist John Maynard Smith, who summarized and extended his views in *Evolution and the Theory of Games*.[59]

Here is a condensed and simplified statement of Maynard Smith's argument, based on the Hawk-Dove game familiar to game theorists.[60] Maynard Smith pictured a situation in which two conspecifics (members of the same species) are drawn to a breeding territory with a value v, where v is equal to the *gain* in reproductive fitness realized by the animal that ends up with the territory – say 5 surviving offspring rather than the 3 produced by the animal that must look elsewhere, such that $v = 2$. Assume that any animal is a possessor of the territory, or an intruder, with equal frequency. If both animals play Hawk, they will fight until one is injured and retreats to less favorable territory, with each having, on average, a fifty percent chance of winning and a fifty percent chance of being injured. Injury is a cost c measured in terms of reduced fitness; assume it is 4. If both animals play Dove, there may be preliminary posing but no eventual fight,

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[58] See generally Hanna Kokko et al., From Hawks and Doves to Self-Consistent Games of Territorial Behavior, 167 Am. Naturalist 901 (2006) ("animal kingdom provides countless examples of the 'prior-resident effect'"). For a very accessible introductory discussion, see John Alcock, Animal Behavior: An Evolutionary Approach 264-73 (8th ed. 2005).

[59] John Maynard Smith, Evolution and the Theory of Games (1982). Much of Maynard Smith's discussion in the book owes to earlier work by him and others dating back several decades.

[60] Maynard-Smith's analysis and conclusions, given his assumptions, appear to be uncontested For the mathematical details of his treatment, see id. at 11-23, 94-96; Jack Hirschleifer, Evolutionary Models in Economics and Law: Cooperation versus Conflict Strategies, 4 Res. In L. & Econ. 1, 20-23 (1982). Math-challenged readers would do well to work through www.holycross.edu/departments/biology/kprestwi/behavior/ESS/HvD_intro.html, a very accessible and instructive explanation of the Hawk-Dove game by Kenneth N. Prestwich.

and the desired territory will be shared, which reduces its value to each animal.[61] And obviously, if one animal plays Hawk and the other Dove, the former always prevails, without injury to either.

Beginning with some random mix of conspecifics**,** how might natural selection lead the animals to behave? Maynard Smith's analysis demonstrated that what might evolve is a strategy to play neither Hawk nor Dove consistently, but rather to play Bourgeois: "'if owner, play Hawk; if intruder, play Dove.'"[62] If both animals play Hawk and fight, the payoff for each is $1/2\ (v - c) = -1$; if both play Dove, they share the territory and the payoff is $v/2 = 1$; if one plays Hawk and the other Dove, the payoff for the aggressive party is $v = 2$ and for the passive party 0. Finally, if both play Bourgeois, and given that any individual is likely to be the first occupant (and thus enjoy deference to possession) about half the time, the payoff is $v/2 = 1$. So long as $c > v$, animals that happen to behave according to the Bourgeois strategy (protecting what they possess, deferring to those in possession) fare better than they would by following any other strategy: "they avoid more damaging encounters than the pure Hawks and win more encounters than pure Doves."[63] Hence the strategy can proliferate until, eventually, it characterizes the behavior of the entire population. At that point, Bourgeois is an evolutionarily stable strategy" (ESS),[64] meaning "a strategy such that, if all the members of a population adopt it, then no mutant strategy could invade the

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[61] Maynard Smith, supra note 59, at 11-12.

[62] Id. at 22

[63] Chris Meredith, in http://www.abc.net.au/science/slab/tittat/story.html, at 4.

[64] Maynard Smith, supra note 59, at 23.

population under the influence of natural selection."[65]

Crucial to the evolution of the Bourgeois strategy is the asymmetry of possessor and intruder, an observable characteristic that signals to a contestant the role – Hawk or Dove – likely to be played by an opponent, such that the contestant can act in light of the information provided by the signal. It is not necessary, however, that the status of occupant confer any actual advantage in defending territory. All that matters is that the asymmetry between possessor and intruder "is unambiguously perceived by both contestants."[66] Where that condition holds, the rule of "deference to possessors" can develop and persist simply as the consequence of utterly self-interested individual action.[67]

Maynard Smith's analysis of animal behavior suggests the logic behind

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[65] Id. at 10.

[66] Id. at 23. In a case where possession of a territory does confer an actual advantage in defending it, or where possessors are commonly larger or stronger, the asymmetry is said to be correlated. "An uncorrelated strategy can be evolutionarily stable even when there is a correlated strategy available." Jeffrey Evans Stake, The Property "Instinct," 359 Phil. Trans. R. Soc. Lond. 1763, 1764 (2004), citing Peter Hammerstein, The Role of Asymmetries in Animal Contests, 28 Anim. Behav. 193 (1981). Moreover, a strategy might be correlated early on – because possession is sometimes a defensive advantage, or because stronger individuals generally appear as first occupants – yet become uncorrelated later on, as the mere fact of possession becomes a proxy for advantages that in fact no longer hold.

Just as the Bourgeois strategy is an ESS, so is its opposite – if possessor, play Dove, if intruder, play Hawk. This ESS is regarded as "paradoxical" because evolutionary theory would seem to rule it out. Animals behaving in anti-Bourgeois fashion would end up constantly moving around, looking for territory and occupying it, only to be quickly displaced. There would be no time for breeding. Maynard Smith was aware of the problem (and of the case of a type of spider that seems to exhibit the paradoxical strategy). See Maynard Smith, supra note 59, at 96-97; see also Kokko et. al, supra note 58 (suggesting a resolution of the paradox).

[67] Maynard Smith's model shows that the Bourgeois strategy *can* evolve, not that it invariably will. See Hirshleifer, supra note 60, at 23 (development of the strategy depends on a population of individuals "able to distinguish between occupant and intruder situations, and . . . able to execute the appropriate behavioral maneuvers of both Hawk and Dove"). Still, Maynard Smith's analysis "shows that respect for ownership is a possible evolutionary emergence that need not call upon any force other than private advantage. . . . On the human level, a corresponding environmental situation might be expected to lead to a 'social ethic' supporting a system of property rights." Id.

Hume's notion of conventions among humans,[68] something that game theorists were quick to observe and pursue. A notable example is the treatment by Robert Sugden in *The Economics of Rights, Cooperation, and Welfare.*[69] Sugden altered Maynard Smith's model to fit the human context – namely by substituting "a subjective concept of utility for Darwinian fitness as the measure of success," and by assuming "that more successful strategies [conventions, in Hume's terms] supplant less successful ones by a process of imitation and learning rather than by one of biological natural selection."[70] In the biological model, behavior is genetically predetermined. In the human model, it is consciously chosen, but *individually* – by any actor given his or her utility and given the expected behavior of others – not collectively (whether by agreement among the members of a group, or by a central authority on behalf of others). Hume supposed, contrary to Hobbes and Locke, that individual choice could lead to group harmony, even in

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[68] See supra notes 48-56 and accompanying text.

[69] Robert Sugden, The Economics of Rights, Cooperation and Welfare (1986, 2nd ed. 2004) (the second edition is virtually the same as the first, save for a new Introduction and Afterword).

[70] Id. at 62. Presumably Sugden substituted utility for reproductive fitness because, in the case of humans, the nexus between possession and fitness is likely to be remote. But still, Sugden noted, much of the biological analysis "can be carried over to the human case." Id. He expanded on this point later, noting among other things that since "so many animals do have an innate sense of possession and territory, it would not be surprising if this were true for our species." Id. at 107. To the same effect, see Stake, supra note 66, at 1763 (humans may share a "hard-wired" property "instinct"); Jack Hirshleifer, Privacy: Its Origin, Function, and Future, 9 J. Legal Stud. 649, 657 (evolution may have led to a "hard-wired" defensive attitude regarding possessions and a deferential attitude regarding the possessions of others). Both Stake and Hirshleifer discuss the Maynard Smith model and consider its relevance to the development of property and other rights.

So far as I know, Maynard Smith, who died in 2004, never expressed clear views about the merits of adapting his model to the human situation, but a statement in the preface of his 1982 book, supra note 59, at vii, suggests skepticism. "Paradoxically," he said, "it has turned out that game theory is more readily applied to biology than to the field of economic behaviour for which is was originally designed," for two reasons. First, adaptation requires that Darwinian fitness be replaced by utility – "a somewhat artificial and uncomfortable concept," and second, the concept of rationality comes into play, and "there are grounds for doubting whether human beings always behave rationally."

the face of self-interest. Sugden aimed to show, in rigorous logical terms, that Hume was correct, at least as to property rights. He rested his argument on the Hawk-Dove-Bourgeois game,[71] and reached conclusions much like those of Maynard Smith. Repeated play would likely lead to a convention – a de facto property rule – of deference to possessors.[72]

Sugden's contribution, modestly derivative of the work of Maynard Smith, was the first extensive adaptation of the biological model to the human context. (At the time Sugden wrote, evolutionary game theory, as it has come to be called, had received little attention from economists.)[73] Moreover, Sugden provided a particularly interesting discussion of possession as the crucial asymmetry. Given that any asymmetry might work (the difference between a strong contestant and a weak one, an attractive contestant and an ugly one, a loud contestant and a quiet one, a greedy contestant and a generous one, a rich contestant and a needy one, and so on), why settle on possession as the decisive factor? Sugden's answer began by noting that the the point of a convention is to guide behavior. For a convention to perform that function, its underlying asymmetry must be, apparent, salient, prominent. Hume thought possession had a natural prominence that led

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[71] Sugden considered several other games as well (the war-of-attrition game – also considered by Maynard Smith – the division game, and games of commitment). I omit that part of his discussion because he found the other games led to results matching those of the Hawk-Dove-Bourgeois game. For the curious, the relevant pages are Sugden, supra note 69, at 65-86.

[72] Several commentators have argued that deference to possessors might have evolved because of an endowment effect, according to which an individual puts a systematically higher value on something possessed than on an opportunity to possess the very same thing. See Herbert Gintis, The Evolution of Private Property, 64 J. Econ. Behav. & Org. 1 (2007) (passim); Stake, supra note 66, at 1767. The argument is plausible, but so is its opposite. Rather than generating the convention of deference to possessors, the endowment effect could just as well owe to it, in that deference to possession adds to the value of possession.

[73] For a brief description and discussion of evolutionary game theory, see George J. Maileth, Evolutionary Game Theory, in 2 The New Palgrave Dictionary of Economics and the Law, at 84 (Peter Newman ed. 1998).

people to converge on it, and Sugden agreed. If the idea is to find a way of assigning objects to people, there is, he thought, "a natural prominence to solutions that based the assignment on some pre-existing relation between persons and objects."[74] Possession is, by the same token, usually unambiguous, an asymmetry that signals exactly what is the status of any claimant. This makes it cheat proof, because possession cannot be feigned. No fine judgments are required, as they would be if the asymmetry had to do with need, attractiveness, strength, and so on.[75] Moreover, possession implies some earlier expenditure of effort, some labor, by the possessor, and Sugden believed, like Locke, that labor is naturally and normally regarded as meritorious. Finally, there is the biological evidence suggesting that humans, like other animals, have some "innate sense of possession and territory . . . ."[76]

B. Assessment

Our earlier discussion of COOP focused on the three lines of its argument – the move from common to individual ownership, the matter of costs and benefits, and the need for a governing authority – and considered the problems to which

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[74] Sugden, supra note 69, at 97, quoting Hume, supra note 24, at 504 n.1 (Book 3, Part 2, § 3, n.1): "As property forms a relation twixt a person and an object, it is natural to found it on some preceding relation . . . ." Hume extended the convention of possession to property acquired by prescription, accession, and succession. Id. at 509-13 (§ 3).

[75] In this connection, it is interesting to recall that the majority decision in Pierson v. Post, discussed supra note 4, opted for first *capture* of a wild animal, as opposed to the dissent's approach of first *pursuit*, as the act needed to give rise to ownership. The court selected capture "for the sake of certainty," noting that the alternative of first pursuit, given its ambiguity, "would prove a fertile source of quarrels and litigation." 3 Cai. R. at 179.

See also Carol M. Rose, Property and Persuasion 13 (1994) (noting that possession satisfies a "clear act principle," serving as one of a "commonly understood and shared set of symbols that gives significance and form to what might seem the quintessentially individualist act: the claim that one has, by 'possession,' separated for one's self property from the great commons of unowned things."

[76] Sugden, supra note 69, at 107. See also supra note 70.

each line gives rise.[77] It takes very little discussion to show how CON avoids those problems.

1. From Common to Individual. — As we have seen, COOP presumes that goods severed from the commons by a taker would be regarded by the taker as his. Hobbes and Locke left the matter at that; they supposed that takers would have to stand ready to defend their possessions against aggression.[78] Blackstone and Demsetz seemed to go further (their views are far from perfectly clear) and presume that the community at large would respect possession, but they did not explain why.[79] CON provides a ready explanation, showing how deference to possession can become a behavioral norm. That such a norm develops does not mean that every item taken from the shared stock will thereafter go unshared. A practice of deference to possession need not have foreclosed – in fact could have facilitated – self-interested decisions by possessors to share.[80] Were they to do so, the result could amount to a limited-access commons. Notice, however, that if any possessor happened to get carried away with sharing, opening the resource in question to a great number of others, then the conditions for ongoing deference to

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[77] See supra notes 27-46 and accompanying text.

[78] I suggested earlier that Hobbes and Locke had at best a weak foundation for supposing that the state of nature would necessarily be marked by ongoing conflict between possessors and intruders. See supra note 32 and accompanying text. The CON account suggests instead that, early on, when resources were abundant and the population small, there would have developed a convention of deference to possessors. Only later, when resource consumption coupled with population growth led to scarcity, would the value of possessions have become worth the costs of fighting for them.

[79] But see the discussion in note 82 infra.

[80] Self-interested because a possessor sharing with others could expect reciprocity. The seminal introduction to the general topic is Robert L. Trivers, The Evolution of Reciprocal Altruism, 46 Q. Rev. Biology 35 (1971). Trivers noted: "Models that attempt to explain altruistic behavior in terms of natural selection are models designed to take the altruism out of altruism." Id. at 35.

possession could break down. A severed unit shared with others would begin to look, as the number of others increased, exactly like a part of the common stock; the crucial asymmetry provided by individual possession would no longer be apparent.

2. Costs and Benefits. — It is important to see how CON, as compared to COOP, approaches the matter of costs and benefits and the variables I have labeled *v* and *c*. Recall that in COOP, *v* refers to the net *collective* benefits of having some given property regime (and any benefits are a function of, among other things, the value of the resource in question), and *c* refers to the *collective* costs of setting up that regime. CON, on the other, defines *v* as the value (that is to say, the net benefit) any particular *individual* places on the possession of a given resource, and defines *c* in terms of expected injury costs to any *individual* fighting over possession of a given resource. The point here is not to bicker about little differences in definition, but rather to note the very large differences in methodology. COOP depends on aggregating individual costs and benefits and argues that the relationship between the sums (the *social* costs and benefits) drives the development of property rights *systems*. But, as we saw, COOP neglects to explain who does the accounting, and who makes the ultimate system choice?[81] CON, in stark contrast, argues that the relationship between *individual* costs and benefits is what drives the emergence of property rights *behavior* by individuals.[82]

3. Governing Authorities. — So collective aggregation of costs and benefits

[81] See Richard A. Posner, Some Uses and Abuses of Economics in Law, 466 U. Chi. L. Rev. 281, 289 (1979) (observing that Demsetz made an unjustified "leap from assuming efficiency-maximizing behavior of individuals to assuming efficiency-maximizing behavior of society").

[82] Oddly enough, Demsetz, in a footnote, took a CON-like approach to costs and benefits, suggesting that private rights in personal property developed among "wandering primitive peoples" because personal property was easier to police than real property. See Demsetz, supra note 13, at 353 n.7. Demsetz could have avoided many points of criticism had he pursued this line of analysis more extensively in the course of defending the thesis of his article.

plays no role in the CON argument, nor does collective choice of a system. And CON need not deal with set-up costs, because no system is "set up." For all of these reasons, no governing authority is needed to define rights or to enforce them.[83] Hence CON nicely side-steps COOP's begged question of collective action. Its evolutionary explanation does "not call upon any force other than private advantage."[84] But having said as much, we have to note two problems. First, the sort of property regime for which CON so neatly accounts depends on conditions of resource abundance often unlikely to have held in the long run. Second, the sort of property regime for which CON so neatly accounts falls far short of the complex regimes of modern times, meaning CON provides far less than a complete explanation of the evolution of property rights from their genesis up to the present. Consider each point in turn.

(a) The Problem of Increasing Resource Value. — COOP sees increases in the value of resources as the chief factor driving the evolution of property rights.[85] Rights develop, runs the COOP argument, when v, the net benefits of having them, exceeds c, the costs of setting them up. The v term is, as noted earlier, a function of, among other things, supply and demand: The more limited the supply of a resource, the higher its v, and hence the more likely that $v > c$; and, for any

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[83] Contrast Demsetz's observation that "a right defining and conflict-resolving institution, such as the court system, the legislature, or some community authority, is inevitably part of any property rights system." Supra note 26 and accompanying text.

[84] Hirshleifer, supra note 60, at 23. See also Sugden, supra note 50, at 460 ("[A] society can be ordered without anyone ordering it. In many significant cases, the coordination of individuals' actions can be brought about by self-reinforcing expectations, which evolve spontaneously out of the repeated interaction of self-interested individuals.").

[85] This point is of course as clear as can be in Demsetz's account, but characterizes all the COOP literature as well. See, e.g., Saul Levmore, Two Stories about the Evolution of Property Rights, 31 J. Legal Stud. S421 (2002), referring to the "conventional story [which I label COOP] about the evolution or maturation of property rights. This maturation story emphasizes that, *with increases in value and economic activity*, property rights become secure, strong, well defined though malleable and divisible, and increasingly private." (Emphasis added.)

supply, the greater the demand (because of population growth, technological developments that make new sorts of resource use possible, and so forth), the greater its v. For CON, the implications of increasing value are exactly the opposite. As explained earlier, the Bourgeois strategy can give rise to de facto property rights only when, *and only so long as*, $v < c$, where c refers to the expected cost of fighting over resources rather than deferring to those who possess them. Hence, from the CON perspective, increases in v do not drive the evolution of property rights, but rather their demise. If $v > c$, it is in the interest of all to play Hawk rather than Dove, because Dove is the more costly option. Hawk-Hawk becomes the new equilibrium; there is, in other words, a reversion to the Hobbesian state of nature, with life nasty, brutish, and short. This, at least, is the implication of scarcity in the animal setting.[86] On a parity of reasoning, a convention among humans to defer to possession must have been equally vulnerable to breakdown whenever, say, population growth outpaced resource supply.[87]

(b) The Problem of Complex Systems. — Picture three types of property regimes – stark, basic, and full-blown. A stark regime is characterized by deference to actual possessors, but only so long as actual possession endures

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[86] Alan Grafen, The Logic of Divisively Asymmetric Contests: Respect for Ownership and the Desperado Effect, 35 Animal Behav. 462, 463 (1987). See also Maynard Smith, supra note 59, at 95 (when $v > c$, "it is worth risking injury to gain the resource," and "ownership will be ignored").

[87] Even Hume, it appears, was aware of this problem. Discussing government as "an invention very advantageous," he observed that it "it is not necessary in all circumstances, nor is it impossible for men to preserve society for some time, without having recourse to such an invention." The temptation of one man to interfere with the possessions of another "is less conspicuous, where the possessions . . . are few, and of little value, as they always are in the infancy of society." The situation changes as possessions become more dear. Hume, supra note 25, at 539 (Book 3, Part 2, § 8).

(exemplified by Blackstone's "transient property").[88] A basic regime goes further. Continuous actual possession is not required; owners have permanent property (as Blackstone called it) so long as they maintain contact with their holdings sufficient to give notice of their claims; moreover, ownership (whether individual or concurrent) is recognized to entail the rights to exclude, use, and transfer – usually regarded as the key elements of "property." Finally, a full-blown regime has all the basic incidents plus myriad others, as in, say, the modern common law system of property, with its many possessory estates, future interests (contingent or not), servitudes, restrictions on alienability, and so on (and on, and on).

Of these three types, CON can obviously explain the emergence of stark regimes. Beyond that, however, it can explain the emergence of basic regimes as well. We can suppose that the first step in the evolutionary move from stark to basic regimes entailed a transition from Blackstone's transient property, which was dependent on ongoing actual possession, to permanent property not dependent on ongoing actual possession. Regarding the latter, Samuel Bowles, an economist and game theorist, has suggested that obvious evidence of possessory claims (for example, the tilling of land and planting of crops) might have served as an unambiguous uncorrelated asymmetry – a relatively cheat-proof one if limited to work showing substantial effort – that triggered the convention of deference to possessors even in their absence.[89] That move accomplished, the basic rights to exclude, use, and transfer would seem to follow naturally, and necessarily. The right to exclude is just another way of expressing the convention of deference to possession; and, given deference, possessors had freedom of use;

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[88] See supra note 7 and accompanying text.

[89] Bowles, supra note 52, at 390. Bowles's idea could obviously be extended to personal property. See, e.g., Sugden, supra note 69, at 99 (discussing a convention recognized on the Yorkshire coast: picking up driftwood and putting it in piles marked with two stones was recognized as a claim to the wood and respected by other gatherers).

and, if a possessor decided to transfer possession, presumably deference would extend to the transferee (the new possessor).[90] With respect to any further developments, however, CON loses its explanatory power. Given its methodology, it cannot account for full-blown property systems.[91] It is inconceivable that the rich and subtle mix of rights and incidents characteristic of advanced regimes could have arisen by conventions which, to work effectively, must be "crude and robust, and . . . leave no room for fine judgments."[92]

III. COOP AND CON

A. Two Types of Evolutionary Explanation

Contrast two types of evolutionary explanation. One type attributes some pattern of developments over time to self-conscious cooperative efforts of design and implementation. We have seen that COOP is of this type. CON, in contrast, is an example of the other type, in that its method entails what Robert Nozick called invisible-hand explanations. "An invisible-hand explanation," he said, "explains what looks to be the product of someone's intentional design, as not being brought about by anyone's intentions."[93] Notice that this definition does not

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[90] The rights to exclude, use, and transfer might also have been parts of a stark regime, the only difference being that the rights themselves would be attached to transient (as opposed to permanent) property.

[91] See Bowles, supra note 52, at 88 ("Of course nobody supposes that a single model as simple as the Hawk Dove Bourgeois game provides an adequate framework for understanding something as complex and historically contingent as the process by which property rights have been modified over the years.").

[92] Sugden, supra note 69, at 106. See also supra notes 74-75 and accompanying text.

[93] Robert Nozick, Anarchy, State, and Utopia 19 (1974). See also Bowles, supra note 52, at 57 (using the same terminology). Nozick provided various examples of (not necessarily correct) invisible-hand explanations, few of which (Adam Smith and Charles Darwin aside) would be familiar to readers. Nozick, supra, at 20-21. An example he did not provide, but which might be familiar to many, is the body of literature arguing that common law rules are pushed in the direction of efficiency because inefficient rules are litigated more often than efficient ones, thus

exclude *all* intentions, but only any intention to achieve the particular developments in question. Adam Smith long ago highlighted the distinction in *The Wealth of Nations,* when he spoke of a marketplace where every individual "intends only his own gain," yet is "led by an invisible hand to promote an end which was no part of his intention."[94]

A familiar example of the two types of evolutionary explanation at work is provided by aspects of ongoing debates about the origin of species. One account, aptly labeled intelligent design, attributes observed biological features to purposive aims and acts, to a plan (namely that of God), whereas the competing account, Darwinian theory, attributes them to the mindless workings of mutation, natural selection, and so forth. Only the latter of the two is an invisible-hand explanation. Indeed, some would go further and say that only the latter is, strictly speaking, an *evolutionary* explanation, on the view that the category of evolutionary explanations does not, by definition, include any explanation based on design.[95] In these terms, then, intelligent design is not an evolutionary explanation, and COOP is not an evolutionary explanation either, whereas Darwinian theory is, and so too for CON.

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increasing the probability that the inefficient rules will be filtered out over time. For discussion and criticism, see Posner, supra note 14, at 604.

[94] Adam Smith, The Wealth of Nations 423 (1776, Edwin Cannan ed. 1937). See also, e.g., Robert Sugden, Spontaneous Order, in 3 The New Palgrave Dictionary of Economics and the Law, at 485, 493 (Peter Newman ed. 1998) (contrasting "individual motivation and unintended collective consequence"); Hirshleifer, supra note 60, at 10 (the "inventor of the bow had an intention, but it was only to help himself or his band; the spread of a new technique of hunting . . . was surely beyond his purpose.").

[95] See, e.g., Hirshleifer, supra note 60, at 9-10, contrasting "evolution" on the one hand, and "design" on the other, and saying: "When we speak of evolutionary changes in human affairs, we generally have in mind "unintended" ones." Dawkins makes an observation about explanations based on design that happens to highlight the central, question-begging flaw in the COOP argument; "ultimately," he says, "design cannot explain anything because there is an inevitable regression to the problem of the origin of the designer." Richard Dawkins, The Ancestor's Tale 602 (2005).

B. An Annotated Evolutionary Timeline

1. A Glance. — The move from primitive *Homo* to biologically modern humans occurred by increments over millions of years (perhaps as many as 10 million), with particularly rapid development (including the formation of groups of hunter-gatherers) in the last 100 thousand years, and, in the last 10 thousand, the development of agriculture and the yielding of hunter-gatherer bands to tribes and chiefdoms.[96] Tribes and chiefdoms were the beginnings of what I have called governing authorities. They were followed eventually by the state, meaning a substantial governing authority regarded (sometimes only by its officials!) as holding a monopoly on the use of force (or on the right to make rules about the use of force by others) and entitled to make and enforce various rules and regulations, and perhaps to raise revenues.[97] The move from governing authorities to states began only about 7 thousand years ago, through a process of aggregation by merger and conquest (of populations and territories).[98]

Now let us revisit this little sketch, and add some annotations.

2. CON and Early Property Rights. — Furubotn and Pejovich, in a well-

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[96] See, e.g., Edward O. Wilson, Sociobiology: The New Synthesis 565-66, 569 (1975, 2000); Samuel Bowles & Jung-Kyoo Choi, The First Property Rights Revolution, at 1-2 (October 28, 2002), www.santafe.edu/research/publications/working papers/02-11-061. pdf. Hunter-gatherer bands faded with the rise of agriculture, in favor of geographically fixed, relatively organized societies marked by governing authorities, themselves the product of ongoing cooperation. The root of cooperation might trace to gradual recognition by hunter-gatherers that collaborative hunting had a larger average payoff per capita than did individual efforts, and was facilitated by sharing the product. On cooperation during hunting, see, e.g., Wilson, supra, at 567-68; on sharing the hunt see, e.g., Bowles & Choi, supra, at 2 (briefly discussing the literature).

[97] A more formal definition sees the state as "an autonomous political unit, encompassing many communities within its territory and having a centralized government with the power to collect taxes, draft men for work or war, and decree and enforce laws." Robert Carneiro, A Theory of the Origin of the State, 169 Science 733, 733 (1970).

[98] Id.

known article, rightly observed "that a theory of property rights cannot be truly complete without a theory of the state."[99] At the same time, however, it cannot be truly complete without an explanation of developments preceding the appearance of the state, given that "[r]ecognizably modern property rights" emerged well before the existence of any sort of formal governing authority,[100] and, for all of that, before the appearance of humans. CON explains the origination of property rights, whereas COOP does not. If bugs could arrive at property rights, then so too early man – but likely not by any process of self-conscious cooperation and design. Early humans (intermediate hominids) were not at all like those fully evolved folk populating the state of nature imagined by Hobbes and Locke. Though early humans began using tools about 3 million years ago,[101] they developed the cognitive capacity for language and abstract thinking only in the last 100 thousand.[102] Most plausibly, then, the first property rights emerged by convergence on a convention of deference to possession (of tools and similar

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[99] Eirik G. Furubotn & Svetozar Pejovich, 10 J. Econ. Lit. 1137, 1140 (1972). The authors did not mean that the emergence of a state, or at least some sort of governing authority, is essential to explaining the emergence of property rights (had they meant that, they would be incorrect); rather they meant that, taking the state as a given, an understanding of the development of property rights thereafter depends in part on a theory about relations between the state and various interest groups who seek to influence the state (government) as it goes about defining, enforcing, and restricting property rights. There are any number of studies discussing connections between interest groups, government, and the development of property rights. For recent articles in the legal literature, see, e.g., Levmore, supra note 85; Sabrina Safrin, Chain Reaction: How Property Begets Property, 82 Notre Dame L. Rev. 1917 (2006); Katrina Miriam Wyman, From Fur to Fish: Reconsidering the Evolution of Private Property, 80 N.Y.U. L. Rev. 117 (2005).

[100] See Bowles & Choi, supra note 96, at 1; Bowles, supra note 52, at 382 ("new property rights" consisting of individual claims on land, stored food, and livestock "emerged and proliferated without the assistance of states or other centralized enforcement agencies").

[101] See, e.g., Wilson, supra note 96, at 565.

[102] See, e.g., Jonathan Haidt, The New Synthesis in Moral Psychology, 316 Sci. 998 (2007). .

"personal" items in particular), long before humans had the capacity to invent and implement more substantial systems of property rights. We must suppose this was the case if for no other reason (but it is an excellent reason) than the fact that the process of convergence has lower threshold requirements, especially with regard to rationality. Humans at their dawn had primitive minds and primitive needs, plus, perhaps, a hard-wired predilection for deference to possession.[103] Under such circumstances, the convention of deference to possession – which depended on nothing but narrow self-interest, and required no enforcement – must have represented the easiest path to the simplest regime. Moreover, and as noted earlier, the same process of convergence that led to the earliest and starkest sort of property rights regime – transient rights that lasted only so long as actual possession persisted – could lead to subsequent developments that entailed permanent rights (including rights in land, not just personal items) and a basic property regime marked by rights of exclusion, use, and transfer.[104] All such rights emerged by happenstance, not by plan. They were a consequence, not (as COOP would have it) an achievement.

2. *The Limits of CON.* — But CON can explain only so much. We saw, for example, that CON regimes were vulnerable to instability in the event of increases in resource value,[105] and that CON in any event cannot account for the development of regimes more complex than a basic system.[106] The only solution

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[103] See supra note 70 and consider also the standard motif in evolutionary biology that a trait common among diverse organisms evolved from a common ancestor of the organisms. See, e.g., Justin N. Wood et al., The Perception of Rational, Goal-Directed Action in Nonhuman Primates, 317 Sci. 1402 (2007).

[104] See supra notes 88-90 and accompanying text.

[105] See supra notes 85-87 and accompanying text.

[106] See supra notes 88-92 and accompanying text.

to each difficulty would appear to be various sorts of governing authorities, the emergence of which CON does not explain.[107] In this respect, CON and COOP have a common shortcoming. We could say that COOP assumes away the question of how governing authorities emerged, and that CON never gets to the question of how governing authorities emerged.

3. The Emergence of Governing Authorities. — As indicated in the timeline, governing authorities emerged only in the last 10 millennia. They provided the means to deal with instability by enforcing rights, and to move from basic to complex property regimes. While neither COOP nor CON, in its own terms, accounts for the emergence of governing authorities, it is easy enough to supplement each with various theories (beyond my interest here) explaining the movement from early chiefdoms to modern governments. Once so supplemented, both approaches can deal with all that has happened in the arena of property rights since day one. But interesting consequences follow from such a move, the following among them.

First, once we have governing authorities in place, there is little occasion for evolutionary explanation, in the strict sense, of subsequent developments on the property-rights front. What governments aim to do, they do by design; they might act with a heavy hand, but they are not guided by an invisible one. Their actions are approached and explained in terms of political economy, not evolutionary

[107] But here it is important to note one qualification, which I mention only in passing. The problem of instability in the event of increasing resource value, as opposed to the problem of designing and implementing complex property regimes, could have been handled by an authority entitled only to enforce (but not to create) rights, and it is possible that such enforcement authorities themselves evolved in the strict (invisible-hand) sense. Nozick, for example, suggested (demonstrated?) that in any given location a private protective association could have developed to enforce rights, then consolidated in the form of a dominant protective association, followed in turn by a minimal state, all by way of an invisible-hand process. His discussion is complex and spread over many pages, but for its general thrust see, e.g., Nozick, supra note 93, at xi, 12-25. See also Christoph Hauert et al., Via Freedom to Coercion: The Emergence of Costly Punishment, 316 Sci. 1905 (2007) (presenting a model suggesting that if individuals have the option *not* to participate in some common enterprise (such as maintaining a property rights system), they have incentives to join in the endeavor and play the role of punishers against defectors, which incentives they do not have when participation in the enterprise is compulsory).

theory (which has no concern with interest groups, agenda theory, voting systems, and so on), notwithstanding that the same general sorts of methodologies, such as game theory, might be put to use in both cases. To this generalization I can imagine only one possible exception, which strikes me as narrow at most. The exception has to do with the process of learning from mistakes – from *un*intended consequences. Suppose a governing authority does *A* with the intention of achieving *X*, but instead achieves *not-X*. It might from this (and from iterations with further unintended consequences) learn eventually exactly how to achieve *X*, or learn that *X* cannot be, or is not worth, achieving. The late Jack Hirshleifer appears to have regarded such a process as strictly evolutionary in the sense that it can lead to a "result . . . very different from that planned,"[108] and so it can. But we can never be sure that the governing authority was not purposively using a trial-and-error method, aiming all along (intending all along) to learn by doing. In any event, the governing authority will, in light of feedback, usually redesign, or, instead, choose, but again by design, to stay with the *not-X* it happened to achieve. To my mind, it is design all the way down.

Second, once we have governing authorities as part of the story, we are likely to stray from a theory distinctively about property rights in particular. Governing authorities – even if we picture ones that might first have developed to deal exclusively with such rights – have a way of extending their reach. So, for example, if we supplement and improve COOP by adding its missing ingredient – an account that explains the emergence of government – we end up with a theory about, at the least, law in general, an interesting thing to have, but not a thing distinctively about property. The same follows of course, once CON bumps into the emergence of governing authorities.[109]

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[108] Hirshleifer, supra note 60, at 10.

[109] Here, then, I am expressing agreement with Tom Merrill's observation "that a theory

Third, notice a consequence that does *not* follow from supplementing CON with a theory about the emergence of government. To be sure, CON then becomes COOP-like as to all developments following government emergence, but it remains intact as to all that happened before – and, on occasion, to events that might happen still, such as the development of informal or extra-legal systems of property rights that spring up without regard to an overlying formal legal system.[110]

C. Con's Place

Given that the CON methodology differs so strikingly from that of COOP, and deals so neatly with COOP's shortcomings, one would expect to see it figuring regularly, and substantially, in the legal literature on the evolution of property rights.[111] The opposite is the case, and not because the likes of Maynard Smith and Sugden are unknown to legal scholars. Both of them have garnered a decent number of citations in law reviews, but virtually all of the citations appear in

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that explains the evolution of property in a satisfactory fashion must be one that generates predictions that are unique to property and not one that would equally account for the development of other institutions, even if they perform overlapping functions." Merrill, supra note 14, at S334. I am aware, of course, that CON is not a theory exclusively about property conventions, but rather about conventions in general. Even at that, it is ever so much more distinctive and particularized than, say, COOP. I also acknowledge the possibility that one could develop a particularized theory suggesting unique aspects of the relationship between governing authorities and the rules of property they enact. See, in this connection, Sened, supra note 27 (passim).

[110] See, for example, Richard A. Epstein, The Allocation of the Commons: Parking on Public Roads, 31 J. Legal. Stud. S515 (2002). Epstein's account illustrates the ongoing relevance of CON, in that it presents a nice study of the spontaneous emergence of snow-parking property rights in contemporary Chicago, though without reference to the evolutionary literature considered herein. See id. at S528-S533.

[111] By the legal literature, I mean scholarship by legal scholars, and scholarship (whatever an author's discipline) appearing in legal periodicals. I mention examples from the literature below, but without bothering to give citations by page to particular points. Given my purposes, it seems unnecessary to send readers to pages and footnotes to see what they say, and what they do not say.

articles about subjects *other than* the evolution of property rights.[112] In one respect, of course, this is unsurprising, because there is little legal literature about the evolution of property rights in the first place. Yet, when we look at what literature there is, we find that CON is regularly marginalized or unmentioned.[113]

This situations puzzles me, and I hope it changes. CON promises to add a great deal to understanding the evolution of property rights. Speaking in the eighteenth century, Lord Mansfield observed: "Possession is very strong; rather more than nine points of the law."[114] And perhaps soever much stronger than

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[112] I checked Westlaw at the end of August 2008, using the JLR database and searching first for citations to John Maynard Smith and then for citations to Robert Sugden. Scanning the results for each, I eliminated citations to any work of Maynard Smith's other than *Evolution and the Theory of Games*, and to any work of Sugden's other than *The Economics of Rights, Cooperation and Welfare*. These restrictions in mind, I counted 33 citations referring to Maynard Smith and 52 referring to Sugden. Of the 32 Maynard Smith citations, only 3 appeared in articles about the evolution of property rights; of the 52 Sugden citations, only 5 appeared in articles about the evolution of property rights.

[113] CON and its chief contributors receive only marginal attention in the major collection of articles on the evolution of property rights to be found in the legal literature, namely Symposium, supra note 15, consisting of twelve articles, two of which mention Sugden (one line in a footnote, three sentences in text), and one of which mentions Maynard Smith (two sentences). Two books about law and social norms, a topic in several ways related to the evolution of property rights, take considerable note of Maynard Smith and Sugden. See Robert Ellickson, Order without Law: How Neighbors Settle Disputes (1991) (scattered references throughout, most in connection with theories of cooperation); Eric A. Posner, Law and Social Norms 45, 179 (2000) (briefly discussing the norm of deference to possession).

CON and its chief contributors go unmentioned in Rose, supra note 22, an entry on the evolution of property rights in a leading encyclopedia on law and economics. Had Professor Rose been aware of the CON literature – the most important items of which were in print but apparently not yet salient (and in fact remain not salient, that being one motivation behind this overview) – she would no doubt have rethought an example in which she imagined two people, *A* and *B*, who would be "better off if they cooperate and create a little mutual property regime where each respects the other's rights, but their individual self-regarding motivations lead them to cheat and shirk instead – and hence no property regime arises." Id. at 94. This is the conventional COOP story. CON suggests that "their individual self-regarding motivations" might well have led to deference, rather than cheating.

I know of only one article in the legal literature, as defined supra note 111, that addresses in any substantial way at all the convention of deference to possession that is the centerpiece of CON's account of the evolution of property rights. See Stake, supra note 66.

[114] Corporation of Kingston-upon-Hull v. Horner, 98 Eng. Rep. 807, 815 (1774).

that. It is interesting to wonder what sorts of property rights humans might have engineered for themselves, had Nature not first laid down its firm and enduring template. Much of what is now taken for granted perhaps would have never happened. Possession could well be key to understanding all that followed, *n'est-ce pas*?