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## Ad Coelum and the Design of Property Rights

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**AD COELUM AND THE DESIGN OF PROPERTY RIGHTS**

*Joseph A. Schremmer*<sup>†</sup>

*Abstract*

*This Article seizes on a specific doctrinal discussion in Eric Claeys’s Natural Property Rights to argue for the importance of understanding property doctrines in the context of a system of interconnecting rules and standards and not in isolation. The ad coelum doctrine provides that land ownership entails ownership of the suprajacent airspace as well as the underlying subsurface. As Claeys’s discussion highlights, scholars disagree about the significance of ad coelum both conceptually, as to what function the rule serves in defining and allocating property, and normatively. It is only by viewing ad coelum in the context of how it interacts with various other doctrines—as a cog in a complex machine that serves larger purposes—that a comprehensive conceptual and normative account of the doctrine emerges. Natural Property Rights presents such an account of ad coelum and many other doctrines by attending to both the details of property law’s rules and the body of property law as a system with a larger purpose. In this way, Claeys’s Natural Property Rights is praiseworthy for its approach.*

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## I. INTRODUCTION

How is a phenomenon as broad, nuanced, and complex as property law to be understood and justified? One approach is to explain it a piece at a time, much as lawyers encounter it as they are called on to work with particular doctrines to resolve particular disputes or plan particular projects. But this approach can lose the forest for the trees. Scholars tend to take a broader, more holistic, view; but, a wide aperture can leave a lot of details out of focus. While not seeking to directly answer the question of how to prioritize the holistic and the particular, in his forthcoming book *Natural Property Rights*,<sup>1</sup> Professor Eric Claeys manages to lay out a theory of natural rights that describes and normatively justifies property law as a whole without overlooking its many constituent doctrines.

Claeys accomplishes this feat by identifying the fundamental questions or functions that property law must address and detailing the doctrines that contribute to each of them. The most fundamental of these functions he identifies are (i) determining what resources are fit candidates for being private property; (ii) designing the scope of the resources that constitute an independent object or “thing” of property; and (iii) the specification of appropriation rules and rules of use and exclusive control for the thing.<sup>2</sup> Yet, there is significant communication among these functions and the doctrines that operationalize them, which makes it difficult to address one of property’s fundamental functions without simultaneously treating all others. One who endeavors to discuss a piece of property law must tear a seamless web (or something somewhat like it) with his first sentence.<sup>3</sup>

This Article reflects on property law’s interconnectedness and the relationship between the whole and the parts of property law by focusing on how one particular doctrine—the *ad coelum* rule—implicates, but does not wholly determine, each of the above-listed fundamental functions of property. Using *ad coelum* as an example, this Article makes two modest observations about property law: one conceptual and one

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1. Eric Claeys, *Natural Property Rights* (Sept. 17, 2021) (unpublished manuscript) (on file with the Texas A&M University School of Law Journal of Property Law); Eric R. Claeys, *Natural Property Rights: An Introduction*, 9 TEX. A&M J. PROP. L. 415 (2023) [hereinafter “Claeys, *Introduction*”].

2. See Claeys, *supra* note 1 at 285, 306–08; see also Claeys, *Introduction*, *supra* note 1 at 442–44.

3. Cf. Frederic William Maitland, *A Prologue to a History of English Law*, 14 L. Q. REV. 13, *passim* (1898) (“Such is the unity of all history that any one who endeavors to tell a piece of it must feel that his first sentence tears a seamless web.”).

normative. The conceptual claim is that property law must be understood as a system, i.e., a group of interacting doctrinal elements that form a complex whole.<sup>4</sup> To accurately account for any part of property law, one must consider the individual doctrinal elements and how they interact. Yet, one cannot understand any particular doctrine without regard to how the system, in which it is a component, functions. My normative claim follows; attempts to justify or criticize property doctrines ought to take account of the phenomena that emerge from the doctrine's various interactions with other doctrines—the system of property as a whole—rather than the supposed consequences of the doctrine in isolation. By this measure, Claeys's *Natural Property Rights* succeeds as both a conceptual and normative account of property.

The *ad coelum* doctrine<sup>5</sup> states that the owner of land also owns the superjacent airspace and the subjacent subsurface, including the substances contained within that subsurface, like minerals.<sup>6</sup> As Part II describes below, there is a conceptual debate in the scholarship around which of property's fundamental functions *ad coelum* serves. Claeys understands *ad coelum* as part of the cluster of doctrines that design the scope of the natural "things" that constitute objects of property—a topic he labels "thing design."<sup>7</sup> Other scholars, such as Thomas Merrill, however, see *ad coelum* not as a thing design doctrine but as a doctrine that determines the appropriation of property through its "accession" to land.<sup>8</sup> Part III attempts to show that *ad coelum* is neither exclusively a rule for thing design nor appropriation, although it informs both of these fundamental property functions.

By itself, *ad coelum* does very little. But, in its interactions with other doctrines, *ad coelum* informs, to some degree, each of property's fundamental functions. It sits at the center of a cluster of doctrines that specify what natural resources may be owned, that design the scope of the "thing" one may own in a resource, that specify the means of appropriating ownable things, and that structure the use and exclusion rights in

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4. See generally Henry E. Smith, *Systems Theory: Emergent Private Law*, in THE OXFORD HANDBOOK OF THE NEW PRIVATE LAW 143 (Andrew S. Gold et al., eds. 2021), for a discussion on the properties of private law that make it a system.

5. I intend "doctrine" to encompass rules, standards, principles, and maxims.

6. Henry E. Smith, *Exclusion versus Governance: Two Strategies for Delineating Property Rights*, 31 J. LEGAL STUD. S453, S455 n.4 (2002). The full statement is *cujus est solum, ejus est usque ad coelum et ad inferos* (he who owns the soil owns also to the sky and to the depths). *Id.*

7. See generally Claeys, *supra* note 1, ch. 10; see generally Claeys, *Introduction, supra* note 1, 442–43.

8. Thomas W. Merrill, *Accession and Original Ownership*, 1 J. LEGAL ANALYSIS 459, 481 (2009).

things. Understanding any one of these legal doctrines requires knowledge of the surrounding doctrines so that a complete descriptive or normative account of *ad coelum* requires a complete account of the system of property rights in land and natural resources. In this way, *ad coelum* exemplifies the impossibility of understanding doctrine in isolation, as well as the difficulty of understanding the system of property without proper attention to individual doctrinal interactions.

As Part IV lays out, the normative justification for a property doctrine (like *ad coelum*) depends on the doctrine's role in the overall system of property rights. For example, in his account of *ad coelum* as an appropriation doctrine, Merrill questions the justification for *ad coelum*'s enlarging effects on land ownership.<sup>9</sup> Merrill's view of *ad coelum*, however, is overly particularized. Claeys's natural property rights theory, in contrast, adequately answers these normative challenges because it relies on a more holistic account that places *ad coelum* in context with other doctrines and property functions.

Moreover, by attending to the systematicity of property law, Claeys's theory reveals an aspect of property law's normativity, even if one does not endorse the particular values that Claeys believes property law serves—chiefly, productive labor. By organizing the whole of property law around the dual requirements of productive use and claim communication, Claeys's theory locates principles upon which property doctrines can hang together as a unified whole, demonstrating property law's inner coherence and intelligibility. These emergent properties, in turn, are constitutive of still-higher values of the rule of law and legal order.<sup>10</sup> That is to say because it is comprehensible as a system, property law is capable of guiding and coordinating its addressees, which is itself a normative feature, separate and apart from other values that property might be thought to pursue.<sup>11</sup>

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9. *Id.* at 467.

10. See Henry E. Smith, *Property as the Law of Things*, 125 HARV. L. REV. 1691, 1718 (2012). Smith explains:

Many of the properties of property are emergent. Just as water molecules do not have to be wet for water to be wet, so each stick in the bundle and each doctrine of property need not have the desirable features we want the system to have. Allowing owners to exclude other seems nasty and selfish, but whether it is efficient, fair, just, or virtue promoting is sometimes only assessable in the context of the system as a whole. *Id.*

See Joseph A. Schremmer, *A Unifying Doctrine of Subsurface Property Rights*, 46 HARV. ENVTL. L. REV. 525, 549–55 (2022), for my view of the relationship between doctrinal coherence and legality.

11. Paul B. Miller, *The New Formalism in Private Law*, 2 AM. J. JURIS. 175, 196 (2021).

## II. AD COELUM: TWO VIEWS

A. *The Conceptual Debate*

Two competing views of the *ad coelum* doctrine have emerged in the literature. The “accession” view, associated with Thomas Merrill, understands the doctrine primarily as establishing original ownership over resources.<sup>12</sup> The competing “design” view sees *ad coelum*’s function as identifying the resource or “thing” that constitutes an independent object of property rights (*a res*). The design view understands *ad coelum* as determining the scope of the property interest that is cognizable in a resource. Claeys’s chapter (Chapter 10) on “thing design” is probably the most thorough account of the design view to date. Other adherents to the design view appear to include Henry Smith<sup>13</sup> and Christopher Newman.<sup>14</sup>

On the accession view, *ad coelum*’s function is primarily to assign original ownership of new resources based on the status of owning the land to which the resource is closely connected.<sup>15</sup> Any resources that occur above or below land are deemed owned by the owner of the associated land. Accession is thus an alternative to first possession for allocating original ownership in new resources. The accession view has intuitive appeal, but it is limited as a conceptual account of how resources come to be owned in the first instance.

Yael Lifshitz has challenged Merrill’s view of accession, pointing out that *ad coelum* does not eliminate the need to allocate important kinds of resources by first possession.<sup>16</sup> Resources like groundwater, oil, and gas are traditionally subject to the possession-based rule of capture despite the *ad coelum* doctrine. For such resources, *ad coelum* merely identifies the group of landowners who are eligible to compete in the race to capture the resource.<sup>17</sup> In Lifshitz’s “hybrid” view of *ad coelum*, establishing initial ownership over these resources thus occurs in two stages:

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12. Merrill, *supra* note 8, at 481.

13. Henry E. Smith, *The Elements of Possession*, in *THE LAW AND ECONOMICS OF POSSESSION* 66 (Yun Chien-Chang, ed. Cambridge Univ. Press 2015); Henry E. Smith, *Exclusion versus Governance: Two Strategies for Delineating Property Rights*, 31 J. LEGAL STUD. S453, S454 (2002).

14. Christopher M. Newman, *Transformation in Property and Copyright*, 56 VILL. L. REV. 251, 270 n.70 (2011).

15. Merrill, *supra* note 8, at 481.

16. Yael R. Lifshitz, *Rethinking Original Ownership*, 66 U. TORONTO L.J. 513, 513–15 (2016).

17. *Id.* at 524–25.

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first, *ad coelum* delineates the group of eligible claimants; and second, the claimants race to take the resource under the rule of capture.<sup>18</sup>

From the design view, in contrast, *ad coelum* defines the scope of the natural things that constitute the *res* in real property ownership. The “thing” of land includes everything above and below it, such that the owner of the land also enjoys a property claim to all the resources that are deemed part of it. Thus, rather than allocating ownership of a new resource to an already-established owner of another resource, *ad coelum* marks off the boundaries of the already-owned resource to include, *ab initio*, the second resource.

Claeys emphasizes the importance of a resource’s physical characteristics to thing design. His favorite example involves solid and fugacious (i.e., moveable) minerals. Claeys asserts that the *ad coelum* doctrine consolidates solid minerals that occur below the surface of the earth into the ownership of the overlying land, while it keeps separate from ownership of the land fugacious minerals like oil and gas. The difference in treatment turns on the physical nature of the resources: solid minerals are stationary and do not move beyond the boundaries of the appurtenant tract of land, while fugacious minerals can migrate from tract to tract.

The design view, like the accession view, encounters some descriptive challenges. For instance, contrary to Claeys’s account, to the extent solid and fugacious minerals have not previously been separately conveyed or reserved apart from the land (i.e., severed), a conveyance of property in the land passes the owner’s rights in each equally.<sup>19</sup> Fugacious minerals that have not been severed are considered part of the real property in the overlying land, just like solid minerals are.<sup>20</sup> The positive law does not distinguish between solid and fugacious minerals in quite the way that Claeys posits.

Albeit solid and fugacious minerals are not subject to identical property rules. Rights in solid minerals are generally exclusive and absolute, while rights in fugacious minerals are not. The differences among these resources are real, but those differences do not turn on whether the resources are considered part of the same “thing” as the associated land. Rather, the differences arise in how the rights in these resources are structured through *ad coelum*’s interaction with other doctrines in the integrated system of property law.

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18. *Id.* at 553.

19. 2 WILLIAM BLACKSTONE, COMMENTARIES ON THE LAWS OF ENGLAND 18–19 (Wilfried Priest ed., 2016) (1766).

20. 1 KUNTZ, LAW OF OIL AND GAS § 3.1 (2021).

### B. *The Normative Challenge*

In introducing the accession view, Merrill identified normative concerns that accession raises for various theories about property. Establishing ownership by accession arguably compounds the wealth of existing property owners and limits the opportunities for nonowners, counter to the normative values of progressive or egalitarian views of property.<sup>21</sup> Accession also poses difficulty for Lockean natural rights justifications of property, according to Merrill, because accession awards ownership to persons based on their status as owners of other property rather than on their labor or any morally justifiable use to which they have put the resource.<sup>22</sup> On the other hand, Merrill notes that accession avoids many of the practical problems that a regime of first possession entails, namely the perils associated with tragedies of the commons.<sup>23</sup>

Claeys and Lifshitz have addressed the justification for *ad coelum* with less skepticism than Merrill. Lifshitz's hybrid account of accession ameliorates, but does not resolve, these normative challenges. Lifshitz explains that where accession is coupled with first possession, such as in the case of oil and gas, labor and use are necessary to obtain absolute ownership, ameliorating Lockean concerns.<sup>24</sup> Of course, this does little to satisfy the normative concerns of progressive theories since ownership by first possession still goes to property incumbents at the expense of newcomers. Additionally, Lifshitz argues that by limiting the number of claimants entitled to compete for possession of a resource, *ad coelum* decreases the common-pool problems associated with open-access commons.<sup>25</sup> That is true so far as it goes, but the history of rampant waste in the production of oil and gas resources—themselves limited-access semicommons—proves that merely limiting access to overlying landowners alone does not avoid commons problems.<sup>26</sup> In short, normative challenges to *ad coelum* linger even after Lifshitz's refinement of Merrill's view of accession.

In contrast to Merrill and Lifshitz, Claeys explains how *ad coelum's* attribution of resource ownership to existing landowners is justified according to the Lockean moral value of productive labor.<sup>27</sup> "Private

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21. Merrill, *supra* note 8, at 499.

22. *Id.*

23. *Id.* at 482.

24. Lifshitz, *supra* note 16, at 538.

25. *Id.* at 515.

26. Joseph A. Schremmer, *Pore Space Property*, 2021 UTAH L. REV. 1, 29–31 (2021).

27. Claeys's most extensive statement of his view of the normative justification for



property is justified,” he argues, “by whether and how well it contributes to a social arrangement in which most or all citizens are free as possible to labor concurrently.”<sup>28</sup> The natural right to labor serves the “pre-political moral interest” people have in self-preservation and flourishing. Legal institutions are judged, accordingly, by how well they secure the freedom of citizens on equal terms to make productive use of resources toward the goals of self-preservation and flourishing.<sup>29</sup>

In this view, *ad coelum* is justified because it helps judges determine how best to scale legal property rights to enable the use of resources through productive labor.<sup>30</sup> The doctrine’s grouping together of separate resources as a single legal thing is justified when the resources are “better used as a single resource than as standalone resources.”<sup>31</sup> This is the case, Claey’s asserts, when *ad coelum* determines the scope of land to include growing crops and cattle grazing on the land. *Ad coelum* is also justified in combining solid, non-moveable subsurface minerals into the thing of land because they tend to enhance the use of the land, at least by furnishing subjacent support. When, in contrast, fugacious subsurface minerals like oil and gas are (according to Claey’s) deemed a separate thing from the overlying land under *ad coelum*, this is justified because, in addition to being moveable, petroleum’s most common uses do not benefit the land itself. Thus, “[i]n labor-theoretic terms, land and oil or gas are most likely to be labored on productively if they are treated as distinct resources . . . .”<sup>32</sup>

### III. A SYSTEMATIC ACCOUNT

The debate over *ad coelum* leaves two lingering questions: what is a complete and accurate conception of *ad coelum*, and how does it normatively justify (or not) property law? I will take up these two questions, in a fairly crude fashion, in the following Parts, with the ultimate aim of showing that a systematic theory of property like Claey’s is capable of resolving the normative question.

Answering the conceptual question is made easier by resisting both the accession and design views. Stripped of labels, in its focal application

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*ad coelum* is found in his article Eric R. Claey’s, *On the Use and Abuse of Overflight Column Doctrine*, 2 BRIGHAM-KANNER PROP. RTS. CONF. J. 61, 72 (2013).

28. *Id.* at 70–71.

29. *Id.* at 71 (citing JOHN LOCKE, TWO TREATISES OF GOVERNMENT bk. II, § 4, at 269 (Peter Laslett ed., Cambridge Univ. Press 1988) (1690)).

30. *Id.* at 74.

31. *Id.* at 75.

32. *Id.*

the *ad coelum* doctrine simply supplements the boundary descriptions of a parcel of real property where the instrument or act creating the interest does not establish the horizontal boundaries. In most instruments of title, the vertical (or lateral) boundaries of the subject land are expressly described to satisfy the applicable statute of frauds, but the horizontal boundaries (the limits of the tract above and below the earth's surface) often are not identified. This is the ordinary practice precisely because, unlike the vertical boundaries, which background doctrine does not provide for, the law defines the horizontal boundaries through the *ad coelum* doctrine. In this sense, *ad coelum* certainly helps design the thing that constitutes a tract of land.

However, this is too thin of an account of *ad coelum* to do justice to the doctrine's importance in the design of property rights. Despite the narrowness of its focal purpose, the doctrine addresses several of the most fundamental issues in property law and policy, not just thing design. It does so by way of interacting with other doctrines in an integrated system of property rights, the cumulative effect of which is the system of property law. These fundamental functions are (i) what things may be subjects of property rights; (ii) the appropriation of rights in unowned things; and (iii) the structure and extent of use rights and exclusion rights in things. Standing alone, *ad coelum* is decisive of none of these questions; yet, none of these questions can be answered without *ad coelum*.

#### A. Identifying Candidates for Property

At first glance, a doctrine that merely sets the horizontal boundaries of a tract of land might have nothing to say about a question as foundational as what resources are fit candidates for private property. Yet, courts tend to treat questions about whether a particular resource situated above or below land may itself be the object of private property as questions about the proper extent of *ad coelum*-defined property boundaries. Thus, the horizontal boundary lines marked off by *ad coelum* are also the lines demarcating the sphere of ownable resources from that of unownable or public ones.

Of course, *ad coelum* does not itself contain any criteria for specifying which resources should be subject to private claims and which should be held by the public. The doctrine nevertheless performs a function in the process of making this determination by marking off the portion of a resource that would be subject (if the doctrine were so extended) to the private claim of the appurtenant landowner. From this baseline,

other doctrines may be applied to render the private-versus-public determination.

Consider, for example, the airspace trespass cases holding that *ad coelum* does not bring within private ownership high-altitude airspace (and thus does not preclude unconsented airplane overflights above minimum altitudes). Many courts have held that a landowner's claim extends only so far as its ability to effectively possess the superjacent airspace.<sup>33</sup> Beyond the reach of effective possession, the public's interest in using the airspace for navigation outweighs any claim to use the airspace for purely private purposes.<sup>34</sup> Thus, the limits of *ad coelum*-defined boundaries are encountered at the point where they would bring into private ownership a resource (or a portion of it) that the landowner would have little ability to use but that the public would have significant interest in using for navigation or similarly public purposes. These tend to be resources that span a vast number of individually owned *ad coelum*-defined landholdings and that are useful by the public with a minimum of interference with the adjoining private property.

In this light, *ad coelum* appears as a presumptive or standard-but-rebuttable boundary-drawing regime under which such inquiries about possession, public and private use, and coordination of the resource are made.<sup>35</sup> It is a rebuttable presumption against which to direct doctrinal or policy arguments favoring public over private ownership. Another way to look at *ad coelum* is as a principle as opposed to a rule. In the sense that Dworkin uses the term, principles, unlike rules, apply unless, under the circumstances, some other principle or principles would demand greater weight.<sup>36</sup> Accordingly, *ad coelum* itself does not control the public/private determination. Rather, other principles like "effective possession" and "navigability" interact with *ad coelum*'s hypothesized boundary lines and may rebut the presumption they raise to determine which resources are beyond the reach of private ownership.

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33. *Hinman v. Pac. Air Transp. Corp.*, 84 F.2d 755, 757 (9th Cir. 1936).

34. *Swetland v. Curtiss Airports Corp.*, 41 F.2d 929, 941-42 (N.D. Ohio 1930), *modified*, 55 F.2d 201 (6th Cir. 1932).

35. I am grateful to Adam Mossoff for this insight. Claeys has made a similar observation. *See Claeys, supra* note 27, at 75.

36. RONALD DWORKIN, *TAKING RIGHTS SERIOUSLY* 26-28 (1977). Similarly, courts often describe *ad coelum* as a legal "maxim," by which they mean a generalization about past legal practice. *E.g., Swetland*, 41 F.2d at 936; *Thrasher v. City of Atlanta*, 173 S.E. 817, 825 (Ga. 1934).

### B. Appropriating Property Rights

As proponents of the accession view observe, the *ad coelum* doctrine aids in assigning initial ownership of unowned resources. To the extent *ad coelum* accomplishes this task, however, it does not do so alone but in conjunction with other doctrines, including trespass, *ratione soli*, and the rule of capture.

Like expressly described vertical boundaries, *ad coelum*-defined boundary lines mark off a sphere of exclusivity within which the owner of the land alone may enter without permission. It constitutes trespass to use the area within this exclusive sphere without permission to mine coal, drill for oil and gas, hunt wild animals, or the like. Consequently, initial rights to resources that fall within the sphere of exclusivity are given by default to the owner of the land (or its lessee or licensee) *ratione soli* (by reason of the soil).<sup>37</sup>

*Ratione soli* is not the final word for the appropriation of many resources. As Lifshitz observes, under the rule of capture, resources that tend to move beyond *ad coelum*-defined boundaries, like wild animals and oil and gas, must be brought into possession to become absolute property.<sup>38</sup> While Lifshitz seems to suppose that the *ad coelum* doctrine has little to do with the manner in which ultimate ownership is acquired through first possession, in fact, the doctrine does a great deal to structure the race to capture such resources. First, the doctrine delimits the community of landowners who have the opportunity to capture the resource.<sup>39</sup> Second, the doctrine determines the proportional share of the resource to which each such landowner is entitled, supposing that each pursues it diligently and reasonably.<sup>40</sup> And third, the doctrine limits how—really, where—the claimants within the community may pursue the resource and thus serves to narrow the realm of techniques each claimant may rightfully use to capture its share.<sup>41</sup> Actions taken within someone else's *ad coelum*-defined boundaries are usually prohibited.

In short, none of these doctrines (e.g., trespass, *ratione soli*, the rule of capture) can operate to allocate property rights independently of *ad coelum* and vice versa.

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37. See Merrill, *supra* note 8, at 470.

38. Lifshitz, *supra* note 16, at 513–16.

39. Lifshitz acknowledges this much. *Id.*

40. KUNTZ, *supra* note 20, at § 4.7; Claeys, *supra* note 27, at 80.

41. See Schremmer, *supra* note 10, at 560–63.

C. *Structuring the Extent of Property Rights*

The mere fact that a resource falls partly or entirely within the *ad coelum* boundaries of land does not determine the structure or extent of the landowner's property rights to use or possess the resource. However, *ad coelum* is necessary to the characterization of property rights in these resources as either exclusive or nonexclusive and absolute or qualified (defeasible). How a particular resource interacts with *ad coelum*-defined land boundaries specifies the rights that landowners can enjoy in the resource. The basic categories of rights structures recognized in the common law run along a spectrum. On the far end, representing the most extensive rights is the category of "exclusive and absolute" rights, toward the middle part of the spectrum is the category of "exclusive but qualified," and at the far opposite end of the spectrum representing the least extensive rights is the category of "nonexclusive."

Where a resource tends to exist entirely within the boundaries (horizontal as well as vertical) of a tract of land and does not have the tendency to move outside of those boundaries, property rights in the resource are usually specified as exclusive and absolute. They are exclusive and absolute because none other than the landowner may enter the land to take them, and they cannot be lawfully defeased by another. Examples include solid minerals,<sup>42</sup> beehives,<sup>43</sup> and animals that lack the power of locomotion, like oysters and mussels.<sup>44</sup>

Where, however, a resource tends to exist entirely within the *ad coelum*-defined boundaries of a tract of land but does have the tendency of movement, rights in the resource are usually exclusive but qualified. These rights are defeasible because the resource could migrate or move away from the tract where it is currently located and thus become the exclusive claim of another, different landowner. Examples include wild animals with the power of locomotion.<sup>45</sup> Some states consider oil and gas to fall into this category because these substances tend not to move unless, and until, the reservoir in which they are located is penetrated by a wellbore.<sup>46</sup>

Finally, resources that tend to transcend the sphere of exclusivity of individual tracts of land are subject to rights that are nonexclusive. This is so because every landowner upon whose *ad coelum*-defined tract the

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42. *Edwards v. Sims*, 24 S.W.2d 619, 620 (Ky. 1929).

43. *Goff v. Kilts*, 15 Wend. 550, 550 (N.Y. Sup. Ct. 1836).

44. *Fleet v. Hegeman*, 14 Wend. 42, 42 (N.Y. Sup. Ct. 1835).

45. *Payne v. Sheets*, 55 A. 656, 657-68 (Vt. 1903).

46. KUNTZ, *supra* note 20, § 2.4.

resource occurs is entitled, *ratione soli*, to exploit the resource at once. Examples within this category are groundwater<sup>47</sup> and surface waters,<sup>48</sup> as well as air, wind, and light. Further, the states that do not consider oil and gas resources to be defeasible property instead place them into this nonexclusive, “right to take” category.<sup>49</sup>

There is, of course, much more to the structure of qualified and non-exclusive rights. As noted, obtaining absolute and exclusive property in such resources requires the acquisition of the resource through actual use or possession. Several ancillary doctrines govern the various aspects of pursuing and acquiring use and possession, including what constitutes possession (rule of capture), what actions may and may not be taken to acquire use or possession and what corresponding duties each claimant owes to the others (correlative rights, riparian rights, and nuisance), and the limits placed on the proper use of the resource (waste, reasonable use, and beneficial use).

*Ad coelum* plays a role in the application of each of these doctrines and functions. As noted previously, *ad coelum* determines each claimant’s proportional share of nonexclusive resources. It also demarcates each claimant’s rightful sphere of action, the area in which the claimant may act to possess or use the resource. Relatedly, the extension of boundary lines above and below the earth’s surface makes it possible to determine causation in cases of interference with nonexclusive resources—for instance, where soot and smells from one landowner’s chimney invades a neighbor’s house.<sup>50</sup>

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In all of these ways, *ad coelum* interacts with other doctrines—often functioning as a principle or rebuttable presumption—forming an integrated system for designing and allocating property rights in land and natural resources. Without the doctrines of trespass, *ratione soli*, the rule of capture, riparian rights, nuisance, etc., *ad coelum* would neither allocate initial ownership of new resources (as under the accession view) nor design the scope of owned resources (as under the design view). As it is, *ad coelum* contributes to both accession and design, and more.

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47. *Bassett v. Salisbury Mfg. Co.*, 43 N.H. 569, 577–78 (1862).

48. *Tyler v. Wilkinson*, 24 F. Cas. 472, 473–74 (C.C.D.R.I. 1827).

49. KUNTZ, *supra* note 20, § 2.4.

50. *Claeys*, *supra* note 1, at 357 n.13.

## IV. ANSWERING THE NORMATIVE CHALLENGE

The intricacies involved in this conceptual account of *ad coelum* suggest that the doctrine's normative impact is properly assessable only within the context of the system of property rights it helps to form and not as a standalone component part. Merrill's normative skepticism arises in part from a misplaced particularism. By failing to evaluate the *ad coelum* doctrine as a part of the system of property rights design, Merrill overlooks the reality that the doctrine's normativity lives or dies with the normativity of the system. Fortunately, Claeys's account of *ad coelum* and thing design, more generally, is situated within a comprehensive moral account of the domain of property in tangible things and thereby furnishes a plausible response to Merrill's skepticism.

If the *ad coelum* doctrine were concerned only with establishing absolute and exclusive property rights in previously unowned resources, Merrill's concerns about its normative justification might be well placed. So understood, *ad coelum* conclusively expropriates resources and opportunities from the community into private hands that are already, by definition, vested with property and that contributed no labor to justify a natural right. This would appear indefensible from both the progressive and the natural rights perspectives. *Ad coelum* might appear unjustifiable from many (or perhaps any) normative perspectives.

However, an accurate normative account of *ad coelum* must encompass the doctrine's implications not only for establishing initial ownership rights but also for determining what resources may be objects of private property and the structuring of private rights in such resources. When evaluated in the context of these other functions of property law, *ad coelum* no longer looks indefensible from every vantage point. Rather, as Claeys demonstrates, it fits easily within a Lockean justification of property. Moreover, considered in context, *ad coelum* and its neighboring doctrines may even allay some of the progressive property school's concerns about exclusion and resource distribution.

By evaluating *ad coelum* in context, Claeys's natural property rights theory satisfies the normative concerns about *ad coelum* that Merrill attributes to a Lockean or natural rights perspective. When Claeys evaluates the justification for *ad coelum* from his Lockean viewpoint, he does so with reference to the doctrine's interactions with other principles and rules. *Ad coelum* is justified in attributing growing crops and cattle to the ownership of the underlying land, for instance, because, when annexed to the land through the doctrines of fixtures and *ratione soli*, crops and fixtures are practically more likely to be used productively and to

enable flourishing.<sup>51</sup> *Ad coelum* would not be justified, however, in annexing oil and gas to overlying land ownership in Claeys's view because annexation would impose on these resources regimes for acquisition and use that would undermine their availability for productive labor. Instead, therefore, *ad coelum* yields to other doctrines like the rule of capture in setting oil and gas apart as separate things from the overlying land.<sup>52</sup> The exceptions to *ad coelum* are as important as the doctrine itself in structuring rights in things to enable their morally productive use.

Contextualizing *ad coelum* even assuages some of the distributional qualms Merrill raises about the accession principle. While *ad coelum* does grant initial rights over resources connected with land to the owner of the land, this does not extend to every natural resource. As to those resources that are included in land, the rights granted often are not absolute or exclusive. For example, *ad coelum* does not create absolute or exclusive private rights in water resources, nor does it preclude public rights altogether in resources like wild animals or airspace. In addition, the system enables owners to sever and convey interests in the subject resources to nonowners.<sup>53</sup> Each of these limitations on the accession of property rights under *ad coelum* works, to various degrees, to expand access to natural resources. In other words, the broad system in which *ad coelum* plays a small but crucial role includes "safety valves" that address the need—urgently felt by progressives but also understood by natural rights thinkers, including Claeys—to provide just and equitable access to resources.<sup>54</sup> The features of property law that publicize natural resources and which are celebrated by commentators from the left<sup>55</sup> are not transgressions against the *ad coelum* doctrine, but rather products of the very system *ad coelum* helps to constitute.

Thus, Claeys's account of *ad coelum* and thing design is more normatively appealing than Merrill's accession view because it understands the connections among the various doctrines that constitute property rights, including the safety valves. Whether or not one subscribes to Claeys's Lockean labor theory, the more important point is that an evaluation of property law writ large in light of any normative system should proceed (as Claeys's book proceeds) from an evaluation of the

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51. Claeys, *supra* note 27, at 75.

52. *Id.*

53. See generally Claeys, *supra* note 1, ch. 11; see generally Claeys, *Introduction, supra* note 1, at 443–44.

54. See *id.* at 22.

55. See generally Claeys, *supra* note 27, at 44 (criticizing Larry Lessig's triumphal view of the exception to *ad coelum* for airplane overflights).



interacting legal rules that make up the system of property rights in context with each other.

Indeed, by evaluating the doctrine in its systematic context it is possible to imagine a flourishing-based normative defense of *ad coelum* that differs from both progressive property and Lockean labor theories. This alternative view would rest on something like a premise that has been developed over time by various scholars, including John Finnis,<sup>56</sup> Adam MacLeod,<sup>57</sup> Paul Miller, and Jeffrey Pojanowski.<sup>58</sup> The premise holds that the private law's claim to moral authority rests on its ability to guide individuals in pursuit of their reasonably practical life plans and moral interests—including the acquisition and use of property—in coordinated community with others who are pursuing their own plans and moral interests. Good property doctrines therefore provide practically reasonable and usable *ex ante* guidance to individuals in the use of resources, and they create the legal order that coordinates individuals' use of resources toward the common good.

The system that emerges from interactions among property doctrines is key to furnishing practically reasonable guidance and creating legal order. These emergent properties make the law more intelligible and coherent to its addressees, who are thus better equipped to settle conflicts and coordinate their individual actions and life plans in ordered community.<sup>59</sup> Property law's integrity ensures that it is in some measure comprehensible, at least to a degree that it could not be if it were merely an amalgamation of disconnected parts serving *ad hoc* functions, policies, or principles. Similar to what Merrill and Smith have observed about the morality of property,<sup>60</sup> comprehensibility, coherence, and intelligibility help ordinary people as well as legal professionals to interpret, even intuit, law and rely upon it to guide their practical reasoning.

*Ad coelum* illustrates the importance of intelligibility and coherence to law's guidance function. The *ad coelum* principle accords with commonsense notions about the extent of land ownership; if it is over or

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56. See JOHN FINNIS, *NATURAL LAW & NATURAL RIGHTS* 81–90 (Oxford Univ. Press, 2d ed. 2011).

57. See ADAM MACLEOD, *PROPERTY & PRACTICAL REASON* 185 (2015).

58. Paul B. Miller & Jeffrey A. Pojanowski, *The Internal Point of View in Private Law*, 67 *AM. J. JURIS.* 247 (2022); Miller, *supra* note 11, at 178.

59. Miller, *supra* note 11, at 196.

60. Thomas W. Merrill & Henry E. Smith, *The Morality of Property*, 48 *WM. & MARY L. REV.* 1849, 1867–69 (2007); see also RONALD DWORKIN, *LAW'S EMPIRE* 252 (1986) (“If legal compartments make sense to people at large, they encourage the protestant attitude integrity favors, because they allow ordinary people as well as hard-pressed judges to interpret law within practical boundaries that seem natural and intuitive.”).

under the land, the landowner has a claim to it. Reasoning from this intuitive principle to determine whether a particular resource is part of a landowner's claim is relatively simple within the basic conceptual structure that *ad coelum* helps to construct. If a resource is not readily accessible from the surface of the land (for instance, navigable airspace or wild animals located on a neighboring tract), then it is probably beyond the landowner's claim. A landowner could likewise reason from *ad coelum* that she would have to share any moveable resources that were deposited in a pool stretching across her land and neighboring lands (like oil and gas) but that she could claim exclusively any resources present under her tract that are not capable of wandering into other's tracts (like solid minerals). This system of doctrine gives a landowner the tools to make rough practical predictions about her rights to use the resources associated with her land, and these predictions would be roughly accurate. Basic knowledge of the conceptual structure of an intelligible and coherent system enables a good deal of practical reasoning within the system while economizing on requisite information and expertise.<sup>61</sup> In short, *ad coelum* leverages the ability of individuals (landowners and non-landowners alike) to make rough predictions about legal rights in a resource based on readily observable physical features of the resource and intuitions of everyday morality.

Clearly, constructing and defending such a normative case for property law requires much more work. Nevertheless, this brief sketch hopefully illustrates that a doctrine's contribution to the law's function of furnishing intelligible guidance, and the positive consequences it has for legal order, may represent an independent basis on which to justify both the doctrine and the system of property law. Consequently, by situating *ad coelum* within the system of interacting doctrines that design property rights in land and natural resources, Claeys's theory enjoys some normative force as a source of coherent and intelligible legal guidance, even if one rejects productive labor as the central value property law is intended to serve.

## V. CONCLUSION

As our brief study of *ad coelum* suggests, property law is a complex system comprised of interlocking doctrinal parts, which cannot be

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61. See Felipe Jimenez, *Understanding Private Law*, in *METHODOLOGY IN PRIVATE LAW THEORY* (Thilo Kuntz & Paul B. Miller, eds. forthcoming) (explaining the key to formalist theories of law as the ability "to elucidate the abstract conceptual structure immanent" in the doctrine).

completely or accurately conceptualized or justified except through comprehension of how the parts relate to each other and to the whole. Eric Claeys demonstrates how we might gain such an understanding in his expansive and detailed work, *Natural Property Rights*. Additionally, the systematicity of property law is itself a source of normative force. As a coherent and intelligible system, property law furnishes practically reasonable guidance to its addressees in the coordination of their actions and transactions. In this way, the system of property law doctrines, like *ad coelum*, are constitutive of the legal order that enables human flourishing.