

# 14. On property rights and their modification\*

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This process of designating property rights is far from static. It encompasses a fluid and ever-changing attempt to define new property rights, in order to accommodate new cost-benefit possibilities. Frankel Paul, Ellen (1987), *Property Rights and Eminent Domain*, New Brunswick: Transaction Books, p. 215.

It is common ground amongst economists that property rights are pre-requisites to markets. Without them, no exchange would be possible and incentives to produce would be lacking, since everyone could reap the fruits of someone else's labour.<sup>1</sup> Beyond these observations, property rights seem to be taken for granted: they are supposed either to be there, with the State taking charge of their enforcement, or altogether absent. In neoclassical discourse, property rights are given as one of the conditions which have to be fulfilled for optimal welfare to be attained: '(8) [R]esources are held in private property with all rights defined and assigned; and (9) prevailing laws and property rights are fully enforced through the state', as it is stated in the introductory chapter of a recent treatise on law and economics.<sup>2</sup> In Austrian discourse as well, property rights seem to be part of the *scenes à faire* to be put in place by the stage hands (State hands?) before economists make their entry. This view is surprising, considering the mistrust with which the Austrians generally view government and the tasks it assumes.

In the course of history, many new objects have seen the light as a result of entrepreneurial discoveries. Different objects call for different property rights, as summary examination of rights in movables (chattels) and rights in immovables (real property) shows. New objects may require new forms of property rights. Can government be expected to know what rights are required for new objects any better than they know what goods and services should be produced? Should not the calculation debate make us wary of the

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idea that government will produce the right property rights just in time? To turn the question round, should one not expect the entrepreneurial spirit driving the market process also to be at the heart of the process whereby the property rights order is extended to new objects, making them marketable? Surely that process is not limited to lobbying and counter-lobbying the authorities on new rights.

This is the puzzle to be tackled in this chapter. As a first step, however, it will be useful to clarify the different meanings given to the term 'property rights' by lawyers and by economists.

## 14.1 PROPERTY RIGHTS

### 14.1.1 Property Rights, in the Economic and in the Legal Sense

Property rights or rights of ownership, in the usual legal sense of these terms, are the institution which bundles the main rights governing the use of a specific object and of the fruits resulting therefrom. In civil law countries, the institution is anchored in the Civil Code. The Quebec Code, for instance, provides in article 947:

Ownership is the right to use, enjoy and dispose of property fully and freely, subject to the limits and conditions for doing so determined by law.

The comparable article 544 of the French Civil Code shows its revolutionary origin in a much starker formula:

Ownership is the right to enjoy and dispose of property in the most absolute fashion, provided one does not make a use of it which is prohibited by law or regulation.

These broad formulas must not be taken to mean that owners have unlimited power to do as they please with their property. The tail end of the articles points to restrictions designed to curtail various forms of externality, through rules dealing with common problems between neighbours, with trespass and nuisance, with zoning and other forms of regulation. Historically, as Mattei has been at pains to explain, the absolutism of the natural law formula, legacy of the French Revolution, soon made way for a more practical, conflict-solving approach, which is the proper domain of lawyers.<sup>3</sup>

The owner, in the legal sense, of an object or a resource is the main rights holder with respect to it. To determine how the resource will be used, it would seem apposite to look at the decisions made by the owner. In some

circumstances, this heuristic has turned out not to be helpful to economists. In studying decentralized socialist enterprises in the former Yugoslavia, for instance, one does not get very far, as Furubotn and Pejovich made clear in the early 1970s,<sup>4</sup> by examining policies adopted by the State, nominally the owner of the capital goods. It is more to the point to look at the preferences and decisions of the workers, who were in charge through the Workers Council of the policy decisions for their firm. Focusing on the workers, one can readily explain why such firms were loath to let workers go in circumstances which would make such a decision seem logical for a comparable Western firm: the workers making such decisions would cut the branch on which they were sitting.

More puzzling is the question of why the firms did not maximise worker salaries, but instead retained some profit as savings for future investments. Why would workers invest in capital goods they did not own? As Furubotn and Pejovich explain, workers would find this to be in their interest in so far as it maximised the present value of the income stream paid to the average employee.<sup>5</sup> Their conclusion is that the behaviour of the Yugoslav firm is explicable in terms of rational decisions by persons who actually control the use of the resources in the firm. The heuristic Furubotn and Pejovich draw from this insight is that, to explain the behaviour of the firm, one must look at the 'property-rights structure'.<sup>6</sup>

It is clear that the term 'property-rights structure' is not used here in its legal sense. Property rights, in this usage, mean 'decision authority',<sup>7</sup> the actual power to control the use of a good and to appropriate the fruits. Property rights are a descriptive term, more general than 'right of ownership,' as Furubotn and Pejovich observe.<sup>8</sup>

We are here at the root of two distinct uses of the term 'property rights'. The broadest meaning is economic: actual power to control or affect the use of an object, or some aspect thereof. More than one person may hold such property rights in a resource; these rights may be, but need not be, designated as property rights in legal parlance. By contrast, '(private) property rights', in the legal sense, or the right of ownership designate the legal institution in which the main economic property rights in a resource are bundled in the hands of a single title holder. The title holder may call on the enforcement power of the state to have his right protected from fraud, theft or violence by other persons and to seek sanctions for non-performance of contracts regarding his property. According to traditional legal doctrine, ownership has the three attributes of *usus* (decision on use), *fructus* (right to the fruits) and *abusus* (power to transfer the right to another person).

Goods held in private property are to be contrasted with *res communes*, goods which may be used by everyone but are not open to private

appropriation. Water in streams is a traditional example of such a good. In the literature dealing with the economic analysis of law, the term 'common pool resources' or 'common property' is sometimes used for these situations.<sup>9</sup> Such goods may be 'club goods': goods in common use amongst members of a restricted group (the club), but closed to outsiders. Even where common property goods have no clear owner in the legal sense, it still makes sense to inquire who can use them, that is who has property rights in the economic sense. The 'tragedy of the commons' is based on an analysis, in terms of economic property rights, of the consequences of the absence of (legal) private ownership.

Goods held in private property in this legal sense may also be contrasted with those which are not currently subject to a property right, but can be appropriated by one who takes possession of them. This is the *res nullius*, of which wild animals and abandoned goods are examples. Such goods may be said to be in the public domain.

The idea of the public domain has a subtler application. In a world of costly transactions, the boundaries of private property rights cannot be profitably delineated and supervised to the full extent.<sup>10</sup> In the interstices, the uncontrolled elements or attributes in the use of the good are left, as it were, in the public domain and any person can try to 'capture' them. 'The opportunity for wealth capture is equivalent to finding property in the public domain.'<sup>11</sup> Economic theory predicts that all persons will attempt to capture such gains.

In contractual settings as well there is room for a 'public domain'. A person who controls the use of an object may find it profitable to allow another person to use it, or to exploit it with the help of another person. To this end, the owner enters into an agreement with the other person. The agreement defines the permissible uses for the other person, and thereby confers on him or her some economic property rights. The contract can provide rules for the major known and foreseeable contingencies. All others are left open, as not worth bothering with. Uses not specifically provided for are 'in the public domain' as between the contracting parties and can be captured by the non-owner contracting party, if it looks profitable. Such 'capture' gives him or her economic rights beyond those explicitly contracted for. 'Shirking', 'loafing' and other forms of opportunistic behaviour are examples of this phenomenon.

In a lease, for instance, one cannot profitably spell out all permissible uses of the leased object. The lessee has an interest in maximising the utility he or she can draw from the rights explicitly conferred by contract as well as from all unregulated uses of the leased object. The situation may be restated in terms of economic property rights. The lessee can exercise such rights on all aspects of the use or attributes of the leased object which are not specif-

ically reserved or regulated and subject to the (legal) owner's supervision. Economic theory would lead one to expect that, within the boundaries set by the terms of the contract, lessees would capture as many economic property rights as possible and turn these to their most profitable use for themselves. The extent to which lessees can engage in such behaviour varies, of course, with the nature of the leased object and its known uses.

Conversely the theory would predict that lessors would specify the contract to the extent that the cost of doing so is offset by the value of known uses they can regulate, and thereby turn to their advantage by including them in the leasing fee. Lessors may be expected to choose between different contracting formulas according to the costs of each (the monitoring that they would require, for instance) and the possibility each offers of turning particular uses to their advantage. By way of example, consider the different incentive structures created by ordinary residential leases (flat monthly fee), shopping centre leases (flat base fee plus percentage of gross revenue of lessee), share tenancy agreement (splitting of net profits) and so on.<sup>12</sup>

Uses not regulated in a contract are left 'in the public domain', at least as between parties. One must presume that this reflects a choice based on expectations of costs and benefits. Yet as a result of technological or other changes, these costs and benefits may shift over the course of the contract, and with them the range of uses which it is profitable to capture. This may be a source of friction between contracting parties, as each attempts to capture the newly profitable attribute.<sup>13</sup>

The theory of economic property rights has considerable generality and is applicable to a wide range of phenomena. It encompasses the theory of agency, as Barzel aptly observes.<sup>14</sup> Similarly, free riding can be seen as use of one's (economic) property rights, in this case at the expense of other rights holders in a common object or venture. Economic property rights help to understand how shareholders, managers and creditors, secured or unsecured, in the firm behave towards one another. The theory is applicable to market economies as well as to non-market economies, although the constraints on the property rights and the contents of contracts may be more difficult to discern in the latter than in the former. The theory is similarly applicable to the public as well as to the private sector. The essential difference between the two is that '[i]n the private sector, producers are more readily given the opportunity to assume the entire direct effects of their actions. In the government sector, people assume a smaller portion of the direct effect of their actions. Both systems reflect the outcome of the actions of maximizers.'<sup>15</sup>

To sum up, economic property rights are a descriptive term referring to the power to control all or part of the use of a particular object and to draw

the fruits therefrom. Economic property rights are a micro term. Legal ownership, by contrast, is a macro term for an institution bundling a range of economic rights. Economic rights are present in all scarce resources. Several people, the legal owner being one of them, may have such rights in the same object. Economic theory predicts that people will maximise the value of their economic rights, which includes capturing as many of them as they can. Economic rights can be captured because the official structure for controlling the use of an object cannot fully specify nor effectively monitor all uses. Where the official title holder to a resource expects it to be profitable to delegate its exploitation in whole or in part to another person, the contract cannot fully specify the permissible uses. In all these instances unspecified, or not fully specified and monitored, uses are available for contract partners and outsiders to capture. Symmetrically, the theory directs attention to the official rights holders' incentive, through monitoring and contracting, to avoid undue capture by others and to maximise the utility they draw themselves from their holdings. The theory of economic property rights helps us to explain how scarce resources are in fact used.

The exercise and shifting of economic rights, as well as their 'capture', at the margin, in the space left open by explicit arrangement, take place against the backdrop of by and large stable assignments of legal property rights in resources to particular persons. The idea of private property rights – assigning to specific persons the decision of what to do with particular things, rather than leaving them available to any comer – is known in all societies. Even in the earliest societies, such rights existed for clothes and weapons.

Game theory allows us to understand why the institution of private property rights should have been discovered in such a variety of contexts. Exclusive assignments solve potential conflicts over who shall use a non-divisible good (a chicken game) and over shirking and monitoring in resources exploited as common property (a multi-person prisoner's dilemma).<sup>16</sup> Interaction problems of these kinds arise in every society. These considerations do not explain why it has seemed profitable to preserve this institution of private property rights over time and, indeed, phenomenally to extend its range in our own society, which is based on arrangements very different and much more complex than those in which the institution was first discovered. The reason for this is presumably that private property rights offer a comparative advantage in the enterprise of husbanding scarcity in most known circumstances. They provide decentralised incentives to manage existing goods wisely and to invent new goods and uses. Through the market system they lead to prices, which provide the signals used by entrepreneurs in deciding where to attempt their ventures.<sup>17</sup>

These advantages may have been learnt over the course of history, even though we have been able only recently to articulate them.<sup>18</sup>

Currently, private property rights are the institution of first choice when it comes to managing resources which have newly become scarce, that is, given to multiple uses or coveted by multiple potential users. Scarcity may give rise to dispute or conflict. Dispute or conflict over a resource signals its emerging scarcity. It may be solved, or altogether avoided, by establishing property rights over that resource: they attribute the decision about the use of a resource to a particular person or group of persons.

#### **14.1.2 On the Nature and Role of Fences<sup>19</sup>**

The essential prerequisite for private property rights is a reasonable measure of exclusive control at acceptable cost. Where this condition cannot be met and the resource is nonetheless scarce – given to multiple competing uses – it will have to be exploited as common property. Where access to common property can be limited to a particular group of persons, it will be run as a ‘club good’ with strict rules about how and how much each interested person or club member may use it.<sup>20</sup> Where this is not feasible, we may run into serious problems such as we now face with respect to environmental resources or fish stock.<sup>21</sup>

In the case of land, exclusive control is typically secured by means of a fence. Fences of some sort – they may be ditches – are a necessary and normally also sufficient condition for creating property rights. New fencing techniques make new property rights viable or old ones more viable. They may give rise to striking improvements in the use of scarce resources. Consider, by way of example, the spectacular success of the invention of barbed wire for cattle breeding in the American West.<sup>22</sup>

Conversely, old fences may become too costly to maintain and be abandoned. The resource or attribute which is no longer fenced in slides into the public domain and can be freely used, or may be made into a ‘club good’. Barzel mentions several examples of such a development.<sup>23</sup> Salt and pepper are freely available to one who has a meal in a restaurant. The cost of measuring and pricing their use is not worth it under current conditions, even though four centuries ago these spices were amongst the dearest consumption items. Seats in cinemas are no longer specifically attributed. Anyone who has bought a ticket can choose the best seat available without extra charge. For operas and plays, where tickets are considerably more expensive, individual seating is still the rule. Somewhat further removed is the case of rights over one’s land. With the advent of aeroplanes, it was considered too costly to collect fees from overflying aeroplanes.<sup>24</sup> The space in which they fly has been taken away from the land owners and effectively put

in common use for aircraft operators, subject to strict (government) rules about how it may be used.

Fences may be physical stops. In the world of software, copy protection, electronic 'water marking' and encryption are such fences. But as the discussion about economic rights should make us realise, fences need not be physical stops.<sup>25</sup> A contractual arrangement by which one party gives the other access, under strict conditions, to a trade secret in his possession acts as a fence. Associations may be the depositories of protected knowledge which they make available to members under strict rules. The association rules act as fences.<sup>26</sup> Generally 'institutions are enforcement technologies too, and they are often generated intentionally to reduce transaction costs and thus increase the value of assets'.<sup>27</sup> In the software world, updating policies restricted to registered users of legitimately acquired copies of the product act, to an extent and in conjunction with other measures, as a fence for it.<sup>28</sup> Legal sanctions, be they civil action to protect trade secrets or to halt 'parasitic activities', or criminal prosecution of 'pirates', or the threat of such actions, act as partial fences as well. Fences may need to be 'monitored'. 'Monitoring' is part of the cost of that fencing technique and weighs in as one element to be considered in the choice amongst fencing techniques.

In what follows, the term 'fences' will designate a range of devices, techniques and arrangements invented and used to secure some measure of exclusive control over a scarce resource. Fences seem to behave like other economic goods. Bringing new ones to the market is an entrepreneurial gamble. Existing fences may become obsolete when newer ones are put into service. To illustrate obsolescence, consider how the physical fence provided by the printing process in earlier days is cracking under the impact of photostating and other copying techniques. To say that a property right is 'technologically dated' may mean merely that the fencing technique on which it relies is no longer as good as it once was.

How good is 'good enough' in fencing? We like to think that a fence shuts out hermetically, but this need not be so. A property right may be viable even where the fence is not foolproof.<sup>29</sup> The risk of burglary does not stop people from buying homes, although the risk of recurrent looting probably would. The 'holes in the fence', as well as the expense of activities (for example, monitoring, patrolling) designed to reduce losses due to what slips through those holes (pilferage), are simply costs of running the property to the owner. Property rights are worthwhile so long as they offer a net return over cost comparable to other possible investments. Closing a hole in the fence may be costlier than the losses it will prevent. To put it in Barzel's terms, it is all a matter of how economic rights are split between the nominal owner and others with some access to the good.



A similar reasoning determines whether a new fencing technique is worthwhile. It is, if the increased revenue the fence allows one to draw from the property is more than what is necessary to offset the additional cost of the new fence, net of savings due to the abandonment of earlier fences.<sup>30</sup>

These considerations have a bearing on what is happening on the Internet. The Internet changes the effectiveness of fences which can be used to secure intellectual property rights. Traditionally, copyright laws distinguish amongst several kinds of object of intellectual property rights. Section 5 of the Canadian Copyright Act, for instance, recognises four kinds: literary, dramatic, musical and artistic works. The distinction corresponds in part to differences in the fences used.

The Internet, and more broadly information technology, transforms all information into a single, digital form. The digital form can be copied and transmitted with an ease that shatters the delicate legal machinery engineered to reign in misuse under older fencing technologies. One can only agree with Lance Rose that '[t]he Net did not introduce low-cost, anonymous infringement to the world. Anyone can buy a photocopier, tape deck, or computer and become a small-time infringer who's almost impossible to detect.'<sup>31</sup> But the Internet accelerates the corrosion of the older fences and creates the appearance of an open field in which all take whatever they can click their mouse on.

Does the Internet spell the end of property rights? The old fences may not work so well any more. Yet information, while apparently abundant once in existence, still needs to be created and the creator needs to be encouraged. Information is scarce in that sense and calls for property rights or other institutions to cope with scarcity. The software industry, in spite of a significant shareware market and allegedly rampant piracy, does not appear to be moribund. Apparently a solution exists in practice.

### **14.1.3 Fences and the Law**

If the old fences no longer work so well, one reaction is to cry to heaven that pirates are upon us and that the very foundations of civilisation, which are property rights, are being undermined. And to call the police (or the secret service).

Should the police – and by extension, the law – be on call to shore up property rights based on crumbling fences? My reading of history is that the law does not generally do this. As a matter of principle, I believe it should not. Epstein expresses this idea as the simple rule that 'you take what you can get'.<sup>32</sup>

But, one may ask, is not the role of government in Western societies to protect property rights? The answer must surely be affirmative.

The very foundation of the state rests upon the publicization – the shift from the private to the public sector – of much of the costly patrolling and monitoring dictated by the need to protect productive assets from being redistributed to intruding claimants. Were it not for this state policing that we call *law*, human systems of property never would have advanced beyond mere territorial sequesterings backed by local preponderance of power.<sup>33</sup>

The point is that these services merely supplement the more basic efforts of rights holders to secure their property rights themselves.<sup>34</sup> If laws and law enforcement power are available to shore up rights where owners cannot ‘fence’ for themselves, we are overstepping the boundary separating legitimate property rights from illegitimate rent-seeking.<sup>35</sup> Rights procured as a result of rent-seeking could not subsist in the market. Competition would weed them out. They subsist merely by the grace of the coercive power of the authorities and procure artificial advantages or revenue. Law enforcement should be available for gross violations of property rights through violence or fraud; the basic fence is to be set up and patrolled by the owner and backed by civil action against violators.

Elsewhere I have termed this the ‘realism’ of the law.<sup>36</sup> Law enforces solutions that basically work, not those which have broken down. ‘Copyright was never meant to stop people from repairing or reselling or reading or using material in customary ways.’<sup>37</sup> Law specifies the boundaries between neighbouring property rights only in so far as disputes or conflicts have actually arisen between neighbours. Law is realistic in other ways as well. It has to rely on rules that can be understood and applied by people of varying ability in different contexts. Such rules must be kept simple.<sup>38</sup>

## 14.2 THE EMERGENCE OF PROPERTY RIGHTS

The question we now face is how we discover the form new rights should take. Existing property rights – in houses, cars and so on – are anchored in written texts of statutes and cases, presumably because of the relative certainty such instruments offer. At the margin, novel problems about such rights can be solved by merely extending the logic of the existing rights. But this approach is not comfortably applicable to innovations that embody substantial novelty.

It is tempting to claim that in the face of such uncertainty the legislator must step in. And this is indeed the approach often taken in practice, as Riker and Sened argue taking the example of airport slots.<sup>39</sup> But on what knowledge could legislators base themselves to enact the appropriate statutes? Public choice theory suggests that organised groups are more likely than individuals to make themselves heard in public discourse as well

as before the legislature and its committees. This, in turn, must make us wary of the idea that the legislature necessarily balances all relevant interests fairly.<sup>40</sup> It is sensible to require the legislature to consolidate arrangements developed and found satisfactory in civil society; it is hardly sensible to expect it to invent them.

Judicial decisions fare no better. How will judges come by the information required to balance, without arbitrariness, the as yet incompletely articulated interests of groups that may or not be parties to the trial? Not surprisingly, the judicial process operating under such constraints has been likened to central planning: navigating in the dark.<sup>41</sup>

The experience necessary for the choice amongst possible arrangements must be generated in society, amongst persons who have to live and work with the arrangements we are looking for.<sup>42</sup> The question then is what tools interested persons have at their disposal to generate the experience with a novel form of property right, to show that it works and to seek its enactment in a statute as a form of consolidation. This, I submit, is a discovery process which ought to be of interest to Austrian economists. I want to illustrate it by means of developments on the Internet.

#### **14.2.1 A Simple Rule: Build your own Fence**

If the old fences no longer work very well and the law is not available to shore them up, there appears to be vacuum. This does not mean a breakdown of law and order. The Internet may have no constituted central authority and hence be anarchic in the true sense, but it is by no means an orderless place. On the contrary, surfing on the Net, one is struck by the efforts within discussion groups – repeat players, to use the language of game theory<sup>43</sup> – as well as on major commercial sites such as the Amazon bookstore, to discover the proper norms that should govern their dealings. It is true that, at the outer edge of this process, there are penalising community sanctions such as ‘flaming’ one who clearly oversteps the boundaries of what others find proper. The systems operator may even exclude a person from access to the server. But these severe sanctions are exceptional. The dominant impression is one of communities looking for the rules they should live by, creating their own order. For those willing to see it, spontaneous orders are being built here.<sup>44</sup>

With regard to property rights, the point of the story is that those who seek to make money with novel products for which no known rights and fences exist, can nonetheless create ‘experimental rights’.<sup>45</sup> Given that they control their product at the outset, they can design new fences, using devices and techniques available to them as part of the existing property rights order as well as contractual arrangements. By controlling the most

obvious ways in which each kind of fence can be jumped, the creator effectively obtains the equivalent of a legal property right, or an 'experimental right'. The fences must secure them sufficient control to bring the product to market and make a profit from it. The realm of property rights can thus be gradually extended by directly interested persons themselves. They can use freedom of contract and existing property rights in anything that can be used as fencing material to secure these 'experimental rights'.

Understandably, interested persons will try to collect revenue only in places where they have a realistic hope of creating effective fences. New fencing techniques may lead to new divisions between what is product – to be paid for – and advertising – offered freely to induce sales of the product (or because one cannot hope to control its use and abandons it to the public domain). John Perry Barlow submits that only live information is paid for: consultations of doctors and other professionals; live performances of artists. Dead information should be freely available.<sup>46</sup> Could one not read this distinction, more mundanely, as a matter of where, with current knowledge, one can hope, at acceptable cost, to create effective fences and collect revenue? At all events, where to collect your revenue and what to treat as advertisement (given away free) is a matter of private entrepreneurial decision and enters into the calculation of whether a given creative effort is worthwhile.

In keeping with the innovative spirit on the Internet generally, one must expect much experimentation with new fencing techniques. This is indeed happening. Witness the appearance of demo or light versions of software alongside more fully equipped 'commercial' versions, as, for example, are proposed for Eudora and Netscape; 'water marking' of graphics by inserting indelible code inside the normal code. Microsoft is said to have inserted in Windows 95 a small worm program to interrogate computers on a network and report back on what programs are run on them (and, presumably, whether the copies are legal). Some databases are 'sponsored' by organisations that collect their money elsewhere: West Publishing sponsors the listing of American lawyers on the Internet; many databases are created by university people, for whom this fulfils part of their academic obligations. *Wired* sells its monthly publication with the colours and the graphics; the basic text is subsequently available without cost by FTP: community service, sharing philosophy or advertisement?

In the logic set out here, it falls to the interested persons to make the first moves towards the recognition of these new rights. They should erect their own fence. Legislators, the authorities generally, should not step in at this stage. Their role, at a later stage, is to recognize or acknowledge the new right once sufficient experience has built up for us to ascertain how the 'experimental rights' work in practice. Legislation may then simplify the

multitude of forms that practice comes up with (a coordination problem) or lend its force to efforts to put a halt to a margin of fraud that new developments inevitably attract. The courts should similarly limit themselves to sanction only the grossest violations and resist drawing liberally on open-ended concepts such as 'unfair competition' and 'parasitic activities'. This restraint is part of the 'realism' of the law.

Once new rights have been recognised in law, they form part of the arsenal from which, at a later date, elements may be used to fashion fences for as yet unimagined new objects. The property rights logic is thus indefinitely extensible to new objects.

The logic of 'build/mind your own fence' is historically apparent, I submit, in property rights in land and other assets.<sup>47</sup> It also appears to be part of the traditional trade secret law. If you seek remedies against a violator of your trade secret, you will have to show that you took the proper steps to keep the knowledge in question confidential: warnings, restricted access, numbered copies and so on. The law merely supplements your efforts at creating your own fence. It is this restraint in the law that guards it from being a mere tool for rent-seeking.

One may find it regrettable that no official rights are available for apparently desirable creative activities. But this very vacuum constitutes the spur necessary to stimulate the search for new types of fences. The reward available for the fence maker is part of the revenue that the creator or distributor hopes to draw from marketing the as yet unexploited or newly fenced-in creation. One must not pierce this vacuum by creating legal rights too soon, since that would kill the process by which the proper scope of new rights is discovered.

#### **14.2.2 On the Limits of Property Rights and their Discovery**

If everything is 'up for grabs' by whoever can come up with a fence for it, will we not slide into 'undue information lock-up'?<sup>48</sup> The issue arises because of the cumulative nature of knowledge. Current inventions build on earlier ones, indeed may incorporate them. Too strict rights on inventions or other creations, while encouraging current creators, may hamper future creative efforts. The property rights logic competes with the free flow of information.<sup>49</sup> Private property rights in information may also conflict with other kinds of property rights, for instance where personal information (privacy, reputation, one's image) is concerned.

What concerns me here is the procedure by which we arbitrate between these competing values. If new rights are to emerge at the initiative of interested persons, rather than by legislative or judicial decree, then surely it would be essential to show that the boundaries, too, may be reliably

discovered through such a decentralised process and codified into law only later, on the basis of practical experience. How do we come by this information?

We might conduct surveys on questions such as whether interfaces ought to be protected by intellectual property rights. Surveys like that have been conducted and the results come as a rather surprising contrast to public discourse clamouring ever greater piracy and the need for clamping down on it, in law as well as by police measures.<sup>50</sup> This suggests that public discourse does not necessarily reflect the interests of people in the field.

How then to arrive at the proper balance? We should like to find it in arrangements worked out amongst persons who can be creators as well as borrowers of new creations. The dual roles would tend to create something like a 'veil of ignorance', preventing rules skewed one way or the other. A proposal to this effect has been put forth by Jerome Reichman.<sup>51</sup> It provides for associations within each branch of innovative industry setting terms on which discoveries by members are available to others. Robert Merges has documented the existence of several such associations in recent American history.<sup>52</sup>

The risk with the associations is that they come to be dominated by the less innovative members and that the rules will be skewed towards the borrowers. This would lower the incentives to innovate, to the detriment of the general public. The history of the mediaeval guilds shows that the risk is not imaginary.<sup>53</sup>

Competition law has been used as a weapon against such trade associations 'conspiring against the public interest'. But the record of antitrust prosecution in the United States in particular is not encouraging.<sup>54</sup> Antitrust law has been used by companies in a branch of industry to get the Justice Department to prosecute their more innovative competitors and thereby stifle their competitive advantage. It happened to IBM two decades ago and appears to be happening to Microsoft now. On this reading, competition law is used, as public choice theory would lead one to expect, as yet another weapon in the competitive struggle for market share.

To guard against the risk of associations stifling innovation, membership in them should not be mandatory. A member – in particular an innovative one – should be free to exit and to form a new, competing association.<sup>55</sup> Competition, here as elsewhere, is a discovery procedure, in this case of what rules we want.

It might appear that the rights which associations or individuals exercise lead to 'undue information lock-up'. Yet one should resist the temptation to legislate in order to counter it. Robert Merges tells the story of compulsory licensing introduced in the United States for certain classes of musical works (the 'juke box' licence) and television programmes.<sup>56</sup> The associa-

tions in charge of collecting royalties were judged to be insufficiently forthcoming with licences. The difficulty leading to this legislative intervention was, in his view, a matter of developing institutions that would have reduced the transactions costs associated with collecting royalties. This problem is best left to the interested persons to solve. It may take time and some may get impatient with what they see as an abuse of power or monopoly position. Yet the alternative has its own problems. Compulsory licences, once introduced in a statute, are difficult to remove from it: the beneficiaries have a financial interest to lobby against removal. Moreover, the compulsory licence granted to one group may lead another, as public choice theory would predict, also to seek salvation through the political process rather than the market.

## CONCLUSION

This chapter has attempted to clarify the use of the term 'property rights' in economic and legal discourse and to show how new property rights can be discovered as other innovations create a need for them.

Property rights are used in economic discourse as a descriptive term designating the power to affect the use of a particular object. The concept is helpful in explaining how an object will be used, since it directs attention to all persons, besides the nominal owner, whose decisions affect that use. Economic theory predicts that each actor will attempt to capture freely available economic rights and to maximise the utility he draws from his economic rights.

Private ownership is the legal institution in which the main economic property rights in an object are bundled and attributed to a single title holder. Violation of such rights allows the owner to call on the enforcement power of the state and the judicial system to have sanctions applied. Private ownership may be opposed to 'public domain', in which anyone may appropriate the object, and to 'common property', where members of a particular group, but no outsider, may use the object subject to usage rules. Attributes of owned objects may be abandoned to the public domain where monitoring or policing the attributes is not worth the owner's trouble because the utility gained thereby is outweighed by the cost.

Theory predicts that for resources that have newly become scarce, interested persons will seek to establish new private property rights. The essential condition for a property right is a measure of exclusivity, that is the practical possibility to prevent outsiders from using it. Exclusivity may be created in a variety of ways: physical fences, but also contractual arrangements, marketing techniques and the legal system. Since new techniques for

ensuring exclusivity allow new objects to become marketable and hence profitable, the forces driving innovation generally should also drive the search for new fencing techniques.

Physical control of a resource (exclusivity) and freedom of contract give one the power to create an 'experimental property right' in an object. This allows practical experience to be accumulated to show how well it actually works. This experience is all the more credible as it accumulates in circumstances where participants are under something like a veil of ignorance: now innovator, now imitator of innovations by others. This credibility is important at the point where the legislator is invited to enact the 'experimental right': one must be able to distinguish a true property right, driving market forces, from a 'right' translating a political rent, which would not be sustainable in the market and is detrimental to it.

Altogether the paper argues that the property rights order can be extended to new objects by a decentralised discovery process. Much current activity on the Internet should be seen as evidence of this process: experimentation with new 'fencing' techniques which are expected to support new forms of property rights.

## NOTES

1. Nutter, G. Warren, 'Markets without Property: A Grand Illusion', in *The Economics of Property Rights*, Eirik G. Furubotn and Svetozar Pejovich (eds), Cambridge, MA: Ballinger Publishing Co., 1974, pp.217-24.
2. Mercurio, Nicholas and Steven G. Medema, *Economics and the Law: From Posner to Post-Modernism*, Princeton: Princeton University Press, 1997, p.14.
3. Mattei, Ugo, *Comparative Law and Economics*, Ann Arbor, University of Michigan Press, 1997, ch. 2: 'The Economist's Legacy to Law and Economics: The Natural Law of Misconception in Historical and Comparative Perspective', pp. 27-67.
4. Furubotn, Eirik, G. and Svetozar Pejovich, 'Property Rights and the Behavior of the Firm in a Socialist State: The Example of Yugoslavia', in *The Economics of Property Rights*, op. cit. (n.1), pp.227-51 (p.250); see also Furubotn, Eirik G. and Svetozar Pejovich, 'The Soviet Manager and Innovation: A Behavioral Model of the Soviet Firm', in *The Economics of Property Rights*, op. cit. (n.1), pp.203-16 (p.205), and Barzel, Yoram, *Economic Analysis of Property Rights*, Cambridge: Cambridge University Press, 1989, ch. 8, 'Property Rights and Non-market Allocation', pp.98-113.
5. Furubotn, Eirik G. and Svetozar Pejovich, 'Property Rights and the Behavior of the Firm in a Socialist State: The Example of Yugoslavia', p.250.
6. *Ibid.*, p.251.
7. Libecap, Gary D., *Contracting for Property Rights*, Cambridge: Cambridge University Press, 1989, 1.
8. Furubotn, Eirik G. and Svetozar Pejovich (eds), *The Economics of Property Rights*, p.4 (Introduction).
9. For example, Epstein, Richard A., 'On the Optimal Mix of Private and Common Property', in *Property Rights*, Ellen Frankel Paul, Fred D. Miller Jr and Jeffrey Paul (eds), Cambridge, Cambridge University Press, 1994, pp.17-41; Mathews, David Ralph, *Controlling Common Property - Regulating Canada's East Coast Fishery*, Toronto:



- University of Toronto Press, 1993; Ostrom, Elinor, *Governing the Commons – The Evolution of Institutions for Collective Action*, Cambridge: Cambridge University Press, 1990.
10. Barzel, Yoram, *Economic Analysis of Property Rights*, Cambridge: Cambridge University Press, 1989, p. 1.
  11. *Ibid.*, p. 3.
  12. Barzel, Yoram, *Property Rights*, ch. 3, pp. 28–41, op. cit. (n. 4); Cheung, Steven N.S., *The Theory of Share Tenancy*, Chicago: The University of Chicago Press, 1969.
  13. *Ibid.*, p. 70.
  14. *Ibid.*, p. 10.
  15. *Ibid.*, p. 107.
  16. Sugden, Robert, *The Economics of Rights, Co-operation & Welfare*, Oxford: Basil Blackwell, 1986; Umbeck, John R., *A Theory of Property Rights with Application to the California Gold Rush*, Ames: Iowa State University Press, 1981.
  17. Developed in more detail in Mackaay, Ejan, 'Economic incentives in markets for information and innovation', (1990), 13, *Harvard Journal of Law and Public Policy*, 867–909.
  18. See, for example, North, Douglass C. and Robert Paul Thomas, *The Rise of the Western World – A New Economic History*, Cambridge: Cambridge University Press, 1973; North, Douglass C., *Structure and Change in Economic History*, New York: W.W. Norton & Co., 1981; Rosenberg, Nathan and L.E. Birdzell Jr, *How the West Grew Rich – The Economic Transformation of the Industrial World*, New York: Basic Books, 1986; Baechler, Jean, *Le Capitalisme – 1. Les Origines*, and 2. *L'Économie Capitaliste*, Paris, Gallimard, 1995 (*Folio histoire*, nos 64 and 65).
  19. This paper draws largely on an earlier paper: Mackaay, Ejan, 'The Economics of Emergent Property Rights on the Internet', in *The Future of Copyright in a Digital Environment*, P. Bernt Hugenholtz (ed.), The Hague: Kluwer Law International, 1996, pp. 13–25.
  20. On common property regimes for water rights: Epstein, Richard A., 'On the Optimal Mix of Private and Common Property', in *Property Rights*, op. cit. (n. 9), pp. 17–41; Rose, Carol M., 'Energy and efficiency in the realignment of common law water rights', (1990) 19, *Journal of Legal Studies*, 261–96, pp. 294–6; Anderson, Terry L. (ed.), *Water Rights: Scarce Resource Allocation, Bureaucracy, and the Environment*, San Francisco, CA: Pacific Research Institute for Public Policy, 1983. On common property generally, see for instance Dahlman, Carl J., *The Open Field System and Beyond*, Cambridge: Cambridge University Press, 1980; Libecap, Gary D., *Contracting for Property Rights*, op. cit. (n. 7); Ostrom, Elinor, *Governing the Commons – The Evolution of Institutions for Collective Action*, Cambridge, Cambridge University Press, 1990 (*Political Economy of Institutions and Decisions*); Ellickson, Robert C., 'Property in Land', (1993) 102, *Yale Law Journal*, 1315–400; Schmidt, David, 'The Institution of Property', in *Property Rights*, op. cit. (n. 9), pp. 42–62.
  21. See for instance Block, Walter E. (ed.), *Economics and the Environment – A Reconciliation*, Vancouver, B.C.: The Fraser Institute, 1990; Anderson, Terry L. and Donald R. Leal, *Free Market Environmentalism*, San Francisco, CA: Pacific Research Institute for Public Policy, 1991.
  22. Ellickson, Robert C., *Order without Law – How Neighbors Settle Disputes*, Boston, Harvard University Press, 1991, pp. 25ff; Ellickson, Robert C., 'Property in land', (1993) op. cit. (n. 20). On p. 1330, Ellickson relates how the invention of barbed wire changed the economics of land use for cattle breeding, making smaller lots viable. Historical observations confirmed what economic theory predicted here. See also Anderson, Terry L. and Donald R. Leal, *Free Market Environmentalism*, p. 29.
  23. Barzel, Yoram, *Economic Analysis of Property Rights*, op. cit. pp. 66, 114.
  24. DeLong, James V., *Property Matters: How Property Rights Are Under Assault – and Why You Should Care*, New York: The Free Press, 1997, p. 70.
  25. De Jasay, Anthony, 'Who Gave us Order? On Exclusion, Enforcement and its Wherewithal', in *Values and Social Order – Vol. 3. Voluntary versus Coercive Orders*,

- Gerard Radnitzky (ed.), Aldershot, UK: Ashgate, 1997, pp. 77–90 (p. 85) gives a series of examples.
26. Marie-Angèle Hermitte relates how such an arrangement worked for plant breeding knowledge in France, from the beginning of the century until the enactment, in 1970, of an intellectual property right on such knowledge. Marie-Angèle Hermitte, 'Histories juridiques extravagantes – La reproduction végétale', in *L'homme, la nature et le droit*, B. Edelman and M.-A. Hermitte (eds), Paris: Christian Bourgeois, 1988, pp. 40–82. See also my 'Problématique', in *Nouvelles technologies et propriété*, Ejan Mackaay (ed.), Montréal, Éd. Thémis, 1991, pp. 1–4 (p. 2) and 'Economic incentives in markets for information and innovation', (1990) 13, *Harvard Journal of Law and Public Policy*, 867–909 (p. 902).
  27. Robert P. Merges, 'Of Property Rules, Coase, and Intellectual Property', (1994) 94, *Columbia Law Review*, 2655–73 (p. 2679). He mentions several associations in the United States acting to define and protect informal rights of their members.
  28. Lance Rose, 'The emperor's clothes still fit just fine – or, copyright is dead; long live copy-right', (1995) 3.02, *Wired*, 103–6. Among the more obvious measures are surveillance and prosecutions organised by the Software Publishers Association, the Business Software Alliance and other similar groups.
  29. '[E]xclusivity is frequently a matter of degree', Steven N.S. Cheung, 'The structure of a contract and the theory of a non-exclusive resource', (1970) 13, *Journal of Law Economics*, 49–70, repr. in Eirik G. Furubotn and Svetozar Pejovich (eds), *The Economics of Property Rights*, pp. 11–30 (p. 27). Or as Lance Rose, op. cit., puts it: 'Cops have plenty of experience in sweeping the public markets clean enough for business.'
  30. This principle may be also found in de Jasay, Anthony, 'The Cart before the Horse. On Emergent and Constructed Orders, and their Wherewithal', in *Contending with Hayek – On Liberalism, Spontaneous Order and the Post-Communist Societies in Transition*, Christoph Frei and Robert Nef (eds), Bern, Peter Lang, 1994, pp. 49–64 (p. 57), and in de Jasay, Anthony, 'Who Gave us Order? On Exclusion, Enforcement and its Wherewithal', op. cit. (n. 25), pp. 77–90 (p. 84). De Jasay moves on to consider how property rights owners can externalise part of the exclusion cost to the community at large, through an agency of the state in charge of looking after property rights – a form of free-riding. This last consideration appears to have been the driving force behind the emergence of intellectual property rights through royal or princely privileges, from the sixteenth until the eighteenth century, as Seignette tells the story in Seignette, Jacqueline M.B., *Challenges to the Creator Doctrine – Authorship, Copyright Ownership and the Exploitation of Creative Work in the Netherlands, Germany and the United States*, Deventer, Kluwer Law and Taxation Publishers, 1994 (*Information Law Series – 3*) 7–24.
  31. Lance Rose, op. cit.
  32. Epstein, Richard, A., *Simple Rules for a Complex World*, Cambridge, MA, Harvard University Press, 1995, p. 59.
  33. Hirshleifer, Jack, 'Foreword to Water Rights', in *Water Rights: Scarce Resource Allocation, Bureaucracy, and the Environment*, Terry L. Anderson (ed.), San Francisco, CA, Pacific Research Institute for Public Policy, 1983, p. xx.
  34. De Jasay, Anthony, 'The Cart before the Horse. On Emergent and Constructed Orders, and their Wherewithal', op. cit. (n. 30), pp. 49–64 (p. 58).
  35. De Jasay, Anthony, 'Who Gave us Order? On Exclusion, Enforcement and its Wherewithal', op. cit. (n. 25), pp. 77–90 (p. 84).
  36. See my 'Economic incentives in markets for information and innovation', (1990) 13, *Harvard Journal of Law and Public Policy*, 867–909 (p. 903).
  37. Vaver, David, *Rejuvenating copyright, digitally*, Draft notes for a presentation at the Symposium on Digital Technology and Copyright, Wilson House, Meech Lake, Canada, 3 March 1995, p. 6. Lance Rose, op. cit. (n. 28) argues that since home taping cannot be stopped, it is no longer considered a copyright violation.
  38. Epstein, Richard A., *Simple Rules for a Complex World*, Cambridge, MA: Harvard University Press, 1995, ch. 1.
  39. Riker, William H. and Itai Sened, 'A Political Theory of the Origin of Property Rights:

Airport Slots', in *Empirical Studies in Institutional Change*, Lee J. Alston, Thráinn Eggertsson and Douglass C. North (eds), New York: Cambridge University Press, 1996, pp. 283–303.

40. A small anecdote may illustrate this. A few years ago, the Canadian parliament decided to write into the Copyright Act a provision authorising back-up copies of software or adaptation for the purpose of compatibility as fair use (section 27(2)(l) and (m)). Initial proposals would have authorised several copies, as the state of the technology required. The provision ultimately adopted after heavy lobby by large software producers authorises a single copy for either purpose. How many legitimate owners of copies in fact respect this provision? On this later point, see Ellickson's analogous story on the lawlessness of academic photocopying: Ellickson, *Order without Law*, op. cit., pp. 258–264.
41. Aranson, Peter H., 'The common law as central economic planning', (1992) 3, *Constitutional Political Economy*, 289–319.
42. This seems to be the point of the 'social norms' school, described by Rosen, Jeffrey, 'The Crime Buster – The Social Police', 20 and 27 October 1997, *The New Yorker*, 170–81.
43. See Sugden, *The Economics of Rights*, op. cit. (n. 16).
44. See Barry, Norman P., 'The tradition of spontaneous order', (1982), 5, *Literature of Liberty*, 1–58; Sugden, Robert, 'Spontaneous order', (1989) 3, *Journal of Economic Perspectives*, 85–97; Vanberg, Viktor J., "Unsichtbare-Hand Erklärung" und soziale Normen", in *Normengeleitetes Verhalten in den Sozialwissenschaften*, Berlin, Duncker & Humblot, 1984 (*Schriften des Vereins für Sozialpolitik, Gesellschaft für Wirtschafts- und Sozialwissenschaften*), pp. 115–46; Ellickson, *Order without Law*, op. cit. (n. 22) p. 168; Hayek, Friedrich A., *Law, Legislation and Liberty – Volume 1: Rules and Order*, Chicago: The University of Chicago Press, 1973, ch. 2.
45. Ellickson makes this point more generally for land rights. Ellickson, Robert C., 'Property in Land', op. cit. (n. 22), p. 1366. Riker and Weimer put it as follows: 'People may find creative ways to make de facto property rights more effective and credible' (Riker, William H. and David L. Weimer, 'The Economic and Political Liberalization of Socialism: The Fundamental Problem of Property Rights', in *Liberalism and the Economic Order*, Ellen Frankel Paul, Fred D. Miller Jr and Jeffrey Paul (eds), Cambridge: Cambridge University Press, 1993, 79–102, p. 100).
46. Barlow, John Perry, 'The Economy of Ideas – A framework for rethinking patents and copyrights in the Digital Age (Everything you know about intellectual property is wrong)', (1994) 2.03 *Wired* 84–90, 126–9. To get a copy, send an E-mail message to 'info-rama@wired.com' with content 'get 2.03/features/economy.ideasend'.
47. See Ellickson, Property in Land, op. cit. (n. 22); Umbeck, John R., 'Might makes right: A theory of the foundation and initial distribution of property rights', (1981) 19, *Economic Inquiry* 38–59; Umbeck, John R., *A Theory of Property Rights with Application to the California Gold Rush*, Ames: Iowa State University Press, 1981. de Jasay writes 'Systems of property and complex exchanges did not have to wait for states to lay their "legal infrastructure"; in many known instances, they laid their own as they went. . . . Enforcement, at all events, has no demonstrable temporal precedence over exchange' (de Jasay, Anthony, 'The Cart before the Horse', op. cit. (n. 30), p. 61). On the emergence of limited liability companies and other enterprise forms and their subsequent formal recognition in law, see for instance Patault, Anne-Marie, *Introduction historique au droit des biens*, Paris: Presses Universitaires de France, 1989, pp. 196f.; Rosenberg, Nathan and L.E. Birdzell Jr, *How the West Grew Rich – The Economic Transformation of the Industrial World*, New York: Basic Books, 1986, ch. 7 (pp. 189–210); Braudel, Fernand, *Civilisation matérielle, économie et capitalisme, XV<sup>e</sup>–XVIII<sup>e</sup> siècle*, Paris: Armand Colin (3 vols), 1979, second volume (*Les jeux de l'échange*) pp. 383–402.
48. Hammond, R. Grant, 'The misappropriation of commercial information in the computer age', (1986) 64, *Canadian Bar Review*, 342–73 (p. 373).
49. Nelson, Richard R., 'Intellectual property protection for cumulative systems technology', (1994) 94, *Columbia Law Review*, 2674–77; as Epstein (*Simple Rules*, op. cit. (n. 38)) puts it (p. 330): 'With information the coordination problems can never be ignored: free

- exchange of information in scholarly endeavors is often worth more than any system of exclusive rights. . . . The difficult problem is not that of the conceptual framework, but that of the magnitude of the relevant trade-offs between open access (the coordination problem again) and the incentive to produce (sapped by external use).' See also Dam, Kenneth W., 'Some economic considerations in the intellectual property protection of software', (1995) 24, *Journal of Legal Studies*, 321-77.
50. See for instance Samuels, Linda B. and Le Thi Cao, 'Survey of the opinion of software development companies concerning intellectual property protection', (1992) 32/4 *IDEA* 343-59; Samuelson, Pamela and Robert J. Glushko, 'Survey on the look and feel lawsuits', (1990) 33/5, *Communications of the ACM* 483-487; Samuelson, Pamela and Robert J. Glushko, 'Comparing the views of lawyers and user interface designers on the software copyright "Look and Feel" lawsuits', (1989) 30, *Jurimetrics Journal*, 121-40; Samuelson, Pamela, Michel Denber and Robert J. Glushko, 'Development on the intellectual property front', (1992) 35/5, *Communications of the ACM*, 33-9; Samuelson, Pamela, 'Survey on the patent/copyright interface for computer programs', (1989) 17, *AIPLA QJ*, 256.
  51. Reichman, J.H., 'Legal hybrids between the patent and copyright paradigms', (1994) 94, *Columbia Law Review*, 2432-558; also Zentaro Kitagawa, 'Comment on *A Manifesto concerning the Legal Protection of Computer Programs*', (1994) 94, *Columbia Law Review*, 2610-20 (relating the Copymart experience).
  52. Merges, 'Of Property Rules', op. cit. (n.27), pp.2662ff.
  53. Black, Antony, *Guilds and Civil Society in European Political Thought from the Twelfth Century to the Present*, Ithaca, NY: Cornell University Press, 1984.
  54. Demsetz, Harold, *100 Years of Antitrust: Should We Celebrate? - Brent T. Upson Memorial Lecture*, Arlington, VA, George Mason University School of Law, Law and Economics Center, 1991; McChesney, Fred S. and William F. Sughart II (eds), *The Causes and Consequences of Antitrust - The Public-Choice Perspective*, Chicago: The University of Chicago Press, 1995.
  55. This point is further developed in Mackaay, Ejan, 'Legal hybrids: Beyond property and monopoly?', (1994) 94, *Columbia Law Review*, 2630-43 (pp.2642-3).
  56. Merges, Robert, op. cit. (n.27) pp.2668ff., referring to §§ 115, 116, 111(d) and 118 of the American Copyright Act (17 USC).