We will refer back to some of these points later. But for now, enough groundwork has been laid to facilitate the discussion of the next two parts of this paper.

The Emergence of Property Rights

If the main allocative function of property rights is the internalization of beneficial and harmful effects, then the emergence of property rights can be understood best by their association with the emergence of new or different beneficial and harmful effects.

Changes in knowledge result in changes in production functions, market values, and aspirations. New techniques, new ways of doing the same things, and doing new things—all invoke harmful and beneficial effects to which society has not been accustomed. It is my thesis in this part of the paper that the emergence of new property rights takes place in response to the desires of the interacting persons for adjustment to new benefit-cost possibilities.

The thesis can be restated in a slightly different fashion: property rights develop to internalize externalities when the gains of internalization become larger than the cost of internalization. Increased internalization, in the main, results from changes in economic values, changes which stem from the development of new technology and the opening of new markets, changes to which old property rights are poorly attuned. A proper interpretation of this assertion requires that account be taken of a community's preferences for private ownership. Some communities will have less well-developed private ownership systems and more highly developed state ownership systems. But, given a community's tastes in this regard, the emergence of new private or state-owned property rights will be in response to changes in technology and relative prices.

I do not mean to assert or to deny that the adjustments in property rights which take place need be the result of a conscious endeavor to cope with new externality problems. These adjustments have arisen in Western societies largely as a result of gradual changes in social mores and in common law precedents. At each step of this adjustment process, it is unlikely that externalities per se were consciously related to the issue being resolved. These legal and moral experiments may be hit-and-miss procedures to some extent but in a society that weights the achievement of efficiency heavily, their viability in the long run will depend on how well they modify behavior to accommodate to the externalities associated with important changes in technology or market values.

A rigorous test of this assertion will require extensive and detailed empirical work. A broad range of examples can be cited that are consistent with it: the development of air rights, renters' rights, rules for liability in automobile accidents, etc. In this part of the discussion, I shall present one group of such examples in some detail. They deal with the development of private property rights in land among American Indians. These examples are broad ranging and come fairly close to what can be called convincing evidence in the field of anthropology.

The question of private ownership of land among aboriginals has held a fascination for anthropologists. It has been one of the intellectual battlegrounds in the attempt to assess the "true nature" of man unconstrained by the "artificialities" of civilization. In the process of carrying on this debate, information has been uncovered that bears directly on the thesis with which we are now concerned. What appears to be accepted as a classic treatment and a high point of this debate is Eleanor Leacock's memoir on *The Montagnes "Hunting Territory" and the Fur Trade.*[3] Leacock's research followed that of Frank G. Speck [4] who had discovered that the Indians of the Labrador Peninsula had a long-established tradition of property in land. This finding was at odds with what was known about the Indians of the American Southwest and it prompted Leacock's study of the Montagnes who inhabited large regions around Quebec.

Leacock clearly established the fact that a close relationship existed, both historically and geographically, between the development of private rights in land and the development of the commercial fur trade. The factual basis of this correlation has gone unchallenged. However, to my knowledge, no theory relating privacy of land to the fur trade has yet been articulated. The factual material uncovered by Speck and Leacock fits the thesis of this paper well, and in doing so, it reveals clearly the role played by property right adjustments in taking account of what economists have often cited as an example of an externality—the overhunting of game.

Because of the lack of control over hunting by others, it is in no person's interest to invest in increasing or maintaining the stock of game. Overly intensive hunting takes place. Thus a successful hunt is viewed as imposing external costs on subsequent hunters—costs that are not taken into account fully in the determination of the extent of hunting and of animal husbandry.

Before the fur trade became established, hunting was carried on primarily for purposes of food and the relatively few furs that were required for the hunter's family. The externality was clearly present. Hunting could be practiced freely and was carried on without assessing its impact on other hunters. But these external effects were of such small significance that it did not pay for anyone to take them into account. There did not exist anything resembling private ownership in land. And in the *Jesuit Relations*, particularly Le Jeune's record of the winter he spent with the Montagnes in 1633–34 and in the brief account given by Father Druilletes in 1647–48, Leacock finds no evidence of private land holdings. Both

accounts indicate a socioeconomic organization in which private rights to land are not well developed.

We may safely surmise that the advent of the fur trade had two immediate consequences. First, the value of furs to the Indians was increased considerably. Second, and as a result, the scale of hunting activity rose sharply. Both consequences must have increased considerably the importance of the externalities associated with free hunting. The property right system began to change, and it changed specifically in the direction required to take account of the economic effects made important by the fur trade. The geographical or distributional evidence collected by Leacock indicates an unmistakable correlation between early centers of fur trade and the oldest and most complete development of the private hunting territory.

> By the beginning of the eighteenth century, we begin to have clear evidence that territorial hunting and trapping arrangements by individual families were developing in the area around Quebec. . . . The earliest references to such arrangements in this region indicates a purely temporary allotment of hunting territories. They [Algonkians and Iroquois] divide themselves into several bands in order to hunt more efficiently. It was their custom . . . to appropriate pieces of land about two leagues square for each group to hunt exclusively. Ownership of beaver houses, however, had already become established, and when discovered, they were marked. A starving Indian could kill and eat another's beaver if he left the fur and the tail.[5]

The next step toward the hunting territory was probably a seasonal allotment system. An anonymous account written in 1723 states that the "principle of the Indians is to mark off the hunting ground selected by them by blazing the trees with their crests so that they may never encroach on each other. . . . By the middle of the century these allotted territories were relatively stabilized." [6]

The principle that associates property right changes with the emergence of new and reevaluation of old harmful and beneficial effects suggests in this instance that the fur trade made it economic to encourage the husbanding of fur-bearing animals. Husbanding requires the ability to prevent poaching and this, in turn, suggests that socioeconomic changes in property in hunting land will take place. The chain of reasoning is consistent with the evidence cited above. Is it inconsistent with the absence of similar rights in property among the southwestern Indians?

Two factors suggest that the thesis is consistent with the absence of similar rights among the Indians of the southwestern plains. The first of these is that there were no plains animals of commercial importance comparable to the fur-bearing animals of the forest, at least not until cattle arrived with Europeans. The second factor is that animals of the plains

are primarily grazing species whose habit is to wander over wide tracts of land. The value of establishing boundaries to private hunting territories is thus reduced by the relatively high cost of preventing the animals from moving to adjacent parcels. Hence both the value and cost of establishing private hunting lands in the Southwest are such that we would expect little development along these lines. The externality was just not worth taking into account.

The lands of the Labrador Peninsula shelter forest animals whose habits are considerably different from those of the plains. Forest animals confine their territories to relatively small areas, so that the cost of internalizing the effects of husbanding these animals is considerably reduced. This reduced cost, together with the higher commercial value of fur-bearing forest animals, made it productive to establish private hunting lands. Frank G. Speck finds that family proprietorship among the Indians of the Peninsula included retaliation against trespass. Animal resources were husbanded. Sometimes conservation practices were carried on extensively. Family hunting territories were divided into quarters. Each year the family hunted in a different quarter in rotation, leaving a tract in the center as a sort of bank, not to be hunted over unless forced to do so by a shortage in the regular tract.

To conclude our excursion into the phenomenon of private rights in land among the American Indians, we note one further piece of corroborating evidence. Among the Indians of the Northwest, highly developed private family rights to hunting lands had also emerged—rights which went so far as to include inheritance. Here again we find that forest animals predominate and that the West Coast was frequently visited by sailing schooners whose primary purpose was trading in furs.[7]

The Coalescence and Ownership of Property Rights

I have argued that property rights arise when it becomes economic for those affected by externalities to internalize benefits and costs. But I have not yet examined the forces which will govern the particular form of right ownership. Several idealized forms of ownership must be distinguished at the outset. These are communal ownership, private ownership, and state ownership.

By communal ownership, I shall mean a right which can be exercised by all members of the community. Frequently the rights to till and to hunt the land have been communally owned. The right to walk a city sidewalk is communally owned. Communal ownership means that the community denies to the state or to individual citizens the right to interfere with any person's exercise of communally-owned rights. Private ownership implies that the community recognizes the right of the owner to exclude others

from exercising the owner's private rights. State ownership implies that the state may exclude anyone from the use of a right as long as the state follows accepted political procedures for determining who may not use state-owned property. I shall not examine in detail the alternative of state ownership. The object of the analysis which follows is to discern some broad principles governing the development of property rights in communities oriented to private property.

It will be best to begin by considering a particularly useful example that focuses our attention on the problem of land ownership. Suppose that land is communally owned. Every person has the right to hunt, till, or mine the land. This form of ownership fails to concentrate the cost associated with any person's exercise of his communal right on that person. If a person seeks to maximize the value of his communal rights, he will tend to overhunt and overwork the land because some of the costs of his doing so are borne by others. The stock of game and the richness of the soil will be diminished too quickly. It is conceivable that those who own these rights, i. e., every member of the community, can agree to curtail the rate at which they work the lands if negotiating and policing costs are zero. Each can agree to abridge his rights. It is obvious that the costs of reaching such an agreement will not be zero. What is not obvious is just how large these costs may be.

Negotiating costs will be large because it is difficult for many persons to reach a mutually satisfactory agreement, especially when each hold-out has the right to work the land as fast as he pleases. But, even if an agreement among all can be reached, we must yet take account of the costs of policing the agreement, and these may be large, also. After such an agreement is reached, no one will privately own the right to work the land; all can work the land but at an agreed upon shorter workweek. Negotiating costs are increased even further because it is not possible under this system to bring the full expected benefits and expected costs of future generations to bear on current users.

If a single person owns land, he will attempt to maximize its present value by taking into account alternative future time streams of benefits and costs and selecting that one which he believes will maximize the present value of his privately-owned land rights. We all know that this means that he will attempt to take into account the supply and demand conditions that he thinks will exist after his death. It is very difficult to see how the existing communal owners can reach an agreement that takes account of these costs.

In effect, an owner of a private right to use land acts as a broker whose wealth depends on how well he takes into account the competing claims of the present and the future. But with communal rights there is no broker, and the claims of the present generation will be given an uneconomically

large weight in determining the intensity with which the land is worked. Future generations might desire to pay present generations enough to change the present intensity of land usage. But they have no living agent to place their claims on the market. Under a communal property system, should a living person pay others to reduce the rate at which they work the land, he would not gain anything of value for his efforts. Communal property means that future generations must speak for themselves. No one has yet estimated the costs of carrying on such a conversation.

The land ownership example confronts us immediately with a great disadvantage of communal property. The effects of a person's activities on his neighbors and on subsequent generations will not be taken into account fully. Communal property results in great externalities. The full costs of the activities of an owner of a communal property right are not borne directly by him, nor can they be called to his attention easily by the willingness of others to pay him an appropriate sum. Communal property rules out a "pay-to-use-the-property" system and high negotiation and policing costs make ineffective a "pay-him-not-to-use-the-property" system.

The state, the courts, or the leaders of the community could attempt to internalize the external costs resulting from communal property by allowing private parcels owned by small groups of persons with similar interests. The logical groups in terms of similar interests, are, of course, the family and the individual. Continuing with our use of the land ownership example, let us initially distribute private titles to land randomly among existing individuals and, further, let the extent of land included in each title be randomly determined.

The resulting private ownership of land will internalize many of the external costs associated with communal ownership, for now an owner, by virtue of his power to exclude others, can generally count on realizing the rewards associated with husbanding the game and increasing the fertility of his land. This concentration of benefits and costs on owners creates incentives to utilize resources more efficiently.

But we have yet to contend with externalities. Under the communal property system the maximization of the value of communal property rights will take place without regard to many costs, because the owner of a communal right cannot exclude others from enjoying the fruits of his efforts and because negotiation costs are too high for all to agree jointly on optimal behavior. The development of private rights permits the owner to economize on the use of those resources from which he has the right to exclude others. Much internalization is accomplished in this way. But the owner of private rights to one parcel does not himself own the rights to the parcel of another private sector. Since he cannot exclude others from their private rights to land, he has no direct incentive (in the

absence of negotiations) to economize in the use of his land in a way that takes into account the effects he produces on the land rights of others. If he constructs a dam on his land, he has no direct incentive to take into account the lower water levels produced on his neighbor's land.

This is exactly the same kind of externality that we encountered with communal property rights, but it is present to a lesser degree. Whereas no one had an incentive to store water on any land under the communal system, private owners now can take into account directly those benefits and costs to their land that accompany water storage. But the effects on the land of others will not be taken into account directly.

The partial concentration of benefits and costs that accompany private ownership is only part of the advantage this system offers. The other part, and perhaps the most important, has escaped our notice. The cost of negotiating over the remaining externalities will be reduced greatly. Communal property rights allow anyone to use the land. Under this system it becomes necessary for all to reach an agreement on land use. But the externalities that accompany private ownership of property do not affect all owners, and, generally speaking, it will be necessary for only a few to reach an agreement that takes these effects into account. The cost of negotiating an internalization of these effects is thereby reduced considerably. The point is important enough to elucidate.

Suppose an owner of a communal land right, in the process of plowing a parcel of land, observes a second communal owner constructing a dam on adjacent land. The farmer prefers to have the stream as it is, and so he asks the engineer to stop his construction. The engineer says, "Pay me to stop." The farmer replies, "I will be happy to pay you, but what can you guarantee in return?" The engineer answers, "I can guarantee you that I will not continue constructing the dam, but I cannot guarantee that another engineer will not take up the task because this is communal property; I have no right to exclude him." What would be a simple negotiation between two persons under a private property arrangement turns out to be a rather complex negotiation between the farmer and everyone else. This is the basic explanation, I believe, for the preponderance of single rather than multiple owners of property. Indeed, an increase in the number of owners is an increase in the communality of property and leads, generally, to an increase in the cost of internalizing.

The reduction in negotiating cost that accompanies the private right to exclude others allows most externalities to be internalized at rather low cost. Those that are not are associated with activities that generate external effects impinging upon many people. The soot from smoke affects many homeowners, none of whom is willing to pay enough to the factory to get its owner to reduce smoke output. All homeowners together might be willing to pay enough, but the cost of their getting together may be

enough to discourage effective market bargaining. The negotiating problem is compounded even more if the smoke comes not from a single smoke stack but from an industrial district. In such cases, it may be too costly to internalize effects through the marketplace.

Returning to our land ownership paradigm, we recall that land was distributed in randomly sized parcels to randomly selected owners. These owners now negotiate among themselves to internalize any remaining externalities. Two market options are open to the negotiators. The first is simply to try to reach a contractual agreement among owners that directly deals with the external effects at issue. The second option is for some owners to buy out others, thus changing the parcel size owned. Which option is selected will depend on which is cheaper. We have here a standard economic problem of optimal scale. If there exist constant returns to scale in the ownership of different sized parcels, it will be largely a matter of indifference between outright purchase and contractual agreement if only a single, easy-to-police, contractual agreement will internalize the externality. But, if there are several externalities, so that several such contracts will need to be negotiated, or if the contractual agreements should be difficult to police, then outright purchase will be the preferred course of action.

The greater are diseconomies of scale to land ownership the more will contractual arrangement be used by the interacting neighbors to settle these differences. Negotiating and policing costs will be compared to costs that depend on the scale of ownership, and parcels of land will tend to be owned in sizes which minimize the sum of these costs.[8]

The interplay of scale economies, negotiating cost, externalities, and the modification of property rights can be seen in the most notable "exception" to the assertion that ownership tends to be an individual affair: the publicly-held corporation. I assume that significant economies of scale in the operation of large corporations is a fact and, also, that large requirements for equity capital can be satisfied more cheaply by acquiring the capital from many purchasers of equity shares. While economies of scale in operating these enterprises exist, economies of scale in the provision of capital do not. Hence, it becomes desirable for many "owners" to form a joint-stock company.

But if all owners participate in each decision that needs to be made by such a company, the scale economies of operating the company will be overcome quickly by high negotiating cost. Hence a delegation of authority for most decisions takes place and, for most of these, a small management group becomes the *de facto* owners. Effective ownership, i. e., effective control of property, is thus legally concentrated in management's hands. This is the first legal modification, and it takes place in recognition of the high negotiating costs that would otherwise obtain.

The structure of ownership, however, creates some externality difficulties under the law of partnership. If the corporation should fail, partnership law commits each shareholder to meet the debts of the corporation up to the limits of his financial ability. Thus, managerial *de facto* ownership can have considerable external effects on shareholders. Should property rights remain unmodified, this externality would make it exceedingly difficult for entrepreneurs to acquire equity capital from wealthy individuals. (Although these individuals have recourse to reimbursements from other shareholders, litigation costs will be high.) A second legal modification, limited liability, has taken place to reduce the effect of this externality.[9] *De facto* management ownership and limited liability combine to minimize the overall cost of operating large enterprises. Shareholders are essentially lenders of equity capital and not owners, although they do participate in such infrequent decisions as those involving mergers. What shareholders really own are their shares and not the corporation. Ownership in the sense of control again becomes a largely individual affair. The shareholders own their shares, and the president of the corporation and possibly a few other top executives control the corporation.

To further ease the impact of management decisions on shareholders, that is, to minimize the impact of externalities under this ownership form, a further legal modification of rights is required. Unlike partnership law, a shareholder may sell his interest without first obtaining the permission of fellow shareholders or without dissolving the corporation. It thus becomes easy for him to get out if his preferences and those of the management are no longer in harmony. This "escape hatch" is extremely important and has given rise to the organized trading of securities. The increase in harmony between managers and shareholders brought about by exchange and by competing managerial groups helps to minimize the external effects associated with the corporate ownership structure. Finally, limited liability considerably reduces the cost of exchanging shares by making it unnecessary for a purchaser of shares to examine in great detail the liabilities of the corporation and the assets of other shareholders; these liabilities can adversely affect a purchaser only up to the extent of the price per share.

The dual tendencies for ownership to rest with individuals and for the extent of an individual's ownership to accord with the minimization of all costs is clear in the land ownership paradigm. The applicability of this paradigm has been extended to the corporation. But it may not be clear yet how widely applicable this paradigm is. Consider the problems of copyright and patents. If a new idea is freely appropriable by all, if there exist communal rights to new ideas, incentives for developing such ideas will be lacking. The benefits derivable from these ideas will not be concentrated on their originators. If we extend some degree of private rights to the originators, these ideas will come forth at a more rapid pace. But

the existence of the private rights does not mean that their effects on the property of others will be directly taken into account. A new idea makes an old one obsolete and another old one more valuable. These effects will not be directly taken into account, but they can be called to the attention of the originator of the new idea through market negotiations. All problems of externalities are closely analogous to those which arise in the land ownership example. The relevant variables are identical.

What I have suggested in this paper is an approach to problems in property rights. But it is more than that. It is also a different way of viewing traditional problems. An elaboration of this approach will, I hope, illuminate a great number of social-economic problems.

FOOTNOTES

* Most of Professor Demsetz's writing was done while he was at the University of Chicago. He is presently Professor of the Department of Econmics at the University of California at Los Angeles.

1 These implications are derived by R. H. Coase, "The Problem of Social Cost," *J. of Law and Econ.*, Oct., 1960, pp. 1–44, supra, p. — [ed.].

2 If the demand for civilian life is unaffected by wealth redistribution, the assertion made is correct as it stands. However, when a change is made from a "buy-him-in" system to a "let-him-buy-his-way-out" system, the resulting redistribution of wealth away from draftees may significantly affect their demand for civilian life; the validity of the assertion then requires a compensating wealth change. A compensating wealth change will not be required in the ordinary case of profit maximizing firms. Consider the farmer-rancher example mentioned by Coase. Society may give the farmer the right to grow corn unmolested by cattle or it may give the rancher the right to allow his cattle to stray. Contrary to the Coase example, let us suppose that if the farmer is given the right, he just breaks even; i. e., with the right to be compensated for corn damage, the farmer's land is marginal. If the right is transferred to the rancher, the farmer, not enjoying any economic rent, will not have the wherewithal to pay the rancher to reduce the number of head of cattle raised. In this case, however, it will be profitable for the rancher to buy the farm, thus merging cattle raising with farming. His self-interest will then lead him to take account of the effect of cattle on corn.

3 Eleanor Leacock, *American Anthropologist* (American Anthropological Asso.), Vol. 56, No. 5, Part 2, Memoir No. 78.

4 Cf. Frank G. Speck, "The Basis of American Indian Ownership of Land," *Old Penn Weekly Rev.* (Univ. of Pennsylvania), Jan. 16, 1915, pp. 491–95.

5 Eleanor Leacock, op. cit., p. 15.

6 Eleanor Leacock, op. cit., p. 15.

7 The thesis is consistent with the development of other types of private rights. Among wandering primitive peoples the cost of policing property is relatively low for highly portable objects. The owning family can protect such objects while carrying on its daily activities. If these objects are also very useful, property rights should appear frequently, so as to internalize the benefits and costs of their use. It is generally true among most primitive communities that weapons and household utensils, such as pottery,

are regarded as private property. Both types of articles are portable and both require an investment of time to produce. Among agriculturally-oriented peoples, because of the relative fixity of their location, portability has a smaller role to play in the determination of property. The distinction is most clearly seen by comparing property in land among the most primitive of these societies, where crop rotation and simple fertilization techniques are unknown, or where land fertility is extremely poor, with property in land among primitive peoples who are more knowledgeable in these matters or who possess very superior land. Once a crop is grown by the more primitive agricultural societies, it is necessary for them to abandon the land for several years to restore productivity. Property rights in land among such people would require policing cost for several years during which no sizable output is obtained. Since to provide for sustenance these people must move to new land, a property right to be of value to them must be associated with a portable object. Among these people it is common to find property rights to the crops, which, after harvest, are portable, but not to the land. The more advanced agriculturally based primitive societies are able to remain with particular land for longer periods, and here we generally observe property rights to the land as well as to the crops.

[8] Compare this with the similar rationale given by R. H. Coase to explain the firm in "The Nature of the Firm," *Economica*, New Series, 1937, pp. 386–405.

[9] Henry G. Manne discusses this point in "Our Two Corporation Systems: Law and Economics," supra, p. — (ed.).

B **Continued**

3: TOWARDS AN ECONOMIC THEORY OF THE CREATION AND SPECIFICATION OF PROPERTY RIGHTS *

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I

The alleged failure of the standard theory of production and exchange to explain a wide class of empirical observations has led to proliferation of *ad hoc* theorizing.[1] Without questioning the validity of some of those *ad hoc* theories, it is important to recognize that they are valid only for a small class of events. A generalization of the standard theory of production and exchange to obtain an expanded scope of its validity should, therefore, be regarded as a preferred alternative. The *property rights approach* represents such an attempt.

The line of reasoning that underlies the property rights approach to the explanation of economic events can be summarized as follows: the purpose of trade is to exchange bundles of property rights *to do things* with goods and services that are exchanged. The value of the goods that are traded and, consequently, the terms of trade depend on the content of property rights in those goods. For example, I will pay more for a house if the bundle of property rights I acquire permits me to exclude gasoline stations, chemical plants, etc. from the surrounding area. The possession of various property rights affects the allocation of resources, composition of output, income distribution, etc. To quote Professor

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