is always someone who can exclude all others from access to any given area-the individuals will endeavour . . . to maximize the value of the land." This may allow an owner to generate a return far in excess of either the costs incurred or what alternative uses of the land would yield. What the land will yield, in effect, determines its value. R. POSNER, ECONOMIC ANALYSIS OF LAW § 3.1 (3d ed. 1986). So long as exclusively held resources are transferable and the market works, land or other resources that are inefficiently used (either because of the owner's choice of activity or the size, location or other attributes of the parcel) will, in due course, be acquired by another owner who can increase their value. Land that is worth only $10,000 when held by A which B can use to generate income that translates into a present value of $15,000 will be transferred from A to B at a price somewhere between those figures. Id.

A special problem exists in cases of "bilateral monopoly", cases where neither party (A or B) has realistic alternatives to dealing with the other. This situation can lead to frustration of a potential transfer to more valuable use or to very large transaction costs as both parties seek to secure for themselves the lion's share of the gain from the transaction. See Id. § 3.7. One solution in such cases is eminent domain. Indeed, this may be why eminent domain (rather than straightforward market acquisition) is necessary once a public project like a highway or pipeline is planned for a specific location. *Id*. § 3.6.

All of this has implications for the remedies that should be granted when the market is bypassed and the right to exclude is violated by a trespasser. See generally Calabresi & Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972).

1. Is Edwards a case of bilateral monopoly? Suppose that the court in Edwards had simply granted Lee's Administrator an injunction. Could Lee's Administrator have used it to obtain a share of the net profits from Edwards? Gross profits (gross revenue)?

2. Can you think of surface cases in which one parcel has little or no value to A but when combined with a parcel held by B the whole has substantial value? In the event of a knowing trespass by B what relief should be granted A in such a surface case? Should caves be treated any differently? [p*244]

3. Suppose the court had followed Justice Thomas's theory. How should the profit derived from the cave be divided? How would future decisions about use be made, in the absence of agreement between the parties? How would shares of investment in lights or the cost of widening the footpaths be allocated?

4. If the National Park Service takes over the cave, what admission should it charge? The same as Edwards or Lee? Higher? Lower? What "just compensation" will it have to pay Edwards or Lee for their cave rights?

5. Does economic analysis assist in evaluating the following (probably erroneous) statement in C. MCCORMICK, DAMAGES 481–82 & n. 4 (1935): "The measure of damages [against a wrongful occupant of land] is . . . the reasonable rental value during the period of the defendant's occupancy, with this proviso, that if the defendant has caused the land to yield more than its reasonable rental, he is liable for the value of the yield. [N. 4:] The cases put it somewhat more mildly by saying that the actual yield is evidence of the rental value, but the intent seems to be as expressed in the text."

Note on Present Value Calculations

Note 4, *supra*, asks the question "What 'just compensation' will [the National Park Service] have to pay Edwards or Lee for their cave rights?" And then it doesn't answer the question. Let's take a stab at it.

The basic rule is that the landowner is entitled to the fair market value of the land taken by eminent domain. This is sometimes elaborated by saying "what a willing buyer would have paid to willing seller, when neither was under any unusual constraints." Where there are similar parcels of land appraisers are frequently willing to testify in condemnation proceedings what the fair market value of a piece of land is. They don't always agree, but condemnation juries will frequently average what a number of appraisers say, and in many circumstances they probably come pretty close to what the market value of the land taken is.

That procedure doesn't give much help, however, when the land taken is the Great Onyx Cave, which is arguably unique, and certainly not the type of resource for which one can find many comparable sales. In these situations courts will admit testimony as to the *discounted present value* of the land. Many real estate investors also use the same procedure in determining whether to make a real estate investment or in determining what is the highest price they are willing to pay. (The same technique is also used in other kinds of investments.)

Discounted present value is not easy to calculate. (The math is fairly complicated, but those complexities are alleviated by computer programs that make the calculations for you.) Perhaps even more difficult than the math is making sensible estimates into the future as to what kind of returns the land is likely to bring. The basic principle, however, is relatively straightforward.

If you promise to pay me $100 and give me a choice between paying me now and paying me at the end of the year, I'll take the money now. Why? Well, you may not be around at the end of year; you may not have any money at the end of the year. A bird in the hand . . . . But suppose that the entity that promises me the $100 is as sure as human institutions can be to be around at the end the year and has never (well, never for a long time) failed to pay its debts, say, the United States Government. I still would want the money now if I had a choice. Why? Because if I got it now I could invest it and earn interest on it. Hence, the present value of a sure promise to pay $100 a year from now with a 5% interest rate (let me know if you know of some place where you can get this rate today!) is $95.23 (95.23*.05=4.76; 4.76+95.23 = 100 with rounding).

If we think of the interest on the loan as being like the returns to land, we can see how the present value of a piece of land is going to be the sum of returns earned, some of them quite immediately and some of them quite far in the future. I discounted the value of the promise to pay $100 by the simple interest that I would earn on that amount of money over the course of the year. But if the promise was a promise to pay two years from now, I would have to discount the value of the promise not only by what I could earn in simple interest on the money but also what I could earn on the interest that I got in the first year in the next year. This principle of compounding of interest has a rather dramatic effect on the present value over a relatively short period of time.

Now so far we have been proceeding as if we were investing our money in something that is as close to safe as you can get. Land is not one of those types investments, so we are going to have to raise the discount rate to take into account the fact that land is a riskier investment. Indeed, in the case of land, there is not only the risk that the investment won't pan out, but also the risk that we misestimated what the returns would be. All of these things go into making the discount rate for land investments higher than, to take the polar opposite, investments in government bonds. Also, the longer the investment the higher the discount rate has to be because of anticipated lowering of the value of the dollar (inflation).

Taking all these things into account, the following table shows the discounted present value of an anticipated return of $1000 at various years at an 8% discount rate. The final column sums up the present present value (PV) of each annual return:

Discount	Amount	Time	Equals	Sum___

8%	$1,000	1 yr.	$926	$926
8%	$1,000	10 yrs.	$463	$6,710
8%	$1,000	50 yrs.	$21	$12,223
8%	$1,000	100 yrs.	$0.45	$12,494

The bottom line is that at an 8% discount rate an anticipated return of $1,000 fifty years from now has virtually no present value. The present value of $1,000 a year for infinity is $12,500, virtually all of it made in the first fifty years.

Now what does all of this have to do with *Edwards* cases? You may recall that the condemnation jury awarded $396,000 for the value of the cave. The last year that Edwards was in operation, he earned, according to the court, $23,341.50. The annual payment over a 100 years that has discounted present value of $396,000 is $23,830.23 at a 6% discount rate (which the court elsewhere says that it was using as an interest rate). That's remarkably close. Be that as it may be, Professor Ziff (*supra*, p. S142) reports that, in fact, that's not how the condemnation jury came to their number. They had a different annual revenue figure ($39,600, which may be the gross revenue or, more likely, revenue for a different year) and multiplied it by 10. Professor Ziff also reports that the government never paid the money. Rather, the Edwards family continued to operate the cave until 1961, when they finally sold it to the federal government. Today, it is part of the Mamouth Cave National Park.

Section 2. THE LABOR THEORY AND PROPERTY IN IDEAS

Note on the Labor Theory of Property and the Legal Protection of Ideas

The United States Constitution provides that "The Congress shall have Power . . . to promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries . . . ." U.S. Const. Art. I, 8, cl. 8. Pursuant to this authority the Federal Government grants monopolies to inventors and authors by issuing patents (35 U.S.C. §§ 100–376 (1988)) and copyrights (17 U.S.C. § 1–810 (1988)). Trademarks (15 U.S.C. §§ 1051–1127 (1988)) are granted under the authority of the commerce clause but have a similar monopoly effect. The justification for these monopolies is normally stated to be that the issuance of them is for the good of society. By so benefitting the inventor or author, he will be more inspired to produce and more willing to make his work available to the public, and thus benefit all of society. (The justification for trademarks is somewhat different: the theory is that the public should be protected in its expectations concerning symbols which it associates with certain products.) But given a traditional distaste for monopolies, there may be other ways in which we could encourage inventors and authors. Many, indeed, have suggested that the present system is outmoded. *See* Marconi Wireless Telegraph Co. v. United States, 320 U.S. 1, 63–64 (1943) (Frankfurter, J., dissenting). At common law a right existed regarding copyrights and patents only so long as the author or creator did not publicly disclose the work; once exposed the right evaporated. *See* M. NIMMER, NIMMER ON COPYRIGHT §§ 4.02–4.03 (1991). A similar notion existed with respect to trademarks. The common law, therefore, discloses no necessity for a system like the present one, and it seems most probable that the labor theory is implicit in our conception of the desirability of a patent and copyright law. Indeed, the