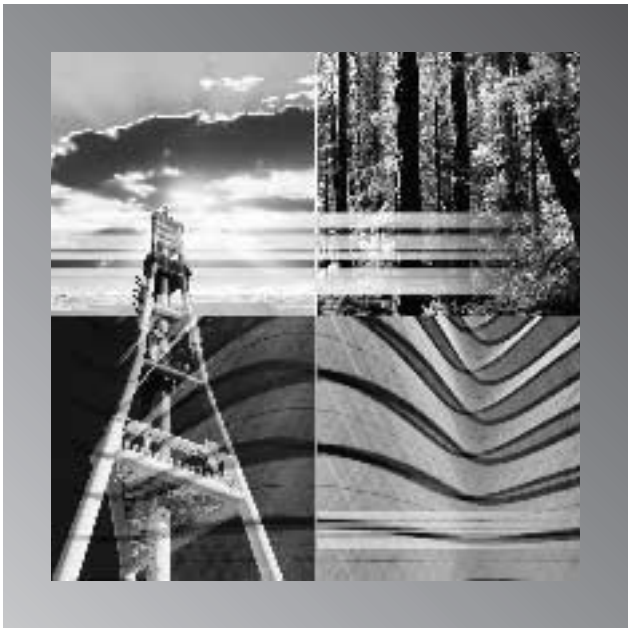


Public Assets, Private Profits

Reclaiming the American Commons in an Age of Market Enclosure

By David Bollier

NEW AMERICA
FOUNDATION
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A project of this ambition and breadth requires many friends, facilitators, supporters and advisors. I have been blessed with a community of such people.

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David Bollier
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Executive Summary

Many of the resources that Americans own as a people — forests and minerals under public lands, public information and federally financed research, the broadcast airwaves and public institutions and traditions — are increasingly being taken over by private business interests. These appropriations of common assets are siphoning revenues from the public treasury, shifting ownership and control from public to private interests, and eroding democratic processes and shared cultural values.

In the face of this marketization of public resources, most Americans do not realize that some of our most valuable assets are collective and social in character — our "common wealth." Collectively, U.S. citizens own one-third of the surface area of the country, as well as the mineral-rich continental shelf. Huge deposits of oil, uranium, natural gas and other mineral wealth can be found on public lands, along with rich supplies of timber, fresh water and grazing land. Beyond environmental resources, the American people own dozens of other assets with substantial market value, including government-funded research and development, the Internet, the airwaves and the public information domain.

Our government, for its part, is not adequately protecting these assets. Instead, it is selling them off at huge discounts, giving them away for free, or marketizing resources that should not be sold in the first place. These include, public lands, genetic structures of life, the public's intellectual property rights, and cherished civic symbols.

The growing appropriations of public assets — and the spread of market values to areas of life where they should not go — could be called the "enclosure" of the American commons.

PART I: The Commons, Gift Economies and Enclosure

Part I sets forth the basic concepts that animate this report: the importance of the commons, the value of gift economies, and the harms caused by market enclosures of the commons.

1. Reclaiming the Narrative of the Commons.

To understand the importance of the commons in American life, we must first dispel the misleading metaphor of the "tragedy of the commons." This and other concepts prevent us from understanding how human cooperation can in fact flourish and produce a robust and innovative commons in many contexts. This fact can be seen in self-organizing community gardens, scientific communities that share research results, and Internet communities that generate and share valuable information for free. The American experiment in self-governance is itself a commons, perhaps better known as a "commonwealth." Through community commitments and cooperation, people often generate remarkable economic and social wealth, defying the standard economic narrative about self-interested utility maximization.

2. The Stubborn Vitality of the Gift Economy.

While the commons can be a physical resource owned jointly by all citizens or members of a community, it can also be seen as a social regime for managing common assets. One type of commons, the gift economy, is a powerful mode of collaboration and sharing that can be tremendously productive, creative and socially robust. The Internet is a fertile incubator of innovation precisely because it relies heavily upon gift-exchange. Scientific communities, too, are highly inventive and stable because they are rooted in an open, collaborative ethic. In some gift economies, the value of the collective output is greater as the number of participants grows —

"the more, the merrier." The result has been called a "comedy of the commons," a windfall of surplus value that over the long term can actually make the commons more productive — and socially and personally satisfying — than conventional private markets.

3. The Commons: Another Kind of Property.
If Economics 101 teaches the basic lessons about supply and demand curves, what might Commons 101 teach? There is not likely to be a unified-field theory of the commons any time soon. Each commons bears the distinctive imprint of its own resource domain, culture, history, legal system and scale of operation. That said, some of the general principles that tend to prevail in successful American commons include: openness and feedback, shared decision making, diversity of perspectives, social equity among members of the commons, environmental sustainability, and community vitality.

4. When Markets Enclose the Commons.
Markets have a tendency to extend property boundaries and market exchange to areas of life that are inappropriate, or at least debatable. When markets convert shared common assets into commodified market inputs, a market enclosure has occurred. Besides privatizing shared wealth without fair compensation to the public, market enclosures can also erode gift economies that sustain social and moral relationships within a community. Frequently, they coercively put price tags on resources that are "not for sale" — one's health, public institutions, public lands, and cultural traditions. Market enclosure is a useful term because it describes the pervasive imperialism of market values in American life today, and points to the need for reviving our traditions of civic republicanism.

PART II: Varieties of Market Enclosure
Part II examines five major sets of commons and the distressing enclosures that are now laying siege to them.

5. The Colonization of Frontier Commons.
For centuries, many parts of nature have been considered the "common heritage of mankind" — resources to be shared by all, parts of a divine creation that sustain life. Now market forces, armed with incredible new technologies, are transforming many "frontier commons" into new feedstock for global markets. These frontier commons include wildlife and local ecosystems threatened by the property-rights movement; global water supplies that are being commodified for transport across vast distances; and the genetic structures of life itself. The growing colonization of frontier commons threatens to usher in profound, unpredictable disruptions of nature.

6. The Abuse of the Public's Natural Resources.
Not many Americans realize that they collectively own one-third of the nation's surface area and billions of acres along the outer continental shelf. These public lands — richly endowed with minerals, oil, forests, grasslands and more — constitute one of the largest collections of commons for the American people, held in trust by the U.S. Government. The sad truth is that the government's stewardship of these resources represents one of the great scandals of the 20th Century. While the details vary from one domain to another, the general history is one of antiquated laws, poor enforcement, slipshod administration, environmental indifference and failure to ensure the public receives a fair rate of return on commercial uses of common assets.

7. Can the Internet Commons Be Saved?
Government investment and the gift economy ethos of academia helped make the Internet the largest, most robust information commons in human history. Now this unparalleled public vehicle for free speech and social communication stands on the threshold of market enclosure. Various industries are seeking to compromise the open, end-to-end architecture of the Internet and replace the public's information commons with proprietary control. The enclosure of the Internet commons is being achieved through the attempted subversion of open technical standards; unprecedented expansions of intellectual

property law at the expense of free information exchange; "techno-locks" that reduce the public domain and fair use rights; and the privatization of Internet governance.

8. The Giveaway of Federal Drug Research and Information Resources.

Until the late 1970s, federally sponsored R&D was considered a public resource that should be liberally shared with the public and other researchers. Since 1980, however, after a concerted campaign by business, Congress and the Executive Branch have reversed this long-standing principle by empowering federal agencies to give away exclusive rights to government research. As a result, the U.S. Government now forfeits billions of dollars in revenue to which taxpayers are entitled, and companies and universities are allowed to charge exorbitant prices for medicines and other products developed through government research. Meanwhile, mountains of valuable reports, databases, congressional documents, and other government information resources remain inaccessible to the public or ridiculously expensive.

9. Enclosing the Cultural Commons.

The past twenty years have seen dramatic new market enclosures of the cultural commons. The fiction of broadcasters serving as conscientious stewards of the public's airwaves grew embarrassingly thin by the late 1990s as the "public trustee" model of broadcasting effectively morphed into outright private ownership of the spectrum. Even as wireless phone companies have paid $37 billion at auction for spectrum licenses since 1994, broadcasters succeeded in convincing Congress to give them additional free spectrum space for digital television — licenses valued at as much as $70 billion — and to curb the growth of low-power radio as a local, non-profit alternative. The commercialization of American culture, meanwhile, has intensified with aggressive new marketing in the public schools, intrusive marketing to captive audiences, and aggressive branding campaigns that are converting revered non-commercial institutions— public broadcasting, sports stadiums, the Olympics, Broadway theaters, journalism and more — into crass marketing platforms. American culture is being transformed as it loses its "un-marketed" open spaces, a pervasive privatization that can weaken even the functioning of deliberative democracy itself.

Part III: Protecting the Commons

10. Strategies for Reclaiming the American Commons.

Americans can fight back against the "silent sell-off" of our national heritage by making new use of our most precious tradition of all — our system of self-government. Federal, state, and local governments can and should help bolster a social and ethical commons for market activity; stop the giveaway of taxpayer-owned resources; create stakeholder trusts that pay dividends to all citizens from collectively owned assets; and capture capital gains from public infrastructure; among other initiatives. Meanwhile, individuals and social groups should explore innovations in private law and technology that can keep the commons healthy and intact; create local commons to manage finite resources; expand the institutional vehicles for shared community ownership and cooperatives; and develop new Internet vehicles for sharing and collaboration. Fostering the commons requires not just a policy agenda, ultimately, but a larger cultural vision of community and personal fulfillment. It is time to revive this public-spirited American tradition and promote innovation in the stewardship of public resources.



Introduction

They hang the man and flog the woman
That steal the goose from off the common,
But let the greater villain loose
That steals the common from the goose.

—Traditional nursery rhyme

It was a close call, but the West Publishing Company almost won its claim to *own* the law. Yes, until 1998, the law of the land as set forth in *Brown v. Board of Education*, *Roe v. Wade*, and tens of thousands of other federal cases actually belonged to a privately held company based in Eagan, Minnesota.

Technically, of course, all of the opinions rendered by the U.S. Supreme Court and lower federal courts belong to the public domain and can be republished by anyone. But as a practical matter, West enjoyed a lucrative monopoly control over the nation's legal rulings because it claimed a copyright on the *pagination* of the cases. The only acceptable way for attorneys to cite cases in legal proceedings has been to use West's proprietary page numbers, which effectively prevented any potential competitor from arising to offer its own, cheaper version of federal court rulings.

This meant that West Publishing had a pretty sweet deal: access to a huge, well-heeled market, an endless supply of new product financed by taxpayers, the ability to charge premium prices, and an impregnable wall against competition — in perpetuity![1] For the American people, who finance the federal judiciary and must be governed by its rulings, the situation might charitably be described as a travesty.[2]

A century ago, when there was no centralized or comprehensive method for the courts to compile their rulings, West performed a valuable function in organizing access to the law and offering minor editorial enhancements. But even before the arrival of the World Wide Web in the 1990s, a number of critics argued that West's de facto monopoly ought to be replaced with a uniform citation system that would allow legal opinions to be more broadly disseminated. After all, if our society's body of *law* is not available to all, and the official rulings of our judicial system can be exploited as a cash cow, what then of the moral authority of the law? It was Franz Kafka, prophet of the legal labyrinth, who admonished that "the Law…should be accessible to every man and at all times."[3]

Yet the struggle to wrest public control of the law from the grip of West Publishing (1998 revenues, $1.3 billion) proved how difficult it is to protect a commons in our mar-

ket-dominated society, even when the issue is as utterly central as the rule of law. Over the decades, the U.S. court system had settled into a cozy partnership with West Publishing. Federal judges and their clerks enjoyed unlimited access to West's online compilations. They enjoyed the company's help in assuring the accuracy of final opinions, and the lavish gifts and trips to exotic locales that West sponsored for federal judges, including at least seven Supreme Court justices. Politicians from Al Gore to Newt Gingrich to key congressional committee chairmen also enjoyed warm relationships with West Publishing, thanks to generous campaign contributions — favors that were only too helpful in West's attempts to sneak through stealth amendments to defend its hammerlock on access to the law. In effect, West was claiming private ownership of the commons, the collectively owned resources that are fundamental in a democratic commonwealth.

In ways that are variously egregious, subtle, clever and obscure, business interests are capturing valuable resources that the American people collectively own.

Few of these facts might have received much visibility to the wider world but for the activism of James Love, the scrappy director of the Ralph Nader-founded Taxpayer Assets Project. In 1993, he began to debunk West's arguments, expose its ethically dubious lobbying, and mobilize law librarians, bar associations, legal publishers and the press to take their own initiatives.[4] After years of legal and public relations skirmishes, a small New York CD publisher, HyperLaw, won a federal lawsuit against West Publishing's copyright control over court opinions in 1998.[5] In coming years, many companies will publish federal cases in various formats, including on the Web for free. But under pressure from the West Publishing and Lexis, an online vendor of legal cases licensed by West, the U.S. federal courts have refused to adopt a public domain, technology-neutral citation system.[6]

What is the Commons?

West Publishing v. The People may be a parable for our times. It is but one of dozens of cases that pose the question, *Who shall control the commons?* In ways that are variously egregious, subtle, clever and obscure, business interests are capturing valuable resources that the American people collectively own. The American commons include tangible assets such as public forests and minerals, intangible wealth such as copyrights and patents, critical infrastructure such as the Internet and government research, and cultural resources such as the broadcast airwaves and public spaces. In the face of market incursions on these common assets, our government is not adequately protecting the commons on our behalf. When it is not being seduced by what has been called the legalized bribery of campaign contributions, politicians may gamely try, and even succeed at defending our common assets. But even well meaning government leaders are often overwhelmed by the pace of technological change and the complications of consensus building and due process. The public, for its part, is often clueless and thus politically moot in many battles over the commons. (Throughout, I will use the collective noun "commons" instead of the more archaic term "common.")

This trend raises serious questions about the future of our American commonwealth. In an age of market triumphalism and economistic thinking, does the notion of "commonwealth" — that we are a people with shared values, democratic commitments and the right to control our collectively owned assets — have any practical meaning? Or have we irretrievably lost sight of our heritage as a commonwealth and lost control of our assets, and perhaps our democratic traditions, as private interests have quietly seized dozens of American commons?[7]

It should be stressed that protecting the commons is about maintaining a balance, not bashing business. Business needs the sectors of society that nurture trust and foster the sense that we are all part of something larger than ourselves.[8] And society needs the products and productivity of successful businesses. The issue is how to set equitable and appropriate boundaries between the two realms — semi-permeable membranes — so that the market and the commons can each retain its integrity while invigorating the other. That equilibrium is now out of balance as businesses try to exploit all available resources, including those that everyone owns and uses in common.

Of course, the creative tension between business interests and our democratic polity is nothing new. It may be one of the central organizing principles of our political culture. Clashes between the two have shaped the very framing of the Constitution, numerous Progressive era campaigns, the labor movement, and many New Deal and Great Society initiatives. But today we live in a troubling new stage of this struggle that differs from previous ones in its scope and ferocity.

The market's role in American society today has exploded, penetrating into nooks and crannies of daily life that could not have been imagined in an earlier generation. Video ads at gas pumps, marketing disguised as education in the public schools, and e-commerce websites for every consuming desire. Companies now obtain patents on genetic structures of life and mathematical algorithms, and universities advertise for students by promising to make them "the President of Me, Inc."

The floodgates of commercialization of the culture really opened up in the 1980s. Powerful new electronic technologies — computers, cable television, the VCR and much more — allowed business activity to penetrate more deeply into nature, knit together new global markets, and colonize our consciousness and culture. As the government agencies that set socially acceptable boundaries for market activity were slowly sabotaged by budget cuts and curbs on their authority, a wide array of commons in American life became open game for market exploitation: public lands, government R&D, information resources, and ethical norms for safety, health and environmental protection.

Still, the privatization of the commons has crept up slowly and quietly, in fits and starts. It has not been an identifiable juggernaut with a single battlefront or defining moment. It has had scores of manifestations, some prominent, most of them obscure. Which helps explain the wicked insight of the nursery rhyme. Why do we "hang the man and flog the woman/That steal the goose from off the common/But let the greater villain loose/That steals the common from the goose"? Because, I fear, we no longer *see* the commons, and thus no longer understand its meaning.

Stealing the Commons from the Goose

The nursery rhyme comes from the period of the English enclosure movement, which flourished from the fifteenth to nineteenth century. In order to exploit emerging markets and aggrandize their power, the aristocracy prevailed upon Parliament to allow the ruthless seizure of millions of acres of commonly used forests, meadows and game. As economic historians such as Karl Polanyi have shown, enclosure helped lead to the creation of modern industrial markets, while inflicting devastating social, environmental and human costs on once-stable rural communities.

With similar dynamics today, many business sectors are finding it irresistible to enclose common resources that were once commonly shared. If the mineral resources on federal lands can be mined for $5 an acre under an archaic 1872 law, a lucrative windfall that the mining industry can preserve through well-deployed campaign contributions, *why not?* If plentiful agricultural seedlines can be genetically re-engineered to be sterile, rendering them artificially scarce and thus suitable for market control, *why not?* With so many common resources poorly protected by law and largely unrecognized by the American people *as* common resources, it is no wonder that businesses find exploitation of the commons so easy and attractive.

Such enclosures of the commons are aided by an official Washington increasingly captive to business and indifferent to ordinary citizens; a journalism profession that has grown soft and superficial now that it competes with entertainment and marketing; and the dominion of market culture over our civic identities. We have become a nation of eager consumers — and disengaged citizens — and so are ill equipped even to perceive how our common resources are being abused.

The abuse goes unnoticed as well because the theft of the commons is generally seen in glimpses, not in panorama, when it is visible at all. We may occasionally see a former wetlands paved over with a new subdivision, or acres of tree stumps on federal lands that timber companies leased for a pittance. If we listen closely through the cacophony of the media, we may hear about the breakthrough HIV/AIDS drugs that our tax dollars helped develop, the rights to which pharmaceutical companies acquired for a song and for which they now charge exorbitant prices. Or, when we hear that cellular phone companies have bid more than $36 billion at auc-

tions since 1994 to use the public airwaves, we may wonder why broadcasting companies control far larger bands of spectrum for which they pay nothing at all. But few people can begin to connect the dots among these seemingly unrelated enclosures and see the big picture.

The truth is, we are living in the midst of a massive business-led enclosure movement that hides itself in plain sight. Government R&D laid the groundwork for some of the most significant innovations in computing — the original Internet architecture and software protocols, e-mail, the Mosaic browser that gave rise to the Netscape browser that popularized the World Wide Web, among others — but these investments have essentially been privatized and recast as the singular product of entrepreneurial vision. Our government has given commercial broadcasters large portions of the public's electromagnetic spectrum worth tens of billions of dollars, in return for token gestures of public service. The public domain in intellectual property, long a seedbed for future creativity, is rapidly being carved up by proprietary interests through radical extensions of copyright and patent law.

Some invasions of the commons, while quite egregious, are sanctioned because we no longer can muster a spirited commitment to the public sector. Hence the widespread acquiescence to Channel One, a pseudo-educational TV news program whose advertisements are forced upon millions of children in public schools every morning. Hence, the naming of beloved sports stadiums after corporate sponsors who have few valid claims to our civic respect beyond the payment of sponsorship fees. Sports itself, while always a business endeavor, has been radically transformed as companies such as Nike successfully market themselves as sources of transcendent meaning.

What makes this moment so different from many earlier ones in our history is the gross imbalance between the market and our democratic polity. The market and its values assert dominion over all, and in so doing, erode the sinews of community, undermine open scientific inquiry, weaken democratic culture, and sap the long-term vitality of the economy. If we are to arrest this trend, I believe we must begin to develop a new language of the commons. We must recover an ethos of *commonwealth* in the face of a market ethic that knows few bounds. This not only means reasserting democratic control over the "common wealth" — the vast array of commonly owned resources, social customs and democratic traditions. It means recognizing the intrinsic importance of the commons as a sovereign realm whose integrity and subtle fecundity must be respected.

Honoring the common is not a matter of moral exhortation. It is a practical necessity. This report aspires to explain why.

The Effects of Market Enclosure

The increasing pace of market exploitation of the commons is troubling for five reasons.

First, enclosure needlessly siphons hundreds of billions of dollars away from the public purse every year, precluding countless varieties of social investment, environmental protection, and other public initiatives.

Second, enclosure tends to foster market concentration, reduce competition and raise consumer prices. The power to enclose is generally a prerogative of the largest companies, which use their clout in acquiring public resources (patents, copyrights, use of public lands, federal R&D, university research, etc.) to bolster and extend their market dominance. This can be seen, for example, in the ways that biotechnology firms seek to use proprietary seeds to corner the market for a given crop, and in pharmaceutical companies' use of federally sponsored drug research to dominate specific drug treatment markets.

Third, enclosure threatens the environment by favoring short-term exploitation over long-term stewardship, resulting in pollution of the earth, the air, and the water, and externalizing health and safety risks onto the public, including future generations. The flagrant abuse of public lands by timber, mining and agribusiness companies offer some prime examples of this behavior.

Fourth, enclosure can also impose new limits on citizen rights and public accountability, as private decision-making supplants the open procedures of our democratic polity. The privatization of Internet governance, through the creation of ICANN (the Internet Corporation for Assigned Names and Numbers), offers a distressing example of how a democratic process of open standards, openly arrived at through civic participation, can be compromised through market enclosure. Large companies also have a penchant for using sophisticated proprietary designs (e.g., Microsoft's Window's operating system; Monsanto's bioengineered foods) to thwart meaningful consumer choice and confound democratic oversight.

And, fifth, enclosure superimposes materialistic values in inappropriate realms — in the community, in family life, in public institutions, in democratic processes. The

triumph of market norms over other important values is typically celebrated because the economic "gains" are measurable and culturally esteemed (Gross National Product; enhanced bottom lines), while the social, environmental and democratic impacts are fuzzy and diffuse (community dislocations, ecological stress, public health risks). The illusion of market efficacy, of course, has a lot to do with faulty metrics and cultural habit. We do not have any simple numbers for assessing the pernicious effects of market enclosures. This naturally makes it easy to ignore them or dissociate them from market activity.[9]

Reclaiming the Commons

Developing a discourse of the commons — the burden of this report — is especially important at a time when Americans are beginning to believe that we have little in common and can accomplish little when we work together. Talking about the commonwealth reminds Americans of the things we share: the forests and minerals that we all own, the miraculous technologies that we have helped develop, the public and cultural spaces that we all use, and the values we share.

A reckoning of what belongs to the American people is a first step toward recovering control of common assets and using them either to generate new revenues for public purposes or to protect them from market exploitation. At a time when the public purse is raided for all manner of "corporate welfare," an analysis based on the "common wealth" offers some powerful ways to leverage assets that we the American people already own.[10]

Talking about the American commons helps reassert public control over public resources without necessarily triggering a false debate between the free market ("good") and regulation ("bad"). Too often, the shortcomings of government regulation have been used to justify a return to the era when business wasn't regulated at all. Talking about the commons can help America reassert the public's distinct interests through a variety of new options that include, but go beyond, traditional regulation. As we will see in Chapter 10, these include stakeholder regimes that give citizens equity ownership, government auctions of the right to use common assets, new uses for legal principles such as public trust doctrine (environmental law) and the public domain (copyright law), websites that enable collaboration, and policies that help sustain gift economies.

Finally, the idea of the commons helps us identify and describe the common values that lie beyond the marketplace. We can begin to develop a more textured appreciation for the importance of civic commitment, democratic norms, social equity, cultural and aesthetic concerns, and ecological needs. A language of the commons restores humanistic, democratic concerns to a more central role in public policymaking. It insists that citizenship trumps ownership, that the democratic tradition be given an equal or superior footing vis-à-vis the economic categories of the market.

This is not just a moral argument, but also an intensely practical one. Any sort of creative endeavor — which is to say, progress — requires an open "white space" in which experimentation and new construction can take place. There must be the *freedom* to try new things and an unregimented workspace in which to imagine, tinker and execute new ideas. When all the white space is claimed and tightly controlled through commercial regimes that impose quantitative indices and quarterly profit goals, creativity is bureaucratized into narrow paths. There is no room for the visionary ideas, the accidental discoveries, the serendipitous encounters, the embryonic notions that might germinate into real breakthroughs, if only they had the space to grow. An argument for the commons, then, is an argument for more "white space."

Enclosure can also impose new limits on citizen rights and public accountability, as private decision-making supplants the open procedures of our democratic polity.

Our government is supposed to act as a steward for the public's economic, civic and environmental interests. It is revealing that our government has not even compiled a comprehensive inventory of common assets — the prerequisite for any accounting of lost revenues, lasting harm to the assets, and damage to gift economies. Business critics often complain that environmental regulations amount to unconstitutional "takings" of their private property. But as a commons analysis makes clear, the actual "takings" are often committed by the victors in our Darwinian market, and the victims are the unorganized public: the commoners. This report, then, is a first, rough draft of that much larger project, the reclaiming of our common wealth — and the reinvigoration of the commonwealth.



The Commons, Gift Economies and Enclosure

PART I

1. Reclaiming the Narrative of the Commons

It takes thirty leaves to make the apple.

– Vietnamese monk Thich Nhat Hanh

"The commons" is a concept that many Americans have trouble comprehending. We are so accustomed to thinking about the individual, and so focused on "property" as a tangible thing owned by individuals — this is *mine!* — that we have trouble understanding that some of the most important wealth we own is collective and social in character.

The leaves, the roots, the trunk, the orchard and the ecosystem? It is our Western conceit to focus on the apple. This may be why so many of our commonly owned resources are abused. Fixated on the fruit, we only belatedly come to see that a vast, complex apparatus of collective wealth lies behind even the simplest outputs. "The thing that troubles us about the industrial economy," writes Wendell Berry, "is that it tends to destroy what it does not comprehend, and that it is *dependent* upon much that it does not comprehend."[1]

Learning to see and understand the dozens of commons in our very midst is one of the preeminent challenges of our time. The commons is not the relic of some pastoral age, or a quaint throwback practiced by villagers in Africa and Indonesia. Even in high-tech America, home to the biggest, most muscular market system in the world, the commons is ubiquitous. It is an under-rated, much-ignored reservoir of valuable resources, system of social governance, and crucible for democratic aspiration that is only now starting to be recognized for what it is. The commons include not only the tangible and intangible public resources which citizens own collectively, but also a wide variety of governance arrangements that do not depend on the proprietary *quid pro quo* transactions which characterize commercial markets.

Why does the commons live in the shadows, virtually ignored? Let us start with a parable from one of the most market-obsessed sites on the globe, New York City.

New York City's Improbable Community Gardens

A few years ago, the newspapers of New York City were ablaze with a controversy about dozens of plots of derelict land that had been slowly turned into urban oases. Should hundreds of beautiful community gardens that neighborhoods had created on trash-filled lots be allowed to stay in the public domain? Or should the mayor and city government, heeding the call of developers, try to generate new tax revenues on the reclaimed sites by selling them to private investors?

The community gardens emerged in a realm that the market had written off as worthless. Throughout the 1970s and 1980s, the New York City real estate market had abandoned hundreds of buildings and city lots as unprofitable. Investors stopped paying taxes on the sites, and the city became the legal owner of most of the properties — some 11,000 nontaxable vacant lots by the late 1990s. Many soon became rubble-strewn lots for trash, junked cars, drug dealing and prostitution — with predictable effects on neighborhoods.[2]

Neighborhood groups were able to deliver what the private market could not – the civilizing of blighted neighborhoods – through non-economic means, at minimal cost.

Distressed at this deterioration, a group of self-styled "green guerrillas" began to assert control over the sites. "We cut fences open with wire cutters and took sledgehammers to sidewalks to plant trees," said Tom Fox, an early activist. "It was a reaction to government apathy." Soon, the City of New York began formally to allow residents to use the sites as community gardens, with the understanding that the property might eventually be sold.

Over 800 community gardens sprang up throughout the five boroughs, and with them, an economic and social revival of the neighborhoods. Neighborhood groups were able to deliver what the private market could not — the civilizing of blighted neighborhoods — through non-economic means, at minimal cost. "What were once marginal neighborhoods have become more stable and valuable, in part because of their green spaces and the sweaty, collective, imaginative effort that greening took," wrote one journalist.[3]

In the Lower East Side, Harlem, and Brooklyn, neighbors came together to clean up the discarded tires and trash, to plant dogwood trees and vegetable gardens. Over time, hundreds of cool, green oases in the asphalt cityscape emerged — places that helped local communities see themselves as communities. Families would gather in some gardens for baptisms, birthday parties and weddings. Other gardens were sites of poetry readings and performances, mentoring programs and organic gardening instruction.

"Ten years ago, this community had gone to ashes," said community advocate Astin Jacobo of his community garden. "But now there is a return to green." More than 200 of the community gardens have been maintained for more than ten years.

The community gardens combined cost-efficiency with community building. One study found that the average price of constructing a city park was $50 a square foot, while the cost of a community garden was only $5 a foot.[4] Moreover, maintenance was a matter of sweat equity, not city expenditure. What economist would have predicted that impoverished neighborhoods could create such beauty and liveliness at so little cost?

Perhaps more importantly, the community gardens gave neighborhood residents a chance to govern a segment of their lives. A city bureaucracy was not needed to "administer" the sites and users; a self-selected neighborhood group shouldered the burden. Moreover, these volunteers did not treat the sites as interchangeable units of land without history, personality or context. They made the sites organic expressions and possessions of their community.[5]

By the 1990s, it was becoming clear that the community gardens were generating some significant externalities. The greenery and social vitality were boosting the rents of storefronts and apartment buildings — which, ironically, only alerted the city to the growing economic value of the sites. In 1997 Mayor Giuliani proposed auctioning 115 of the gardens in order to raise between $3.5 to $10 million (at a time when the city had a $2.1 billion surplus). Although affordable housing was one possible use of the sites, there was no assurance of that result. Defenders of the gardens saw the auction as a privatization of common resources, a government seizure of community-created economic value that would chiefly benefit investors and speculators.

For the mayor, the myriad benefits of community gardens were essentially a nullity. Officially, the sites were considered vacant lots: under-utilized sources of tax

revenue that should be sold to private investors. "These properties should go for some useful purpose, rather than lying fallow," said a city official, in support of the mayor.[6] The mayor's plan ignited an uproar, as hundreds of citizens demonstrated, some through civil disobedience, in numerous attempts to save the gardens. "We're all for development," said one activist, "but when community gardeners go in and make a neighborhood livable, I think that needs to be respected and rewarded."

Determined to eke maximum revenue from the sites, the city rejected an offer by the Trust for Public Land to buy 112 garden lots for $2 million. Then, one day before a planned auction of the sites in May 1999, actress Bette Midler donated $1 million to help the TPL and other organizations consummate a purchase of the lots for $3 million.[7] While the fate of dozens of other gardens remains unclear, the actual value of the sites, beyond the strict market reckoning, had been forcefully asserted.

How you interpret the story of New York City's community depends a great deal upon the narrative you choose. Under the traditional narrative favored by Mayor Giuliani, the sale of the community garden sites is a case of using the market to maximize wealth and exploit under-utilized resources more efficiently: an open-and-shut case of neoclassical economics. But to a large segment of the city's residents, the community gardens exemplify the power of the gift economy. A gift economy is not so much a physical resource as a social and moral system by which sharing, collaboration, loyalty and trust are cultivated within certain commons.

Does that mean that the many benefits that city dwellers received from the gardens offset the revenues the city would otherwise have gained through auctions of the sites? This is the kind of question an economist asks. It implicitly assumes, even insists, that a price be attached to every human satisfaction, even to the aesthetic and social enjoyment that the gardens provided in an oppressive cityscape. The benefits of the gardens are *incommensurate* with an economic matrix, and can no more be plugged into a cost-benefit analysis than the joy of raising one's children. While the city had every *legal* right to reclaim the vacant lots, the point of this story is that the unorganized public — the participants in gift economies — also have strong *moral* claims that conscientious governments would do well to accommodate. Governments, after all, are not chartered to cater solely to investors and market needs, but to the *commonweal* in the broadest sense of the term.

There is some irony, perhaps, that in the end, the gift economies that arose through the community gardens could only be protected by encasing them in conventional property rights: the Trust for Public Lands had to buy the sites. While market champions might seize upon this outcome as a vindication of the market and the impotence of gift economies, there is a more thoughtful way to interpret the purchase of the gardens. The Trust-owned land represents "property on the outside, commons on the inside," a term coined by Yale law professor Carol Rose to describe "a regime that holds some resource as a commons among a group of 'insiders,' but as an exclusive right against 'outsiders'."[8]

While the commons may need to be protected through conventional (and imaginative) legal mechanisms, the inner life of the commons makes it a different creature from anything imagined by Adam Smith or Milton Friedman. Internally, the logic of a commons does not resemble that of the utility-maximizing automaton of neoclassical economic theory, but that of a living, evolving organism whose integrity must be assured in order to meet its diverse needs. In terms of its external effects, a commons is the source of a rich variety of social and economic benefits. Strangely, the wealth generated by the commons is barely appreciated. Why?

Reclaiming the Narrative of the Commons

For at least a generation, the archetype of "the commons" has been tainted by the narrative that a commons invariably gives rise to a tragedy. This view was popularized by Garrett Hardin in a famous essay, "The Tragedy of the Commons," that described how a scarce resource open to all comers would be depleted and left to ruin; he offered the example of herders sharing a common meadow.[9] The commons would fall apart, Hardin argued, because every herder would enjoy direct benefits from over-exploiting the commons, while suffering only indirect costs. Eventually, over-use would destroy the resource.

Even though Hardin used the tragedy-of-the-commons paradigm to inveigh against overpopulation, the metaphor soon took on a life of its own in public policy circles. In the hands of conservatives and economists, it began to be an all-purpose metaphor to denigrate collectively managed property and champion the efficiencies of private-property regimes. In practice, Hardin's metaphor has been a Procrustean rack; circumstances that do not fit its premises must be stretched or slashed to fit, or ignored.[10] The

many domains in which the commons actually works, and works well, are not seriously considered.

Two other metaphors have purported to show the severe barriers to collective solutions to common problems, notes political scientist Elinor Ostrom.[11] The "prisoner's dilemma" is a formal, game-theory version of the tragedy of the commons in which two prisoners, locked in separate rooms and unable to communicate, must make choices that maximize their self-interest. The basic dilemma is that a greater long-term benefit can be achieved if each prisoner cooperates with the other — but each prisoner also has powerful incentives to cheat. This highly abstract model purports to show that cooperation is usually irrational and unlikely to solve collective-action problems.[12]

A third paradigm that offers a similarly pessimistic outlook on the ability of human beings to collaborate is "the logic of collective action," a term coined by economist Mancur Olson in his famous book of the same title.[13] Olson explicitly argued that "rational, self-interested individuals will not act to achieve their common or group interests" (even though he qualified this brash argument elsewhere in his book). The chief reason for this outcome, he claimed, is that an individual has little incentive to contribute to the creation or maintenance of a public good if he can gain access to it for free, or if he cannot be excluded from it (the "free rider" syndrome).

All three metaphors — the tragedy of the commons, the prisoner's dilemma, and the logic of collective action — encourage commentators "to invoke an image of helpless individuals caught in an inexorable process of destroying their own resources," writes Ostrom, as if this dynamic were self-evident and beyond argument.[14] These metaphors have given rise to a vast literature that attempts to explain why people will not typically work together for the common good.

These metaphors obscure a wide range of human action.[15] The idea that people might volunteer their time to work on community gardens, or that scientists might openly share their research results with trusted colleagues, or that people might post worthwhile information on the Internet for free, is irrational by the terms of conventional economics. There is no financial payback or reward. Such types of cooperation do not adhere to the general rule of self-interested utility-maximization, and so are alleged to be aberrant.

This pessimistic assessment of cooperative management regimes persists, in part, because the commons is frequently confused with an *open-access* regime, in which a resource is essentially open to everyone without restriction. In an open-access regime, there is no identifiable authority. No one has recognized property rights, and the output of the commons is intended for sale on external markets, not for personal use by members of the commons. For all these reasons, no one worries about long-term sustainability. Without the "social infrastructure" that defines a commons — the cultural institutions, norms and traditions — the only real social value in open-access regimes is private profit for the most aggressive appropriators.[16] Hardin's essay might have been entitled more appropriately, "The Tragedy of Open Access."

Certain commons are regarded by economists as "public goods." These are resources from which it is difficult, costly, or inefficient to exclude people ("nonrival" and "nonexcludeable" resources, as economists put it). A public good is typically an open-access regime, such as a lighthouse, city park or the global atmosphere — resources whose benefits are accessible to everyone without any given individual having to pay for them. (This is why government often steps in to pay for public goods, provided there is sufficient political pressure from influential constituencies.) While a public goods analysis is certainly useful, it may not necessarily grapple with social management methods for governing the commons.[17]

A primary task of this book is to reclaim the narrative of the commons — the stories that we tell about our capacity to work together toward shared goals. While the tragedy of the commons and the existence of free-riders on public goods certainly do exist, they do not represent the final word, or even the general rule, on whether individuals can come together to pursue common goals. The democratic tradition in American life, in fact, is based on a type of collective "utility-maximizing behavior" — call it a patriotic commitment to the American experiment — that market economics simply does not recognize.

Varieties of Our Collective Wealth

Americans collectively own more resources than they may realize, from wilderness areas and mineral resources to scientific knowledge and democratic traditions. These resources are our shared inheritance as citizens — and essential inputs to markets. Indeed, they constitute something of a hidden economy. Many common assets lie wholly outside the market, but nonetheless invigorate it. Some are stitched into the very fabric of the market, in workplaces and professions and institutional relationships. An inventory of contemporary commons would have to include:

- *government-owned property*, such as public lands, government research and development, and public information resources;
- *nature* as it exists outside the market, consisting of such planetary systems as the atmosphere, water, local ecosystems, the airwaves, and genetic structures of life;
- *user-managed regimes* for land conservation, community gardens, software development, fisheries, water supplies and dozens of other resources;
- *gift economies*, or social networks based on gift exchange, which exist within academia, Internet communities and local communities, for example;
- *shared, inherited knowledge* such as scientific research, historical knowledge and folk wisdom; and
- *cultural traditions and norms*, which serve as a set of common moral presumptions and expectations for managing daily life.

Economic theory and public policy take scant notice of these neglected species of wealth, let alone mobilize aggressively to protect them. In many cases, the commons is barely defined as something of value, let alone as a resource with the kinds of legal definition and protection enjoyed by private property. The following chapters of this report are an attempt to describe the thirty leaves that make the apple — the varieties of collective wealth that are critical to our well-being — and to imagine new policy vehicles and citizen initiatives that might better protect these resources.

I will speak of the commons in two primary senses: as *tangible assets* or resources, and as *social regimes* for managing resources.

In the first sense, the commons consists of *property* in a conventional sense, except that it is property to which a large community or the American people have a legal or moral claim. I shall refer to these as *common assets*, resources whose suitability for sale in the market is accepted. The central question posed by the commons as public asset is how to ensure that all citizens receive a fair return from the sale or lease of the capital. The classic example is the electromagnetic spectrum, a public resource worth tens of billions of dollars that has essentially been given away to broadcasters.

The problem is, many common assets must also be regarded as *social assets* — resources that should not be commodified (treated as an object to be sold for the highest price in the market), but instead enjoyed by the general public for civic, social or recreational purposes. This is the dilemma posed by publicly owned federal forests, grasslands, and wilderness areas containing minerals and oil. Should they be considered market assets or social assets?

In the second sense in which I will use the term, the commons is a *web of moral and social norms* that enables a defined community of people to cooperate in managing a resource. It is a social regime for allocating resources in a way that asserts the integrity of the community while also serving as a source of personal meaning and identity. This is the community forest managed by a New England town; the fishery whose catch is allocated by a commons of local fisherman; and the academic specialty whose members collaborate, compete and negotiate among themselves to advance the knowledge of their field. Public schools, libraries and parks are social assets that are expressly insulated from the strict profit-maximization goals of the market to serve the public.

Economic theory and public policy take scant notice of these neglected species of wealth, let alone mobilize aggressively to protect them.

Scholars of common-pool resources try to understand the complex "design principles" that allow a community of people to sustainably manage the commons. Some commons have finite resources that need to be allocated and shared. This often requires the rule of law, but governance can sometimes be achieved through social means. Some commons have infinite resources, so to speak, because the primary product is *social*. In the community gardens of New York City, the more people who participated (within limits), the greater the value of the

outcome: more volunteers, more neighborhood spirit. The most urgent question in such circumstances is how to foster and protect the gift exchange that lies at the heart of this alternative mode of value creation.

Gift economies, discussed in Chapter 2, are complex webs of social cooperation and interdependency. The personal bonds that hold together families, the social commitments that define a community, the open civic participation and deliberation of Jeffersonian democracy — all of these constitute gift economies. So does the free sharing of information on the Internet. So does the collaboration and open sharing of knowledge within scholarly disciplines.

Unlike the marketplace, which idealizes human beings as rational, socially disconnected individuals who maximize their utility through economic exchange, gift economies are social systems that revolve around moral and cultural factors in the course of creating value. They are a social engine that allows many commons to operate flexibly and creatively while also, in the right circumstances, performing efficiently and productively. What may most distinguish gift economies from the market is their ability to generate a shared sense of meaning and moral purpose. The frame of analysis is the community, not the individual.

What may most distinguish gift economies from the market is their ability to generate a shared sense of meaning and moral purpose. The frame of analysis is the community, not the individual.

The commons-as-property and the commons-as-gift-economy represent two main axes that I want to explore for understanding collective resources. These two dimensions of the commons interpenetrate in unusual ways. Just as light has two simultaneous facets as particle and wave, depending upon the instruments used to study it, so the commons seems to simultaneously have two dimensions — physical resource and social community.

University buildings and equipment, for example, are clearly property in the conventional sense, which can be regarded as overhead needed for teaching and something to which paying students have a legitimate right of access and use. But in other respects, the physical property of a university is of secondary importance to the real *meaning* of a university as a social and professional community with its shared practices, knowledge and values. (The strange alchemy between property and spirit can be seen more starkly, perhaps, in churches that have huge endowments but flagging congregations.)

There is also a third, crosscutting category of commons. Its most salient trait is neither its physicality or social character, but its identity apart from markets. These *frontier commons*, as I will call them, have traditionally existed in realms that markets could not reach and thus have long flourished by their own lights. Among the more prominent frontier commons (to be discussed at greater length in Chapter 5) are the genetic structures of life, indigenous folk knowledge and traditions, deep sea minerals, and human consciousness itself.

For the moment, we can see them as pristine, non-commodified aspects of nature. But through the invention of new technologies, changes in law or the globalization of commerce, market regimes are now starting to re-organize our understanding and use of these domains. If marketization proceeds apace, many frontier commons will soon be subdivisions of the global market — commodified inputs to be shoveled into the productive apparatus.

What Should Be Propertized? What Should Remain a Commons?

The parable of the community gardens of New York City raises complicated questions about which resources and aspects of our daily lives should be commodified and which should somehow be protected from unfettered market forces. Should we cheer Giuliani's move to eke the maximum market value out of once-vacant lots in Manhattan, or should we preserve important segments of the urban landscape for satisfactions that are more collective than individual, more social than utilitarian, and more psychic than economic?

This is a golden thread that runs through many of the commons examined in the following pages. It is not always self-evident whether public forests, for example, should be open to market exploitation at all, or whether they ought to be set apart from the market in order to generate their own kind of wealth as a commons. But to the extent that we barely understand the importance of the commons, market enclosure is rarely a thoughtful, informed choice about such consequences. It is typically a coercive *fait accompli*. Any thoughtful reckoning needs

to understand what values and actual economic wealth are generated by the commons and what is therefore lost by enclosing the commons.

A good place to start is with a brief consideration of what it means to commodify something. In her book, *Contested Commodities*, Margaret Jane Radin explores the reasons that we consider it unacceptable to sell sex, babies, body organs, legal rights and votes (among other activities, rights and things). The idea that something should not be commodified, transferred or sold to others is generally known as *inalienability* — a concept most famously expressed by Thomas Jefferson in the Declaration of Independence, that all men are "endowed by the Creator with certain inalienable rights." Without offering a grand theory, Radin argues that something should not be alienated — converted into saleable property — if it conflicts with our shared visions of "human flourishing."

In our times, the rhetoric of the market presumes that everything should be, and can appropriately be bought, sold, and owned. Market rhetoric advances a particular conception of human flourishing, and promises that efficient market exchanges will maximize personal wealth and utility — which, practically speaking, is considered the same as satisfaction and happiness. Monetizing portions of our life and the natural environment has become so accepted in our society that the genetic information of a patient is regarded as something that can be "owned" by university researchers,[18] and the airspace over Manhattan skyscrapers is something that is routinely commodified and sold.[19] Our society's penchant for alienating things is so reflexive and pervasive that *The Baffler* magazine came up with the wry title, *Commodify Your Dissent*, for its anthology of essays about the "business of culture in the new gilded age."[20]

In free-market theory, any intervention to stop propertization is considered "paternalistic" because it inhibits a purportedly free choice of the contracting parties. Third parties are seen as having little standing to intervene in the "private" contractual agreements of others. Such arguments verge on sophistry and political posturing because the "free market" can be as coercive as any collective choice or government policies, which at least have the virtue of being subject to an open democratic process and judicial review.[21]

In the real world, we all know that child-rearing, family life, education, religion, sexuality, politics and many other basic human endeavors require insulation from market forces. In fact, paying for many of these things can actually ruin them. We may pay for childcare, but worry that it is not the same as a parent's loving personal care. We may pay for college tuition, but real learning requires a voluntary personal commitment. A father cannot buy his son's affections, our votes should not be sold to the highest bidder, and paid sex is not the same thing as intimacy with a loved one.[22]

Such activities require personal participation in a gift economy, where the coin of exchange is not money but freely given gifts (personal attention, acts of kindness, sacrifices of time). Markets and money are impersonal; gift exchange is the only real way to achieve the satisfactions of family or personal life.

The psychic and emotional values that are vital to human flourishing and community are generally regarded as incommensurable with the market.[23] We regard market alienation of certain things — our sexuality, our bodies, natural beauty, and democratic traditions — as degrading. That's why there was such an uproar over Fox TV's notorious special, "Who Wants to Marry a Millionaire?" and an eBay online auction of the ova of fashion models. It is why there was ethical outrage when it was learned that Ford Motor Company declined to replace the potentially explosive gas tanks in the Pinto compact, based on a cost-benefit analysis that concluded that it was not worth paying $11 per vehicle to avoid an estimated 180 burn deaths, at $200,000 per death. This impeccable market logic so enraged the jury hearing a Pinto product liability case that it ordered $100 million in punitive damages.[24] Market norms are highly offensive when applied to some of our deeper, more cherished values.[25]

Many of these ideas have animated the legal doctrines that historically have established limits to the market and carved out protected zones of inalienability. The environmental and conservation movements have sought to insulate the ecology from market despoliation. The consumer movement has sought to make "crashworthy cars" an inalienable universal right, not a market-bought privilege for Volvo owners alone. The labor movement has sought to make workplace safety an inalienable value that trumps any absolute property rights claimed by factory owners. It is a sign of our market culture that many of these initiatives are now under siege, criticized as meddlesome interventions in the "natural" order of the market which "requires" deregulation, unchecked technological change, unfettered capital flows and free trade.

The engine of market enclosure is fueled by its presumptuous claim to alienate whatever may be in the commons and then blindly to characterize it as "progress." It may in fact be progress, or at least benign, to commodify certain things in limited ways; the commodification of pollution rights may be such an example. But a progress based on the indiscriminate alienation of anything that can be packaged and sold is precisely what leads to the private exploitation of old-growth forests, predatory marketing to children, attacks on the public domain of creative works, and patents on slivers of the human genome. The rhetoric of the market is designed to assure continued private access to the commons on the most favorable terms.

Simply conceiving of our social reality through a language of commodification can change how we experience the world. It alters our social and political relationships, and our sense of the possible. As sociologist Clifford Geertz has put it, the law is not so much "a set of norms, rules, principles, values or whatever….but part of a distinctive manner of imagining the real."[26] Legal scholar Theodore Steinberg, studying how property law has been applied to land, concludes that "property law has, in effect, helped us to re-imagine and reinvent what we understand to be the real world."[27]

How, then, might we imagine and invent the world of the commons? The next chapter, on the gift economy, describes the look and feel of some contemporary American commons and explains how they enrich life in subtle but powerful ways.

2. The Stubborn Vitality of the Gift Economy

The universe is the communion of subjects, not a collection of objects.

— Thomas Berry, historian of cultures

In the early days of computing, a great deal of software was developed through a gift economy, in university settings. Hackers shared. That was the sacred ethic. As cerebral fanatics who followed their passions to create the best, most ingenious software, hackers saw themselves as members of an elite underground community. They took pleasure in creating cool things for one another's delight. Naturally, the programs that everyone helped invent, debug and extend were seen as a shared product of the community.

The social and ethical norms of the hacker community at this early stage of the computer revolution were strikingly similar to those of the scientific method or Jeffersonian democracy. All procedures and outcomes were subject to the scrutiny of all. Openness allowed error to be more rapidly identified and corrected. Openness built in accountability to the process of change, and allowed innovation and improvement to be more readily embraced. Making money from the collective contributions of other hackers was seen as anti-social because it interfered with the sharing that produced great software.[1]

The commercialization of computing in the 1970s and 1980s introduced a very different dynamic to software development. As software programming moved from universities to the marketplace, a closed, proprietary process arose to mobilize expertise that could develop software, bring it to market and reward private investors. It is fitting that Bill Gates epitomized this shift. His entrepreneurial passion was so great that he was nearly expelled from Harvard for using publicly funded labs to create commercial software — a violation of federal rules at the time and of the hacker ethic as well. After Gates was required to put his code in the public domain, as free software, he quit Harvard and went on to found Microsoft.[2] Over the past two decades, a vast industry of proprietary software companies emerged to redefine the software development process.

Yet lurking in the shadow of this mighty new industry, the free software movement has quietly persisted and grown, exemplifying the stubborn vitality of the gift economy. Empowered by the Internet, a global corps of computer aficionados arose to develop,

improve and freely share software. This process has generated hundreds of top-quality software programs, many of which have become critical operating components of the Internet. Sendmail routes over 80 percent of all email on the Internet; Perl allows dynamic features on websites; Apache is the most popular web server software; and BIND is the de facto DNS server for the Internet. While computer techies are the most common users of these programs, millions of ordinary folks download free software from websites.

What most distinguishes free software from off-the-shelf proprietary software is the openness of the source code — and thus the user's freedom to use and distribute the software in whatever ways desired. Anyone with the expertise can "look under the hood" of the software and modify the engine, change the carburetor or install turbo-chargers. Inelegant designs can be changed, and bugs can be fixed. Producers cannot coerce users into buying "bloatware" (overblown, inefficient packages with gratuitous features), Windows-compatible applications or gratuitous upgrades made necessary by planned obsolescence. Free software also allowed users to avoid constant upgrades in computer hardware (such as the latest, high-speed Intel chips).

This is where Richard Stallman, a MIT programming legend, entered the scene as a hard-nosed visionary. Stallman realized that anyone could make minor changes in a free software program and then copyright it, converting it into a proprietary product. Without some new legal vehicle, the benefits of free software could be privatized and withheld from the community of users. The commons would collapse. Stallman's brilliant innovation was the General Public License — or GPL, sometimes known as "copyleft" — which is essentially a form of copyright protection achieved through contract law. "To copyleft a program," writes Stallman, "first we copyright it; then we add distribution terms, which are a legal instrument that gives everyone the rights to use, modify and redistribute the program's code *or any program derived from it*, but only if the distribution terms are unchanged."[3]

This contract language essentially prevents any user from claiming the program (or any modified version of it) as his own property. The GPL creates a commons in software development "to which anyone may add, but from which no one may subtract."[iv] The GPL, in short, prevents enclosure of the free software commons and creates a legally protected space for it to flourish. This accounts for the "viral properties" of the GPL license. Because no one can seize the surplus value created within the commons, programmers are willing to contribute their time and energy to improving it. "Because defection is impossible, free riders are welcome, which resolves one of the central puzzles of collective action in a proprietarian social system," writes Columbia law professor Eben Moglen.[5] The commons is protected and stays protected. To help promote use of the GPL and build a new universe of free Unix-based software, Stallman established the Free Software Foundation.

The success of free software programs has raised an important question: Should the software commons remain utterly segregated from the commercial market, or can a healthy combination of the two be orchestrated? In the 1990s, the "open source code movement" arose in pursuit of the latter. Its programmers started issuing various licenses for programs that *allow* users to redistribute them under copyleft, but do not *require* it. This means that open source software can be combined with free software and made proprietary — a choice that Stallman considers a betrayal of the commons and that open source champions regard as a merely utilitarian way to produce better software. However one stands on this complex issue, the GPL remains the best legal assurance that a program's source code will remain free and available to everyone in perpetuity, and that no company will be able to appropriate the code for itself.

The crowning achievement of the GPL may be the success of the Linux operating system. The program was begun as a kernel by Norwegian graduate student Linus Torvalds, and within months a community of programmers began to improve and extend the Unix-based operating system, incorporating many of the GNU programs written by Stallman and friends. Despite having no bureaucratic organization, corporate structure or market incentives — only cheap and easy communication via the Internet — tens of thousands of computer programmers around the globe have volunteered their time throughout the 1990s to develop this stable and robust operating system, Linux.[6] The program, which is considered superior to Microsoft's NT server system, now commands a phenomenal 35 percent of the server market. The GPL is the chief reason that Linux and dozens of other programs have been able to flourish without being privatized.[7]

The Subtle Powers of the Gift Economy

Software with freely available source code tends to inflame market fundamentalists. Why would anyone with talent want to spend his energies designing good software and then *give it away?* How could a worthwhile product ever reach a great mass of people without a marketplace? In the real world, of course, people do lots of things without direct financial rewards. Scientists, musicians, athletes and family members commonly "give away" their time, knowledge and other things of value among trusted, like-minded people. The market is a valuable tool, but other practical systems of distribution are imaginable. And even the market depends critically upon certain commons. How efficient would a market be without shared cultural norms of trust and fairness[8] — or if the Globatron Corporation could charge a royalty for every use of the letter "g"?

The power of a gift economy remains difficult for the empiricists of our market culture to understand. They have trouble valuing intangibles that are not traded in the market and which therefore have no price. How, then, should we regard something given to us for free, as a gift? How is something of value created by *giving away* one's time, commitment and property? Traditional economic theory and property law cannot really explain how a social matrix as intangible and seemingly evanescent as gift economies can be so powerful.[9]

Yet the effects are hard to deny. Gift economies are potent systems for eliciting and developing behaviors that the market cannot — sharing, collaboration, honor, trust, sociability, loyalty. In this capacity, gift economies are an important force in creating wealth — both the material kind prized by the market as well as the social and spiritual kind needed by any happy, integrated human being.

What is remarkable about gift economies is that they can flourish in the most unlikely places — in rundown neighborhoods, on the Internet, in scientific communities, in blood donation systems, among members of Alcoholics Anonymous. Even though they may use the resources of the market economy, members of a gift economy do not come together through any cash exchange or economic transaction. What matters most is the ability to create and sustain caring, robust relationships within a group of people who share common commitments. Put another way:

> *A gift economy is a web of enduring moral and social commitments within a defined community sustained through the giving of gifts (goods, services and courtesies) without any assurance of personal return.*

New York City's community gardens thrive precisely because they are not governed by either the market or government. Unlike the market, which revolves around trade and money, or government, which is based on law and police powers, the gift economy is driven by people voluntarily coming together to give of themselves — while maximizing their self-interests in a non-market way. Eventually that process can create a commons.

How is something of value created by giving away one's time, commitment and property? Traditional economic theory and property law cannot really explain how a social matrix as intangible and seemingly evanescent as gift economies can be so powerful.

No one paid or forced thousands of New Yorkers — not a famously altruistic group — to clean up the abandoned lots and create lively, attractive urban gardens. They chose to do so. It was in their "self-interest"….but not in the rational, calculating sense meant by most market theorists. The community gardeners transcended the prisoner's dilemma. They developed enough trust in each other and commitment to a common vision that they actually wanted to pitch in without calculation or a guaranteed payback, actualizing another sort of "self-interest." The ongoing collaboration gave rise to a robust circulation of gifts that was able to redeem the trash-filled lots.

While the outcome had economic value, as Mayor Giuliani so keenly recognized, that was not the primary *meaning* of the resource to its creators. For members of a gift economy, value is based on personal, non-monetary principles. They prize *particular* individuals, places and shared experiences, such as the after-school gardening

program for junior high school children that Janus Barton started at the Bushwick garden. In the free software world, community esteem for creating a sophisticated, cool "hack" transcends conventional economic incentives.

If the gift economy requires personal commitment and authenticity, market transactions emphatically do not. Relationships in a market are impersonal, episodic and based on monetary gain. In pure market theory, at least, the general presumption is that there *is* no community, just individuals. Unpleasant market results are justified with the disclaimer, "Nothing personal, it's just business."

The power of gift exchange helps explain why selling a piece of "community property" to outsiders is seen as a gross violation. It privatizes a shared resource. It asserts the supremacy of market values over the personal relationships and community values that built the resource. Hence the anger that members of a scientific community often feel if one of its members appropriates jointly developed knowledge and sells it for private gain in the marketplace. Hence Richard Stallman's hostility toward open source code software.

In gift exchange, the increase stays in motion and follows the object, while in commodity exchange, it stays behind as profit.

Capital may *earn* profit, but in a gift economy, a gift *gives* an increase. The distinction, says Lewis Hyde, "lies in what we might call the vector of the increase: in gift exchange, the increase stays in motion and follows the object, while in commodity exchange, it stays behind as profit."[10] The "increase" is a collective gain that may or may not be material in nature, but is always a social gain.

The point is not that property is "better" if shared by a broader number of people, although most Americans would subscribe to that ideal. Nor is it an argument of "communism" versus "capitalism." Communism is as likely to turn surplus wealth into capital as capitalism.[11] Rather, the point is that the market regards surplus property as "profit" to be privatized and extracted, whereas the gift economy sees surplus wealth as a gift to be freely and continuously used by all members of a commons. The result, frequently, is a comedy of the commons.

When anthropologist Bronislaw Malinowski studied the Trobriand Islanders in the western Pacific, he was stunned to discover that ritual gifts such as shell necklaces made a steady progression around an archipelago of islands over the course of ten years. People "owned" the cherished gift object for a year or two, but were socially obliged to pass it on. Several fairy tales — as well as the biblical parable of the man with the talents — warn that a gift that is hoarded loses its generative powers, withers and dies.

The vitality of gift exchange, writes Lewis Hyde, one of the most eloquent students of the subject, comes from the passage of a gift *through* one person to another and yet another. As a circle of gift exchange increases in size, an increase in *value* materializes. Economists might be tempted to characterize this increase as a function of "scale returns" or "network economics," as noted earlier. But the gift economy is not just about the scale of interaction. It has to do with an increase in *social* and *emotional* value that gift exchange generates in a community.

As Hyde puts it: "Scarcity and abundance have as much to do with the form of exchange as with how much material wealth is at hand. Scarcity appears when wealth cannot flow….Wealth ceases to move freely when all things are counted and priced. It may accumulate in great heaps, but fewer and fewer people can afford to enjoy it….Under the assumptions of exchange trade, property is plagued by entropy and wealth can become scarce even as it increases."[12] Thus the paradox of modern capitalist economies, which generate great material wealth that often does not flow to those in need. In the United States, at least, great wealth also coexists with social alienation — the "poverty of affluence," as Paul Wachtel calls it.[13]

These paradoxes are not so inscrutable. They have a lot to do with the beleaguered state of our nation's gift economies. The market economy, through its enclosures, is increasingly supplanting gift relationships. This is disrupting the "hydraulics" of our social ecology. In our market culture, the movement of material wealth is governed by monetary exchange, which seeks to establish a "moral equilibrium" between parties to the transaction. Payment for a good or service establishes an "even-steven" symmetry.

But note how this also results in social entropy: market transactions require no enduring interpersonal connections, moral commitments or community connections. Theoretically, at least, they are considered "private." And the boundaries of ownership are clearly defined. This is a preferred mode of transaction in many

if not most cases. We do not necessarily want to become friends with everyone with whom we do business, and efficient, productive markets need clear property boundaries to function well.

But what happens when property boundaries and market norms becomes so pervasive and intrusive that the viability of gift economies is jeopardized? A kind of social deterioration ensues. Unlike market exchange, the circulation of property in the form of gifts creates a social *momentum* that flows outward — and then back again. "An affluence of satisfaction, even without numerical abundance" becomes possible, writes Hyde.[14] A gift economy helps sustain a social liveliness and satisfaction.

Jonathan Rowe and Edgar Cahn have shown that there are many realms that the money economy has abandoned which can nonetheless be invigorated by the gift economy. In some inner-city neighborhoods and among networks of senior citizens, for example, systems of "service barter" exchange are helping people who have little money meet important needs. A currency of "time dollars" — one dollar earned for every hour of service given, whether lawn-mowing or babysitting — gives members of these communities a way to exchange their time and talents. They can meet economic needs and create social connections in one fell swoop, without money.[15] (The "time dollars" program is somewhat different from most "barter economies," however, because time dollars thrive on social satisfactions while barter exchange can be wholly impersonal and disconnected from a community ethos.)

Similar principles of gift exchange apply to Alcoholics Anonymous, whose much-admired effectiveness in helping people stay sober is attributed to its strong ethic of unconditional gift-giving and sense of obligation to repay the gift.[16]

The Gift Economy in Scientific Communities

Much of the power and creativity of scientific inquiry stems from a gift economy. While researchers are dependent upon grants and other sources of money, historically their work has not been shaped by market pressures. The organizing principle of scientific research has been gift-giving relationships with other members of the scholarly community. A scientist's achievements are measured by recognition in academic societies and journals, and the naming of discoveries — Halley's Comet, Tourette's Syndrome — not by salaries, stock holdings or market share. Papers submitted to scientific journals are considered "contributions." There is a presumption that work will be openly shared and scrutinized, and that everyone will be free to build on a communal body of scientific work.

Such a gift economy seems out-of-step with the contemporary faith in market norms. After all, is it not more efficient and rational for scientists to respond to price signals in the market, and orient their work accordingly? Warren O. Hagstrom, a sociologist of science, has explored this apparent anomaly: "Why should gift-giving be important in science when it is essentially obsolete as a form of exchange in most other areas of modern life, especially the most distinctly 'civilized' areas? Gift-giving, because it tends to create particularistic obligations, usually reduces the rationality of economic action…. Why, then, does this frequently inefficient and irrational form of control [gift giving] persist in science?"

The answer, Hagstrom argues, is that a gift economy is a superior system for maintaining a group's commitment to certain (extra-market) values. In science, it is considered indispensable that researchers be objective and open-minded in assessing evidence. They must be willing to publish their results and subject them to open scrutiny. They must respect the collective body of research upon which everyone depends — by crediting noteworthy predecessors, for example, and not "polluting" the common knowledge with phony or skewed research. The long-term integrity and creative power of scientific inquiry depends upon these shared values.

Market forces are ill-suited to sustaining these values, however, because monetary punishment and reward are a problematic tool for nurturing moral commitment. If someone's ethics, loyalty to the community or moral judgment can be "bought" by money, then those inner values are not really very deep or secure. By contrast, a gift economy is particularly effective in cultivating deep and unswerving values. "The prolonged and intensive socialization scientists experience is reinforced and complemented by their practice of the exchange of information for recognition," writes Hagstrom. "The socialization experience produces scientists who are strongly committed to the values of science and who need the esteem and approval of their peers."[17]

The Comedy of the Commons

A principle that prevails in the gift economy — socially at least, and often materially as well — is a situation in which *greater* value is produced the more the commons is used. Yale law professor Carol Rose call this dynamic the "comedy of the commons" — circumstances in which "increasing participation *enhances* the value of the activity [or property] rather than diminishing it."[18] The basic concept behind the comedy of the commons is "the more the merrier." In ways that traditional economics often overlooks, "an expansive, open-ended public use might enhance, rather than detract from, the value of certain kinds of property," writes Rose.

For example, the greater the number of people subscribing to telephone service, the more valuable telephone service becomes.[19] The more people that use a common standard, such as the QWERTY typewriter layout or Windows operating system, the more valuable that property or practice becomes.[20] And the more people participating in a free software development community, the better the program is likely to be.

This dynamic, traditionally known as "scale returns," has become particularly timely since the advent of the Internet. Often referred to nowadays as "network economics," it is one of the key factors driving the phenomenal growth of electronic commerce. The more people that can interconnect and share information, the greater the value that is created: a key reason why the Internet has become so valuable to both commercial and noncommercial users. The meteoric popularity of the electronic flea market, eBay, is based on the comedy of the commons. The more that information is shared (and then modified, corrected, and used as a platform for still further knowledge-creation), the more that knowledge grows and improves.

The Internet is fabulously promiscuous about creating surplus value. Commercial entities understand this, and are seeking to privatize it (as we see in Chapter 8). But can they? Can they successfully carve out proprietary franchises in the Internet commons — through copyright, proprietary technologies, "walled gardens" such as AOL, etc. — on a technical system designed to maximize the dissemination of information?[21] Or will they come to see the long-term value of gift economies and develop new mechanisms to restrain their natural impulses to over-proprietize?

It is a mistake to regard the gift economy simply as a high-minded preserve for altruism. It is, rather, a different way of pursuing one's self-interest — a much broader, more humanistic brand of self-interest than that sanctioned by conventional economic theory. Furthermore, the "positive externalities" of gift exchanges — the socially created value — can accumulate and expand, creating a comedy of the commons.

This points to the folly of talking about "social capital," as so many sociologists and political scientists do. Capital is something that is depleted as it is used. But a gift economy has an inherently expansionary dynamic, *growing* the more that it is used. While it needs material goods to function, the gift economy's real wealth-generating capacity derives from a social commerce of the human spirit.

3. The Commons: Another Kind of Property

The concept of the commons flies in the face of the modern wisdom that each spot on the globe consists merely of coordinates on a global grid laid out by state and market.... Commons implies the right of local people to define their own grid.

—*The Ecologist* magazine

There is a long tradition among property theorists and libertarians of regarding common property and private property as polar opposites.[1] They find human beings "naturally" committed to rational self-interest and private property. They discount cooperation in pursuit of shared goals as a vestigial trait of little consequence.[2] They declare there is private property (sole ownership) and there is the commons (open access), and not much else in between.

But this viewpoint is highly misleading and contradictory. After all, private property is worthless unless people cooperate with each other, in order to respect each other's property and enforce laws against theft. A civil society, a commonwealth, is needed to administer any property regime. There must be shared cultural norms.[3] The fact is, the free market requires a range of public institutions and cultural norms to support it.[4] From this perspective, the free enterprise system is itself a kind of commons regime: a cooperative endeavor to enhance collective well-being based on rights of private property, contracts and market exchange.

The Misunderstood Commons

The idea that some forms of property are inherently public has its roots in Roman law.[5] The Romans believed that some forms of property, by their very nature, should not be subject to individual ownership and control. These types of property were known as *res extra commercium*. By contrast, property that could only be used in common, because it was indivisible or "fugitive" — such as fish, game, waterways and the ocean — was called *res communes*. The Romans even had a separate legal category, *res publicae*, for property that was reserved for public use by civil servants and politicians. This included public structures, memorials and furniture.

Drawing upon this tradition, American courts developed a distinct line of "public trust" analysis to recognize certain forms of property, such as natural resources,[6] roads and navigable waters,[7] as inherently public property. In recent decades, the legal concept of the "common heritage of mankind" (*res communes humanitatus*) has been applied to deep seabed minerals, human genetic

structures, the global atmosphere and other resources that should not legally be appropriated by any one individual or state.[8]

In a democracy, inherently public property belongs to the people, even if the state nominally owns and formally administers it. The people in common are considered the true owners, and the state is only empowered to act as a trustee for the public. This is not a mere formality, but a substantive legal doctrine that limits the power of government to alienate the people's rights in the property.

In essence, there are *two* different versions of the public embodied in public trust doctrine: "[O]ne is the 'public' that is constituted as governmental authority, whose ability to manage and dispose of trust property is plenary," writes Professor Carol Rose. "But the other is the public at large, which despite its unorganized state seems to have some property-like rights in the lands held in trust for it — rights that may be asserted against the public's own representatives."[9] Thus, under one theory of public trust doctrine, the people are considered sovereign in their ownership, which means that neither government nor private parties can deprive the people of their beneficial interests in common property they own.

A primary use of public trust doctrine in the nineteenth century was to assure that roads and navigable waterways were open to an indefinite, open-ended class of users — i.e., the general public. If a single property owner could prevent the public from using a given stretch of road or waterway, then the scale returns that the public could collectively reap through commerce would be diminished. In the twentieth century, this same reasoning has been applied to assure certain public interests with respect to beaches, water policy, public lands management, the airwaves, wildlife and ecological resources in general.[10]

Some Generalizations About the Commons

There is not likely to be a unified-field theory of the commons any time soon; the taxonomies and approaches vary too much. But this very fact — the adaptability of the commons to local circumstances, from alpine meadows to lobster-fishing fiefs to Internet communities — accounts for its success as a governance regime.[11] It is *not* monolithic and rigid; it is versatile and flexible. This is a disconcerting idea: a single term, the commons, that sanctions an incredible diversity of phenomenon. No uniform charter for the commons can be promulgated because each commons bears the distinctive imprint of its own resource domain, culture, history, legal system, and scale of operation.

Without presuming to propose a grand blueprint, one can identify some general principles that tend to prevail in successful commons management regimes in American life.[12]

Openness and feedback. In a successful commons, from a community park to a university physics department, people know what's going on, and they can share ideas for making things better. This "transparency" is especially important in scientific communities, whose members critique their peers' published research, find flaws, debate hypotheses, and build new research on previous work. Open dialogue helps move this process in more fruitful directions. Similarly, citizens of our democracy use the openness guaranteed by the First Amendment to root out error, provide feedback and develop a political consensus for governing. And, in a small-scale commons, openness allows sheep herders, for example, to monitor the amount of grazing that other animals do, helping to identify and sanction herders who violate the rules.

Shared decision-making. A commons is flexible yet hardy precisely because it draws information from everyone in a "bottoms-up" flow. This means that the rules are "smarter" because they reflect knowledge about highly specific, local realities. Inclusive decision-making is more likely to be more responsive and tailored to actual realities. This helps account for the durability of so many commonly managed fisheries or irrigation systems, and for the ecological sensitivity of well-managed commons. The effectiveness of collective decision-making in a commons is not really surprising. Rules informed by popular participation are more likely to have moral authority because everyone affected by the rules has had a say in formulating them. In addition, because the rules are not mere formalities, but robust social practices that are integrated into people's daily lives, the governance of a commons has great stability and depth.

Interestingly, complexity theory — the science of complex adaptive systems in nature, economics, computer networks and other realms — has a great deal to say about the importance of feedback mechanisms. A complex adaptive system (i.e., an organism, business enterprise, software system, etc.) that has constant and subtle flows of information about the external environment is more likely to

incorporate that knowledge into its governance schema (genes, business strategy, software design, etc.), and so be more likely to survive.[13] Its adaptability, and therefore its ability to compete and thrive, will improve.

It is in this sense that collective participation and decision-making in a commons is highly adaptive, in the Darwinian sense. Rich feedback from decentralized sources yields high-quality intelligence that helps an organism adapt and thrive amidst changes in the external environment. A commons is not the *communism* of the old Soviet Union, which brutally suppressed feedback mechanisms, but the *commonwealth* of the United States, which in principle at least, honors open, robust feedback and democratic change.

Diversity within the commons. While homogeneity within a commons provides some advantages, particularly with small-scale commons in rural settings, larger commons can become more robust precisely because there is a "genetic diversity" among their members. In the theory of evolution, diversity within a gene pool means that there are greater opportunities for adaptive innovations to emerge. Just as biodiversity on the planet has led to the evolution of more sophisticated organisms and a hardy stability,[14] so the diversity of the American populace, *E pluribus unum*, is often cited as a reason for our nation's robust, innovative character. Diversity combined with openness can yield phenomenal creativity, as seen in the free software community and other Internet groups. In the open source software movement, there is a saying: "With enough eyes, all bugs are shallow."

Social equity within the commons. While a commons need not be a system of strict egalitarianism, it is predisposed to honor a rough social equity among its members. That is because everyone has a common stake in a shared future. For both social and practical reasons, no one can be too unequal or disenfranchised without destabilizing the regime. The American polity is predicated on a similar equality of all citizens before the law. A key goal of commons management is to democratize social benefits (e.g., freedom from pollution, safety risks, etc.) that can otherwise be obtained only through private purchase — an option unavailable to everyone.

In a market economy untempered by the values of the commons, serious inequality is not only common but to be expected and even celebrated. In 1998, the average total compensation of the chief executive officers of the nation's largest 350 companies was 400 times greater than the average worker's ($12.4 million versus $31,000), and moguls like Bill Gates and Michael Eisner were lionized.[15] As inequality increases, the ability of the nation to act as a commonwealth declines. Former Secretary of Labor Robert Reich has written about the "secession of the rich," the affluent families who move to gated communities in the suburbs, attend private schools, fly first class and in other ways isolate themselves from the general public.

Such trends are alarming because a healthy commonwealth is predicated on a fairly equal dispersion of wealth. John Adams warned that the people were free "in proportion to their property" and if "a division of the land into small quantities" allowed many to hold property, "the multitude will take care of the liberty, virtue and interest of the multitude, in all acts of government."[16]

A commons is flexible yet hardy precisely because it draws information from everyone in a "bottoms-up" flow. This means that the rules are "smarter" because they reflect knowledge about highly specific, local realities.

Environmental sustainability. A striking feature of some commons has been their durability over centuries without harming the environment. In her book, Ostrom examines a few of them: communal high mountain meadows in Torbel, Switzerland (operating since 1483), *huerta* irrigation regimes in Valencia, Spain (since 1435), and *zanjera* irrigation communities in the Philippines (since the 1600s).[17] This remarkable sustainability certainly has a lot to do with the isolation of these places, cultural norms, and specific design principles. But it can also be attributed to the ability of a well-designed commons to honor environmental sustainability and community stability over sheer material output.

The market has been a fantastically productive engine for creating material wealth, otherwise known as "progress." It has also been a fierce colonizer of resources, with fearsome environmental effects. The commons may not be as productive or efficient as a market regime. But a

commons is far more likely to take into account the long-term repercussions of its choices on the environment, social equity and values. A commons *optimizes* rather than *maximizes*. It is more adept at internalizing the long-term external costs of its activities than markets.

In practice, markets tend to maximize private gain for short-term ends, while commons tend to optimize collective gain for long-term ends. There is a structural incentive for this phenomenon. As long as members of a commons cannot liquidate their interests and invest them elsewhere, their lives and long-term futures are bound up with the fate of the commons. Stewardship of resources, rather than development for private gain in the market, is structurally favored.

Sociability in the commons: the gift economy. Market theory puts forward a cardboard facsimile of human beings in the form of the rational, acquisitive individual — a human ideal that is often extended into inappropriate realms of life. The commons forgoes this monochromatic ideal and quantitative modeling, and frankly traffics in the humanistic realities of people's lives. Not only cultural and local differences, but subtle shades of cooperation, competitive generosity, moral duty, and conscience can play powerful roles in propelling the gift economy of the commons.

I have sketched some of the compelling features of the commons, but it has distinct limitations as well. The commons does not typically give free rein to the kind of delirious entrepreneurial freedom celebrated in the market. Gift economies can be platforms for exceedingly creative achievement, to be sure, but radical individualism can easily run afoul of community norms. Also, the innovation that germinates within the commons – in academia, say, or the Internet — does not necessarily pay off in cold, hard cash. This can be a serious disadvantage, for obvious reasons. Some kinds of work can only get done through the market.

The commons may also be more static, and not as fiercely, calculatedly efficient and dynamic as the market. This can be regarded as good or bad. The market can produce destructive, short-term behavior and ethical abuses — and it can propel the development of new technologies and valuable products. While the commons by comparison may be less dynamic and volatile, it is not as intent on achieving the maximum "through-put" of product as business enterprises are, and therefore is generally more environmentally benign.

The commons, as this chapter suggests, is a far more robust and complicated realm than is generally realized. It does not necessarily produce a tragedy of the commons or the prisoner's dilemma, nor is it as alien to the American experience as one might think at first blush. Still, we do not talk enough, or with sufficient rigor and seriousness, about the commons.

By learning a new narrative of the commons, we gain a lot. Most immediately, we reclaim our ability to talk about the effects of enclosure — i.e., the social, cultural, moral and even spiritual dimensions of life that are sometimes eroded by a market economy. The stability of families and households, citizens' concerns for the natural environment, consumers' aspirations for social leadership by business, struggles for human rights and worker protections in the Third World: such themes need no longer be marginalized as bothersome sidebars to the main action of economic discourse.

The commons allows us to resituate the market squarely in the context of society, in the intellectual tradition of economic anthropologists and institutionalists such as Karl Polanyi, Robert Hale, Thorstein Veblen and others. The *informal* economy of human relationships is pulled out of the shadows, and shown to be a highly influential force in the *formal* economy measured by money and bottom lines. The commons allows us to see and explore critical networks of social reciprocity within households, nonprofit realms, scientific professions, Internet communities, work teams, and our democratic culture. It reveals how the informal commerce of human relationships creates economic value while building social vitality.

To talk about the commons, finally, helps us see how social movements of many kinds — for the environment and conservation, for humane values in commerce and trade, for limits on commercialization in public spaces, and so on — share similar goals. They are all defending the integrity of the commons and its various gift economies against the forces of market enclosure. They all believe that the good society is about more than making money. And they all espouse a vision of humanity as thinking, feeling, caring beings, not as calculating machines.

4. When Markets Enclose the Commons

The true friend of property, the true conservative, is he who insists that property shall be the servant and not the master of the commonwealth. The citizens of the United States must effectively control the mighty commercial forces which they themselves called into being.

— Theodore Roosevelt, 1908

In the wide open prairies of the American West, cowboys and Indians alike once navigated the vast landscape using invisible boundaries and markers — the subtle rise in terrain here, the faint smell of sage there, the sense of distance traveled as gauged by the sun's arc in the sky. Denizens of this landscape had an intuitive sense of their location even if the uninitiated were clueless.

The introduction of barbed wire in the 1870s began to profoundly alter this notional universe. The new property boundaries literally disoriented the former "line riders." In New Mexico, according to one account, "it was said that Standing Deer, the chief of the Taos Pueblo, could no longer find his way back home from the Oklahoma Territories in 1886 because barbed wire fences had appeared. The wire did not physically prevent his passage, but it changed the lines of the landscape. It was as if he was in a completely different world. And he was. In the barbed-wire world, a line that could not be touched did not exist."[1]

The images of this story suggest how the market can remake a landscape: it erects artificial fences that redesign the commons. Property rights and markets have an undeniable utility in exploiting resources, building an economy and settling a region. We have become accustomed to them, they provide us with useful (and gratuitous) goods. Our society needs markets for their tremendous efficiency in producing and distributing goods. But we also need the values of the commons.

This chapter clarifies some basic questions raised by the intersection of markets and commons. What are the effects of enclosure of the commons? How do proponents of enclosure seek to redefine our ideas of the public good? And how has the American tradition of civic republicanism responded?

The Enclosure Movement in England

The metaphor of market enclosure derives from the enclosure movement in England, which occurred at various times beginning in the late 1400s, particularly in the 1500s and during the Industrial Revolution. Throughout the Middle Ages, the traditional use of land was the so-called open-field system, in which arable lands were unfenced and

communally managed. Peasants collectively owned rights to large portions of meadow, health, moorland and forests. They used these commons to grow crops; feed geese, sheep and cows; furnish firewood and peat; and cultivate beehives and fruit trees.[2]

As a way of managing lands in stable, premodern communities, the common lands did not lend themselves to new, more productive methods of agriculture. With the lands being used for subsistence, not market purposes, the incentives were not there. Nonetheless, the lands were an important collective resource for meeting daily needs in many villages — and a supplementary resource in other villages. The lands also had an emotional importance for villagers, too, because they were community resources over which they had some direct measure of control.

As the landed classes of England began to realize that new riches could be had by developing common lands, they began to press Parliament to allow the seizure of the lands, justified by the need for "improving" them.

As the landed classes of England began to realize that new riches could be had by developing common lands, they began to press Parliament to allow the seizure of the lands, justified by the need for "improving" them. Enclosure was attractive to these proto-capitalists because new breeding methods for sheep were making wool production more profitable; the export market for wool was booming; and crop rotation and other agricultural methods could boost the productivity of arable land.

What ensued in the 1700s and early 1800s was a series of 4,000 acts of Parliament authorizing the seizure of some seven million acres of common lands. About two-thirds of the lands were open fields that belonged to cottagers; another one-third were woodland and heath commons. Village-held lands were fenced off and given to private interests. According to one account, "ambitious landlords found that by enclosing and amalgamating several farms and applying [new agricultural methods] they could raise the rents of their lands by phenomenal amounts. The government was happy to sanction this process, since it could derive increased taxes from these higher rents…."[3]

The enclosure movement and other changes of the Industrial Revolution ushered in a host of technologies that were miraculously productive, and promoted the emancipations of liberal democracy and individual rights. But they also swept aside a stable and secure agrarian society, and unleashed brutal social exploitation, neglect and inequality, as chronicled with such acuity by Charles Dickens. The laborer, craftsman and unpropertied poor were left to fend for themselves in a wage-based economy that had no place for them, even as the moral economy of the village was being swept aside.

"Valuable ancient meadows were ploughed up to take short-term advantage of artificially high corn prices," writes *The Ecologist*, "and then, when prices dropped, allowed to relapse to degraded pasture, and large amounts of heathland and forest were destroyed."[4] In the meantime, the new profits that the merchant class reaped from trade, colonialism and more efficient production gave rise to the sumptuous rural mansions that still hulk far out of proportion to the rustic landscapes and village communities: grand monuments to the inequality associated with enclosure.

The gross inequality that stemmed from enclosure was also reflected in a greater concentration of land ownership. It was estimated that by 1876, 2,250 people owned half the agricultural land in England and Wales, and that 0.6 percent of the population owned 98.5 percent of it.[5] The prodigious wealth-creation of enclosure, which made perfect sense in conventional economic terms, had the tragic side-effect of destroying communities and eliminating the independence of tens of thousands of common people. In essence, Parliament had legislated into being a new social system, built in significant measure on the privatization and consolidation of resources previously used in common.

The Imperialism of Market Values

The English enclosures were crucial to the establishment of a market-based society. This brought with it dilemmas which persist to this day. "Instead of economy being embedded in social relations," wrote economic historian Karl Polanyi, "social relations are embedded in the economic system."[6] He dubbed this "The Great Transformation."

The ascendance of the market inaugurated an entirely new ordering principle for society. Instead of the sovereign community controlling the terms of the economy, the ideal

of an autonomous, self-regulating market has become the dominant ideal of social governance. With this there emerged a new emphasis on competitive individualism, material acquisitiveness and rational calculation. But it also brought a marginalizing of cooperation, community and the collective good — traits that are equally essential.

The triumph of the market as a new and improved substitute for democracy is savagely portrayed by Thomas Frank in his book, *One Market Under God*. The plutocrats and cheerleaders of the New Economy disdain the idea that the market creates economic elites and social inequality. Today's business leaders see themselves as populist revolutionaries, liberating the world from labor unions, environmentalists, anti-globalists and other malcontent "elites" who dare to challenge the "democratic" verdicts of the market.[7] Focus groups and polls ascertain the popular will, and The Gap and Banana Republic fulfill our needs.

Varieties of Market Enclosure

The patterns first seen in the English enclosures find similar expression today. The economic calculus of the market replaces the shared norms of the commons. Private interests are increasingly committing "boundary violations"[8] as they erect barbed-wire fences on resources that are publicly owned and on terrain where no private fences should exist. Global water supplies and genetic structures are being marketized (see Chapter 5), and the public domain of knowledge is being fenced off into private holdings through new intellectual property rights (see Chapter 7). Areas of life that have historically had their own measure of autonomy, public orientation or non-commercial value are being colonized by the market.

In the process, the character of these realms is changing. Dubious ethical conflicts seem to surface more frequently. Tensions between community norms and private gain become more acute. Conviviality and collaboration give way to calculation and money-making.

We see these trends as marketization washes over scientific inquiry, public education, government policymaking, Internet culture, mainstream journalism, sporting events, among other areas. Today, proprietary interests are restlessly exploring new frontiers — the human genome, agricultural seed lines, the habitat of endangered species, the global atmosphere — seeking to commodify resources that have historically been regarded as the common heritage of mankind.

There are three primary harms associated with market enclosures:

1. Common assets and revenues that belong to the American people (and in some instances, all of humanity) are being siphoned into the hands of private interests.

2. This is producing an unjust redistribution of wealth and compromising the government's ability to address public purposes.

3. Robust gift economies that sustain family life, academic communities, and democratic deliberation — among many others — are being propertized and converted into market regimes. This transformation is subverting many moral/social economies that make our society stable and livable.

To talk of market enclosure is to help identify the publicly owned assets that serve as hidden subsidies to private businesses, propping up their market performance and facilitating their growth. Market enclosure describes the drug makers who use their political muscle to extend their patent protection and so extend their ability to charge monopoly prices. Market enclosure describes the land owner who wants to build subdivisions in wetlands and destroy species habitat, asserting market uses over the elemental needs of an ecosystem.

It is important to speak of market enclosure because it re-frames the traditional economic narrative of the market. What the market considers incidental externalities (toxic waste, species extinction, safety hazards), the narrative of the commons regards as an assault on the commons. Marketeers presume an entitlement to privatize clean air and water, public spaces and even shared cultural images and words. George Washington's birthday is now more renowned as a big sales weekend than as a patriotic celebration, Nike has insinuated its image into every nook and cranny of sports, and the Disney Company has touted itself as "the people who taught you how to laugh."

The central role of market forces in American life is not so distressing as their *ubiquity* and *reach*. It is not market activity itself which is objectionable; it is the intrusion of market activity far into the commons, on terms that expropriate public wealth and/or violate important common values.

Contemporary market enclosures take two primary forms, and possibly a third:

1. Appropriation. These are enclosures in which the public holds clear property rights in a resource, but the government, acting as a trustee for the public, cedes the asset (or use rights) to private interests at below-market prices or for free. This is a recurrent pattern in the government's stewardship of public lands, and in the giveaway of the airwaves and federal R&D and information databases. The public thus pays twice: for the (cheap/free) appropriation of its assets and for the subsequent monopoly pricing of the commercial product.

Appropriation has different implications if it involves depletable assets (minerals, oil, etc.) as opposed to non-depletable resources (electromagnetic spectrum, satellite orbital sites) or renewable resources (timber, fisheries). The damage that occurs from the appropriation of depletable assets tends to be more severe and irreversible, financially and environmentally. By contrast, the appropriation of non-depletable resources such as the airwaves used by broadcasters is chiefly an allocation issue that can be reversed; there is no lasting harm to the asset. Similarly, the appropriation of renewable resources need not have permanent effects (even though overexploitation is a serious risk).

2. Marketizing the Inalienable. This is the most intrusive sort of enclosure: when commercial interests seize a common resource which embodies deeply help values and so is "not for sale." This is the objection that many people have to the patenting of the human genetic code, or to selling captive audiences of schoolchildren to national advertisers. Allowing the market to exploit these "resources" is seen as degrading to the individuals, to our sense of community, and to shared civic and public values. It is a boundary that is frequently violated, and for which there are few easy remedies.

3. Incomplete Commodification. A third form of commodification may or may not represent a market enclosure. This is the category of "incomplete commodification," which lies between the two poles of appropriation and the colonization of non-market resources. This term is used by legal scholar Margaret Jane Radin to refer to property or interactions in which the social meanings of marketization are not binary and mutually exclusive. The regulation of workplace safety, for example, places limits on how private property may be deployed. Rules to protect wetlands affect the "bundle of rights" that property owners can enjoy. In essence, a balancing of community and private interests is achieved, as mediated by politics and government. Incomplete commodification reflects either a pragmatism in reconciling certain values we wish to be inalienable (breathable air, personal health and safety, clean water) with a market order, or an inconclusive political struggle over the degree to which commodification will occur or inalienability be preserved.

If the market orders social relations, how then shall we preserve those values and resources that we *do not* want to see commodified? How shall the commons be preserved in the face of the market's great potency in enclosing them? What regimes of partial commodification might be feasible (through regulation, for example) as an acceptable middle ground? Or is the unfettered market destined to swallow up everything we hold dear?

Civic Republicanism and the Market

In American history, the traditional response to such questions has come from the proponents of civic republicanism. The *commonwealth* is seen as an instrument of the people for containing the abuses associated with property and the market. This strand of legal scholarship and political activism is described by Gregory S. Alexander in his magisterial history, *Commodity and Propriety*, about competing visions of property in American life. º"According to this view, property is the material foundation for creating and maintaining the proper social order, the private basis for the public good." [9]

This tradition, whose roots can be traced back to Aristotle, understood the individual human as an inherently social being, inevitably dependent on others not only to thrive but even just to survive. This irreducible interdependency means that individuals owe one another obligations, not by virtue of consent alone but as an inherent incident of the human condition.[10] To proprietarians, then, the state is fully justified in forcing individuals to act for the good of the entire community when they fail to meet their basic obligations to other humans.

This is the vision of commonwealth, the idea of a civic republic that was given great elaboration by Thomas Jefferson and the anti-Federalists. A core concept of republicanism, explains Alexander, "was the idea that private 'interests' could and should be subordinated to the com-

mon welfare of the polity."[11] The inhabitants of the populist commonwealth are a different human archetype than the individualistic utility-maximizers of economic theory. The civic republican sees production as a vehicle for family and community well-being, not just for oneself. People are not just producers and consumers, but *citizens* who have an active interest in community decisions and the common good.[12]

This "civic meaning" of property favored by Jefferson and other civic republicans, however, was soon transmuted into a similar, but distinctly different, brand of *commercial* republicanism. To Alexander Hamilton and Noah Webster, it became important for property to be *alienable*, or transferable to others through markets, so that the vestiges of feudal privilege, based on inalienable land and property, could be swept aside. Thus alienability of property was seen as a way to promote individual freedom and democratic equality. Bringing resources into the market would liberate them from the feudal order — and unleash the dynamic energies of a free market. In this context, direct restraints on the alienability of property were seen as improper because, according to the *American Law of Property*, "resources would be more likely to be wasted because they would be taken out of the stream of commerce, improvements would be discouraged, wealth might become more concentrated, and creditors potentially could be misled."[13]

Thus, the idea of civic republicanism was transmuted into an ideal of commercial republicanism. Republican virtue no longer focused on the community or the ability of citizens to participate in public life. It focused on the ability of individuals to pursue wealth and social prestige through commerce.

The common good was not forgotten. It was artfully redefined as the Invisible Hand. Adam Smith's famous metaphor of how individual self-interest expressed through markets yields the common good may have made sense when moral law and political tradition actually stood above the market economy.[14] But circumstances have obviously changed, transforming the Invisible Hand from an explanatory metaphor into an ideological shibboleth. Morality and politics have only irregular influence these days in controlling the amoral behavior of markets, whose excesses are generally curbed only when a visible public backlash can be mobilized to punish the seller.

Note how the concept of alienability of property, which once had been so important in sweeping aside the old aristocratic order, now takes on a new importance, in justifying an open-ended expansion of the market. Alienability now legitimates the idea that nearly everything *ought* to be available for commodification, privatization and market exchange — and that these principles will assure the common good.

The prosperity that markets can bring has its distinct limits. "As society becomes more marketized, it is producing stagnation of living standards for most people, and a fraying of the social fabric that society's best-off are all too able to evade," explains economic commentator Robert Kuttner in his thoughtful 1997 book, *Everything for Sale*. "One thing market society does well is to allow its biggest winners to buy their way out of its pathologies."[15]

The "proprietarian" tradition, Alexander writes, regards property not just as a commodity to sell in the market, but as an important tool for sustaining the American commonwealth.

Clearly the surging marketization of American life — the leitmotif of the 1990s — hasn't solved our social problems. In fact, the market's erosion of our extra-market values and norms has aggravated, not alleviated, the savage inequalities and unmet social needs in America today. [16]

Do we really want market forces deciding what sorts of new species shall be unleashed into the ecosystem? Do we really trust the market to serve as a vehicle for our democratic aspirations, as today's "market populists" urge us?

The concept of "enclosure" helps us confront these issues by concisely describing a pervasive imperialism of market values and by pointing to the need for a revival of our civic republican tradition.



Varieties of Market Enclosure

PART II

5. The Colonization of Frontier Commons

You can do better than nature.

— James Young, executive vice president, MedImmune, a biotechnology firm[1]

In 1896, a major shift in the nation's cultural consciousness was occurring, as historian Frederick Jackson Turner famously described in an essay on "the closing of the American frontier." For the first time in the country's history, there were no longer any unknown territories to explore, said Turner — just the mundane task of colonizing the remaining spaces. For an entrepreneurial nation weaned on the idea of a vast, endless frontier, this was a startling realization: the existence of limits.

Today, more than a century later, the classic American quest for social regeneration through frontier exploration persists. But now it is focused on a rather different kind of frontier — the basic processes of nature. Today's entrepreneurs are not rushing to claim geographic spaces. They are seizing the habitat of wild creatures, the flow of global water supplies, and the genetic structures of plants, animals and humans. Minerals on the bottom of the ocean, the orbital zones of outer space, the global atmosphere — all are objects of competitive acquisition.[2] Realms of the natural world that we have always regarded as shared and infinite are being rapidly depleted and privatized.

This is a radical new step in humankind's history. Until recently, humans did not have the knowledge or tools to consider a re-engineering of nature at its smallest and largest scale. The idea of remaking the planet's life-support systems was comic-book fare. Creating clones of living creatures or reinventing their genetic code was the stuff of science fiction.

It is our peculiar modern superstition that more knowledge, in and of itself, is highly desirable or at least benign, and that what can be done should be done. Yet as the history of nuclear weapons and nuclear power suggest, there are limits that humankind ought to respect, or at least not give over to high-tech hucksters. There is a disturbing banality to *The New York Times*' story, "Selling Evolution in Ways Darwin Never Imagined," which describes how laboratory scientists experimenting with "directed evolution" are trying to achieve in weeks what previously took millennia. The penetration of market forces into nature is much deeper than many of us imagined.

This section surveys three frontier domains that are increasingly besieged by commercial forces that aim to convert some raw forces of nature into lucrative feedstock for the market. These include: global water supplies; wildlife and ecological areas threatened by the "takings movement;" and the genetic structures of life itself.

The Market Enclosure of Global Water Supplies

The ready availability of fresh water for drinking, agriculture and industry is generally taken for granted. Aren't the world's supplies of water vast and virtually limitless? In fact, they are not. Most of the world's water is seawater or frozen water in ice caps. Less than one-half of one percent of the world's water is available as fresh water. As the world's population swells, global industry expands and clean water sources become depleted, water supplies are actually becoming extremely scarce, particularly in developing nations and in equatorial regions. Demands for fresh water are intensifying so rapidly that a top World Bank official predicts that "the wars of the next century will be about water."

What is to be done?

Sensing a keen market opportunity, a handful of multinational corporations are maneuvering to commodify and privatize whatever water supplies can be had, and then transport millions of cubic meters of water to nations around the globe. Two French multinationals, Vivendi SA and Suez Lyonnaise des Eaux, are the dominant leaders in privatized water, owning water companies in approximately 120 countries on five continents and distributing water to nearly 100 million people. But many other water transport enterprises are trying to capitalize on water shortages by buying up rights to water — in Alaska, Canada, Scotland and elsewhere — and assembling the distribution technologies and partnerships to make some serious money.

The envisioned global market for water would divert massive supplies of fresh water and send them by tanker, pipeline and even floating plastic bags to thirsty regions of the world: Spain, Morocco, the Middle East, Southeast Asia, the southwestern United States. Just as oil and coal are treated as basic commodities, so water would become just another natural resource for exploitation, trade and speculation. While Americans may take for granted public-sector management of water supplies, the new water-supply businesses hope to privatize more of the world's public water utilities and integrate them into the global market.

The sweeping ambition of these companies is set forth in a remarkable 1999 report by Maude Barlow, *Blue Gold: The Global Water Crisis and the Commodification of the World's Water Supply*. The report describes the coming global marketization of water and its alarming consequences for the environment and poor people.[3]

The idea of a global market for water might seem benign, ingenious or even humanitarian were it not for the fact that it is likely to usher in devastating ecological consequences and gross social inequities. Commodifying water means that it is no longer regarded as having a local context. If there is a market — a seller of water in Canada, say, and a buyer in Saudi Arabia — then according to market logic, there is no reason why that transaction should not occur. Canada contains nearly one-quarter of the world's fresh water. Why not sell it around the world and let Canada become the future OPEC of water?

This market logic blithely ignores the imperatives of nature. Canada's lakes and river systems flow northward. "To move large volumes of this water would massively tamper with the country's natural ecosystems," writes Barlow. In areas where the water is diverted, the vitality of plant and animal life, not to mention human communities and local economies, would suffer. As hydroelectric dams have shown, water diversions can cause local climate change, reduced biodiversity, mercury poisoning, loss of forest, and the destruction of fisheries habitat and wetlands.[4]

Champions of the new global market for water claim it would improve efficiencies and lower prices. It would supposedly help cash-strapped nations to improve their water-supply infrastructures. But like most other markets, the global water market would depend upon all sorts of hidden government subsidies. For example, many cities already give industrial water users reduced water rates or special tax subsidies. This practice artificially lowers costs to businesses and discourages conservation — at the expense of everyone else, especially taxpayers and low-income water users.

The marketization of water means that equity issues take a back seat to the needs of the wealthy. When water was privatized in the Sacramento Valley in the early 1990s, large buyers hoarded vast quantities of water, waiting to sell it on the open market when prices were higher. "A small handful of sellers walked away with

huge profits, while other farmers found their wells run dry for the first time in their lives," writes Barlow. "[T]he results were disastrous; the water table dropped and the land sank in some places."[5]

When water becomes a commodity, affluent businesses, cities and nations will be able to buy what they want. But the rest of the world, especially the poor, is likely to go thirsty. In the "free trade" zone of Calexico, California, for example, water is so scarce and expensive that nearly all of it goes to manufacturers for the U.S. market. Infants and children reportedly drink Coca-Cola instead of water. In a global water market, the private purchasing power of cities like Phoenix and Los Angeles will be pitted against farmers, small towns and indigenous peoples living hundreds of miles away. One can easily guess who would win such bidding wars.

"Human lives depend on the equitable distribution of water resources," declared the South African Municipal Workers' Union in its fight against the privatization of water supplies in that nation. "The public should be given a voice in deciding whether an overseas-based transnational corporation whose primary interest is profit maximization, should control those critical resources. Water is a life-giving scarce resource that must, therefore, remain in the hands of the community through public sector delivery. Water must not be provided for profit, but to meet needs."

Finally, when public-sector control of water supplies is transferred to private corporations, traditional standards of public disclosure and accountability are lost. A private company is more directly answerable to shareholders, after all, and not the general public. A private company can more easily resist demands for better water quality, safety and information disclosure than a publicly owned or regulated utility.

Because the imminent enclosure of the global water supplies could wreak far-reaching ecological, social and political havoc, groups such as the International Forum on Globalization are seeking to persuade international bodies to declare water a human right. Water should be left to its natural flows whenever possible, and it should be conserved and treated as a public trust. Establishing the principle that water is a common, inalienable good that should be protected from market enclosure will be one of the most formidable global challenges of the next few decades. Considering that one billion people on earth already lack access to fresh drinking water, and that demand for fresh water is expected to rise by 56 percent in the next quarter century, the private commodification of public water supplies is a distressing trend indeed.

The "Takings" Movement

As the environmental movement has succeeded in enacting new laws and regulatory systems to protect wetlands, wildlife, rivers, coastal areas and other environmental commons, a counter-movement dedicated to "property rights" has arisen to claim that these protections are unconstitutional. This movement of developers, private landowners and conservative ideologues bases its claims on the Just Compensation Clause, or Takings Clause, of the Fifth Amendment, which states, "[N]or shall private property be taken for public use, without just compensation."

Historically, this clause has been used to assure that government does not abuse its powers and physically seize private property without paying just compensation. The clause was inspired by abuses during the Revolutionary War in which armies arbitrarily seized private property to support the war effort. But the takings movement, or so-called "Wise Use" movement, ignores the plain language of the clause and any pretense to a strict construction of the Constitution. It audaciously asserts a broader, more tenuous meaning — that any government regulations that diminish the market value of private property, especially real estate, constitute an unconstitutional "seizure" of property. For example, if federal law prevents a landowner from building on wetlands, or if the Endangered Species Act prohibits development on a fragile breeding ground for migratory birds, such laws are said to violate the Takings Clause.[6]

Notwithstanding the slender historical and legal evidence for such a reading of the Takings Clause, the Wise Use movement has used it as the centerpiece of an aggressive political and litigation campaign. In virtually every session of Congress for more than a decade, the movement has introduced legislation seeking to make it easier for landowners to bring "takings" claims against federal, state and local governments. The goal is to sanction nearly absolute property rights to landowners and to cripple the government's ability to protect the environment. It is an ideologically driven effort that willfully misrepresents the original intent of the Constitution's framers and falsely recruits such thinkers as John Locke and James Madison as champions of *laissez faire*.

The essence of the Wise Use movement is to recast government as an instrument for converting natural resources into private property, and then to strictly protect that property against any other claims.[7] The movement is largely financed by large agribusinesses, mining interests and land developers who invoke the western myths of self-reliant, independent farmers and cultivate a *faux*-grassroots public face.

As much as they respected individual rights, the Founders were not absolutists. They believed in the importance of *commonwealth*, and saw property rights as a means for serving the common good, and not as an end in itself. The Takings Clause was intended as a straightforward prohibition against seizures of property, and was not meant to undermine the very premises of republican government — its ability to protect and defend the "common welfare."[8]

Since the Romans and early English law, wild animals have been considered inherently public property that governments have the right to manage.

Despite these arguments, the Wise Use movement has sought to apply the Takings Clause to dozens of environmental battlefronts. One of the latest and most radical claims asserts private ownership of wildlife. The Wise Use movement has challenged the government's right to restrict development and tree harvesting as a means to protect threatened and endangered species. Individual landowners argue that wildlife essentially belongs to them, and that the government must therefore pay for what it regards as public infringements of their property rights. The position is patently extreme. Since the Romans and early English law, wild animals have been considered inherently public property that governments have the right to manage.[9]

The Wise Use movement refuses to recognize the value of government actions that *enhance* the value of private property, either through regulation (by maintaining or improving the quality of land) or through infrastructure investments such as canals, railroads and highways (which create new commercial opportunities). These sorts of government actions amount to a windfall for private property owners, but the Wise Use movement sees no need to assess alleged "takings" in light of such "givings." The environmental movement, particularly the Environmental Policy Project at Georgetown University Law Center, has mounted a stalwart legal response to the Wise Use movement. But this has barely checked, and has not reversed, the well-funded and relentless campaign to expand private property rights at the expense of the commons of nature.[10]

Propertizing the Genetic Structures of Life

Few enclosures of the commons threaten to usher in as many profound changes as the propertization and privatization of genetic structures. In disruptive, unpredictable ways, humans are asserting the prerogative to engineer the genetic boundaries that separate species, threaten the stability of ecosystems by introducing entirely new organisms, and tinker with the genetic codes that shape our personalities, bodies and health. Biotechnology holds a huge, if unknowable potential, for creating treatments for ancient scourges — and unleashing worldwide contagions and environmental catastrophes.

There are many complicated dimensions to biotechnology, but one worrisome trend is conversion of our shared genetic heritage into a privately owned inventory managed for commercial gain. The genetic structures of life, which have "belonged" to everyone from time immemorial, are being commodified in order to move them from the public commons to private markets, with all the shifts in power, accountability and moral norms that such a conversion entails.

Substituting Market Monocultures for Agricultural Diversity

Implicitly acknowledging that contemporary agricultural practices are not ecologically sustainable, companies such as Monsanto are pioneering a new generation of agricultural technologies, especially genetically engineered crops. The idea is to produce even more productive yields and novel traits by altering the genetic blueprints of crops. Already Monsanto has marketed NewLeaf potatoes and Bollgard cotton, which are resistant to some insects; YieldGard corn, which can survive droughts; and Roundup Ready seeds, which allow farmers to spray plentiful amounts of Monsanto's herbicide, Roundup, without harming the plant.[11] Other companies are exploring exotic possibilities such as implanting mouse genes in tobacco leaf, bacteria in cucumbers and tomatoes, and chicken genes in potatoes. Some biotechnologists hope to develop crops that will contain high doses of vitamins and vaccines.

The shift to genetically modified (GM) crops has happened quietly and rapidly. In 1995, virtually no genetically modified food was being grown in the United States. Three years later, farmers planted some 28 million hectares of it. By 2000, 36 percent of the U.S. corn crop was coming from GM seeds along with 55 percent of soybeans and 43 percent of cotton. The USDA has approved some 50 GM crops for unlimited use.[12] While many GM innovations may ultimately prove valuable and benign, they often entail a perilous enclosure of the agricultural commons. This is seen in a reduction in genetic diversity, proprietary control of seeds at the expense of farmers, new corporate controls over research and information exchange, and greater industry consolidation.

Perhaps the most serious impact of this market enclosure is the "genetic erosion" fostered by the consolidation of the life sciences industries. "We're down to about ten companies that control in excess of one-third of the global commercial seed market," said Pat Mooney of the Rural Advancement Foundation International (RAFI), a leading advocate for socially responsible agriculture and conservation. "Twenty years ago not even one company occupied a significant percentage of the global seed market."[13] Among leading seed companies, 68 acquisitions occurred between 1995 and 1998, furthering industry concentration and thus the diversity of seedlines available to farmers.[14]

Industrial agriculture prizes uniformity of product and monocultures over the rich biodiversity of nature. This familiar tendency can be seen in over-bred apples, tomatoes, strawberries and asparagus. Agribusiness researchers have sacrificed the natural taste and juiciness of these fruits and vegetables for hard, uniform and bland substitutes that are seen as more compatible with industrial farming and distribution. The payoffs from a consolidated mass market with uniform product are seen as a better investment risk than a diversified, decentralized product and market — a bet that apple growers recently lost as demand dried up for perfect-looking, not-very-tasty apples .[15] Industry consolidation is now hastening a further decline in agricultural biodiversity by making fewer seed varieties available to the market. As less natural cross-fertilization of seedlines occurs, the genetic diversity of crops shrinks. The result: a narrower, less robust genetic base that is more likely to lead to serious crop failures such as the Irish potato famine and U.S. corn failures of the 1970s.

The enclosure of the agricultural commons has other manifestations. In trying to "improve upon" nature with a more market-friendly product, genetic engineers introduce transgenic novelties that nature would never produce on its own. This can be very dangerous because plants with bizarre traits may reproduce and fan out into the wider environment, causing unpredictable disruptions. If GM plants reproduce with other species, it is entirely possible that farmers could inadvertently create new "super-pests" and "super-weeds" that could not be controlled with conventional pesticides and herbicides.[16]

One genetic innovation that has been roundly criticized is Monsanto's gene-splicing of the natural insecticide Bt (Bacillus thuringiensis) into potatoes and corn. The idea is to repel pests such as the corn borer without having to use chemicals. But over time, the Monsanto-engineered potato and corn could result in widespread insect resistance to Bt while hurting other species in the bargain. (Cornell researchers found that corn pollen with GM Bt can kill monarch butterflies.) "For private gain, Monsanto will have destroyed a public good — the natural pesticidal properties of Bt," one farmer complained. "They are hoping to make a mint selling Bt-laced potatoes and, in the process, deprive their competitors (organic farmers) of an essential time-honored tool. The strategy is brilliant, and utterly ruthless."[17]

Going beyond most other technologies, genetic engineering externalizes unknown costs to future generations and the workings of nature itself. By traversing the species barrier that nature has erected, for example, biotechnology threatens to undermine nature's way of isolating pathogens. "Transgenics may let pathogens vault the species barrier and enter new realms where they have no idea how to behave," write Amory and L. Hunter Lovins. "It's so hard to eradicate an unwanted wild gene that we've intentionally done it only once — with the smallpox virus."[18] Unlike many industrial accidents, the "genetic pollution" that could result from slipshod genetic engineering could be irreversible and calamitous. "You cannot recall a new form of life," said Dr. Erwin Chargoff, the eminent biochemist often called the father of molecular biology. "It will survive you and your children and your children's children."[19]

The agricultural commons is diminished in yet another way by corporate enclosure: new intellectual property rights thwart the open sharing and sale of seeds

with others, as in a commons. To assure its proprietary control of genes that were once accessible and shared by all, Monsanto, through patents and contracts with farmers, has sought to jealously control who can have access to the seeds. Farmers are charged an extra "technology fee" for GM seeds, over and above the normal cost of the seeds. Farmers who buy GM seeds are also required to sign a contract that allows the company to dictate how the seeds are planted and to police the farmers' lands to assure compliance.

The ultimate attempt to secure proprietary control of seeds can be seen in the so-called Terminator seeds. The goal of these seeds, genetically modified to be sterile, was to prevent farmers from saving their own seeds for later use. If plants with sterile seeds could be made the norm, farmers would have to buy seeds every year from biotech firms such as Monsanto and AstraZeneca. Even better, sterile seeds were seen as a way to displace non-hybrid crops such as wheat, rice, soybeans and cotton, whose seeds can be used each year. (Hybrid seeds cannot be used without degradation in quality and consistency in the crop.) Not surprisingly, the world's subsistence farmers are alarmed at the prospects of sterile seeds becoming more common. The U.N. African delegation has warned that sterile seeds will "destroy an age-old practice of local seed saving that forms the basis of food security in our countries" and "undermine our capacity to feed ourselves."[20]

Essentially, sterile seeds were part of the biotech industry's attempt to supplant the common pool of nature's seeds with a private inventory of proprietary seed. (The strategy resembles Microsoft's notorious attempts to subvert open software programs and standards by substituting their own proprietary programs and protocols.) In defense of its property rights, Monsanto argued that sterile seeds are a way to protect a company's R&D costs in developing more productive, pest-resistant and drought-tolerant crops. Growers who save and replant patented seeds "jeopardize the future availability of innovative biotechnology for all growers" said a Monsanto ad. "And that's not fair to anyone."[21]

But critics correctly realize that the enclosure of the agricultural commons would be worse. Seed companies would dominate the market with expensive seeds having dubious long-term benefits. Farmers were especially outraged at the idea of abrogating the gift-exchange ethic with nature that has sustained farming for centuries. Farmers would be turned into seed junkies, say other critics, because farmers that converted to GM plants would become utterly dependent upon the biotech suppliers. [22]

After a mounting wave of protest from consumers and food processors such as Heinz, Gerber and Frito-Lay, Monsanto in October 1999 announced that it would not seek to commercialize sterile seeds. Some biotech companies are now promoting GM seeds that have genetically engineered traits that can be turned on and off by spraying certain chemical activators on them. Critics have dubbed these Traitor seeds, and point out that the GM seed toxins and activation sprays could change the mesofauna of the soil and harm birds and insects.

Conclusion

Theodore Steinberg, author of *Slide Mountain or the Folly of Owning Nature*, points out that we are "a society that organizes its relations with the world, the natural world in particular, around the concept of ownership. Such a culture is so dedicated to control, so obsessed with possession, that it is willing to deny the complexities of nature to satisfy its craving to own. It is a culture lost in a fantasy world, a society that has long dealt with nature through the American dream of property ownership."[23] Attempts to colonize and propertize nature to new extremes are likely to come to a bad end — a genetic catastrophe, the erosion of nature's biodiversity, a blight on nature's glory.

There are limits to our abilities to regiment nature, to make it adhere to the contrived orderliness of the market. Market enclosures of nature can trigger long-term consequences that we do not, and cannot, anticipate. Unfortunate "externalities" occur precisely because the field of vision sanctioned by markets is so parochial. That is why we must respect the integrity of the commons, which insists upon a more holistic perspective on nature and humanity. It is not just a matter of aesthetics or culture that motivates respect for the commons, but a practical imperative as well.

6. The Abuse of the Public's Natural Resources

We have to remain constantly vigilant to prevent raids by those who would selfishly exploit our common heritage for their private gain. Such raids on our natural resources are not examples of enterprise and initiative. They are attempts to take from all the people for the benefit of a few.

— President Harry S. Truman, December 1948,
at the inauguration of Everglades National Park.

Not many Americans realize that they collectively own one-third of the surface area of the country and billions of acres of the outer continental shelf. The resources are extensive and valuable: huge supplies of oil, coal, natural gas, uranium, copper, gold, silver, timber, grasslands, water and geothermal energy. The nation's public lands also consist of vast tracts of wilderness forests, unspoiled coastline, sweeping prairies, the awe-inspiring Rocky Mountains, and dozens of beautiful rivers and lakes. Public lands represent an unparalleled commons for the American people, held in trust by the U.S. Government.

As the steward of these public resources, the government's job is to manage these lands responsibly for the long term. The sad truth is that government stewardship of this natural wealth represents one of the great scandals of the 20th Century. While the details vary from one resource domain to another, the general history is one of antiquated laws, poor enforcement, slipshod administration, environmental indifference and capitulation to industry's most craven demands. Through sweetheart deals pushed through Congress and federal agencies, corporations have obtained discount access to huge quantities of publicly owned oil, coal, minerals, timber and grasslands while wreaking serious environmental havoc.

Every few years, another unsavory episode of public lands abuse finds its way into the mainstream press. Almost invariably, however, reform efforts are slowed down or stopped. Time after time, a compliant Congress and captive federal agencies agree to throw open public lands to commercial exploitation on some of the cheapest terms imaginable. The mismanagement has cost the American people untold billions of dollars in revenues. It has also resulted in new environmental abuses, intensified pressures on endangered species, aggravated public health problems, and new concentrations of corporate power.

This chapter examines the sorry history of U.S. Government management of four major types of natural resources — minerals, oil, timber and grasslands.

Minerals for the Taking

The granddaddy of all corporate welfare programs may be the Mining Act of 1872, a relic of the Old West that allows mining companies to extract billions of dollars in gold, silver, copper and other minerals a year without paying a cent in royalties to the federal government. Signed into law by Ulysses S. Grant, the Mining Act allows anyone to enter any public lands not specifically stipulated as off-limits and explore for minerals there. If minerals are found, they can be removed without the claimant needing to pay any royalties. If a discovery is made, as defined by the act, the claimant can apply for a "patent" — full title to the land — and receive it for either $2.50 or $5 an acre, depending upon the type of minerals discovered.[1]

In its original vision, the Mining Act was meant to encourage the development of the West. Like the Homestead Act of 1862, it was portrayed as a populist vehicle to promote settlement of the West. In practice, the Mining Act has served as a nearly impregnable fortress of corporate welfare for the nation's leading mining companies.

Astonishingly, this giveaway scheme for minerals on public lands has prevailed for the past 128 years with little modification. Under its auspices, a mass of land the size of Connecticut has been acquired for $5 or less an acre, and billions of dollars of minerals have been carted away for free. In 1999, there were 3.1 active mining claims on federal lands comprising more than 20 million acres. Total government revenues from mining leases in 1999 were a paltry $8.8 million. Since 1872, the federal government has given away more than $245 billion of mineral reserves through patenting or royalty-free mining. According to the U.S. Public Interest Research Group, the government could reap $1 billion over five years by charging modest royalties of only 8 percent on gross revenues.

Over the decades, politicians have found it convenient to rail against "welfare queens" bilking the public treasury, while giving a wink and a nudge to a rogue's gallery of mining companies that have found a quiet, lucrative subsidy in the form of the Mining Act. The Canadian-controlled company American Barrick Resources has mined the largest single known gold deposit in the U.S. — the Goldstrike mine in Nevada, worth an estimated $7 billion in 1990 — without paying any royalty fees. Under the Mining Act, the company later acquired the land for $5 an acre. Phelps Dodge has mined billions of dollars of copper from the Morenci mine in Arizona. The company bought the land atop the mines, and thus the mining rights, for $5 an acre "federal land for the price of a cheeseburger," as one critic put it. Fifty years after exploiting the deposit, Phelps Dodge estimated that the copper reserves remaining in the mine were worth $10 billion.

Sometimes mining patents are used to acquire land for development or other purposes at a huge discount, with no mining even contemplated. One of the more infamous cases was a speculator's purchase of land in Keystone, Colorado, for $2.50 an acre, which he promptly resold to a developer for $11,000 an acre. Other mining claims have been used for hunting cabins, ski slopes, luxury hotels, and plots for growing marijuana. Challenging such abuses of Mining Act claims in court can be difficult, however, because of the legal burden of proof that the government must meet.

The Mining Act is also an environmental disaster. It explicitly designates mining as the highest priority for public lands on which minerals are found. This makes it difficult, and often impossible, for government agencies to balance competing uses of the land, including uses that would be more environmentally benign or economically sustainable. For example, a company mining pumice could not be stopped from siting its mine above the Jemez River in New Mexico, a congressionally designated wild and scenic river area.

The water pollution associated with abandoned mines and mine tailings is another cost that mining companies simply pass on to taxpayers and nearby residents. Acids, cyanide, other toxic runoff from mines routinely kill vegetation, wildlife and streams — an estimated 12,000 miles of streams nationwide. There are more than half a million abandoned and polluting mines in the country, with 70 of them officially designated as Superfund sites. The people who live near mines suffer much greater risks from unsafe drinking water, soil contamination and lead poisoning.

Even after the EPA spent $200 million cleaning up the Bunker Hill lead smelter in Silver Valley, Idaho, sediment contaminated with cadmium, arsenic and zinc were found across 1,500 miles of the Coeur d'Alene River basin. Approximately 26 percent of two-year-olds in the area have been found with dangerous levels of lead in their blood. Cleaning up abandoned mine sites could cost as much as $32 to $72 billion, according to the EPA.

That a law so flagrantly irresponsible in its fiscal, environmental and public health impacts can remain in force is a testament to the political power of the mining industry and key western Senators under its sway. Efforts to revamp the 1872 Mining Act have repeatedly been defeated over the past 128 years. It is no coincidence that the National Mining Association and other mining-related political action committees gave nearly $40 million in congressional campaign and soft money contributions from 1993 to 1998: merely the most recent installments of industry "incentives" to politicians. "Considering that the mining industry received $1.2 billion during that period," writes U.S. PIRG, "mining industry contributors received a 30:1 return on their investment."

With a straight face, the industry argues that it needs incentives to continue mining. But the need for it to pay royalty fees to owners of *private* lands does not seem to discourage its mining them. In any case, mining companies already enjoy so many tax write-offs — for exploration, reclamation and normal business expenses — that the write-offs can actually exceed the costs of digging a mine. The industry even enjoys a percentage depletion allowance for the diminishing value of their initial "investment" in mineral reserves — reserves for which they paid nothing! The tax revenues foregone do not begin to take account of royalty-free access to public lands or the massive environmental clean-up costs. But these tax breaks are small change compared to royalty-free access to public lands or the massive environmental clean-up costs. The scenario is particularly outrageous considering the very high profits of mining companies and large foreign ownership within the industry.

Oil from Public Lands

At least since the 1960s, the nation's leading oil companies engaged in a running accounting scam — only recently stopped — that allowed them to evade billions of dollars in royalty payments for the 600 million gallons of oil they were extracting each year from public lands. Even when the underpayments were brought to the attention of the Interior Department's Minerals Management Service — the agency charged with collecting oil royalties — the deception was allowed to continue and was fiercely defended by key oil industry-backed senators and representatives. "Not since the Teapot Dome scandal of the 1920s has the stench of oil money reeked as strongly in Washington as it is in this case," wrote the *Los Angeles Times* in 1999.[2]

The oil industry enjoys an array of special tax breaks that significantly lower its companies' operating expenses.[3] While the wisdom of these tax subsidies may be debated, the terms on which the U.S. Government was granting access to public lands to drill oil amount to a politically sanctioned fraud. The public was not the only victim. State governments, too, lost a large percentage of oil royalties to which they were entitled — revenues earmarked for public education, environmental projects, parks, historic preservation and recreational lands. All of these programs have been shortchanged billions of dollars over the past several decades.

The Canadian-controlled company American Barrick Resources has mined the largest single known gold deposit in the U.S. – the Goldstrike mine in Nevada, worth an estimated $7 billion in 1990 – without paying any royalty fees.

Here's how the scheme worked. Customarily, oil companies pay rental fees, or royalties, for the right to extract crude oil from public lands. The royalties are usually 12.5 percent of the posted price for federal onshore production, and 16 to 33 percent for federal offshore production. But through the revelations of oil industry whistleblowers and the Project on Government Oversight, a public interest watchdog, it was learned that the nation's largest oil companies had used a variety of accounting subterfuges to lower the "posted price" for oil upon which the royalties are based, often by as much as $4 a barrel.[4]

The posted price is the publicly stated price at which oil refinery companies will buy crude oil from independent producers on the open market. But because the various stages of oil production — drilling, transport, refining, distribution, etc. — are so integrated and controlled by the leading oil companies, there is no meaningful "open market" at any given stage of production. For decades, oil companies artificially depressed the price of crude oil, choosing to recover their profits "downstream" at the refinery level. This had the double advantage of

allowing integrated oil companies to "squeeze out competition from the smaller independent producers and refiners, and pay the government less in royalties, as royalties are based on the price of the crude oil."[5]

The scam of "posted prices" eventually became something of an open secret because few in the industry or stock exchanges regarded the posted price as a meaningful market price. Posted prices were widely regarded as artificial sums whose chief purpose was to calculate (and reduce) royalties. The posted price was sometimes used as the price at which independent producers with no transportation options could sell their crude to refineries. But by the late 1980s, even independent producers began to be paid more than the posted price.

Despite its ostensible commitment to "multiple use" forestry and "sustainable yields," the U.S. Forest Service presided over "an orgy of unsustainable logging of the public's forests," according to Paul Hirt.

For years, the Department of Interior played along with the game, unwilling to admit that the posted price was a fiction that was allowing 18 oil companies to avoid paying royalties of about $66 million a year. The State of California was a leading force in challenging the royalty underpayments, via pressure on the federal government and litigation against the oil companies pursued with other states. One lawsuit resulted in a settlement that will give $5 billion to seven states; other cases are pending.

Even though the Interior Department in 1997 proposed a new system for collecting royalties, powerful oil-state senators repeatedly blocked its implementation. Finally, in September 1999, the issue burst into the national press when Texas Senator Kay Bailey Hutchison attempted, for the fourth time, to postpone the new Interior rules. It was only because the issue was forced onto the Senate floor and into the klieg lights of C-SPAN that a firestorm of national outrage materialized. The searing public scrutiny may have proved politically fatal to the royalty charade. Hutchison squirmed as it was revealed that oil and gas interests had given her $1.2 million in campaign contributions between 1994 and 1998; other oil-state senators were similarly discomfited. All told, oil and gas interests spent $93 million on lobbyists in 1997, and gave $14 million in contributions to political candidates in the 1997-98 election cycle.[6]

The Clinton Administration used these revelations to press its advantage, and by March 2000, the Congressional Republicans had capitulated. The Interior Department was finally able to begin collecting royalties based on actual market prices, not bogus "posted prices." Whether the new, more equitable royalty plan can survive the oil industry's entrenched political clout and legal subterfuges may be another question.

Clear-cutting the Public's Forests

After decades of rapacious exploitation of forests in the West during the 1800s, the U.S. Congress in 1891 created the U.S. Forest Service, a novel enterprise to manage 21 million acres of western forest reserves in the public interest.[7] Concerned about the concentration of corporate power and environmentally destructive logging, land-use reformers sought to shift federal policy from one of simple disposal of public forests to a more intelligent, conservation-minded management of the land. The size of national forests has since swelled to more than 191 million acres, or about one-tenth of the surface area of the United States.

Despite this goal, the U.S. Forest Service's primary goal for most of the twentieth century was to promote commercial logging — the more, the better. To the Forest Service, the national forests were seen primarily as an economic resource — a rich repository of cheap timber to meet growing demand at a time when private timber reserves were dwindling. "Industrial forestry" was especially emphasized in the postwar years when "intensive management" — i.e., maximum production — became the byword of the U.S. Forest Service. This focus meant, among other things, the use of aggressive new tree harvesting methods such as clear-cutting and the construction of a 360,000-mile system of logging roads — some eight times longer than the interstate highway system.

Predictably enough, timber harvests soared. Forest Service officials who considered 200 million board feet to be a "sustainable yield" in 1949 consistently raised that threshold so that by 1968 a harvest of 560 million board feet was (erroneously) considered sustainable. Tree harvesting in federal forests continued at the 450-500 million board feet level for the next two decades until, by the end of the 1980s, old-growth forests (trees older than 200 years) constituted less than 14 percent of federal

forests. Of the old-growth trees that remains, all but 30,000 acres, or 2 percent, were "ecologically 'fragmented' into small, isolated, vulnerable blocks."[8]

Paul Hirt, a leading historian of the national forests, calls the drive by timber companies, the Forest Service and political leaders to extract maximum output from the forests "a conspiracy of optimism."[9] Initially propelled by the postwar faith in material progress and technology, high-yield logging was sustained in the 1970s and 1980s only by denying the growing environmental fallout: massive soil erosion, degradation of streams and rivers, the loss of valuable wildlife habitat. Despite its ostensible commitment to "multiple use" forestry and "sustainable yields," the U.S. Forest Service presided over "an orgy of unsustainable logging of the public's forests," according to Hirt.[10]

Throughout, the prevailing ethos was set by professional foresters who regarded the public lands as a commodity-input for production. It has only been over the past forty years that the ecological importance of forest lands has been given due recognition. Some two-thirds of the big game in the West and hundreds of endangered plant and animal species occupy national forests. Half of the West's rain and snowfall courses through the national forests en route to serving farmers and communities throughout the western U.S. In the Pacific Northwest, the Rocky Mountains and dozens of other areas, the Forest Service sought to meet high production quotas by allowing huge swaths of forest to be clear-cut, often resulting in irreversible harm to all of these ecological concerns.

The agency's failure to protect the ecological integrity of the public's forests has been matched by its notorious failure to get fair-market payment for timber sales. It has been pointed out that if the U.S. Forest Service were a Fortune 500 firm, its assets would put it among the top five corporations and its revenues among the top fifty. Yet the stock in this massive company would likely be zero because it routinely *loses* between $1 and $2 billion a year. These losses represent huge, hidden subsidies for companies such as Boise-Cascade and Louisiana-Pacific.

Below-cost timber sales were first exposed by a series of journalistic and government reports in the 1980s and extending into the 1990s.[11] The U.S. Government Accounting Office pointed out that 96 percent of the Forest Service's timber sales in the Rocky Mountain Region in 1981 and 1982 lost money, while 60 percent and 93 percent of sales in other western regions also lost money. Perri Knize, writing in *The Atlantic*, documented decades of environmental destruction and pork-barrel politics that were disguised by bogus claims of "sustainable forestry," "multiple use" forestry and creative accounting.[12]

For example, the annual cost of building and maintaining logging roads in the national forests is about $95 million. The Forest Service also spends more than $500 million a year on overhead expenses, re-forestation and improvements, and payments to states in lieu of taxes. The agency has also amortized some expenses for reforestation and roads over the course of hundreds of years, or ignored amortization costs entirely. Other costs of logging were disguised by assigning them to separate accounting categories such as pest control and environmental protection.

In the 1990s, there were signs of change within the Forest Service. The logging binge of the Reagan/Bush years and the willful neglect of its ecological consequences began to discredit the agency, exposing it as a "stultifying, almost Stalinesque bureaucracy" more attentive to industry than to the public. In recent years, the Forest Service has begun to grapple with its larger, more complicated public responsibilities beyond logging — environmental protection, recreation, and pest and fire management. In the words of Paul Hirt, a "sobering climate of greater resource scarcity, fiscal conservatism, management humility and awareness of ecosystem degradation is driving the Forest Service into unfamiliar new territory."[13] Real reforms in forest service management are being made.

It remains to be seen how durable this new attitude will be, but the Clinton Administration did take one of the most important land conservation initiatives in generations by declaring a ban on road-building and logging in as many as 60 million acres of national forest. After the huge ecological damage wrought by the "Great Barbeque" of timber harvests over the past century, other initiatives, such as an outright ban on commercial logging, are gaining new momentum. But that kind of conscientious stewardship of the public forests will occur only if strong public vigilance and political action continue.

Subsidizing the Abuse of Public Rangelands

It is the conceit of western cattle-ranchers that they are hardy mavericks living an independent, self-sufficient life. In truth, many of the West's cattle-ranchers are highly dependent upon Washington — for cheap leases of public lands, for government programs to kill predators of cattle, and for political fixers to squelch vital environmental reforms.

Contrary to the public image cultivated by corporate cattle ranchers, ma-and-pa operations account for only a small fraction of total grazing on public lands. According to a major series of articles on cattle-grazing published by the *San Jose Mercury News* in 1999, the bottom half of grazing-permit holders on national forests (based on amount of grazing) control only 3 percent of all livestock — while the top 10 percent control nearly half. On lands managed by the U.S. Interior Department's Bureau of Land Management (BLM), the bottom half of permit holders control only 7 percent of all livestock — while the top ten percent control 65 percent.

Among the top recipients of below-market grazing fees on nearly 270 million acres of public rangeland are Idaho billionaire J.R. Simplot, hotel magnate Barron Hilton, Anheuser-Busch Inc., Sinclair Oil Corp. and Hunt Oil.

While hundreds of western family ranchers cling to cattle ranching as an economically marginal if treasured way of life, cattle ranching on public lands is in fact dominated by a corps of wealthy hobby ranchers and large corporations that rely heavily upon taxpayer subsidies. As the *San Jose Mercury News*' reporters conclude, "When it comes to grazing at the federal trough, no one sits taller in the saddle than corporate cowboys."[14] Among the top recipients of below-market grazing fees on nearly 270 million acres of public rangeland are Idaho billionaire J.R. Simplot, hotel magnate Barron Hilton, Anheuser-Busch Inc., Sinclair Oil Corp. and Hunt Oil.

For decades, corporate cattle ranchers have paid federal grazing fees that were far below those charged by state governments and private ranches. In 1999, the government's fee of $1.35 per head of cattle per month was *one-eighth* the average fee of $11.10 charged by private landowners in the eleven westernmost states.[15] Federal fees are based on a complicated formula that takes into account beef prices, operating costs and other factors. But the complexity amounts to a charade of fairness because the ultimate fees charged by the federal government have always ended up being far lower than actual market rates for comparable grazing lands.

In 1999, the federal government received $94 million for its grazing leases on federal lands. If these leases are in fact worth eight times more, as the *San Jose Mercury News*' analysis of 26,000 billing records suggests, then the federal treasury should have pocketed something in the neighborhood of $750 million. The shortfall represents a massive taxpayer subsidy that chiefly benefits large corporations and affluent ranchers. With ranching-related political action committees giving nearly $1.3 million to Congressional and party campaigns from 1993 to 1998 to help preserve the acknowledged $350 million in ranching subsidies over the course of that period (not including the subsidies represented by under-valued leases), the 270 to 1 "investment" has yielded rich returns.[16]

Below-market grazing fees are not the only subsidies that cattle ranchers enjoy. Half of the grazing fees collected by the federal government are earmarked for "range betterment" purposes such as fences and water tanks, which ranchers might otherwise have to pay for themselves. Ranchers are also beneficiaries of drought relief assistance to help feed and water livestock herds when necessary. Finally, the Agriculture Department's Wildlife Services bureau spends $14 million a year killing coyote, wolf, foxes, grizzly bears and other livestock predators on more than 9,000 ranches.

These kinds of subsidies might be understandable if there were a vital economic or social purpose being served. But for the most part, this is not the case. Only 3.8 percent of the beef sold in the U.S. comes from cattle who graze on public lands, according to the Agriculture Department, and cattle ranchers who use public lands account for only 2 percent of the nation's 1.1 million cattle operations. Thomas Powers, a Montana economist and author of *Lost Landscapes and Failed Economies*, calculated that only less than one-tenth of one percent of total employment in eleven western states is dependent on federal grazing.[17]

Federal subsidies for livestock grazing are particularly odious in light of the horrendous ecological

impact.[18] When thousands of half-ton cattle tramp across the fragile, arid landscape and over-graze native grasses, it hastens soil erosion and alters the mix of both plants and animals that can survive in the ecosystem. "Runoff from hillsides stripped of vegetation by too many cattle pollutes streams with silt and sediment, clogs waterways and contributes to water quality degradation in western rivers and streams and a decline in salmon populations," notes the National Wildlife Federation, one of the leading opponents of abusive grazing on public lands.[19] Critic George Wuerthner points out that "species as varied as the Bruneau Hot Springs Snail to the willow flycatcher to the Bonneville cutthroat trout are all endangered as a consequence of habitat loss or degradation due to livestock production."[20] The *Mercury News* report found that large cattle ranchers tend to inflict greater damage on public rangelands than smaller operators.

While cattle ranchers put forward many brave arguments to depict grazing as environmentally benign, a comprehensive review of 143 government reports and peer-reviewed scientific studies on livestock grazing in the West shows otherwise.[21] The report concludes that if livestock grazing is not severely restricted within the next thirty to fifty years, restoration of the landscape will become impossible. Already 60 percent of BLM rangelands are missing at least half of their native plants and grasses.[22] Some 80 percent of streams and riparian ecosystems in arid regions of the West have been damaged by livestock grazing, according to the Interior Department. A 1990 EPA report found that riparian areas throughout much of the West were in "their worst condition in history."

The irrationality of federal management of rangelands can only be explained by politics. For decades, a few powerful western Senators, acting on behalf of powerful ranchers, have stymied attempts to raise grazing fees and introduce grazing reforms to protect the environment. Interior Secretary Bruce Babbitt sought to enact "Rangeland Reforms '94," but Senators Peter Dominici (New Mexico) and Larry Craig (Idaho) rallied other Republicans to defeat the reforms on numerous occasions over the next five years. Since banks consider grazing permits a form of collateral on ranchers, many banking lobbyists also weighed in against reform. And so, despite the grim ecological prospects and outright waste of taxpayer monies, the cattlemen's lobby has been able to prevail politically. Ranchers addicted to the federal giveaway continue to fancy themselves rugged individualists, and the subsidized ecological abuse of the public's rangelands continues.

Conclusion

There is little question that the federal government has the legal and moral authority to manage public lands in a more responsible manner. Why then has it failed to do so in one instance after another? The answer, crudely put, is because oil corporations, mining companies, lumber companies, big cattle ranchers and other market interests are able to use the political process to thwart the public interest. Exploiting our corrupt campaign financing system, powerful private interests have subverted conscientious management of the public's own assets and cost taxpayers many billions of dollars — not only with respect to the four public assets examined here, but also fisheries, water resources and the airwaves used for broadcasting and wireless services (examined in Chapter 9).

It is difficult for subsidized industries to make persuasive defenses of their corporate welfare, and the ecological harm they produce is usually well-documented. What has been missing, historically, has been a focused public exposure of abuses in a politically consequential arena. When this happens — as it did in the Clinton administration fight against below-cost oil leasing in 1999 — congressional apologists for an industry are highly vulnerable, and reforms can be achieved. One effective tactic has been the annual "Green Scissors" campaign by environmental groups, which compiles a compendium of "polluter pork programs."[23]

To break through the moral torpor and news clutter of Washington, D.C., however, an aggressive coalition of citizen groups must marshal the facts, organize, and publicize the abuses. And a few committed legislators must mobilize political support, break the clubby complacency of the Senate, and provoke a political fight. Despite the daunting difficulties of such a scenario, few political battles offer greater opportunities to curb environmental abuses, shut down egregious instances of "corporate welfare," and generate significant new revenues — all in one fell swoop.

7. Can the Internet Commons Be Saved?

The value of a piece of scientific work only appears to the full with its further application by many minds and with its free communication to other minds.

—Norbert Weiner, computer scientist[1]

There has never been a commons as big, robust and socially creative as the Internet. Since its emergence as a popular communications medium in the mid-1990s, the Internet has unleashed a remarkable explosion of knowledge, commerce, and virtual community on a global scale. Much of this growth has stemmed from the astonishing commercial development of the Internet platform since 1994, particularly since the rise of the World Wide Web as stimulated by Netscape Navigator. But this unprecedented boom in public communications owes a critical, primary debt to the system's open, end-to-end technical architecture. By allowing the "intelligence" of the network to be placed at the user level — in applications rather than in the network itself — the Internet has enabled individual creativity to emerge and flourish in astonishing ways. Millions upon millions of decentralized users can interact in an open and stable public space, which itself has the structural capacity to grow and accommodate innovations that were once unimagined, such as the World Wide Web, streaming audio and video, and wireless appliances and applications.

This chapter explores the rich meaning of the Internet as a commons. This requires that we first understand the origins of the Internet as a collective resource, its development as a government-sponsored project and the gift-culture ethos that governs interactions in so many quarters of cyberspace. Much as Silicon Valley may like to claim the Internet as the product of Bill Gates, Larry Ellison, and other entrepreneurs, the Internet's success has more to do with the fact that its structural architecture has allowed it to evolve into an open and highly decentralized commons.

The rapid commercialization of the Internet since the mid-1990s extended the infrastructure to millions of new users. But it also set in motion new commercial forces that may threaten the Internet's long-term vitality. Call it the dark side of the digital revolution: the growing attempts by businesses to enclose the cyber-commons by erecting new barriers of control over information and users.

Various copyright industries are now working to constrict the public domain from which new creative works and business inno-

vations derive. They are seeking to supplant traditionally free kinds of access to information, such as library borrowing and "fair use" excerpting, with pay-per-use regimes. Other companies are seeking to subvert the open standards and "gift culture" that gave rise to the Internet. These trends are fostering market concentration over open competition and homogenizing our society's diversity of information and expression.

Can the cyber-commons be saved? A pivotal question for the future is whether the Internet-as-commons can survive or whether new market regimes will radically transform it.

To be sure, commercial interests now have the upper hand in shaping the public policies and technologies that shape the Internet as a marketplace and cultural space. But the more far-sighted leaders of e-commerce also realize that the distributed intelligence made possible by the Internet has distinct advantages. It may prove shrewder to leverage the power of the commons and the gift economy than to try to superimpose, coercively, old regimes of proprietary control (as the stodgy music industry tried to do in its battles with Napster).

In any case, the Internet commons may have more intrinsic resilience and inalienable power than we might think. This can be seen in the phenomenal growth of free software and open source software, particularly in the past five years. IBM has actually embraced the GNU/Linux operating system; Apache, Perl and other free software and open source applications have become workhorses of the Internet; and businesses are increasingly recognizing the value of the flexible, decentralized management practices made possible by an open Internet.

To read *Wired* or techno-utopian George Gilder, one might think that rugged individualists out of an Ayn Rand novel are responsible for the Internet. In fact, the real history of the Internet reaches back to that terribly traditional, often-reviled institution of our collective aspirations: government.

"Virtually all of the critical technologies in the Internet and Web revolution were developed between 1967 and 1993 by government research agencies and/or in universities," writes entrepreneur and policy consultant Charles Ferguson. "During the same period, there arose in parallel a private, free market solution — a $10 billion commercial online services industry...The commercial industry's technology and structure were inferior to that of the nonprofit Internet in every conceivable way, which is the primary reason that they were so rapidly destroyed by the commercial Internet revolution."[2]

While business enterprises have played many important roles in shaping and expanding the Internet, it was government leadership, in an environment insulated from the famous discipline of the market, that proved essential in imagining and constructing the Internet. The government agency responsible for incubating the Internet was known as ARPA, the Advanced Research Projects Agency, an elite agency within the Department of Defense that wanted a communications network hardy enough to survive a nuclear attack. It also wanted a network flexible and efficient enough to allow thousands of defense researchers and vendors to share information via each other's computers.

The story of the rise of the Internet commons is too long and complicated to tell here.[3] But it is important to understand that the Internet is a product of government-sponsored innovation, open technical standards and pro-user regulatory policies. The early designers of the ARPANET (the precursor to the Internet) were the builders of a commons: a diverse community dedicated to shared goals and self-governed through a cooperative social ethos and informal decision-making forums. Since a great many of the early ARPANET users were academics accustomed to the free exchanges of a gift culture, it was only natural that a similar social ethic would prevail in the new online world. Indeed, the very technical architecture of the Internet was designed with this in mind. Because the basic network protocols are fairly simple, open and stable, users are radically empowered to be the chief source of innovation, even as the system scales to a size millions of times larger.

It is this design — an open architecture and collaborative communications space — that has made the Internet so robust, allowing it to quickly eclipse the "interactive TV with 500 channels" envisioned by the cable television industry. But the future character of the Internet is not sacrosanct. It is highly vulnerable to changes in technology design, new market structures and retrograde public policies. It is too early to guess the fate of the great Internet commons. But as we will see below, the current threats to its integrity and vitality loom large.

As the public value of computer networking has grown – driven by the dynamics of "the more, the merrier" described in Chapter 2 – it has become irresistible for commercial enterprises to try to claim some portion

of the Internet commons as a proprietary franchise. The potential payoffs are just too juicy. But the likely costs to the public are equally significant.

This section examines three major strategies by which the Internet commons is being enclosed: 1) the use of proprietary technical standards to sabotage common open standards; 2) the expansion of intellectual property rights at the expense of free speech, innovation and the open sharing of information; and 3) the privatization of Internet governance to the detriment of ordinary users.

Using Proprietary Standards to Erode the Internet Commons

Stanford professor Lawrence Lessig has eloquently argued that the design and ownership of the Internet's architecture is a key factor in determining how control will be exercised over people and the flow of information.[4] That is why we should be concerned about preserving open standards on the Internet. They are an affirmative means by which ordinary people can assert their civic, cultural and economic interests over and against those of government and business.

Open standards for Internet software are useful, for example, in preventing any single company from seizing private control of the technology and designing it to restrict competition, thwart innovation or censor speech. Intel designed its Pentium III computer chips with unique identification numbers that could be used by governments, retailers and marketers to track the online computer habits of individuals. (The feature was later disabled after vigorous public protests.) Microsoft's proprietary control over the Windows operating system and its Office suite of programs has allowed it to nearly eliminate competing word-processing software.

Just as common open standards provide an unparalleled platform for competitive innovation – the story of the Internet – so they help generate greater surplus wealth, "the comedy of the commons." As we saw in Chapter 2, this is one of the basic principles of network economics: the more the participants in certain kinds of commons, the greater the value created.[5] To businesses competing in the marketplace, it is irresistible to try to privatize this surplus value, if a suitable means can be found. It turns out that one of the most effective tools for doing this is for a company to substitute its own proprietary technical standards for open standards, if it can. This enables a company to export surplus value *from* the commons (e.g., a useful online product or an aggregated base of consumers) and divert it to company shareholders.

One of the earliest instances of this behavior was the Netscape Navigator browser, which had its origins at the National Center for Supercomputing Applications (NCSA) at the University of Illinois at Champaign-Urbana. In 1993, forty programmers at the NCSA released the Mosaic browser, whose graphical user interface made it much easier to navigate the recently created World Wide Web. Despite this huge advance, Tim Berners-Lee, one of the inventors of the Web, worried that Mosaic might undermine the standardized "HyperText Markup Language" (HTML) protocols that were the basis for the Web and just beginning to catch on.[6] Berners-Lee also worried about the fragility of the consensus-driven standard-setting process of the Internet Engineering Task Force, an open international forum for setting technical specifications in computing.[7]

Virtually all of the critical technologies in the Internet and Web revolution were developed between 1967 and 1993 by government research agencies and/or in universities," writes entrepreneur and policy consultant Charles Ferguson.

By the mid-1990s, entrepreneurs were beginning to see rich profits in carving up the commons. As Internet historian Nathan Newman tells the story, "Silicon Graphics CEO Jim Clark, a veteran of the workstation standards war, understood how much money could be won if a company could take control of the standards of this new Internet tool. So Clark left his company and set out to destroy Mosaic and replicate its government-backed standards."[8] He hired Mark Andreesen, a Mosaic team member, and five other programmers to become the nucleus of a new company, Mosaic Communications, that would develop a new version of Mosaic with faster graphics and a user-friendly interface. The new browser would also be deliberately incompatible with the original Mosaic, thus marginalizing the NCSA browser and subverting open standards. Ingeniously, the company gave away its new browser for free – helping to establish it as the industry standard —

while earning money by charging for proprietary server software. The novel business plan and the product itself were so successful that Netscape Communications was soon worth $9 billion.

One happy result of the Netscape Navigator was to dramatically expand usage of the Web and trigger a new era of Internet entrepreneurialism — significant achievements. But the Netscape browser also set a very bad precedent — that a company could, without penalty, take an open standard private and reap phenomenal profits. Netscape's bid to become a monopoly in the browser space by freely appropriating government-developed software did not result in any intellectual property lawsuits (Netscape claimed its new browser was significantly different). Perhaps cowed by the anti-government rhetoric of Newt Gingrich's "Contract With America," the federal government chose not to contest the privatization of its browser software or the damage to open standards. Nor did it alter its procurement practices to penalize products that jeopardized open standards.

In the end, Jim Clark agreed to NCSA's demand that he change the name of his company from Mosaic Communications to Netscape and pay $2.3 million to the University of Illinois.[9] Now that browser standards were to be a proprietary matter, Microsoft waded into the game with its Internet Explorer integrated into Windows. By 2000, Microsoft controlled 85 percent of the market for browsers on personal computers.

The Netscape experience and the prospective splintering or monopolization of common software standards convinced Berners-Lee to form a new organization, the World Wide Web Consortium, to develop consensus technical standards that might preserve the commons. Without such a body, he realized, privatization and fragmentation of standards "would defeat the very purpose of the Web: to be a single, universal, accessible hypertext medium for sharing information."[10] The Web had become the fast-growing communications medium in history precisely because it was based on common standards, available to all for free, and not on closed, proprietary standards.[11] His fears were well founded. Gopher, a popular early program for sharing plain-text documents, receded from view after its developer, the University of Minnesota, tried to charge companies an annual fee for using Gopher server software. Commercial developers quickly abandoned it for fear of running afoul of patent or licensing provisions.

Netscape's commandeering of the Mosaic browser, of course, is small potatoes compared to the cunning strategies by which Microsoft has stifled competition and subverted open standards. One aspect of this behavior, documented by the Justice Department's antitrust lawsuit against Microsoft, was the company's notorious "embrace, extend and extinguish" strategy of *embracing* a target software by integrating it into its Windows operating system; *extending* its functions with proprietary modifications; and then *extinguishing* the competition as consumers turned away from applications that were suddenly incompatible with Windows. According to Judge Penfield Jackson, Microsoft deliberately leveraged its monopoly control over the desktop operating system, Windows, used in 90 percent of all personal computers.

Using this embrace-extend-extinguish strategy, Microsoft has undermined open standard protocols for HTML (for web pages), Java (the cross-platform software), RealAudio (the Internet audio software), and QuickTime (multimedia software) by trying to make its own proprietary modifications the *de facto* standard. Scott McNealy offered a wry comment on Microsoft's crafty use of its Windows monopoly: "The only thing I'd rather own than Windows is English or Chinese or Spanish because then I could charge you a $249 right to speak English and I could charge you an upgrade fee when I add new letters like 'n' or 't'."[12]

An infamous set of leaked Microsoft documents — the "Halloween memos" — advised the company to "decommoditize protocols and applications" by "extending these protocols and developing new protocols."[13] This would undermine the core advantages of open source software — its ability to integrate diverse hardware and software through common commodity protocols. This is why Microsoft finds open source code software in general and the Linux operating system in particular so alarming. They threaten to subvert Microsoft's proprietary integration of systems — and thence its monopoly rents. This is one reason why Microsoft quietly changed its protocols to render Samba, an excellent open source code communications software, incompatible with Microsoft's NT and Windows 95/98 software. This also explains why Microsoft is hostile to the Internet Engineering Task Force, which has historically resisted the special pleadings of any single vendor in adopting technical standards for the Internet.

There is a richly paradoxical end-point to any company's lust to impose its own proprietary standards. When everyone pursues this goal, it can end up creating a dysfunctional market or, in Michael Heller's words, "a tragedy of the anti-commons."[14] When *too much* of the raw input for an industry becomes propertized, it impedes innovation and growth. Now that patent claims in the semiconductor industry have become so profuse and complex, the industry finds it increasingly difficult to design new products without paying expensive cross-licensing fees (substituting expensive legal oversight for engineering innovation). A solution reportedly being explored by industry leaders is a patent pool — a commons — that would allow participants to share patent rights and so enable innovation to proceed more readily. One wonders whether a commons will also have to be invented for the wireless telephony industry. Its attempts to forge a common set of protocols — a prerequisite for more robust growth — always seem to fall apart because someone in the back of the negotiating room stands up to say, "But I hold the patent on that technology, so each of you is going to have to pay me *x* million dollars."

So it is that an enclosure of the commons can engender a sterile, terminal *involution* of creativity.

Using Intellectual Property Law to Enclose the Public Domain

A second major force in enclosing the Internet commons is intellectual property law. In their quest to prevent easy copying of copyrighted materials, film studios, book publishers and others are pushing for expansive new property rights. In the process, the public's traditional rights to "fair use" of copyrighted works and the public domain itself are being seriously compromised.

In essence, the "cultural bargain" of copyright and patent law is being overturned. As mandated by the U.S. Constitution, copyright is a *limited* right granted by Congress to authors and inventors. Even though copyright is a grant of monopoly rights, it has been limited by a fixed term (originally 28 years, now extended to a lifetime plus 70 years) and by fair use rights (consisting chiefly of the right to quote and reproduce protected works for criticism, news reporting, teaching, scholarship and research), among other limitations.

The property rights granted to authors, in other words, are balanced by the right of public access to the work and its preservation in the public domain, once the copyright term expires. Copyright's primary purpose is to serve the public. Rights are supposed to be granted to authors only to fulfill that purpose.[15]

Increasingly, however, industries have arrogated to themselves the moral and legal rights that we associate with individual authors. Through the "work for hire" doctrine, for example, media companies have claimed the prerogatives of authorship while, as large corporations, also using copyright law as an instrument of monopoly and censorship. Their essential strategy is to claim copyright as a plenary right without limits, and thereby suspend the terms of the cultural bargain that copyright law embodies. By equating intangible copyrighted works with physical property, copyright industries incorrectly portray copyright as an *unlimited right* to control all access to, distribution, and use of a copyrighted work. The false presumption is that a copyrighted work is like any other property, to be used or restricted however the owner sees fit, when in fact the boundaries of copyrighted property are artificial and based on political brokering in Congress. This does not stop copyright industries from accusing libraries of being the nation's leading pirates of private property, and regarding the public domain and fair use rights as inconsequential.

Now that patent claims in the semiconductor industry have become so profuse and complex, the industry finds it increasingly difficult to design new products without paying expensive cross-licensing fees (substituting expensive legal oversight for engineering innovation).

Through such willful contortions, a system of law originally designed to bring new works to the public by rewarding authors is being morphed into a protectionist system. Instead of preserving an open public space accessible to all and influenced by democratic processes and social norms, recent copyright initiatives, if fully implemented, will transform the Internet into a gigantic pay-per-use vending machine. Owners of intellectual property want their Barbie dolls, cartoon characters, corporate logos and software programs to be *ubiquitous* in the culture, but never to be *freely usable* by the culture. They want to sanction only a

controlled, consuming relationship with the products introduced into commerce, not an open, interactive one. This leaves little room for the public domain.

Because the public domain has been regarded as residual, and not something with its own affirmative value, it has always been something of "a dark star in the constellation of intellectual property," writes law professor David Lange in a landmark essay. [16] The public domain has also been neglected, he argues, because copyright law holds great esteem for individual "originality" as the basis for granting property rights in intangible creative works. Meanwhile, it virtually ignores the vast universe of "background material" in a community or culture — the commons — that is needed to develop any new creative work.

Historically, copyright law has evaded this truth by asserting that while no one can own an *idea*, a person can own a particular *expression* of an idea. Alas, the practical meaning of the idea/expression dichotomy has proven maddeningly elusive. It is not so easy to tell when ideas that belong to everyone suddenly reach a threshold of individual originality — and thus exclusive ownership.

A more astute analysis of the problem comes from law professor James Boyle, who contends that the idea/expression dichotomy amounts to "a moral and philosophical justification for fencing in the commons. [It gives] the author property in something built from the resources of the public domain — language, culture, genre, scientific community, or what have you. If one makes originality of spirit the assumed feature of authorship and the touchstone for property rights, one can see the author as creating something entirely *new* — not recombining the resources of the commons."[17]

So it is today, as a powerful array of copyright industries — books, news media, music, film, information — treat their own "original works" as fully deserving of property rights while the public domain is regarded as a free, self-replenishing resource that will somehow take care of itself. This is a fundamental philosophical error in copyright law. It is one reason why the public domain is under siege as never before. The growth of copyright law at the expense of the public domain had become "uncontrolled to the point of recklessness," wrote Professor Lange in 1981 — a trend that in the twenty intervening years has blossomed into brazen rapaciousness. In one venue after another, copyright industries are using intellectual property laws to propertize information that was previously available to everyone in the "information commons."

Impoverishing the Public Domain

Future creativity and the public's end of the copyright bargain were dealt a severe blow in 1998 when Congress enacted the Sonny Bono Copyright Term Extension Act. The law extended by twenty years the legal protection of cultural works copyrighted after 1923. Tens of thousands of works such as *The Great Gatsby*, the film *The Jazz Singer*, the musical *Show Boat*, and works by Robert Frost and Sherwood Anderson will not enter the public domain until 2019.[18] Significantly, the character Mickey Mouse was due to enter the public domain in 2003, a prospect that gave the Disney Company a good reason to agitate for the new law. It is a rich irony, of course, that a company built on appropriating folk stories from the public domain — Snow White, Pinocchio, Br'er Rabbit, etc. — should protest so strenuously about surrendering its own copyrighted works to the public domain after 75 years of monopoly protection.

The Bono Act is a clear case of corporate welfare for major corporations and a windfall for authors' estates. After all, the constitutional rationale for copyright is to encourage authors to create new works. A retroactive benefit to dead authors cannot possibly help achieve that goal. The Supreme Court has consistently held that copyright's primary purpose is to enhance the public domain, which is precisely the opposite result achieved by the Bono Act. The net effect of the law is to delay thousands of works from entering the public domain and to force consumers to pay hundreds of millions of dollars more for creative works and characters that rightfully belong to them.

The law also amounts to a tax on the freedom of speech of authors who want to use the public domain to create new works. One such user is Eric Eldred, a hobbyist who launched a website of public domain literature, including many out-of-print books.[19] Soon Eldred's website was getting 20,000 hits a day; the National Endowment for the Humanities recognized it as one of the twenty best humanities sites on the Web. But the Bono Act forced Eldred to remove a number of works from his site. With the help of Professor Lawrence Lessig and the Berkman Center for Internet and Society, Eldred has launched a constitutional challenge, *Eldred v. Reno*, which is now wending its way through the courts.[20]

Using Techno-Locks to Control Information and People

One of the most aggressive attempts by industry to expand property rights over information is the Digital Millennium Copyright Act, or DMCA, enacted by Congress in 1998 and now being implemented through regulations. This law goes well beyond traditional copyright principles by making it illegal for anyone to overcome a technological measure that restricts access to digital works. The DMCA also makes it illegal and possibly criminal even to *share* information about how to defeat a technological lock. A consumer violates the law by deciphering the encryption keys that control access to DVD movies, for example, or by sharing information *about* DVD encryption with anyone.

Why is this bad? Because it allows copyright holders to control later uses of the product, even uses that would normally constitute legal, fair use activities. All a company needs to do is assert its own terms of usage for consumers, and then put a "technology lock" around the information, even a weak, nominal lock. If a paying consumer then circumvents the lock for any reason, or shares information about the lock itself, a violation of the law has occurred.

The effect of the anti-circumvention provisions of the DMCA is to authorize large copyright industries to stifle competition and innovation and prevent the widest possible dissemination of creative works. This, of course, runs directly contrary to the very constitutional purpose of copyright — to advance and diffuse knowledge. Worse, industries are able to assert their copyright claims through legal intimidation of alleged violators, enabling a form of private censorship without even a prior court review.

The most celebrated prosecution under the DMCA is a lawsuit pending against a 17-year-old Norwegian programmer who wrote a program that can run Hollywood's DVD movies on Linux operating systems (and not just on Windows-based DVD players). This alarms the film studios because DVD makers are paying them license fees; an alternative distribution channel for DVD movies, such as Linux-based players, would upset Hollywood's control of the market and its pricing prerogatives. By preventing the fair use of a digital product — without even a copyright violation alleged — studios are using the DMCA to stymie the independent distribution of creative works.

The DMCA is also being used to stifle free speech in an alarming way. In May 2000, Microsoft demanded that *Slashdot*, a website forum for programmers, remove materials that criticized the technical specifications for Microsoft's Kerberos software. The software is of interest to the software community because critics charge that Kerberos represents yet another attempt by Microsoft to substitute a closed, proprietary Web standard for an open standard. After complaints, Microsoft agreed to post the specifications to Kerberos on its website. But access was granted only if users first clicked on an "End User License Agreement" that stated that the specs were proprietary trade secrets that could not be used or disclosed without Microsoft's permission.

When *Slashdot* subscribers nonetheless posted the specs on the *Slashdot* website — a classic fair-use copying of material for the purposes of criticism and comment — Microsoft charged copyright infringement and insisted that the material be removed. If this precedent is allowed to stand, warns Georgetown law professor Julie E. Cohen, "a publisher can prohibit fair-use commentary simply by implementing access and disclosure restrictions that bind the entire public. Anyone who discloses the information, or even tells others how to get it, is a felon."[21]

The constitutional rationale for copyright is to encourage authors to create new works. A retroactive benefit to dead authors cannot possibly help achieve that goal.

One of the starkest examples of using copyright to suppress information occurred when *The Washington Post* and the *Los Angeles Times* sought to stop a right-wing web service called Free Republic from sharing news stories as part of an online opinion forum. The newspapers argued that this usage was illegal, and not a legitimate fair use of copyrighted material. That two of the nation's leading newspapers, champions of the First Amendment, would seek to shut down robust political discourse in the name of copyright suggests how IP and First Amendment values may be coming into greater conflict.

The broader issue is the future legality of hyperlinking on the World Wide Web. The ability to embed links within a web page is a tremendous aid to users in

locating and sharing information, and has arguably made the Web the most participatory communications media in history. Increasingly, however, commercial enterprises want to control who can use their trade names and create hyperlinks to their websites.[22] This amounts to an enclosure of the Internet commons, which by custom has regarded the very creation of a website as an implicit grant of permission to others to create hyperlinks to the site.

As these examples suggest, the rampant propertization of information has far-reaching implications for free speech and the diversity of information sources in our society. As NYU law professor Yochai Benkler has pointed out, granting property rights in information "require[s] the state to prevent people from speaking in order to increase information production in society....[Furthermore], the mechanism of property rights tends to favor a certain kind of increased production by a relatively small number of large commercial organizations. This, in turn, conflicts with the First Amendment commitment to attain a diverse, decentralized 'marketplace of ideas." [23] The Supreme Court, Benkler points out, has long held that it is central to our democratic processes "that we secure 'the widest possible dissemination of information from diverse and antagonistic sources.'"

After Despair, Inc. was awarded a trademark for the "frowny" emoticon that serves as its logo, it announced – allegedly as a joke – its intention to sue anyone who used the symbol " :-(" in email correspondence.

Locking up Public Facts and E-Books

Encryption and licensing might be used in the future for an even more ominous purpose — the revocation of freedoms traditionally associated with books. Makers of the so-called "e-book" — handheld appliances that are being developed by a number of media giants — are likely to invoke the DMCA to "lock up" the digital text. The harm to free speech and our culture could be severe. Encryption locks on e-book content could eliminate free or low-cost public access to texts (through libraries, for example) and wipe out the fair use rights of readers.

Traditionally, of course, readers can share their books with whomever they want. This right derives from the "first sale doctrine," which limits the right of vendors to control their products after the first sale. (This doctrine enabled the videotape rental business to emerge independent of the film studios). Would the first sale doctrine apply to e-books, allowing content to be freely used in subsequent uses, or would it be illegal for a young girl to share the e-version of *Harry Potter* with her brother or classmate? Would the DMCA apply to e-books, thereby preventing fair use of the text and its passage into the public domain?

Such possibilities are already being explored. When Simon & Schuster experimented with an online sale of a new Stephen King novella, the e-book was not available to public libraries under any license, nor was it available to computers that did not run on Windows operating systems. The novella had essentially "gone private," shedding any responsibilities for providing public access while retaining full copyright protection. The cultural implications of these developments are chilling — yet virtually unknown to the reading public or policymakers.

As computer technologies have made it possible to assemble huge numbers of facts into searchable databases, it has created new quandaries for how to protect the commercial value of the aggregated information. Vendors who assemble databases of book prices, CD titles, scientific research or statistics generally want to have tight proprietary control over their compilations. It would be patently unfair for a freeloader to simply download one vendor's database for free and then resell it with impunity.

On the other hand, there is a serious danger if facts — which have never been eligible for copyright protection — can suddenly be owned and removed from the public domain. Much of education, scientific research, journalism and civic life could not function if *facts* can be owned and their free flow restricted. Yet the privatization of public facts — sports scores, stock quotes, research data, and even news events — is now an imminent reality.

The American public caught a glimpse of this future during the Summer Olympics in 2000, when the Olympics Committee claimed property rights in news of sporting events, raw tabulations of the results of competitions, and even real-time diaries of Olympic athletes that hometown newspapers wanted to publish.[24] One reason for the clampdown: Olympics officials feared that

the news media's free use of sports data would undercut the commercial value of its website, sponsored by IBM and Swatch. The trend is growing. At the Masters' golf tournament, reporters were actually charged for access to a website with up-to-the-minute statistics.

Database vendors have tried for the past seven years to persuade Congress to give them rights of "authorship" in databases, and so enable them to prevent people from extracting or reusing database information. The most recent legislative vehicle, the Collections of Information Antipiracy Act, would significantly over-protect database compilations in a way that exceeds traditional copyright principles. Scores of universities, academic societies, search engines and telecom companies have criticized the database legislation for creating "an unprecedented right to control transformative, value-added, downstream uses of the resulting collection or of any useful fraction of that collection."

Trademark law is also being used to extend corporate control over any uses of a company or product name, even for traditional free speech purposes. Much of this trend can be attributed to passage of the Federal Anti-Dilution Act, which holds that a person can be liable for using someone else's mark even if consumers are not deceived or confused as to the source of goods or services. All that matters is that the distinctive quality of the mark is "blurred" by the unauthorized usage, thereby "tarnishing" the mark's value. This legal argument has allowed companies to go after websites that criticize them (the ubiquitous ".sucks" sites), cultural commentary sites (e.g., parodies and criticism), as well as web-crawling bots. After Despair, Inc. was awarded a trademark for the "frowny" emoticon that serves as its logo, it announced — allegedly as a joke — its intention to sue anyone who used the symbol " :-(" in email correspondence. The hoax provoked an international firestorm.[25]

These new attempts to claim proprietary control of public facts, symbols and words are shutting down all sorts of creativity and discussion, inflicting significant harm on scientific research, academic dialogue and political life. It is also raising prices for information. IP scholars J.H. Reichman and Pamela Samuelson cite the case of Landsat satellite images, which many scientists use to "map and monitor" terrestrial ecosystems for agricultural and environmental purposes. After this databank was privatized, prices soared from $400 to $4,400 per image, bringing academic research in these areas to a complete halt.[26] Beyond this stifling of research, new copyright laws are giving information vendors monopoly control over their markets, with all the pricing abuses and anti-innovation effects that that entails. The fundamental beauty of the Internet — the cheap and easy ability to find and aggregate information on a vast scale, and the blossoming of collaborative creativity and accountability — is being subverted.

The Rise of a Copyright Police State

The expansion of copyright protection into new areas has a disturbing correlate: intrusive new surveillance of people's reading and viewing habits. In a pay-per-use environment, after all, a single unauthorized use constitutes "piracy." Now that the technology can feasibly detect such "violations," copyright industries have every incentive to step up their monitoring of readers/viewers. The right to be an "anonymous reader" is being superseded by corporate interests in "digital rights management."[27]

In order to control more tightly market distribution and use, new software technologies are being devised to allow copyright holders to keep precise track of who accesses what digital works and under what circumstances. Copyright enforcement is only one goal. Digital rights management also enables a company to institute new regimes of discriminatory pricing for different market segments (individuals, companies, libraries, etc.). It can also collect valuable consumer usage data to refine its own marketing strategies, or to re-sell or lease to third-party vendors (advertisers, market research firms, etc.).

The logical end-point for digital rights management is a tightly managed system of pay-per-use access subject to centralized control and surveillance monitoring: a model of perfect control.[28] It is the antithesis of the Internet today — and of our open, democratic norms. A user-identification system could lead to greater user surveillance, the balkanization of the Internet into regulated national enclaves, and the loss of the kinds of creativity and diverse expression that can only come through the free, unmetered exchange of information.

That is why we prize public libraries, academic freedom, and open societies with First Amendment protection — they provide the "white space" in which new experimentation and creativity can occur. Excessive copyright protection in the digital environment tends to inhibit such exchanges and erode the robustness of the information commons.

Patents on Business Methods

The dangers of over-propertization of the commons are well illustrated, as well, by the controversial growth of patents of business methods. Until recently, few such patents were issued because most innovations in business processes were embedded in the technology itself. But in 1981, the federal courts allowed a computerized method of molding tires to be patented. A 1998 court ruling that a method of managing mutual funds could be patented triggered an avalanche of new business-method patent applications, many of them involving computerized processes.

Amazon.com won a patent for its famous "1-Click" shopping system, which allows purchases with a single click of a computer mouse. Priceline.com received a patent for its famous "name your own price" online auction process. British Telecom now claims a patent on hyperlinking. The J.M. Smucker Co. has argued that a small rival was illegally imitating its patented, crustless peanut butter-and-jelly sandwich.[29]

The rise of business patents represents an ominous new trend of propertizing knowledge that has traditionally been shared and public. Knowledge about medical procedures, information distributed by libraries, genetically engineered crops, basic biological knowledge, mathematical algorithms, basic chunks of software code — all of these types of knowledge are being claimed by private owners through the patent system.

While patent holders argue that they are simply getting their just rewards for their inventiveness, critics reply that the out-of-control patenting of knowledge is allowing the "first mover" to corner the market and monopolize any future creativity in that field. A cautionary example is the Wright brothers' broad patent on their airplane. For nine years they defended their patent, thereby inhibiting the progress of American aviation while Europeans surged ahead. Finally, in order to help the U.S. war effort during World War I, the U.S. Government forced the Wrights to license their technology.

So it is today that patent rights have become so far-reaching that new creativity is being inhibited. Companies are aggressively acquiring patents not only to preempt potential markets but also to acquire bartering chits for cross-patenting licensing negotiations. Patent claimants make the same arrogant presumption that copyright holders often do — that their innovations have nothing to do with the collective knowledge, traditions and resources generated by communities of researchers over decades.

The breadth of new business-method patents has reached such extremes that even many high-tech leaders are publicly expressing alarm, and the U.S. Patent Office is reviewing its practices. But these may be too modest for solving the larger problem. "What is needed," writes Seth Shulman, author of *Owning the Future*, "are guidelines about when the overriding public interest requires restrictions on private capture of formerly shared knowledge assets. Unless we tackle the issue head on, proliferating private claims will choke productivity, magnify current inequities, and erode our democratic institutions."[30]

The Privatization of Internet Governance

Finally, the Internet commons is also threatened by new regimes of private governance, particularly in the control of domain names. Although ostensibly a technical matter, control of domain names necessarily affects matters of free expression, privacy and national sovereignty.

It is not at all clear what legal principles should govern ownership of domain names. Should companies be allowed to use trademark laws to shut down sites that criticize them, using the company's name? (Dozens of sites use "sucks" in their domain name, as in walmart-sucks.com.) Should commercial enterprises, as opposed to ordinary people, have first claim to common words or place names? (A corporate consortium tried to shut down a nonprofit site called "canada2.com" and an online retailer, Etoy.com, tried to shut down an online artists' forum, eToy.org.)[31]

Should European nations be allowed to ban domain names with the word "nazi" in them, or should American free-speech norms prevail internationally? The answers to such questions are not self-evident but political by definition.

Yet in 1993, just as the Internet was beginning to experience significant growth, the U.S. Government ceded this important authority. Through the National Science Foundation, which was then administering the Internet, the American people lost control of one of the most important equity assets of the Internet, the right to manage most domain name registrations. NSF relinquished this right, without even a competitive bidding process, by contracting it out to a private company, Network Solutions Inc., which gained the power to sell domain names to the public. It should not be surprising that NSI used its monopoly control to charge exorbi-

tant registration fees for the .com suffix and other valuable domain names. Bought a few years later for $3.9 million by a company called SAIC, NSI's market capitalization later soared to $2.5 billion. Not only did the company reap a huge windfall from its control of a public asset, it used its monopoly power to lobby Congress and the executive branch to prevent the creation of any competing domain-name registration rivals.

Beyond this financial giveaway, however, is a larger issue of legitimacy and due process in governing the Internet commons. The Internet is a powerful communications platform created by the U.S. Government, and as such there are some serious First Amendment and democratic implications to how Internet speech ought to be governed. In 1998, the government washed its hands of this issue, however, by instigating the creation of a new private sector, not-for-profit corporation to administer the Internet name and number system. The new organization, ICANN, for the Internet Corporation for Assigned Names and Numbers, was charged with managing the domain name system and encouraging competition in domain name registration.

The creation of this hybrid policymaking body, officially a nonprofit chartered in the State of California, was an attempt to develop a new private, flexible, bottom-up governance system. Unfortunately, ICANN's very constitutional design is seriously flawed and is likely to hasten the commercial enclosure of the Internet. First, the Commerce Department, which instigated the creation of ICANN, did not stipulate substantive limits to ICANN's authority. It is therefore unclear whether the organization can legitimately adopt policies that — while officially related to domain names — significantly affect privacy, free speech and consumer rights.

The vague delegation of authority to ICANN is especially worrisome because the group's private policymaking is not legally subject to the customary procedural protections of government policymaking — open meetings, public access to documents, bans against conflicts of interest, and fair administrative procedures. As a result, rigorous legal rules that assure moral legitimacy and democratic accountability do not necessarily exist. While ICANN has agreed in general to have open meetings and public access to records, these customs are revocable, not mandatory. And ICANN's policymaking is not subject to traditional judicial remedies and accountability that govern federal agencies.

The dangers of this arrangement was shown when ICANN chose to restate trademark law principles in a way that allows trademark owners to silence their critics. If a URL were seen as tarnishing the reputation of a trademark — particularly the sucks.com websites — ICANN would allow the trademark owner to force the de-registration of the offending domain name. This represents a reversal of existing law, in which First Amendment principles prevail over trademark law. But since ICANN is a "private" body and not a government agency, the First Amendment is not seen as controlling. Free speech in the most basic sense is diminished.

For an organization that elects fewer than half its board members from the general public, and which will likely never have any meaningful consumer representation, such powers raise serious questions of legitimacy. With no clear legal limits to its authority, dubious democratic safeguards, and a board skewed to represent e-commerce interests, ICANN is a perfect governance vehicle for transforming the Internet commons into a privatized commercial infrastructure.

The out-of-control patenting of knowledge is allowing the "first mover" to corner the market and monopolize any future creativity in that field.

Some critics have properly raised questions about the constitutionality of ICANN's policy authority.[32] The Property Clause of the U.S. Constitution requires that Congress, and only Congress, can permit the sale or disposition of property belonging to the United States. And since the domain name addresses, root server and other technical protocols that control the Internet were created by the U.S. Government, and were once its property in a strict legal sense, a reasonable person could question the constitutionality of the Commerce Department's right to give away this property. (That these information protocols are now used by a global constituency does not alter this fact.)

ICANN's authority may be also be questioned as an unconstitutional delegation of Congressional authority. The Supreme Court has ruled that Congress may not delegate to private parties its power to make laws, nor make overly broad delegations of authority to govern-

mental bodies. But here we have a nonprofit organization registered by the State of California presuming to govern some of the core processes of the Internet.

Conclusion

The premise of this chapter is not that the commercialization of the Internet is bad. The emergence of thousands of profit-making Internet companies has, in fact, had incalculable value for the economy, scientific inquiry, social connection, and cultural creativity. The long-term vitality of these gains, however, is threatened by the subversion of the information commons. Threats to open standards, the blind expansion of property rights, growing market concentration in media industries, and the privatization of Internet governance are among the forces undermining the greatest communications commons in history. There is no reason that commercialization in the Internet space must entail such destructive trends.

Professor Lawrence Lessig warns that enclosing the information commons would change the character of our society:

> The power through property to produce a closed society — where to use an idea, to criticize a part of culture, to quote "Donald Duck" — one will need the permission of someone else. Hat in hand, deferential, begging, a society where we will have to *ask* to use; *ask* to criticize; *ask* to do all those things that in a free society — in a society with an intellectual commons, in a society where no man, or no corporation, or no soviet, controls — one takes for granted.[33]

If the renaissance of innovation wrought by the Internet is going to continue, it is imperative that the architecture of public communications remains open and diverse. The wisdom of the open, end-to-end architecture must be reaffirmed, and limits must be set on market colonization of the Internet. This may require a rediscovery of the functional and cultural value of the gift economy, as seen in the origins of the Internet, the power of free and open source software, and the robust creativity of countless Internet venues. But the challenge facing us may actually be more complex: learning how to allow the gift economy and the market economy to coexist, and to invigorate each other, while retaining the integrity of each.

8. The Giveaway of Federal Drug Research and Information Resources

Such a deal! The taxpayers pay to invent a promising drug, then give a monopoly to one company. And the company's role? To agree to sell it back to us.

– James Love, Consumer Project on Technology[1]

Drug expenditures in the U.S. have doubled since 1993, and are expected to double again by 2004[2] — a troubling trend that provoked politicians in the 2000 campaigns to quarrel about how to make prescription drugs more affordable. Strangely, the hand-wringing over exorbitant drug prices has ignored the federal government's role in *giving away* its most promising drug research for a pittance of its actual value. Drug companies then charge whatever prices the market will bear. It is a sweet deal for drug makers, but an outrage for millions of American taxpayers and consumers.

Call it a hidden subsidy to the highly profitable drug industry, the kind of corporate welfare seldom tallied in the accounting books or remarked upon in Washington salons. Yet some of the most important drug breakthroughs of the past fifty years have been generated by the National Institutes of Health and other government-funded researchers — drugs to fight cancer, treat HIV and AIDS, treatments for genetic disorders, depression, diabetes, and much more. The fruits of this risky and expensive scientific work typically do not accrue to its sponsors, the American people, until drug companies have extracted a huge markup of their own for the relatively modest additional work required to bring a new drug to market.

Surrendering Public Science to Private Interests

A key turning point in the public control of public science occurred in 1980, when Congress enacted the Bayh-Dole Act. Since World War II, there had been a broad consensus that the intellectual property rights of federal research should stay in the public domain or be licensed on a non-exclusive basis. That way, the American people could reap the full measure of value from their collective investments. At the urging of large pharmaceutical, electronics and chemical industries, however, Congress enacted the Bayh-Dole Act in 1980 and sharply reversed this presumption of public ownership of federal research.[3] A number of related laws and executive orders signed by President Reagan in the 1980s further weakened the public's control over government research in subtle but important ways.[4]

Large companies such as General Electric, Monsanto and trade associations such as the National Association of Manufacturers and the Electronics Industry Association argued that government discoveries were sitting idle, and never making it to market, because companies did not have sufficient incentives to commercialize them. Exclusive patent rights would change that, they argued. They also argued that foreign competitors should not be allowed to benefit from U.S. Government research.

Representative Jack Brooks stated the problem with the Bayh-Dole Act quite clearly:

> The major problem I have with [the legislation] is that it violates a basic provision of the unwritten contract between the citizens of this country and their government; namely, that what the government acquires through the expenditure of its citizens' taxes, the government owns. Assigning automatic patent rights and exclusive licenses to companies or organizations for inventions developed at government expense is a pure giveaway of rights that properly belong to the people….The federal government has the equivalent of a fiduciary responsibility to the taxpayers of the country….[5]

Once the principle of giving away exclusive licenses to government research had been established, President Reagan expanded it to all comers.[6] By the end of the 1980s, federal technology transfer to the private sector had become a massive giveaway of taxpayer-sponsored R&D worth billions of dollars.

It is not surprising that the private sector should look to government to perform all sorts of basic research. It is usually economically prohibitive for an individual firm to pursue costly, high-risk research into basic scientific phenomenon, particularly when the benefits may not accrue to any single company. And there are sometimes good reasons to give companies exclusive patents to public technologies. Perhaps a company must make significant post-patent investments to commercialize research, or there are compelling social policies that warrant exclusive patent terms.

But none of this justifies the routine giveaways of government science at a fraction of its market value. The American people pay twice — first as taxpayers reaping a lower return on their investments, and second as consumers paying higher prices for medications. Now, a similar situation is emerging in genetic research: public science is paying the bills for the breakthroughs while private players are allowed to rush in and acquire patent monopolies that raise prices, stifle competition and inhibit future research.[7]

Corporate Free Riding on Federal Pharmaceutical Research

The federal government's role in sponsoring basic research and developing new drugs is extensive — and expensive.[8] The government funds the discovery of new therapeutic agents, sponsors clinical testing of drugs in humans, and develops and refines drug manufacturing techniques. Throughout the life of a drug, publicly funded research provides a rich source of fundamental knowledge for discovering new drugs, designing drugs that have already been discovered, and providing clinical guidance for drugs already approved.[9]

When government does the preclinical testing of a new drug — the most difficult and risky aspect of new drug development — it is shouldering some 65 to 70 percent of the total development costs. The key role left to industry, when using federally sponsored research, is to meet the requirements of a New Drug Application, or NDA, from the Food and Drug Administration, in order to market the drug. While this can be a costly process, it pales in comparison to the research already sponsored by taxpayers. Few people have been more dogged in ferreting out these costs than James Love, director of the Ralph Nader-sponsored Consumer Project on Technology.

Numerous studies have confirmed the paramount role of government research in developing the most medically significant drugs. An MIT study in 1995 found that 11 of the 14 new drugs industry identified as the most medically significant over the preceding 25 years had their origins in work sponsored by the government. A study of 32 innovative drugs introduced before 1990, according to the Congressional Joint Economic Committee, found that without government support approximately 60 percent of the drugs would not have been discovered or would have had their discoveries markedly delayed.[10] The invaluable role of public science is reflected as well in medical patents. More than 70 percent of the scientific papers cited on the front pages of U.S. industry patents were products of public science — government or academia — according to a study commissioned by the National Science Foundation, while only 17 percent were industry sponsored.[11]

When Love and Nader looked at the government's role in developing new cancer drugs, they found that the fed-

eral government was involved in the preclinical development of 28 of 37 drugs developed since 1955.[12] For cancer drugs that reached the clinical stage of research, NCI was involved in 34 of the 37 cancer drugs developed.[13]

One of the most lucrative of these drugs has been paclitaxel, also known as Taxol, which is used to treat cancer of the breast, lung and ovaries. Using Pacific yew trees on federal lands, the National Cancer Institute spent fifteen years and $32 million to develop Taxol, before inviting pharmaceutical firms to enter into a cooperative research and development agreement. The agreement set forth the terms of government-industry collaboration, including upfront guarantees of exclusive patent rights even before any discoveries were made. In the case of Taxol, NCI chose Bristol-Myers (now Bristol-Myers Squibb) over three other applicants, giving the company exclusive access to government-funded research, including raw data and new studies.

Although the agreement had a "fair pricing clause," it provided no clear criteria to guide NCI enforcement, according to records obtained by Love through the Freedom of Information Act.[14] The actual cost of manufacturing Taxol, reports Love, is about $500 per patient for an 18-month treatment regimen. Bristol-Myers Squibb charges more than twenty times that amount, earning between $4 million and $5 million a day on Taxol, Love estimated.[15] In 1999, the drug generated an estimated $1.7 billion in sales for the company.

Bristol-Myers Squibb claims that it spent $1 billion to bring Taxol to market. But in light of the government's significant role in discovering and developing the drug, that claim seems dubious, according to Love's analysis.[16] The government did most of the drug development, the company bought the yew bark at discount prices from the federal government, and the NCI itself says the chief reason Bristol-Myers Squibb was selected was for its marketing expertise in selling cancer drugs.[17] But since three other drug companies were interested in bringing Taxol to market, an exclusive license for Taxol was probably unnecessary.

A similar story can be told about Xalatan, an eyedrop-administered drug for glaucoma that was initially developed at Columbia University using $4 million in NIH money. The Pharmacia Corporation bought the patent to the drug from Columbia for no more than $150,000, and a share of future royalties. Pharmacia claims it then spent tens of millions of dollars to bring the drug to market.

When Xalatan finally hit the market, Pharmacia charged from $45 to $50 for a tiny bottle that lasts for six weeks, or about $1 a day. Given that the key ingredient costs only 1 percent of the revenue it generates, Xalatan represents "liquid gold" for Pharmacia, in the words of one reporter.[18] In 1999, company sales of the drug amounted to $507 million, of which Columbia University received about $20 million in royalties. The federal government receives nothing.

Government officials have defended the exclusive licensing of Xalatan, saying that the reward to taxpayers is the drug itself. But to the two million Americans who suffer from glaucoma, many of whom are older people living on fixed incomes who can ill-afford high-priced drugs, such arguments probably seem weak. Not only have taxpayers received nothing for their investment, they must pay an inflated price for a drug financed by their taxes.

When government does the preclinical testing of a new drug...it is shouldering some 65 to 70 percent of the total development costs. The key role left to industry,...pales in comparison to the research already sponsored by taxpayers.

These are not isolated stories. There are many other important drugs that were developed with federal funded research, for which companies later charged handsome prices. These drugs include Prozac (for clinical depression), Capoten (for hypertension), and a variety of HIV and AIDs-related drugs such as AZT, ddI, ddC, d4T, Ziagen and Norvir.[19] That companies have charged high prices for such drugs, despite the government's primary role in shouldering the major costs, has naturally stirred great resentment among patients.

For years, drug companies nominally had to abide by a "reasonable pricing" clause in federal law. Any new drugs developed with federal funds were supposed to bear some "reasonable" relationship to the costs of development. But the NIH believed that the clause discouraged drug companies from collaborating with the government, and urged Congress to strike the clause, which it did in 1995. Fortunately, Rep. Bernie Sanders succeeded in reinstating the clause in June 2000.[20] Enforcing the provision may be the real challenge.

Enforcement will be difficult in part because the federal government does not keep careful records of what new discoveries and inventions its funding has catalyzed. As many as 22 percent of discoveries financed by the federal health institutes go unreported, according to the Department of Health and Human Services, despite a law requiring universities receiving federal money to make such reports.[21] The U.S. General Accounting Office has concluded that the reporting system is "inaccurate, incomplete and inconsistent."

The political clout clearly belongs to the pharmaceutical industry, which actually tried to eliminate "notice and comment" requirements for exclusive drug licenses in 1999. The law currently allows the public to learn basic economic information about a drug's development and sale, such as royalty rates paid on licenses, subsequent development costs, sales figures, and so forth. The government must disclose such information, and allow the public to object to the granting of a license. Fortunately, the industry's attempt to throw a veil of secrecy over the granting of exclusive drug licenses failed.

Returning Drugs to the Commons: The Importance of Generics

Thanks to a 1984 federal law, the patent monopoly that the U.S. government grants to the makers of new medicines is limited. When a drug's patent expires, other manufacturers can petition the FDA for permission to market a generic version that has the same active ingredients as the original drugs and can achieve the same therapeutic results. This means that a proprietary drug becomes a commodity. Competitors can arise to sell the identical drug combination — without its brand name — at much lower prices. Much like the public domain in copyright, generic drugs represent the triumph of the commons.

Before the 1980s, generics were a fairly narrow slice of the drug market. A key reason was the would-be manufacturers of generic drugs had to undergo the same panoply of costly drug reviews that any new drug had to undergo. The Drug Price Competition and Patent Term Restoration Act, commonly known as the Hatch-Waxman Act, made it dramatically easier for generics to enter the market by streamlining the FDA's drug approval process. Instead of having to re-prove the safety and efficacy of already-approved drugs, generic drug makers only have to demonstrate "bioequivalence" — that the drug has the same medical effects as the "innovator" drug. The entry of generic drugs to the market became much easier and less costly.

In 1983, before the Hatch-Waxman Act was passed, only a third of the top-selling drugs had generic competition once the patents expired. Thanks to Hatch-Waxman, today virtually all drugs whose patents are expiring face generic competition. The market share of generic drugs has risen from about 19 percent in 1984 to 43 percent in 1996. Because generics are available, consumers saved an estimated $8-10 billion on prescriptions at retail pharmacies in 1994.[22]

Predictably, a functioning commons is generally seen by proprietary enterprises as a threat. Proprietary companies are naturally concerned that over the next five years, the patents of twenty blockbuster drugs with combined sales of $20 billion will expire. As this happens, the average top drug company is likely to lose 30 percent of its sales to generics by 2003, according to the Boston Consulting Group.[23]

Alarmed by these realities, brand-name drug makers have stepped up their efforts to stifle generic competitors. They are mounting new and creative court challenges to try to prevent new generic approvals, knowing that even a delay of a few months can be tremendously lucrative.

Proprietary drug makers are also seeking longer patent terms for their drugs, sometimes on an ad hoc basis. In 2000, Schering-Plough, the maker of Claritin, the popular allergy drug, unsuccessfully sought a special three-year patent extension from Congress. The move would have cost consumers an extra $7 billion and set a precedent for extending the patents of other popular drugs such as Prozac, Prilosec and Vasotec. In what may be seen as the ultimate tactic, some proprietary drug makers have actually made payments to generic manufacturers to keep generic products off the market.[24]

As a market that revolves around a type of common ownership of once-proprietary goods, the generic drug market represents an important commons. In that capacity, the generics market has had a highly salutary effect on competition and lower prices, without seriously affecting the R&D of top drug makers.[25]

Squandering the Public's Information Resources

The U.S. government is the largest and arguably the most important publisher and owner of information resources in the world. It generates thousands of authoritative reports and hearing records each year, sponsors cutting-edge scien-

tific research in dozens of fields, and manages a huge variety of comprehensive databases. Government agencies hold some of the most sophisticated information available about agriculture, food safety, chemical safety, the environment, financial markets, labor markets, and much more.

Are American taxpayers receiving good value for their significant investments in government information? The short answer is — it depends. Significant progress has been made in making government information more accessible to the public, particularly since the rise of the Internet in the late 1990s. But a great many collections of valuable government studies, hearings, databases and other information remain largely inaccessible.

The primary issue here is not so much the brazen giveaway of resources, although that still occurs. Rather, it is a failure to provide citizens with easy, low-cost access to government information, despite the availability of excellent distribution methods such as the Government Printing Office, the World Wide Web, and the Federal Depository Library Program.

The reasons for this failure vary. Many agencies do not have the money, expertise or will to put their documents online. At other agencies, the technical expertise and systems for making information available is often missing. Still other agencies reflexively give private vendors exclusive control over federal information resources, enabling them to charge high prices in non-competitive markets.

The Executive Branch has failed to provide much leadership or coordination in developing more thoughtful, citizen-friendly information policies. Maybe that is because making high-quality government information easily available could trigger greater scrutiny of the government's performance. This is certainly the case in Congress, which has been scandalously resistant to making its hearing records, legislative bills, research reports and even its members' voting records available on the Web.

The upshot: Not only are taxpayers often denied ready access to information they have already paid for, but a vital element of democratic openness and accountability is being thwarted.

It took a struggle to force the Securities and Exchange Commission to make its corporate filings available in the early 1990s. At the time, in the pre-Internet world, it was standard procedure for government agencies to give away their valuable data and reports to private information vendors, who would then re-sell them — perhaps with minor value-added improvements — at exorbitant prices. A public-spirited Internet activist, Carl Malamud, challenged this model and established the precedent that government data should be available for free on the Web. Working with consumer advocate James Love, Malamud decided to put the SEC's data on his own web server, at his own expense (and later, with a grant from the National Science Foundation), undercutting the potential market for raw SEC data compilations.[26] As a result of these efforts, any investor can now download SEC filings by public companies at no cost.

The SEC precedent and the growth of the Web in the late 1990s — which made it relatively cheap and easy to put digital information online — helped sweep aside many of the government's retrograde information policies. There are now more than 20,000 government web sites, enabling citizens instantly to call up a cornucopia of information on their computer screens. The State Department puts up transcripts and audio feeds of its daily briefings, and the EPA posts its Toxics Release Inventory database. The Supreme Court finally got around to opening its own website in April 2000, letting anyone read the court's rulings. The public was so interested in its *Bush v. Gore* on December 4, 2000, that the site had to use 19 servers to accommodate 1.1 million requests for the case in 13 hours.

The drive to make government information freely available gained new momentum in the waning days of the Clinton administration. In November 2000, a new portal and search engine for all online government documents — FirstGov.gov — was unveiled. Developed by Eric Brewer, cofounder of the search engine company Inktomi, FirstGov.gov will be able to handle at least 100 million daily searches. Brewer gave the search engine to the government as a free service to the public, with no cost or banner ads.

But serious problems in information policy remain. The fate of National Technical Information Service (NTIS), a priceless repository of highly technical research reports spanning nearly fifty years, remains in limbo as Congress and the Executive Branch argue over which federal agency should oversee it and how cheap and accessible NTIS documents should be.[27] There are problems in assuring "permanent access" to documents that go up on the Web, only to be taken down later without notice or explanation. Among some federal agencies, there are copyright or copyright-like barriers to the public use of government documents, notwithstanding a statutory prohibition against the copyright of materials prepared by the government.[28]

The most retrograde set of information policies, fit-

tingly enough, has to do with Congress. As Speaker of the House, the self-styled revolutionary Newt Gingrich promised to bring Congress into the information age by putting Congressional documents online. At the time, only the daily *Congressional Record* and the original text of bills were available.[29]

"Some of the most important texts of bills — discussion drafts, chairman's marks, manager's marks, committee prints — are rarely placed on the Internet," notes Gary Ruskin, a long-time critic of government information policies and director of the Congressional Accountability Project. "So while Washington lobbyists read the relevant drafts of bills, most Americans can only obtain antiquated versions."[30] *Roll Call*, a newspaper which covers Congress, called this two-tiered system for distributing information "Info-Corruption" because it allows corporate lobbyists and committee chairmen to negotiate legislation behind closed doors, leaving the public frozen out of the process.

Another egregious void in congressional information is a searchable database of the voting records of members. While individual votes are on the Web, there is no easily searchable Internet database of congressional voting records indexed by bill name, subject and members' names. This does not mean that Congress is techno-illiterate, however. Individual members and congressional committees often have their own web pages, filled with self-serving press releases and other fluff.

Congressional hearings are a rich and timely reservoir of information, but each committee makes its own decisions about whether to make this information available online. Some do, many do not. As Congress dithers and delays, an entrepreneur, Philip Angell, launched HearingRoom.com to sell near-real-time transcripts of hearings in all 192 congressional committees. Using a private, digital network of speech recognition software and audio and video streaming technology, the company delivers a synchronized stream of text and audio with 95 percent accuracy and on a five- to ten-minute delay. Real-time service will be $1,000 per hearing; a yearly subscription to transcripts via the Internet cost $5,000 to $15,000. Of course, the only people who can afford such prices are corporate lawyers, lobbyists, and other well-heeled special interests.

By failing to take the most basic steps to make its hearings accessible via the Internet, Congress has in effect created a special set of corporate skyboxes for its deliberations, leaving other parts of the government and state governments to fend for themselves. The public, by Congress' reckoning, stands last in line. "Congressional hearings are public information," said Gary Ruskin. "We taxpayers paid for these hearings. We ought to be able to read them, on the Internet, for free."[31]

Congress not only grants this special access, it helps shield corporate influence-peddling by refusing to put lobbyist disclosure reports on the Internet even though they are electronically stored. These reports disclose which lobbyists are paid, by whom to work on a particular issue: politically explosive information that Congress does not really want the press or public to readily obtain. Anyone who wants the disclosure reports has to personally trek up to a little office in the Capitol building.[32]

A similar controversy, still unresolved, surrounds public access to special research on thousands of issues that come before it. Congress spends over $64 million a year on reports from the Congressional Research Service, but it refuses to make CRS reports available to the general public except through special requests to members' offices. Traditionally, Congress has seen the CRS reports as a kind of precious largess to be dispensed to constituents as a favor. So CRS reports remain mostly inaccessible on the Internet, except in a handful of cases where individual members have posted reports on their own websites.[33] Meanwhile, exploiting the scarcity, a number of businesses sell bootleg versions of CRS reports. One such firm charges $49 per report.

Conclusion

The federal giveaway of taxpayer assets may have a long tradition in American political life, but the "double payment" involved is increasingly embarrassing and politically provocative. The first payment is the use of taxpayer money; the second payment is the high prices that result from the privatization and re-sale of the very resources financed by the first payment.

The privatization of the public domain of research and information impoverishes scientific research, journalism, civic and cultural public discussion, and the quality of political discourse. With authoritative congressional reports locked away from the public, it also makes it more difficult for citizens to petition Congress for a redress of grievances. Now that the Internet is helping showcase the indefensible, it is time for Congress and federal agencies to give the American people a better return on their investments.

9. Enclosing the Cultural Commons

The American apparatus of advertising is something unique in history....It is like a grotesque, smirking gargoyle set at the very top of America's skyscraping adventure in acquisition ad infinitum. *It is never silent, it drowns out all other voices, and it suffers no rebuke, for is it not the voice of America?*

—James Rorty, *Our Master's Voice*, 1934[1]

A colossal business-marketing machine has come to dominate American culture over the past generation. It has many origins, to be sure, but much of this transformation emerged in the early 1980s as cable television, VCRs, personal computers, and a host of other new technologies began to upstage broadcast television. Electronic media began to become ubiquitous in the culture.

Large national audiences that once huddled around three TV networks soon splintered among dozens of niche media. In hot pursuit of a fragmenting audience, marketers began to pioneer new forms of targeted marketing, assisted by the computerization of demographic data. Then, to leap beyond the new clutter that their own efforts were creating, marketers developed still other techniques and venues for dominating public space. Over time the crush of marketing has generated an ominous new discipline, the "economics of attention," which regards human consciousness as a fugitive animal to be hunted down and trapped.

Slowly but surely, all sorts of non-commercial endeavors — the arts, public education, sports, civic life, journalism, recreation, public life — have been transformed into vehicles for marketing. We now suffer from a dwindling supply of "un-branded" no-sell havens in our culture, perhaps replicating in humans the feelings that the snail darter and other endangered species must experience — a physical and psychic claustrophobia.[2]

The marketing excesses raise an inevitable question: Can a society whose culture is so given over to incessant commercialism ever function as a deliberative democracy? Can the public find and develop its own sovereign voice, or has its character been so transformed by commercial media, and the boundaries of its permissible discourse so limited, that public life will forever be a stunted thing?

Broadcasters Win Control of the Airwaves

The loss of a public commons in broadcasting must be counted as one of the great civic and cultural losses of the 20th century. Broadcasting, after all, is one of the primary means by which our society communicates with itself. The loss of the airwaves to market enclosure — first achieved through 1927 and 1934 legislation, and significantly extended through sweeping deregulation in the 1980s and 1990s — meant that commercial values would dictate the evolution of our culture.

Broadcast spectrum was originally so plentiful that the government granted radio licenses to anyone upon request. But by the 1920s, the proliferation of broadcasters was causing a cacophony of signal interference. This prompted a debate about how to allocate control of the electromagnetic spectrum. As RCA, General Electric and other corporations owning commercial radio networks sought to gain exclusive control of the airwaves, educators, organized labor, religious groups and politicians worried that their free speech rights in the new medium would be wiped out. Accordingly, they wanted a system of common carriage, which would require any broadcaster to sell airtime to anyone at nondiscriminatory rates. Broadcasters stoutly resisted this idea because it would diminish their editorial control and commercial opportunities.[3]

In the end, the broadcast industry prevailed upon Congress to enact the Radio Act of 1927 and then a successor statute, the Communications Act of 1934. The idea was that broadcasters would serve as "public trustees" of the airwaves — enlightened hosts of the broadcasting commons. "It is as if people of a community should own a station and turn it over to the best man in sight with this injunction: 'Manage this station in our interest'," declared the Federal Radio Commission.[4] A bargain was struck: Broadcasters would receive free use of the public's airwaves in return for vague standards of public service. Broadcast licenses would not entail any ownership or property rights in the airwaves, and licenses could be terminated for a breach of public duty.

Unfortunately, the public's end of the bargain has been more of a useful fiction than a meaningful dividend. From the start, Congress gave no particular definition to the "public interest, convenience and necessity," an egregious shortcoming in legal draftsmanship that no businessperson would ever accept. Some scholars considered the "public interest" standard to be an expedient gesture to make the government's licensing powers constitutional. After all, the U.S. Government was choosing to give preferential free speech rights to some people — broadcasters — over others.

Congress and the FCC in the 1960s and 1970s did enact a number of specific requirements to help assure public and political access to the airwaves. Candidates for federal office were granted the right to buy airtime to reply to their opponents, and the right to free replies to any station's political attacks or candidate endorsements. The public was given nominal access to the airwaves through the Fairness Doctrine, which required broadcasters to cover "controversial issues of public importance," and to allow opposing views to be heard. At one time the FCC actually had guidelines to prod broadcasters to provide diverse programming, children's programming and local public affairs programming. A failure to comply with any of these requirements could theoretically result in government revocation of a broadcaster's license.

In practice, however, most attempts to enforce a muscular standard of public trusteeship on broadcasters were doomed. Standards were vague, enforcement was irregular and highly legalistic, and political pressures on the FCC to coddle broadcasters were constant.[5] Over the past 67 years, fewer than a half dozen licenses have been revoked. Broadcasting is too powerful an industry to cross (what politician running for re-election wants to be on the wrong side of the local TV station?), and too much money can be made selling airtime to advertisers for public service to be a serious priority.

While the networks in the 1960s and 1970s occasionally mounted admirable productions and public affairs initiatives, these were tolerable sacrifices for a lucrative three-company oligopoly. When cable television and independent television stations stepped up the competitive pressures in the 1980s and 1990s, however, TV programming that did not garner maximum ratings — particularly public affairs, local programming, children's educational TV and public service — was severely cut back.

Industry consolidation allowed by the Telecommunications Act of 1996 made broadcasters even less eager to carry out "unprofitable" public service goals. Through a series of deregulatory moves in the 1990s, the practical meaning of the "public trust" in broadcasting was eviscerated, making virtually any sort of programming synony-

mous with the public interest.[6] (Indeed, some broadcasters once claimed in formal submissions to the FCC that *The Jetsons* constituted "educational programming.")[7]

The evolution of television over the past generation is not without its high points; never before has there been as much high-end news, arts and public affairs programming, at least on cable television. But cable subscribers *pay* for these services, and they are not available to all Americans. Broadcast television is meant to serve *all* Americans, largely because station owners use the public's airwaves for free. The question is: What are broadcasters giving the American people in return?

A regulatory scheme based on broadcasters serving as conscientious stewards of the public interest had, by the 1990s, effectively morphed into outright ownership of the spectrum. A juggernaut of race-to-the-bottom programming — leering talk shows, tabloid news, salacious dramas, and incessant station promos — had been unleashed, and the fiction of broadcasters serving as stalwart public trustees had grown embarrassingly thin.

Broadcasters consider even the most basic sorts of public service, such as probing coverage of political elections, too expensive. Issue coverage of the 2000 presidential race on the nightly news declined by 27 percent over 1996, and two of the four major networks chose not to air a presidential debate live. In the month before the "Super Tuesday" primaries in 2000, the national networks and their local affiliates aired just 36 seconds a night of candidates addressing issues.[8] Fewer than 7 percent of the nation's 1,300 stations agreed to try to provide five minutes a night of candidate-centered discourse in the 30 days before the election, and even fewer stations met that goal.[9] Only 0.3 percent of total commercial time in 24 broadcast markets during a typical two-week period in 1990 was devoted to local public affairs programming.[10]

Airtime has become so lucrative that broadcasters simply do not want to surrender it for purposes that do not generate maximum revenue. TV stations sold between $600 million and $1 billion in paid political advertising in the 2000 election season — a record — more than six times the ad revenues collected in 1972. For an asset that, as currently organized, would probably sell at auction for more than $100 billion — $900 or more for every American household — citizens might understandably question the returns they are receiving for the commercial use of this public asset.[11]

The enclosure of the public's airwaves has found a farcical repetition in the broadcast industry's successful appropriation of a second six megahertz slice of spectrum for digital television. "It is one of the great rip-offs in American history," said Senator John McCain of Arizona. "They used to rob trains in the Old West, now we rob spectrum."[12] In the early 1990s, broadcasters lobbied Congress to give them new spectrum so that free over-the-air television could develop high-definition television (HDTV) to compete with cable and satellite television. The idea was that better video and sound quality, along with many more channels, would usher in the next generation of TV. In enacting the Telecommunications Act of 1996, Congress agreed. It gave existing broadcasters a large new slice of spectrum space — with an estimated value at the time of as much as $70 billion — for free. No additional public-interest obligations were imposed.[13] Moreover, Congress allowed broadcasters to hang on to both portions of their spectrum — analog and digital — until 2006, or until 85 percent of American households had digital TVs, whichever came later.

Most attempts to enforce a muscular standard of public trusteeship on broadcasters were doomed. Standards were vague, enforcement was irregular and highly legalistic, and political pressures on the FCC to coddle broadcasters were constant.

It could be a long wait. By 2000, TV manufacturers had sold only 50,000 digital TV sets, at $5,000 or more apiece, and broadcasters were not broadcasting much high-definition video programming: a classic chicken-and-egg situation. The HDTV market is not developing very quickly, nor are broadcasters especially aggressive about moving ahead with HDTV. In fact, many broadcasters are instead investigating lucrative non-broadcast uses of the spectrum, such as corporate datacasting, Internet-enabled cell phones and wireless email. (Congress conveniently did not *require* the spectrum to be used for HDTV.) In October 2000, FCC Chairman William Kennard likened the situation to each broadcaster having two rent-controlled apartments on Manhattan's Upper West Side, with the second one left empty.

To force a more productive use of the public's assets, he proposed a "spectrum squatter's fee" that would escalate yearly, starting in 2006, to prod broadcasters to complete the transition to digital TV and return the analog spectrum to the American people.[14]

Meanwhile, broadcasters' lockup of this valuable bit of spectrum could seriously affect the nation's long-term economic competitiveness. The U.S. wireless industry, one of the most robust sectors of the economy, is clamoring for spectrum space in order to catch up with European and Japanese companies in the race to develop the next big thing: 3G, or third-generation, wireless — the anytime, anywhere wireless Internet. But the Congressional giveaway of digital spectrum threatens to severely delay the rollout of wireless Internet services; a political firestorm would ensue if Congress were to try to reclaim spectrum from broadcasters — or even tried to make them pay for its use, as the cellular industry now does.

"Branding kids for life," is how one marketer puts it. "If you own this child at an early age," said the president of Kids-R-Us, a clothing chain, "you can own this child for years to come. Companies are saying, 'Hey, I want to own the kid younger and younger.'"

So it is that market enclosures tend to be expansively self-reinforcing. This is seen not just in broadcasters' hammerlock on the digital spectrum space, but also in their successful campaign to stymie the development of low-power community radio stations.[15] In an attempt to democratize radio, counter industry concentration, and foster diversity in local programming, the FCC in 2000 proposed granting a new class of non-commercial FM radio licenses that would allow schools, churches, and dozens of other community organizations to run their own radio stations. The FCC received more than 1,200 applications for low-power licenses, but in December 2000 the Senate intervened on behalf of the broadcast industry (including National Public Radio) to sharply cut back the number of potential stations, chiefly in urban areas, by as much as 75 percent. Broadcasters argued that the stations would interfere with existing radio signals, but critics charged that the real concern was protectionism. This charge was given credence by a Senate amendment ordering the FCC to study the "economic impact" of low-power radio on "incumbent FM radio broadcasters."

The exile of the non-commercial sector from television and radio has been a tremendous disenfranchisement of ordinary Americans that the rise of public broadcasting in the late 1960s did little to offset, particularly now that even public broadcasting is increasingly commercializing itself. Fortunately, the principle of auctioning spectrum space is becoming more widely accepted, offering leverage for obtaining a fair return on public assets and perhaps new vehicles for public-interest programming.

Since 1994, the FCC has conducted more than two dozen auctions for frequencies dedicated to wireless personal communications services, accepting bids that total over $36 billion. As demand for spectrum for wireless services soars, even higher sums are likely to be paid, as seen in the $46 billion in bids for German 3G wireless licenses and $35 billion in bids accepted by the British government in March 2000. Spectrum auctions and user fees would at least allow the public to gain a financial payback for use of their assets; whether broadcasters' public interest obligations could be converted into money and earmarked for non-commercial programming content and other public purposes is another question.

The commercial colonization of public spaces and culture is not confined to the airwaves. The remainder of this chapter examines how it is transforming childhood, sports, civic institutions, and assorted public spaces.

The Corporate Branding of Children

"There's been a shift in the predominant way our society thinks of children," concludes Gary Ruskin, director of Commercial Alert, an advocacy group that fights an array of commercial excesses in American life. "Not long ago we considered children vulnerable beings to be nurtured. However, today, we increasingly see kids through an economic lens. In our business culture, children are viewed as an economic resource to be exploited, just like bauxite or timber."[16]

Having discovered that children are one of the most under-exploited market segments, marketers in the 1990s made up for lost time by developing all sorts of ingenious ways to persuade impressionable youngsters to *buy*.

According to one marketer, there is the "primary market" — the $24.4 billion a year that kids directly spend; the "influence market" — the $300 billion of adult spending that kids directly or indirectly influence; and the "future" market, which is the lifelong spending that kids will do based on brand loyalties they develop while young.[17]

"Branding kids for life," is how one marketer puts it. "If you own this child at an early age, said the president of Kids-R-Us, a clothing chain, "you can own this child for years to come. Companies are saying, 'Hey, I want to own the kid younger and younger.'"[18] Businesses were once satisfied with market share; today's companies realize that the real payoffs come from owning *mind share* — the personal attitudes and loyalties of children.[19]

This motivation to insinuate brand names into children's identities has led to commercials in every imaginable crevice of a child's daily life. Video games plug Pepsi and McDonald's. McDonald's has created such videos as "Mac and Me," and "McTreasure Island," a crude adaptation of Robert Louis Stevenson's *Treasure Island*. Content and advertising are now blurring, creating new forms of crypto-marketing, as seen in dozens of movies that slyly integrate brand-name products into the film.[20]

Commercial tie-ins between movies and toys have existed since Mickey Mouse was first licensed in 1934. But commercial substitutes (think Disney) have virtually replaced the folk characters of classic literature, and cross-media promotion now spans a spectrum that includes film, toys, video games, fast-food restaurants, action figures and books. With an average weekly diet of 40 hours of media a week and 20,000 commercials a year, childhood is being turned into one seamless web of commercialism.[21]

An obvious target for innovative marketers is the public schools. Where else can such a large, age-specific cohort of children be found in one place, as mandated by law? Since outright advertising would be too blatantly unacceptable in a public institution dedicated to learning, marketers have had to develop a variety of clever subterfuges.

One of the most ambitious projects to turn public education into an advertising venue has been Channel One, the pseudo-news program for teenagers founded by Chris Whittle in 1989. By "donating" satellite dishes, VCRs and TV sets for every classroom in participating schools, Channel One wins the right to show a daily twelve-minute video program containing two minutes of ads. Through this novel means, the company has created a whole new marketing platform for a captive audience of eight million teenage students in 12,000 public and private schools.[22]

An equally ingenious scheme was hatched by ZapMe!, a company that gave a free package of computers, software and Internet access to schools in exchange for the right to show online advertising to students. They also tracked children's every move on the Web, correlating the results with their age, gender, zip code and other identifying information. Despite the invasion of privacy of a captive audience, some 5,000 financially beleaguered school districts signed up with ZapMe! in 1999 to receive some $90,000 worth of equipment. While some schools rationalized that kids are already exposed to plenty of advertising — why quibble about a little bit more? — others objected to public education being so crudely commandeered for commercial purposes. Due largely to agitation by Ruskin's *Commercial Alert* and prominent congressional critics, ZapMe! abandoned its free equipment giveaways in November 2000, effectively scuttling the venture.

At a more conventional level, dozens of companies distribute slickly produced "educational" materials that give generous space to corporate logos and propaganda. Shell Oil waxes eloquent about the virtues of the internal combustion engine, and Exxon congratulates itself for its role in restoring the ecology of Prince William Sound (while omitting mention of its role in the Exxon Valdez oil spill).[23] Some textbook publishers use brand-name products in math books, ostensibly to make the examples more relevant to students. Coca-Cola and Pepsi have paid millions of dollars to convince school districts to give them exclusive on-site vending contracts.[24]

Fortunately, public concern about commercialization in the schools is growing, even prompting a U.S. General Accounting Office survey of how well states and local school boards protect students from marketers. The answer: not very well. Only 19 states have any statutes or regulations that deal with school-related commercial activities, and these rules are partial in 14 of the states.[25]

The Commercialization of the Public Sphere

In recent years, the cashiering of sports, civic institutions, public spaces and public reputation has become something of a national obsession. Public institutions that were once regarded with reverence and respect have become, in the words of one marketer, "terrific, leverageable assets."

The process has clearly gotten out of hand in professional sports, which is now a prime venue for marketers. The real breakthrough event in the branding of sports, according to author Naomi Klein, was the partnership between Michael Jordan and Nike, the sneaker company. "A company that swallows cultural space in giant gulps, Nike is the definitive story of the transcendent nineties superbrand," writes Klein in her book, *No Logo*. "More than any other single company, its actions demonstrate how branding seeks to erase all boundaries between the sponsor and the sponsored. This is a shoe company that is determined to unseat pro sports, the Olympics, and even star athletes, to become the very definition of sports itself…By equating the company with athletes and athleticism at such a primal level, Nike ceased merely to clothe the game and started to play it."[26]

The Texas Parks and Wildlife Department declared the Chevrolet Suburban "the official vehicle of Texas State Parks" in return for two of the vehicles, $230,000 and some Chevy ads in the park agency's magazine.

The Nike marketing paradigm has been widely imitated, transcending moral qualms about selling-out by making them seem irrelevant. Through sheer ubiquity, corporate branding creates an entirely new universe of images, products, celebrities, and companies. Brands now live and breathe in a parallel reality that renders any lines between content and commercial, or between integrity and cynicism, moot.

Behind the branding phenomena is an attempt to appropriate the commons of everyday experience — identity, tradition, street vernacular — by transforming it into a saleable product. The more intensely emotions are felt, the more attractive they are to brand creators. It accounts for Starbucks' embrace of jazz, Levi-Strauss' celebration of street hipsters, and the Body Shop's championing of progressive causes in their marketing. It is also why sports are such an irresistible marketing vehicle for companies. The Polo Grounds, Forbes Field, Tiger Stadium, Fenway Park, the Boston Garden and Candlestick Park conjure up long and cherished sports histories rooted in each city's life and shared from one generation to the next. What company wouldn't want to *own* that rich set of feelings and images?

As it happens, many cities and sports franchises have been only too willing to marketize the community's fan culture by auctioning off stadium names. The result has been a series of icy stadium names devoid of authentic emotions or context: the FleetCenter (formerly the Boston Garden), Continental Airlines Arena (the Meadowlands), 3Com Park (Candlestick Park), FedEx Field (Washington, D.C.), Enron Field (Houston), and the new Staples Center (Los Angeles).

Broadway theaters are another venue that is selling their evocative traditions for cold, hard cash. Upon its refurbishment, the Selwyn Theater, home to the nonprofit Roundabout Theater Company, became the American Airlines Theater. The Winter Garden Theater may become the Cadillac Theater, and other theaters may soon sport corporate marquees as well. Such selling away of the distinctive identity of public places sends a clear message that local traditions and history itself can be "owned" by whatever distant corporation may want to buy it.

The enclosure of public spaces for business advantage has reached some rather dramatic extremes in recent years. For $6 million in cash and services, the City of Huntington Beach, California, gave Coca-Cola exclusive rights to use municipal property to sell its soft drinks, making the city one of the first branded cities.[27] The City of Sacramento has actually considered selling its street names to corporations. The Texas Parks and Wildlife Department declared the Chevrolet Suburban "the official vehicle of Texas State Parks" in return for two of the vehicles, $230,000 and some Chevy ads in the park agency's magazine.[28] According to one marketing expert, fewer than 25 percent of festivals had corporate names attached to them fifteen years ago. Now 85 percent of festivals have corporate titles such as the Hooters Hula Bowl, the AT&T Rose Bowl, and the Kodak Albuquerque International Balloon Fiesta. Critics call it "the McDonaldization of local events."

Any single instance of commercial sponsorship can, of course, be discounted as trivial. This is a capitalist nation, after all, and what's the harm of a few Burma Shave signs on the roadside or naming a show The Kraft Television Theater? Still, there is something disquieting, and almost totalitarian, about the pervasiveness of commercialism in contemporary life and its relentless invasions of human consciousness. Some movie theaters now show as many as 20 minutes of pre-show trailers and ads.[29] Dozens of radio stations are now using a new digital software program, appropriately named "Cash," to eliminate brief pockets of silence between words and so squeeze four extra minutes of advertising into each hour.[30] During the 2000 presidential campaigns, numerous Internet sites sprang up during the 2000 presidential campaign inviting people to sell their votes. A woman that year sought to patent herself at the U.S. Patent Office. Tattoo parlors report that they do a brisk business in the Nike swoosh — the branding of flesh.

Captive-audience advertising now extends far beyond theaters and schoolrooms, ambushing people as they use public restrooms, gas pumps, elevators and ATM machines. Telephone customers placed on hold are forced to listen to audio ads. Even ordinary reality is being supplanted to insert advertising. Disturbed to find an NBC logo and Budweiser ad in its video backdrop of Times Square, CBS News digitally obliterated the offending images and inserted in their place a digitally generated CBS News logo on a digitally generated billboard.[31] The same technology is used by sports broadcasters to digitally insert corporate logos on otherwise empty soccer fields, or on panels behind home plate in baseball. This is an entirely new genre of "virtual advertising" that is artificially superimposed on ad-free reality.[32]

Conclusion

The signs are modest, but an incipient movement against commercialism is stirring. Counterattacks such as Commercial Alert and the Center for Commercial-Free Public Education have beat back some excesses, most notably ZapMe!, in the process raising consciousness about lines that should not be crossed. Organized protests such as "Buy Nothing Day" (on the Friday after Thanksgiving) and "National TV-Turnoff Week," sponsored by the TV-Turnoff Network, are also beginning to pique the American mainstream. Even amidst the conspicuous excesses of the 1990s, the "voluntary simplicity" movement has gained quite a following among Americans trying to reclaim some peace amidst a clamorous, intrusive market economy.

While some resisters pursue ascetic or puritanical visions, many others simply want to carve out quiet, no-sell zones in which to live their lives. They desperately want more opportunities to participate in an authentic civic and cultural commons, untainted by commercial intrusions. This, truly, was a significant force behind the Seattle protests against the World Trade Organization in 1999. The demonstrations may have been directed against various abuses caused by globalized commerce, but there is no doubt that they were also directed against the "brand bullies," as described by Naomi Klein in *No Logo*. In that sense, Seattle was an important salvo of the emerging movement to reclaim the cultural commons.



Protecting the Commons

PART III

10. Strategies for Reclaiming the American Commons

The people need to 'see themselves' experimenting in democratic forms.

—Lawrence Goodwyn, historian of Populism

What are you going to do about it?

— William Marcy Tweed, nineteenth century
New York City political boss, responding to a critic

How, then, will we the people protect the many common assets that are being relentlessly marketized, or obtain fair compensation for the public assets that we agree to sell in the marketplace? How can we defend our natural resources, our public institutions, our scientific discoveries and our democratic values? The first requirement is for a critical mass of people sharing common interests to find each other (a goal now more easily achieved thanks to the Internet) and express their shared interests. We must also create new organizational vehicles that can persist over time, and secure the enduring support of institutions of law, government, technology and social association.

This chapter explores how we can protect our common wealth through:

- The role that government must play;
- The social institutions that we can create voluntarily; and
- The cultural norms that we need to nurture.

Government's Role in Protecting the Commons

Government is the steward of the public good, but that public good is not simply a matter of individual rights. It also entails the sovereign interests of "the people" as a whole — interests that are often best-served through the commons. Practically, certain resources actually have greater value when they belong to an entire community and not just a few individuals. The national parks, the Internet, the regulatory apparatus, government research, and many other resources all yield greater returns from being *public* resources managed by government.

As a matter not just of economic theory, but also of democratic justice, government should protect the people's resources and not surrender them to private interests.[1] It offends the democratic spirit when the public's natural resources are abused by private interests; when the Library of Congress lets the Coca-Cola Corporation promote its carbonated syrup in its stately halls; and when Anheuser-Busch is allowed to be the official sponsor of the 2000 presidential

debates.[2] It is *wrong* for core democratic functions and assets to be privatized.

The ways that government can bolster the commons as a source of economic and social value is obviously a large and complicated topic. But there are least six general strategies worth pursuing.

Structure markets to allow a commons to emerge and flourish

The specific structures of markets are not preordained. Government has a great deal to do with defining who can compete and on what terms. This amounts to creating a social and ethical commons for market activity. Government in effect declares: "All transactions shall abide by certain minimal levels of safety, fair play, information disclosure, etc." Government also influences the scope of the commons by deciding how to dispense intellectual property rights and grant access to public resources. Excessive copyright protection can erode the public domain, for example, and excessive patent terms can artificially raise prices to consumers. Giveaways of publicly owned timber and minerals can defraud the American people and impoverish future generations.

A guiding principle for government in creating a vigorous market is to create a robust commons. Some of the healthiest markets became that way because of extensive public sector involvement in setting rigorous ground rules and providing ongoing scrutiny. The financial markets are a prime example; few sectors of the economy are more tightly regulated — or healthier as a result. Markets flourish when government establishes a framework of fair and open standards for competition. When AT&T and the Bell Companies controlled the technical standards for the telephone network, no one else could compete. But once laws were changed to open access to the copper-wire telephone networks and to require standardized interfaces to ensure interoperability, new competition emerged and all sorts of innovation in value-added products and services materialized. The same dynamic occurred once IBM's grip on computing was loosened, and the open standards of the Internet arose. A commons of technical standards and operating software gave rise to a rich ecology of market competition and innovation.

In the case of the desktop operating system, of course, there has been a large commons, the Windows operating system. The only problem is that this commons is owned by Microsoft, so the "scale returns" that it generates are being privatized by Microsoft shareholders and not shared by everyone in the commons. Microsoft's ownership of this commons has also allowed it to significantly influence what sorts of benchmark prices, innovation, technical standards and terms of competition will generally prevail. It may not be entirely coincidental that as public sector involvement in the Internet and software wanes, the incidence of anti-social, anti-consumer activities may increase. And why not? When control of the commons is vested in a private corporation and not the government or some vehicle managed by members of the commons, one should fully expect a rise in self-serving anticompetitive tactics, industry consolidation, seller-side manipulations of consumers, and bolder attempts to privatize open standards.

The utter triumph of proprietary norms is not inexorable, however. Consider how the U.S. government sponsored the creation of the Internet, computing hardware and various software programs. The commercial and cultural gains made from building on top of that collaborative edifice continue to this day, enabling robust market competition and innovation. Thanks to the Hatch-Waxman Act of 1984, the American drug market consists not just of proprietary drug firms; it also hosts a flourishing commons, the generic drug market, based on commonly owned intellectual property rights. In the broadcasting industry, the U.S. government *could have* created a commons in which non-commercial constituencies would have greater access to the airwaves, or for which broadcasters paid a user fee designated to provide adequate funding for public, educational and cultural programming. Instead, as media historian Robert W. McChesney has shown, commercial broadcasters convinced Congress in the late 1920s and early 1930s to establish a pseudo-commons — a system in which broadcast licensees would serve as "public trustees" of the airwaves[3] — while paying nothing for their exclusive right-of-way on the public airwaves. In practice, of course, the public trustee gesture has mostly been an empty gesture.

It is important to note that a robust market and a flourishing commons are not antithetical forces; they are complementary. Indeed, the collapse of the commons (through enclosure or otherwise) frequently engenders stagnation in the market, or at least a narrowing of its range. Consider the moribund pace of innovation in word-processing software today, thanks to Microsoft, or

the state of telephony innovation under AT&T in the 1970s. As these examples suggest, government has a preeminent role in structuring markets so that the commons can constructively coexist with a market, provoking synergistic improvements in both.

Stop the giveaways of taxpayer-owned resources

A depressing symptom of our corrupted political life is the egregious giveaways of public resources that continue even after public exposure and calls for reform. The scandalous surrender of valuable mining rights that persists under an 1872 statute; the logging of national forests for a fraction of their market value and at great environmental cost; the cheap leasing of federal rangelands for cattle-grazing despite its horrendous ecological consequences; the slippery accounting methods for oil leasing on federal lands that have shortchanged the public — these are the signs of a government captured by industry interests and insulated from popular accountability. The plundering of taxpayer resources is replicated in many other important realms as well: the airwaves, pharmaceutical R&D, government information resources, government-funded university research, and intellectual property rights.

All of these public sector resources represent significant hidden subsidies for industries that purport to be free-market champions. Exposure of their use of public resources is important, but ultimately there is no substitute for public agitation for change. Fortunately, the crusade against corporate welfare begun by Ralph Nader in the 1970s picked up considerable momentum in the 1990s as a number of conservative, libertarian-minded congressional leaders joined in the cry against government handouts. Yet even this pressure has had only a modest impact in stimulating reform. The circle of awareness and public action needs to be widened.

Create stakeholder trusts that pay dividends to all

One of the more imaginative and effective ways that government can build new commons is through stakeholder trusts that give all citizens a personal stake in public assets. The idea is to give individual citizens an identifiable economic stake in certain public assets so that he or she can reap personal dividends from them. When property rights and citizenship are linked together in this fashion, it can not only lead to greater social equity but also to more responsible stewardship of the public resource. Alternatively, stakeholder trusts can earmark their funds for important public purposes — conservation of land, public education, public broadcasting — rather than distributing those funds to individual citizens.

Perhaps the most successful stakeholder trust has been the Alaska Permanent Fund, a state-run investment savings account that pays equal annual dividends to every Alaskan citizen. Created in 1976 by a voter-approved amendment to the state's constitution, the Alaska Permanent Fund is a public trust for oil revenues from drilling on the state's North Slope. With some $27 billion in assets, the fund is one of the 100 largest investment funds in the world. Nearly 18 percent of the $45.8 billion of state oil revenues has been saved as investment capital. In 1999, it generated $1 billion in dividends for the state's residents, or about $1,770 per person.[4]

Give individual citizens an identifiable economic stake in certain public assets so that he or she can reap personal dividends from them. When property rights and citizenship are linked together in this fashion, it can not only lead to greater social equity but also to more responsible stewardship of the public resource.

State land trusts are another sort of common asset that has been used to generate revenues for state governments and citizens.[5] Twenty-two states have lands comprising 135 million acres held as state trust lands. When states joined the Union, starting with Ohio in 1803 and ending with Alaska in 1959, Congress granted the land to states in order to support common schools and other public institutions. The land has also been used by states to generate revenues. In 1996, about $3 billion in revenues were generated from leases for grazing, agriculture, timber harvesting and mineral extraction.

The Alaska Permanent Fund has inspired at least two other notable stakeholder trust innovations — the Sky Trust, an idea developed by social entrepreneur Peter Barnes and the Corporation for Enterprise Development, and stakeholder trusts for young people, proposed by Yale law professors Bruce Ackerman and Anne Alstott.

The Sky Trust is an ingenious vehicle for giving all Americans a stake in the "scarcity rents" that polluters would pay for being allowed to emit carbon emissions into the atmosphere.[6] Instead of the government just giving away emission permits to polluters, the Sky Trust proposal urges auctions in which companies *buy* a limited number of emission permits. Auctions are the most efficient means of allocating limited licenses to pollute, since the producers who value them most would outbid the others. This process would also naturally raise the prices for gasoline and other products that use burnable carbon. But it would also be a means to force companies to shoulder the actual costs of their pollution, rather than displacing it into the sky where it will cause global warming and other environmental and health problems. Furthermore, the Sky Trust would be a means for offsetting the higher prices that consumers would face. All citizens would receive dividends from the Sky Trust, derived from the revenues raised by the auction of emission permits.

"The formula driving the [Sky Trust] machine," writes Peter Barnes, "is, *from* all according to their use of the sky, *to* all according to their equal ownership of it. Those who burn more carbon will pay more than those who burn less. And, since every American receives the same dividend, households will come out ahead if they conserve, but lose money if they don't. This is not only fair; it is precisely the incentive needed to reduce pollution."[7] In like fashion, the revenues generated from licensing commercial use of the nation's public airwaves (the electromagnetic spectrum) could also flow into such a trust, and from there go directly back to the citizens.

Ackerman and Alstott have proposed a very different type of stakeholder trust to help each generation share equally in the patrimony of the previous generation. To help people just graduating from high school to invest in their futures — whether through education, training or starting a business — Ackerman and Alstott propose an annual tax of 2 percent on the net wealth owned by the richest 40 percent of Americans, generating a pool of some $255 billion a year. Every qualifying young adult would be entitled to an $80,000 stake.

Instead of expanding a paternalistic welfare system for dealing with people's needs, the idea of this stakeholder trust is to encourage individuals to take responsibility for themselves while giving them the means to invest in their future. The authors explain that "stakeholding is a more democratic and more effective substitute for a declining institution: providing a social inheritance to the rising generation just when it needs it most."[8]

Stakeholder trusts can also be used to channel dividends toward unmet public purposes. A good example is the Land and Water Conservation Fund, which uses revenues from offshore oil and gas drilling to acquire land for parks, forests and open spaces, and to develop recreational projects. Since its creation in 1965, the Fund has been used to acquire nearly seven million acres of park land and to revitalize the Everglades, Golden Gate Park, New York City's Central Park as well as hundreds of smaller state and federal lands. Unfortunately, most of the $900 million in annual drilling receipts intended for the Fund were diverted by the Reagan and Bush administrations to the general treasury in the 1980s and used for entirely different purposes.[9] President Clinton's Lands Legacy Initiative in 1999 sought to reinvigorate the Fund. Clinton also pressed for the Conservation and Reinvestment Act, sponsored by conservative Representative Dan Young of Alaska and liberal Senator Barbara Boxer of California. The legislation sought to channel more than $42 billion of Outer Continental Shelf oil royalties into an off-budget, dedicated trust fund that would support endangered species, historic preservation and coastal protection. Although it passed the House on a bipartisan basis in 2000, it never made it into law.

Capture capital gains from public infrastructure and put them to public use

An imaginative government would explore ways that it could participate in the gains that its own investments help create. An example: taxing the gains that private investors reap from taking a private stock public. There are many cases where a costly public infrastructure — a subway system, urban improvements, market regulation — showers considerable unearned gains on private parties. Why not recoup some of those gains for public purposes?

Take the huge popularity of IPOs — initial public offerings of stock — in the Internet era. One reason that entrepreneurs like to take their companies public is to reap fast, huge gains in the value of their privately owned stock. Much of this gain stems from the new ability to sell the company's stock to potentially millions of investors via the government—regulated public stock market. The asset can be turned into cash — made liquid

— much more readily. The liquidity that comes from a company's "going public" is worth at least 30 percent, as entrepreneur Peter Barnes learned when he took his startup company, Working Assets, public.

That 30 percent premium, writes Barnes, did not come "from the company itself, or from its CEO, but from society — from the public stock market and the entire infrastructure of government, financial institutions and media that backs it up. Yet this enormously socially created value is reaped by only two kinds of people: underwriters (who get fees) and private shareholders (who get large capital gains). Indeed it is fair to say that most fortunes in America are made by shareholders who make the magic leap from non-liquid private stock to very liquid public stock."[10]

Barnes asks, why should the taxpaying public, or its representative, government, not reap some return for its role in maintaining the public markets? After all, taxpayers pay for the Securities and Exchange Commission, the Commodities Futures Trading Commission, and many other administrative and judicial bodies that make public markets open and trustworthy. Barnes proposes that the public receive a royalty on every IPO for its role, as taxpayers, in maintaining the public markets. A given percentage of stock of all IPO transactions — say, 5 percent — could be placed in a public trust resembling a mutual fund. Shares in the trust would collectively belong to all American citizens, and could be redeemed upon retirement or at age 65.

Reaffirm regulation as a vehicle for advancing common values

As much as government regulation is reviled for being inefficient and unpredictable, it remains an indispensable democratic vehicle for asserting common ethical and social values. Business enterprises can act with swift decisiveness, but regulatory agencies, as creatures of government, must respect the discipline of due process of law and politics. This naturally makes for a more cumbersome, unpredictable process. But a process that is governed by norms of public access and participation, scientific facts openly debated, and legal accountability to Congress and the courts, is more likely to be seen as credible and legitimate. Its outcomes are also more likely to yield sound, stable results than private business decisions based on short-term, narrow economic self-interest and partial, self-serving information.

The regulatory process is thus a means for striking a balance between the economic priorities of the marketplace and the social and ethical norms of the commons. It sanctions an "incomplete commodification" of people's values, in the words of Stanford law professor Margaret Jane Radin, because it makes both economic and ethical valuations of various hazards (air pollution, dangerous toys, hazardous chemicals). This may be why regulation is typically so controversial: it is an arena for resolving deep-seated disputes between the market and the commons. Business generally emphasizes the *economic* implications of regulation even though the chief impetus for most health, safety, environmental and some consumer regulation is *ethical and social.* As this suggests, the very meaning of regulation is often a contested matter. Much of the perennial debate about "reforming" regulation is, in fact, a debate about which set of values should prevail — market or commons — or in what hybrid combinations and calibrations.

Regulation is a tool for enhancing the commons in another respect. It confers benefits on all citizens, not just those who can afford it. Ability to pay — the preeminent criteria for expressing one's preferences in the marketplace — is not the controlling factor (theoretically, at least) in regulation. *Any* citizen has the right to petition her government, request answers and effect change. A commonwealth has a different constitutional logic than a market, a fact that is reflected in the regulatory process. While many steps can and should be taken to make regulation more efficient and less onerous, at bottom it has a different set of objectives than the market.

Bolster democratic rights to participate in power

If the essence of freedom is "the ability to participate in power," as Cicero held, then a key goal of the American commonwealth should be to bolster democratic rights. The commons is a healthier place when its membership is inclusive, its decisions open to public scrutiny, and its actions accountable to the people. These are broadly stated goals, admittedly, but they might be defined as policies that encourage access and participation in government and stronger guarantees of due process of law.

These ideals were advanced by a strong wave of civic reforms in the 1970s. Numerous laws were passed to require that government meetings be open and held with advance notice; that government documents be accessible through the Freedom of Information Act and other

means; that members of federal advisory committees not have conflicts of interest; that the names of contributors to political campaigns be disclosed; and that citizens shall have the right to sue federal agencies that fail to perform their statutory duties.

Today, one can imagine other legal principles that could fortify the democratic commons further. An expansion of the scope of public trust doctrine could help defend community interests in the environment and beyond, as the late Joseph Sax proposed.[11] Federal policies that enfranchise ordinary people to vote without impediment and to run for office without being a millionaire — achieved through new voting rights protections and campaign finance reform — would also enhance the democratic commons. Laws that strengthen the public domain and fair use in copyright would enhance the free exchange of knowledge and civic culture. The list could surely be expanded. The point is that government can do a great deal to enhance the participatory strength and accountability of the American commonwealth.

Building Voluntary Commons in a Market Society

Whatever leadership government may provide in supporting the commons, individuals and social groups have an indispensable role to play. In the great tradition associated with Alexis de Tocqueville, voluntary associations of private citizens can do a great deal to reinvigorate the commons in American life. It is tempting to believe that this role is mostly a matter of "getting people together" into new civic organizations and social clubs.

But commons do not just happen. Like markets, they emerge through an infrastructure of law, government agencies and cultural support (as the former Eastern Bloc countries are discovering). Commons require well-designed organizational structures and institutional and cultural supports. Otherwise, the social relationships and voluntary work that people bring to the enterprise will not accrue to the commons over the long term, but will dissipate or be appropriated through enclosure. Ways must be found to retain the surplus value generated by the commons *within* the commons.

New legal vehicles must be designed, perhaps along the lines of "property on the outside, commons on the inside." Effective self-governance principles for contemporary commons need to be devised, a task that, happily, is made easier by the Internet's ability to organize people. Here are some of the more exciting homegrown legal and social strategies for devising new commons.

Explore new innovations in private law

One of the most remarkable legal innovations for preserving the commons of software development is called the General Public License, or GPL, the contractual license sometimes called "copyleft," discussed in Chapter 2. The GPL, it should be recalled, guarantees that the creative energy that is committed to the commons in the form of new source code, will remain free and available to everyone in perpetuity. It is worth pondering the GPL as both an inspiration and a model for other legal innovations that can preserve commons from proprietary plunder.

One proposal — an Intellectual Property Conservancy, using a GPL-like license — is described in Section 3 below. There may be technological equivalents to be invented. In the online world, software has been devised that can identify free riders and exclude them from participation in cooperative ventures. For example, software could exclude any users in peer-to-peer file sharing (such as Napster or Gnutella) who freely download other people's files but refuse to allow others to upload their files.

The outright purchase of land by trusts is an increasingly popular vehicle for protecting the commons of nature. It was the strategy used by the Public Trust for Land to acquire the community gardens in New York City. Land trusts have also used conservation easements to great effect in purchasing the "development rights" to land in order to prevent its development. A conservation easement is a voluntary legal agreement between a landowner and a land trust or government agency. The landowner can gain tax benefits and keep the land in private hands while the public benefits from the open space, wildlife habitat preservation and other benefits of an intact natural ecosystem.

Create local commons to manage finite resources

Over the past fifteen years, a growing corps of scholars and practitioners have pioneered new insights into the commons as a governance structure for local, small-scale common-pool resources. These include fishery

grounds and grazing pastures, water supplies and game hunting, land tenure and lobster fiefs. While the social systems for managing finite natural resources vary immensely from culture to culture, making broad generalizations risky, scholarship on the commons has shown that social institutions *can* be created to successfully and sustainably manage common property. There is more than an either/or choice between government intervention and privatization.

Unfortunately, this scholarship has been more focused on small-scale resources in developing nations, a fact that might lead the casual observer to believe that the commons has little relevance here. This is not true, either historically or in the present. In one notable example, Elinor Ostrom examined how various municipal bodies in southern California came together in the 1960s — with legal incentives from the state — to manage access to a series of fragile groundwater basins beneath the Los Angeles metropolitan area.[12] Contemporary case studies have looked at commons governed by lobster fishermen in Maine,[13] cattle ranchers in northern California,[14] users of the Edwards Aquifer in south central Texas,[15] and Alaska halibut fishermen, [16] among many others.

New initiatives specifically designed to promote reliance on commons regimes are emerging. One such project is Terra Civitas (formerly the Chaordic Alliance), which seeks to foster the proliferation of self-organizing commons on a global scale.[17] Already the group has helped develop commons to manage fisheries, support community-based law firms, and advocate for local agriculture. Other novel initiatives are being launched to manage local resources for the public good. Brian Donahue has written about towns, especially in New England, that have reinvented and reclaimed community farms and forests.[18] Ithaca, New York, Madison, Wisconsin, and a number of other towns have created local currencies designed to bolster their local economy and community spirit.[19] There is a renewed attention in many communities to reclaiming an actual physical commons in the centers of towns — urban parks and open spaces — as a shared community space.[20] While no community can function as an island, especially in today's global economy, it is entirely possible to create more self-reliant communities through new socially based institutions and practices.[21]

Develop new vehicles for shared ownership

At a time when property ownership is becoming more concentrated, jeopardizing the rough social equality that the founders saw as critical to our republic, new vehicles must be invented to promote shared ownership. In his book, *The Ownership Solution*, Jeff Gates proposes a new kind of "participatory capitalism" comprised of millions of citizen-owners. "My hypothesis is simply this," writes Gates. "People are likely to become better stewards of all those systems of which they are a part — social, political, fiscal, cultural and natural — as they gain a personal stake in the economic system, with all the rights and responsibilities that implies….Current ownership patterns not only offend our collective conscience; they also endanger our capacities by reducing decision-making to the lowest common denominator."[22]

Commons do not just happen. Like markets, they emerge through an infrastructure of law, government agencies and cultural support

The cooperative movement is one way by which collective ownership can be fostered. Coops have a long and glorious history of enabling consumers to band together to maximize their purchasing power and assure higher levels of safety, ecologically benign practices and localism. Employee stock ownership plans, or ESOPs, and profit-sharing plans are another way through which individuals have gained an equity stake in their companies. Empirical studies have shown that aligning the interests of managers, shareholders and workers — and giving them opportunities to collaborate on the job — has measurable effects on productivity and stock values.[23] Land trusts are also a proven vehicle for protecting and augmenting community interests in land. Dozens of communities have used publicly owned lands to generate new revenues, build affordable housing and preserve open spaces.[24]

One of the most stellar testimonies to community ownership may be the Green Bay Packers, the only team in the National Football League owned by the fans. Incorporated as a private, nonprofit organization in 1923, the Packers are officially "a community project, intended to promote community welfare." Packer games have been sold out for thirty consecutive seasons and the value of the Packer franchise is among the top fifth of all

professional teams.[25] Community ownership has also prevented money-minded owners from threatening to move the team to another city or extracting taxpayer subsidies for new stadiums. The NFL formally banned community ownership in 1961, and major-league baseball also prohibits fans and communities from owning its teams. One intriguing response has come from Rep. Earl Blumenauer of Oregon, who has introduced legislation to withdraw a sport's broadcast antitrust exemption unless it allows a community to purchase its local team.

Centralized control cannot be so easily imposed on the Internet, which is one reason why it is proving to be one of the most fertile seedbeds for new kinds of public ownership of information. The University of North Carolina is now the host of a rapidly growing "public library" of the Internet known as ibiblio.org. Formerly called MetaLab, the archive and information-sharing site is one of the largest public sites containing Linux software and software documentation, as well as millions of documents of public-domain text, audio and databases. Users can upload material to the library's collection by filling out the electronic equivalent of a card-catalog form, and enthusiast groups can manage their own archives, such as the collection of materials on Pearl Harbor. U.N.C's ibiblio receives some 1.5 million requests a day.

Just as a midwife can earn a living without keeping the babies that she delivers, they argue, so journals can make a living by controlling access to their articles for six months, and then putting them into single, searchable repository of public domain articles.

Another type of public-domain library is the nonprofit Intellectual Property Commons now being organized by a number of law schools.[26] The new organization will be a repository for intellectual property rights that artists, writers, film makers, software writers, inventors and others donate. Donors will receive a tax deduction, and the new works will be licensed freely for use under terms that will assure that they will always remain in the public domain. (The model is the General Public License, or GPL, used by free software.) Currently, the transaction costs for securing rights to copyrighted works can be so high that would-be users of the works simply decline to use them. By establishing a new public commons for intellectual property, the founders of the IP Commons hope to substantially reduce the costs of securing permissions, and in turn, to stimulate greater use of donated works.

Yet another information commons being proposed is the use of the Internet's top-level domain suffix, ".us," as an "Internet public square." Besides the more familiar top-level domains — .com., org. and .net — every country has a two-letter country code domain assigned to it by ICANN, which governs domain names on the Internet. In October 2000, a coalition of more than 20 nonprofit organizations urged the U.S. Department of Commerce to reserve the .us space as a kind of online real estate analogous to the national parks. The Benton Foundation and Media Access Project, two organizers of this initiative, explained: "How this valuable real estate should be used, leased or sold should be decided with the interests of all Americans in mind….It is a public resource of great value."[27]

Develop new vehicles for sharing and collaborating

A commons of *users* can be created without there necessarily being collective *owners*. The lines between the two often blur. There is no better example for this than the collaboratively created software, digital documents and affinity groups made possible by the Internet. No one "owns" the Linux operating system in any strict sense; it is a collaborative creation "owned" by everyone.[28] It is beyond the scope of this report to explore how civil society can be rejuvenated through more robust social connections (although the depictions of the challenge are poignantly sketched in Robert Putnam's *Bowling Alone* and Robert Lane's *The Loss of Happiness in Market Democracies*).[29] But one venue that holds great promise for facilitating new kinds of sharing and collaborating is the Internet. In fact, a great many of the user groups, websites, listservs and other software systems used on the Internet, especially the Web, operate according to some classic principles of the commons

Amy Jo Kim's *Community Building on the Web* advises would-be webmasters to follow three underlying principles of "community design" on the Web: design for growth and change, create and maintain feedback loops,

and empower your members over time. She also identifies nine "timeless design strategies that characterize successful, sustainable communities," such as defining and articulating one's purpose, building flexible, extensible gathering places, developing strong leadership and encouraging appropriate etiquette.[30]

What emerges from such sharing is not just a greater sense of connection to like-minded people, but a kind of deep community knowledge that might not otherwise develop. This is what makes the Zagat restaurant guides so useful. Perhaps the most advanced version of this dynamic is peer-to-peer file sharing, exemplified not just by Napster (which uses other people's copyrighted work), but by other digital file-sharing software.

Worried about the copyright and technology-protected lockup of scientific research, a number of prominent scientists in the life sciences and medicine are trying to convince large numbers of their peers to publish only in journals that agree to place their work in the public domain within six months of publication. The material would then be placed in a free, online commons — publiclibraryofscience.org — as a way to "vastly increase the accessibility and utility of the scientific literature, enhance scientific productivity and catalyze integration of the disparate communities of interest in biomedical sciences."[31]

"Why should scientists support the publishers' demands to maintain their monopoly control over the research articles that they have published?" ask the organizers of the website. Just as a midwife can earn a living without keeping the babies that she delivers, they argue, so journals can make a living by controlling access to their articles for six months, and then putting them into single, searchable repository of public domain articles.

Online sharing and collaboration raise some profound questions about the foundations of intellectual property law, which assume that only a certain structure of markets and incentives can elicit creative works. Although this is too large and complex an issue to tackle here, suffice it to say that the Internet's great success in generating profuse amounts of content despite the most minimal copyright protections seems to refute the assumptions of most cybereconomists and IP traditionalists.[32]

Building a Culture that Honors the Commons

Fostering the commons requires not just a policy agenda, but a larger vision of community and personal fulfillment. McCay and Acheson put it well in their collected studies of common-pool resources: "The problem of the commons is one of how society creates superordinate allegiance to something — the commons or the communal — that transcends people's immediate and everyday sense of reality."[33] Such broader allegiances are forged by creating "imagined communities" that are knit together through shared myths, stories, customs, and social experiences.

A culture that honors the commons will strive to:

- ***Enable democratic participation.*** The greater the role that members of a commons have in decisionmaking, the more informed the governance. Outcomes that everyone can influence are seen as more morally legitimate and thus respected and enforceable.
- ***Set limits on market activity and commercialization.*** Not all human needs can be met through the market, and even the market grows sterile if it cannot draw upon the commons. It is therefore important that there be "white spaces" where human imagination and spirit can run free, unregimented by the commercial matrix of the market.
- ***Create protected public spaces in which civil society can thrive.*** At a time when the market has enclosed so many white spaces of democratic culture, it is imperative that we re-invent the vehicles by which people can interact with each others *outside* of the market — the community gardens, the political grassroots, the Internet newsgroups, the cultural events at which strangers can mingle. To combat the "bowling alone" syndrome identified by Robert Putnam, there must be the physical places, non-commercial media, online forums and public events for people to come together to share their common concerns.
- ***Nurture gift economies.*** Public policy and institutions can greatly affect whether gift economies can emerge and flourish, or whether competitive individualism will be the default social norm. The traditions of blood donation systems, academic communities, community gardens and the free software movement demonstrate that the altruistic and cooperative can work. But such models need to be institutionally and legally supported.

Americans have a long tradition of creating innovative vehicles for ensuring a fair return to the American people on resources they collectively own. This tradition has galvanized conservationists, land reformers, and advocates of municipal ownership of transport, water and energy systems. It motivated the architects of urban planning, the TVA and garden cities, and the land-grant colleges that over time resulted in world-class universities in Ithaca, Urbana, Madison, Minneapolis and Berkeley. It inspired the health, safety and environmental programs of the 1960s and the 1970s, the Land and Water Conservation Fund, the Alaska Permanent Fund and the Internet.

It is time to revive this tradition of innovation in the stewardship of public resources and to give it imaginative new incarnations in the 21st Century. The silent appropriation of our shared assets and gift economies need not continue. But first it is important to recognize the commons *as* the commons, and understand the rich possibilities for reclaiming our common wealth.

Notes

Introduction

[1] By a rough estimate made by the Consumer Project on Technology, based on a compulsory license that West granted to the U.S. Justice Department, the cost of renting access to a single year of federal court cases — some 15,000 cases — comes to $40,500 for a single user. "This is a high price to pay to simply avoid [public domain] numbering opinions and paragraphs," writes James Love. See http://cptech.org/legalinfo/cost.html.

[2] The most comprehensive history of the struggle to break West Publishing's monopoly and institute a regime of universal citation for federal cases is an essay by Jol Silversmith, "Universal Citation: The Fullest Possible Dissemination of Judgments," originally published in the now-defunct *Internet Legal Practice Newsletter* in May 1997, now available online at http://www.thirdamendment.com/citation.html. Another excellent overview, from the perspective of 1994, is Gary Wolf, "Who Owns the Law," *Wired*, May 1994, p. 198.

[3] Franz Kafka, *The Trial* (translated by Willa and Edwin Muir, 1988), cited in Silversmith, *ibid*.

[4] See, e.g., Reuters, "Justices, Judges Took Favors from Publisher with Pending Cases," *Washington Post*, March 6, 1995; John J. Odlund, "Debate Rages Over Who Owns the Law," *The Minneapolis Star Tribune*, March 5-6, 1995, reprinted in the *Congressional Record*, July 28, 1995 (Senate), pp. S10847-10855; Thomas Scheffey, "Feds and West Publishing: Too Close for Comfort?" *Connecticut Law Tribune*, March 1997; and Doug Obey and Albert Eisele, "West: A Study in Special Interest Lobbying," *The Hill*, February 22, 1995, p. 1.

[5] *HyperLaw Inc. v. West Publishing.* See David Cay Johnston, "West Publishing Loses a Decision on Copyright," *New York Times*, May 21, 1997, p. D1.

[6] The United Kingdom, however, recently adopted a public domain citation system based upon paragraph numbering. See "Neutral Citation of Judgments System is Introduced," *The Times* [London], January 16, 2001.

[7] William Pfaff makes the argument that "a fundamental change in the nature of U.S. government" occurred with the election of George W. Bush, in which corporate interests so dominate the democratic polity that no President can now be elected without their support. "Government by U.S. Corporations," *International Herald Tribune*, January 18, 2001.

[8] See, e.g., Francis Fukayama, *Trust: The Social Virtues and the Creation of Prosperity* (New York: Free Press Paperbacks, 1995).

[9] See, e.g., Clifford Cobb, Ted Halstead and Jonathan Rowe, "If the GDP is Up, Why is America Down?" *The Atlantic*, October 1995, pp. 2-15. See also Herman E. Daly and John B. Cobb, Jr., *For the Common Good: Redirecting the Economy Toward Community, the Environment and a Sustainable Future* (Boston: Beacon Press, 1989), pp. 62-84.

[10] The focus here is on tangible assets and property rights that belong to the American people, as opposed to government subsidies to business, which represent another form of corporate welfare. An excellent comprehensive overview of varieties of corporate welfare can be found in Ralph Nader's testimony before the Committee on the Budget, U.S. House of Representatives, June 30, 1999.

Chapter One

[1] Wendell Berry, *Home Economics* (San Francisco: North Point Press, 1987).

[2] See A Report by Brooklyn Borough President Howard Golden, *City-Owned Properties: A Post Conveyance Assessment*, January 1999.

[3] Sue Halpern, "Garden-Variety Politics," *Mother Jones*, September/October 1999, pp. 33-35.

[4] Anne Ravner, "Garden Notebook: Is This City Big Enough for Gardens and Houses?" *The New York Times*, March 27, 1997, p. C1.

[5] To be sure, there are complicated issues this story raises for the power of voluntarism, which is rarely an effective substitute for the *scale* of government action. Voluntary civic action usually cannot take the place of government-funded provisions of social goods and services. In a more enlightened world, ideological prejudices about the role of government would not result in an either/or scenario (voluntary action vs. government bureaucracy), but an adroit synergy between the two.

[6] Anne Raver, "Garden Notebook: Is this City Big Enough for Gardens and Houses?" *The New York Times*, March 27, 1997, p. C1.

[7] Dan Barry, "Sudden Deal Saves Gardens Set for Auction," *The New York Times*, May 13, 1999, p. A1.

[8] Carol Rose, "The Several Futures of Property: Of Cyberspace and Folk Tales, Emission Trades and Ecosystems," 83 *Minnesota Law Review* 129 (November 1998), p. 144.

[9] Garrett Hardin, "The Tragedy of the Commons," 162 *Science*, December 13, 1968, pp. 1243-8.

[10] Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (New York: Cambridge University Press, 1990), p. 7, writes: "Policy prescriptions have relied to a large extent on one of these three original models [tragedy of the commons, the prisoner's dilemma, and the logic of collective action], but those attempting to use these models as the basis for policy prescription frequently have achieved little more than a metaphorical use of the models."

[11] Elinor Ostrom, pp. 2-8.

[12] Prisoner's dilemma analyses typically do not assume that the "prisoners" can communicate with each other, obtain outside information about their situation, or learn to develop mutual trust and loyalty — factors that are critical to the success of actual common-pool resource regimes.

[13] Mancur Olson, *The Logic of Collective Action: Public Goods and the Theory of Groups* (Cambridge, Mass.: Harvard University Press, 1965).

[14] Elinor Ostrom, *Governing the Commons*, p. 12. Ostrom adds: "The key to my argument is that some individuals have broken out of the trap inherent in the commons dilemma, whereas others continue remorselessly trapped into destroying their own resources. This leads me to ask what differences exist betwen those who have broken the shackles of a common dilemma and those who have not. The differences may have to do with factors *internal* to a given group. The participants may simply have no capacity to communicate with one another, no way to develop trust, and no sense that they must share a common future."

[15] As Justice Cardozo once wrote: "Metaphors in law are to be narrowly watched, for starting as devices to liberate thought, they end often by enslaving it." *Berkey v. Third Ave. Ry.*, 155 N.E. 58, 61 (N.Y., 1926).

[16] *The Ecologist*, *Whose Common Future? Reclaiming the Commons* (Philadelphia: New Society Publishers, 1993) p. 13.

[17] Glenn Stevenson sketches the distinctions between public goods and common property in *Common Property Economics* (New York: Cambridge University Press, 1991), pp. 54-56.

[18] University of California researchers in 1981 filed a patent for a cell line derived from the T-lymphocytes of John Moore, a patient that they were then treating for leukemia. The market value for products derived from his genetic information was established to be over $3 billion in 1990. The dispute inspired *Moore v. The Regents of the University of California*, 793 P.2d 479 (Cal. 1990), *cert. denied*, 111 S. Ct. 1388 (1991). Similarly, the U.S. Department of Commerce tried to patent the genes of a Guyami Indian woman living in the forests of Panama who was unusually resistant to a virus that causes leukemia. The claim was abandoned after indigenous peoples vehemently protested. "Whose Gene Is it Anyway?" *The Independent* (London), November 19, 1995, p. 75.

[19] See, e.g., Theodore Steinberg, *Slide Mountain, or the Folly of Owning Nature* (University of California Press, 1995), who writes: "Solutions like TDRs [transferrable development rights] to preserve landmarks are not simply neutral social practices; they are ideologies. While claiming to solve some problems, they force the ideology of exchange into the marrow of daily existence." p. 154.

[20] Thomas Frank and Matt Weiland, *Commodify Your Dissent: Salvos from the Baffler* (New York: W.W. Norton, 1997).

[21] H. Fried, *The Progressive Assault on Laissez Faire: Robert Hale and the First Law and Economics Movement* (Cambridge, Mass.: Harvard University Press, 1998).

[22] See "The Commercialization Effect: The Sexual Illustration," in Fred Hirsch, *The Social Limits to Growth* (New York: Twentieth Century Fund, 1976, 1999), pp. 95-101.

[23] Market theorists deny this very possibility by insisting that *all* values can be adequately "translated" into market categories. Hence the proliferation of sub-disciplines such as "contingent value," "hedonics" and "willingness to pay," which try to develop surrogate market values for intangible, unquantifiable human values. Ultimately, of course, popular conviction in the incommensurability of human dignity, social relationships, democracy, and so forth, is the only effective retort to such mandarin theories, which resemble the contorted epicycles used by Ptolomaic astronomers to salvage their earth-centered cosmology.

[24] Russell Mokhiber, *Corporate Crime and Violence: Big Business Power and the Abuse of the Public Trust* (San Francisco: Sierra Club Books, 1988), pp. 373-382.

[25] Radin declares that "systematically conceiving of personal attributes as fungible objects is threatening to personhood because it detaches from the person that which is integral to the person." Philosopher Martha Nussbaum, quoted by Radin, finds "especially repellant" the reductionist notion of universal commodification because "to treat deep parts of our identity as alienable commodities is to do violence to the conception of the self that we actually have and to the texture of the world of human practice and interaction revealed through this conception." Radin, *Contested Commodities*, p. 75.

[26] Clifford Geertz, *Local Knowledge: Further Essays in Interpretive Anthropology* (New York: Basic Books, 1983), p. 173, cited in Theodore Steinberg, *Slide Mountain, or the Folly of Owning Nature* (University of California Press, 1995).

[27] Theodore Steinberg, *Slide Mountain*, p. 17.

Chapter Two

[1] For more on the importance of free and open source software, see a lengthy memorandum by David Bollier, "The Power of Openness: Why Citizens, Education, Government and Business Should Care about the Coming Revolution in Open Source Code Software," at http://www.opencode.org/h2o.

[2] See Daniel Golden and John Yemma, "Harvard Amasses a $13 Billion Endowment," *Boston Globe*, May 31, 1998.

[3] Stallman's philosophy of free software can be read at http://www.gnu.org.

[4] Professor Eben Moglen, attorney for Richard Stallman's Free Software Foundation, explains: "Users of GPL'd code [software covered by the General Public License, a contract that prohibits the proprietization of the program's source code] know that future improvements and repairs will be accessible from the commons, and need not fear either the disappearance of their supplier or that someone will use a particularly attractive improvement or a desperately necessary repair as leverage for 'taking the program private.' This use of intellectual property rules to create a commons in cyberspace is the central institutional structure enabling the anarchist triumph [represented by free software programs]." Moglen, "Anarchism Triumphant: Free Software and the Death of Copyright," in the online journal, *First Monday*, Vol. 4, No. 8 (August 2, 1999), at http://old.law.columbia.edu/my_pubs/anarchism.html.

[5] Ibid.

[6] For an extensive ethnographic account of the development of Linux, see the lengthy paper by Ko Kuwabara, "Linux: A Bazaar at the Edge of Chaos," in the online journal, *First Monday*, at http://www.firstmonday.dk/issues/issue5_3/kuwabara/index.html.

[7] For an excellent history of the free and open source software movements, see the essay by Steve Weber, "The Political Economy of Open Source Software," Berkeley Roundtable on the International Economy (forthcoming).

[8] Certain social norms can actually interfere with efficiency in the marketplace, argues law and economics scholar Eric A. Posner notes in his essay, "Law, Economics and Inefficient Norms," *University of Pennsylvania Law Review*, Vol. 144, p. 1697 (1996).

[9] A good popular account of the power of gift-exchange can be found in Joel Garreau, "Bearing Gifts, They Come From Afar," *Washington Post*, December 21, 2000, p. C1.

[10] Lewis Hyde, *The Gift: Imagination and the Erotic Life of Property* (New York: Vintage Books, 1979), p. 37.

[11] Hyde writes: "It is quite possible to have the state own everything and still convert all gifts to capital, as Stalin demonstrated. When he decided in favor of the 'production mode'—an intensive investment in capital goods — he acted as a capitalist, the locus of ownership having nothing to do with it." p. 37.

[12] Hyde, p. 22.

[13] Paul L. Wachtel, *The Poverty of Affluence: A Psychological Portrait of the American Way of Life* (New Society Publishers, 1999)..

[14] Hyde, p. 23.

[15] Edgar Cahn and Jonathan Rowe, *Time Dollars* (Rodale Press, 1992).

[16] See, e.g., Andrew Delbanco and Thomas Delbanco, "A.A. at the Crossroads," *The New Yorker*, March 20, 1995, pp. 50-63.

[17] Warren O. Hagstrom, p. 30.

[18] Carol M. Rose, "The Comedy of the Commons: Custom, Commerce, and Inherently Public Property," originally published in 53 *University of Chicago Law Review*, 711-781 (1986), and reprinted in Carol M. Rose, *Property and Persuasion: Essays on the History, Theory and Rhetoric of Ownership* (Boulder, Colo.: Westview Press, 1994), Chapter 5.

[19] See, e.g., Jeffrey Rohlfs, "A Theory of Interdependent Demand for a Communications Service," 5 *Bell Journal of Economics and Management Science* 16 (1974), cited in Carol M. Rose, *Property and Persuasion*, p. 160.

[20] See, e.g., "Clio and the Economics of QWERTY," 75 *American Economic Review* (Papers and Proceedings) 322, 335 (1985), cited in Carol M. Rose, *Property and Persuasion*, p. 160.

[21] This insight is contained in Richard Barbrook, "The Hi-Tech Gift Economy," *First Monday* [online journal], at http://www.firstmonday.org/issues3-12/barbrook.

Chapter Three

[1] Michael A. Heller, "The Boundaries of Private Property," 108 *Yale Law Journal*, pp. 1163-1223 (1999).

[2] See, e.g., Tom Bethell, *The Noblest Triumph: Property and Prosperity Through the Ages* (St. Martin's Griffin, 1998).

[3] The paradox of rational individualists finding the means to cooperate in creating a civil society is explored in Frank I. Michaelman, "Ethics, Economics and the Law of Property," 22 *NOMOS: Property* 3, edited by J. Ronald Pennock and John W. Chapter, (1980), pp. 30-31. An interesting critique of the rationality in economic theory can be found in Amartya K. Sen, "Rational Fools: A Critique of the Behavioral Foundations of Economic Theory," in Aafke E. Komter, *The Gift: An Interdisciplinary Perspective* (Amsterdam University Press, 1996), pp. 148-163.

[4] Legal Realists and institutional economists have developed extensive critiques of this reality. Robert Hale, in particular, detailed how "the role of positive legal entitlements in shaping what were supposedly the 'natural' rights of ownership and the 'national' laws of distribution in a laissez-faire economy." An excellent review of Hale and this literature is Barbara H. Fried's *The Progressive Assault on Laissez Faire: Robert Hale and the First Law and Economics Movement* (Cambridge: Harvard University Press, 1998). See also Cass R. Sunstein, *The Partial Constitution* (Cambridge: Harvard University Press, 1993).

[5] See, e.g., Coquillette, "Mosses From an Old Manse: Another Look at Some Historic Property Cases About the Environment," 64 *Cornell Law Review* 761, 801-3 (1979). Also, R. Lee, *The Elements of Roman Law* (4td ed., 1956), pp. 109-110.

[6] Much of the modern-day revival of public trust doctrine, at least as applied to natural resources, stems from a seminal 1970 article by Joseph Sax, "The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention," 68 *Michigan Law Review*, 471 (1970).

[7] Ibid.

[8] The common heritage of mankind principle was first proposed in 1967 by Arvid Pardo, Maltese ambassador to the United States. The concept is discussed in Susan J. Buck, *The Global Commons: An Introduction* (Island Press, 1998).

[9] Carol M. Rose, *Property and Persuasion*, pp. 121-122.

[10] Carol M. Rose, "Takings, Public Trust, Unhappy Truths and Helpless Giants: A Review of Professor Joseph Sax's Defense of the Environment Through Academic Scholarship," 25 *Ecology Law Quarterly* 351 (1998).

[11] As Elinor Ostrom puts it: "The differences in the particular rules [of various commons] take into account specific attributes of the related physical systems, cultural views of the world, and economic and political relationships that exist in the setting. Without different rules, appropriators could not take advantage of the positive features of a local CPR or avoid potential pitfalls that might be encountered in one setting but not others." Elinor Ostrom, *Governing the Commons*, p. 89.

[12] One of the most influential theorists is Elinor Ostrom, whose pioneering study of small-scale "common-pool resource" (CPR) institutions, *Governing the Commons*, helped define the field. Ostrom identifies eight design principles for effective CPR regimes. These include clearly defined boundaries to the resource; usage rules tailored to the specific resource; a process of collective rule making that involves all users; monitoring and accountability of usage; graduated sanctions for violations; and low-cost mechanisms for resolving conflicts.

Other analysts have developed different, derivative or overlapping frameworks for understanding the commons. Important books include *The Global Commons*, by Susan Buck (Washington, D.C.: Island Press, 1998); *The Question of the Commons*, by Bonnie J. McCay and James M. Acheson (Tucson: University of Arizona Press, 1986); *Common Property Economics*, by Glenn G. Stevenson (New York: Cambridge University Press, 1991); and *Whose Common Future?* by the staff of *The Ecologist* magazine (Philadelphia: New Society Publishers, 1993). There are also a number of forums in which analysts and practitioners gather to develop a better understanding of the commons, such as the International Association for the Study of Common Property, based at Indiana University (see http://www.indiana.edu/~iascp).

[13] See, e.g., Kevin Kelly, *Out of Control: The New Biology of Machines, Social Systems and the Economic World* (New York: Addison-Wesley, 1994), and M. Mitchell Waldrop, *Complexity: The Emerging Science at the Edge of Order and Chaos* (New York: Touchstone, 1992).

[14] E.O. Wilson, editor, *Biodiversity* (Washington, D.C.: National Academy Press, 1988).

[15] David Leonhardt, "Executive Pay Drops off the Political Radar," *The New York Times*, April 16, 2000.

[16] This quotation is taken from Harry C. Boyte and Nancy N. Kari, *Building America: The Democratic Promise of Public Work* (Philadelphia: Temple University Press, 1996), p. 191. Adams also wrote that "Property monopolized or in the Possession of a few is a Curse to Mankind. We should…preserve all from extreme Poverty, and all others from extravagant Riches."

[17] Elinor Ostrom, *Governing the Commons*, pp. 61-88.

Chapter Four

[1] "The Wiring of America," *The Economist*, December 19, 1998, p. 42.

[2] My synopsis of the enclosure movement draws upon several sources: Raymond Williams, *The Country and the City*, Chapter 10, "Enclosures, Commons and Communities," (New York: Oxford University Press, 1973) pp. 96-107; *The Ecologist*, *Whose Common Future: Reclaiming the Commons* (Philadelphia: New Society Publishers, 1994), pp. 21-58; and W.E. Tate, *The English Village Community and the Enclosure Movements* (London: Victor Gollancz Ltd., 1967).

[3] *The Ecologist*, *Whose Common Future?* p. 25.

[4] *The Ecologist*, *Whose Common Future?*, p. 26.

[5] G. Slater, "Historical Outline of Land Ownership in English," *The Land: The Report of the Land Equiry Committee* (London: Hodder and Stoughton, 1913, p. lxxii, cited in *The Ecologist*, *Whose Common Future?*, p. 25.

[6] Karl Polanyi, *The Great Transformation* (Boston: Beacon Press, 1944/1957).

[7] See the entertaining and incisive book by Thomas Frank, *One Market Under God: Extreme Capitalism, Market Populism, and the End of Economic Democracy* (New York: Doubleday, 2000).

[8] See, e.g., Robert Kuttner, *Everything for Sale: The Virtues and Limits of Markets* (New York: Knopf, 1997), pp. 55-59.

[9] Gregory S. Alexander, *Commodity and Propriety: Competing Visions of Property in American Legal Thought, 1776-1970* (Chicago: University of Chicago Press, 1997), p. 2.

[10] Ibid.

[11] Gregory S. Alexander, *Commodity and Propriety*, p. 29.

[12] For a broader treatment of these themes, see Harry Boyte, *CommonWealth: A Return to Citizen Politics* (New York: The Free Press, 1989), especially Chapter 2, "The Populist Commonwealth."

[13] A. James Casner, editor, *American Law of Property* (1952).

[14] See Gregory S. Alexander, *Commodity and Propriety*, Chapter 3, "Descent and Dissent from the Civic Meaning of Property," pp. 72-88.

[15] Robert Kuttner, *Everything for Sale: The Virtues and Limits of Markets* (New York: Knopf, 1997), p. 4.

[16] This is a theme to which humanistic-minded economists and sociologists have returned to again and again: the tendencies of markets to undermine public institutions and values. John Kenneth Galbraith in *The Affluent Society* (1958), Daniel Bell in *The Cultural Contradictions of Capitalism* (1976), Robert Kuttner in *Everything for Sale* (1997), and George Soros in *The Crisis of Global Capitalism* (1998) have chronicled the corrosive influences of the market on the environment, democratic institutions and social values.

Chapter Five

[1] Quoted in Andrew Pollack, "Selling Evolution in Ways Darwin Never Imagined," *New York Times*, October 28, 2000, p. C1.

[2] See Susan J. Buck, *The Global Commons: An Introduction* (Washington, D.C.: Island Press, 1998).

[3] Maude Barlow, *Blue Gold: The Global Water Crisis and the Commodification of the World's Water Supply* (report) (San Francisco: International Forum on Globalization, 1999), p. 32. Much of this section relies upon Barlow's report.

[4] Barlow, *Blue Gold*, citing Jamie Linton, *Beneath the Surface: The State of Water in Canada* (Ottawa: Canadian Wildlife Federation, 1997).

[5] Barlow, *Blue Gold*, p. 29, citing Wade Graham, "A Hundred Rivers Run Through It," *Harper's* June 1998.

[6] One of the best surveys of the Wise Use movement — its philosophy, leaders, goals and tactics — is *Let the People Judge: Wise Use and the Private Property Rights Movement*, edited by John Echeverria and Raymond Booth Eby, (Washington, D.C.: Island Press, 1995).

[7] Jon Roush, "Freedom and Responsibility: What We Can Learn from the Wise Use Movement," in John Echeverria and Raymond Booth Eby, *Let the People Judge: Wise Use and the Private Property Rights Movement* (Washington, D.C.: Island Press, 1995).

[8] For an overview of takings law, see Jed Rubenfeld, "Usings," *Yale Law Journal*, Vol. 102, p. 1077-1163. See also the website of the Environmental Policy Project at http://www.envpoly.org.

[9] For more, see John Echeverria, "Who Owns Wildlife?" *Defenders of Wildlife*, Winter 1999/2000, p. 22. For a legal analysis, see *Amicus curiae brief of Putnam-Highlands Audubon Society in support of plaintiffs-repondents in The State of New York v. Sour Mountain Realty, Inc.*, July 27, 1999, available with other related documents at the Environmental Policy Center's website, http://www.envpoly.org/courts/briefs/psour.htm.

[10] The Environmental Policy Project is the leading opponent of takings legislation and litigation. It can be reached at http://www.envpoly.org.

[11] One of the best overviews of Monsanto's GM foods is Michael Pollan's "Playing God in the Garden," *The New York Times Magazine*, October 25, 1998, p. 44.

[12] Amory B. Lovins and L. Hunter Lovins, "A Tale of Two Botanies," *Wired*, April 2000, also available at http://www.rmi.org/biotechnology/twobotanies.html.

[13] "An Interview with Pat Mooney," *Multinational Monitor*, January/February 2000, p. 33.

[14] William Greider, "The Last Farm Crisis," *The Nation*, November 20, 2000, pp. 11-18.

[15] "'What happened was, a whole growing system evolved around color and shape, because that's what the big buyers wanted,' said Steve Fox, the marketing director of a fruit packing and storage company here in the heart of apple country [Washington State]. 'So they made the apples redder and redder, and prettier and prettier, and they just about bred themselves out of existence…In creating an apple that packs well, looks terrific, shines to a glossy polish and can live year-round in cold storage, the growers have produced something that many of them no longer recognize.'" Timothy Egan, "'Perfect' Apple Pushed Growers into Debt," *New York Times*, November 4, 2000, p. A1.

[16] Jane Rissler and Margert Mellon, *The Ecological Risks of Engineered Crops* (Cambridge, Mass.: MIT Press, 1996).

[17] Michael Pollan, "Playing God with the Garden," *New York Times Magazine*, October 25, 1998.

[18] Amory B. Lovins and L. Hunter Lovins, "A Tale of Two Botanies," *Wired*, April 2000.

[19] Campaign for Safe Food, "Quotable Quotes from Scientists and Other Folks on the Dangers of Genetically Engineered Foods and Crops," available online at www.purefood.org/ge/sciquotes.htm.

[20] Jennifer Kahn, "The Green Machine," *Harper's*, April 1999, p. 73.

[21] Monsanto ad in *Farm Journal*, November 1997, p. B5, cited in Martha L. Crouch, "How the Terminator Terminates," published by the Edmonds Institute, Edmonds, Washington, and available on the website of the Rural Advancement Foundation International, http://www.rafi.org.

[22] Lance Nixon, "New Technology Would Help Seed Companies Protect Research Investments," *Aberdeen American News*, August 8, 1999.

[23] Theodore Steinberg, *Slide Mountain, or the Folly of Owning Nature*, p. 23.

Chapter Six

[1] An excellent overview of the Mining Act of 1872 and its history can be found in Carl J. Mayer and George A. Riley, *Public Domain, Private Dominion: A History of Public Mineral Policy in America* (San Francisco: Sierra Club Books, 1985), Chapter 3. Other worthwhile overviews of the Mining Act are Carlos Da Rosa, "Overburdened," [report] (Washington, D.C.: Mineral Policy Center, 1999); and Dale Bumpers, "Capitol Hill's Longest-Running Outrage," *Washington Monthly*, January 1998.

[2] "The Great American Oil Rip-Off," *Los Angeles Times*, July 20, 1999, p. A12.

[3] These include the oil depletion allowance (a 15 percent deduction on gross income of independent drillers), the "intangible drilling cost" deduction (an upfront 70 percent deduction of the costs of building a drilling operation rather than a depreciated expense over the life of the well), and the enhanced oil recovery credit (a tax subsidy intended to encourage domestic oil extraction).

[4] The Project on Government Oversight (POGO) in Washington, D.C., has issued a number of reports on underpayment of oil royalties. Two notable ones: "With a Wink and a Nod: How the Oil Industry and the Department of Interior Are Cheating the American Public and California School Children," March 1996, and "Wait! There is More Money to Collect…. Unpaid Oil Royalties Across the Nation," August 1996.

[5] POGO, "With a Wink and a Nod," March 1996, p. 3.

[6] Data from Center for Responsive Politics, cited by Morton Mintz, "#10 Big Oil: Cheating Taxpayers, Funding Candidates," at http://tompaine.com/news/2000/01/04/11.html.

[7] See Harold K. Steen, *The U.S. Forest Service: A History* (Seattle: University of Washington Press, 1991).

[8] Paul W. Hirt, *A Conspiracy of Optimism: Management of the National Forests since World War Two* (Lincoln, Neb.: University of Nebraska Press, 1994).

[9] Paul W. Hirt, *A Conspiracy of Optimism*, p. 135.

[10] Paul W. Hirt, *A Conspiracy of Optimism*, p. 294.

[11] Barlow et al, Natural Resources Defense Council, *Giving Away the National Forests*, June 1980. U.S. General Accounting Office, "Congress Needs Better Information on Forest Service's Below-Cost Timber Sales," GAO-RCED-84-96. June 28, 1984. Perri Knize, "The Mismanagement of the National Forests," *Atlantic Monthly* October 1991, pp. 98-112.

[12] See Paul W. Hirt, *A Conspiracy of Optimism*, pp. 278-281.

[13] Paul W. Hirt, *A Conspiracy of Optimisim*, p. 297.

[14] Paul Rogers and Jennifer LaFleur, "Damage Goes On — at Taxpayer Expense," one of a series of articles in a special report, "Cash Cows: Taxes Support a Wild West Holdover That Enriches Ranchers and Degrades the Land," *San Jose Mercury*, November 7, 1999 (eight-page reprint edition).

[15] Rogers and LaFleur, *San Jose Mercury News*, p. 2S.

[16] U.S. Public Interest Research Group, *Subsidies for Sale: How Fat Cat Contributions Lead to Government Handouts for Polluters* (Washington, D.C.: U.S. PIRG, 1999), p. 20-22.

[17] Thomas Michael Power, *Los Landscapes and Failed Economies: The Search for a Value of Place* (Washington, D.C.: Island Press, 1996), p. 186-189. See also Rogers and LaFleur, *San Jose Mercury News*, p. 3S.

[18] Rogers and LaFleur, *San Jose Mercury News*, p. 3S

[19] See http://nwf.org/grasslands/threattograsslands.html.

[20] See George Wuerthner, "Livestock Industry Myths," at http://www.fs.fed.us/forums/eco/get/eco-watch/forestuse-forum/5/1.html.

[21] A.J. Belsky, A. Matzke, S. Uselman, "Survey of Livestock Influences on Stream and Riparian Ecosystems in the Western United States," *Journal of Soil and Water Conservation*, First Quarter, 1999.

[22] Todd Oppenheimber, "The Rancher Subsidy," *The Atlantic*, January 1996, pp. 26-38.

[23] U.S. Public Interest Research Group, *Subsidies for Sale: How Fat Cat Contributions Lead to Government Handouts for Polluters* (Washington, D.C.: U.S. PIRG, 1999).

Chapter Seven

[1] Norbert Weiner, *Invention: The Care and Feeding of Ideas* (1954, MIT Press, 1993), p. 153, cited in Seth Shulman, *Owning the Future* (Houghton Mifflin, 1999).

[2] Charles H. Ferguson, *High Stakes, No Prisoners: A Winner's Tale of Greed and Glory in the Internet Wars* (New York: Times Business, 1999), p. 13.

[3] An excellent history is Janet Abatte, *Inventing the Internet* (Cambridge, MA: MIT Press, 1999).

[4] Lawrence Lessig, *Code and Other Laws of Cyberspace* (New York: Basic Books, 1999).

[5] In creating the Ethernet LAN [local area networking] technology, Bob Melcalfe of Xerox PARC helped formulate an equation for understanding the value created by adding one additional person *n* to an electronic network. Melcalfe's Law holds that the value of a network grows by the square of the size of the network.

[6] Tim Berners-Lee, *Weaving the Web* (San Francisco: HarperCollins, 1999), p. 71.

[7] Berners-Lee, *Weaving the Web*, pp. 71-74.

[8] Nathan Newman, *Net Loss*, Chapter 3.

[9] Nathan Newman offers a wry postscript: "In the end, Netscape would argue that the beloved public village of standards was threatened by Microsoft, and Netscape had only destroyed the village in order to save it. And if saving the village made Jim Clark's Netscape a $9 billion company (at least on paper at its stock market high) and snatched leadership of Internet development away from Illinois back to Silicon Valley — well, this was just returning leadership of Internet-based computing to the region government support had made the leader in the first place." Nathan Newman, *Net Loss: Government, Technology and the Political Economy of Community in the Age of the Internet*, at http://Socrates.Berkeley.edu/~newman.

[10] Berners-Lee, *Weaving the Web*, p. 76.

[11] Tim Berners-Lee, one of the inventors of the Web, recalls his fear that its protocols would become proprietary, thereby preventing the Web from becoming a universal global medium. He was greatly relieved in April 1993 when he received a formal declaration from CERN "saying that CERN agreed to allow anybody to use the Web protocol and code free of charge, to create a server or a browser, to give it away or sell it, without any royalty or other constraint. Whew!" Tim Berners-Lee, *Weaving the Web* (San Francisco: HarperCollins, 1999), p. 74.

[12] "The Default Language," *The Economist*, May 15, 1999, p. 67.

[13] The Halloween memos — dubbed Halloween I and II by Eric Raymond — were written by Microsoft employee Vinod Valloppillil, and are accessible at http://www.open-source.org.halloween1.html.

[14] Michael Heller, "The Tragedy of the Anti-Commons," *Harvard Law Review*, 111 (1998).

[15] An excellent review of the history of copyright law and its current biases can be found in L. Ray Patterson and Stanley W. Lindberg, *The Nature of Copyright: A Law of Users' Rights* (Athens, GA: University of Georgia Press, 1991).

[16] A landmark law review that summarized the literature on the public domain is David Lange, "Recognizing the Public Domain," 44 *Law and Contemporary Problems* 4 (1981), pp. 147-178.

[17] James Boyle, *Shamans, Software and Spleens: Law and the Construction of the Information Society* (Cambridge, MA: Harvard University Press, 1996), pp. 56-57.

[18] A leading monitor of the public domain is the Copyright Commons at the Harvard Law School Berkman Center on the Internet and Society, accessible at http://www.cyber.law.harvard.edu/cc. Examples of works affected by the Copyright Term Extension Act can be found at http:/www.csmonitor.com/durable/1998/06/11/fp54s2-csm.htm.

[19] Daren Fona, "Copyright Crusader," *The Boston Globe Magazine*, August 29, 1999.

[20] See http://cyber.law.harvard.edu/eldredvreno. For a list of copyrighted works affected by the Bono Act, see http://kingkong.demon.co.uk/ccer/ccer.htm.

[21] Julie E. Cohen, "Call it the Digital Millennium *Censorship* Act," *The New Republic*, May 23, 2000. See also http://www.tnr.com/online/cohen052300.html.

[22] For an overview, see Walter A. Effross, "Withdrawal of the Reference: Rights, Rules, and Remedies for Unwelcomed Web-Linking," *South Carolina Law Review*. Vol. 49., no. 4 (Summer 1998), pp. 651-691.

[23] Yochai Benkler, "Free as the Air to Common Use: First Amendment Constraints on the Enclosure of the Public Domain," 74 *NYU Law Review 354* (May 1999).

[24] Felicity Barringer, "Leery of the Web, Olympics Officials Set Limits on News," *The New York Times*, September 25, 2000, p. 1. See also Barringer, "Damming the Flow of Free Information," *The New York Times*, May 2, 2000 [Week in Review section], p. 6.

[25] See http:/www.despair.inc., press release, January 2, 2001. Also, John Schwartz, "Compressed Data: Don't Mind That Lawsuit, It's Just a Joke," *New York Times*, January 29, 2001.

[26] National Research Council, *Bits of Power: Issues in Global Access to Scientific Data* (National Academy Press, 1997), Chapter 4, Box 4.2, cited in J.H. Reichman and Pamela Samuelson, "Intellectual Property Rights in Data?" 50 *Vanderbilt Law Review* (1997), p. 121.

[27] See Julie E. Cohen, "A Right to Read Anonymously: A Closer Look at 'Copyright Management,'" 28 *Connecticut Law Review* 981 (1996).

[28] See Julie E. Cohen, "Copyright and the Perfect Curve," forthcoming in 53 *Vanderbilt Law Review* (November 2000), and at http://www.law.georgetown.edu/faculty/jec/publications.html.

[29] David Lawsky, "Smucker Protects Peanut Butter-and-Jelly Patent," *Reuters*, January 25, 2000.

[30] Seth Shulman, *Owning the Future* (Houghton Mifflin, 1999), p. 162.

[31] Companies whose names are used in these domain names have sometimes sought to shut them down, claiming a dilution of their trademark rights. When http://www.greyday.org was launched to call for stricter copyright laws for the Web, a response site, http://www.grayday.org, called for an Internet "free from phony copyright laws" and claimed to represent "the millions of people who have benefited and will continue to benefit from the free exchange of ideas, the hallmark of the Internet."

[32] Leading critics of ICANN include University of Miami Professor Michael Froomkin, a founder of ICANN Watch; James Love of the Consumer Project on Technology; Jerry Berman of the Center for Democracy and Technology; and Scott Harshberger of Common Cause.

[33] Lawrence Lessig, "Reclaiming a Commons," Keynote address at the Berkman Center's "Building a Commons" conference, May 20, 1999, Cambridge, Mass., accessible at http://www.cyber.law.harvard.edu/cc.

Chapter Eight

[1] James Love, "Looting the Medicine Chest," *The Progressive*, February 1993, pp. 26-28.

[2] Health Insurance Association of America, as cited in *The New York Times*, Jeff Gerth and Sheryl Gay Stolberg, "Drug Firms Reap Profits on Tax-Based Research," *The New York Times*, April 23, 2000, p.1.

[3] The Bayh-Dole Act University and Small Business Patent Act (1980) dealt with IP rights in federally funded grants, contracts and cooperative agreements. The Stevenson-Wydler Technology Innovation Act (1980) and Federal Technology Transfer Act (1986) dealt with IP rights at government laboratories. A 1984 Act repealed the five-year limitation on the use of exclusive licenses by nonprofit institutions that held title to inventions that had been developed with federal funds. The Federal Orphan Drug Act is another law by which drug companies sometimes obtain exclusive marketing rights to drugs developed by federal funding.

[4] As Ralph Nader testified to Congress in 1993, the 1985 amendments to the Bayh-Dole Act eliminated the "needs" test for federal Orphan Drug Act exclusive marketing privileges on drugs; other amendments have increasingly emphasized *exclusive* licensing of federal research; the Cooperative Research and Development Agreements (CRADAs) are widely used to allocate exclusive property rights to federal research *before* discoveries are in hand; changes made in the Federal Acquisition Regulations (FAR) give corporations exclusive commercial rights to vast federal information resources developed entirely with federal funds; and new secrecy rules relating to public records have prevented the American people from demanding greater accountability from public officials spending taxpayer money. Statement of Ralph Nader before the Subcommittee on Regulation, Business Opportunities and Energy of the Committee on Small Business U.S. House of Representatives, on "Private Sector Agreements to Market Federally Funded Research," March 11, 1993, p. 92.

[5] Statement of Rep. Jack Brooks in 1980 minority report on the Bayh-Dole Act.

[6] For an excellent overview of the privatization of public research, see Chris Lewis, "Public Assets, Private Profits: Federal R&D and Corporate Graft," *Multinational Monitor*, January/February 1993, pp. 8-11.

[7] See, e.g., Merrill Goozner, "Patenting Life," *The American Prospect*, December 18, 2000, pp. 23-25.

[8] See, e.g., Joint Economic Committee, U.S. Senate, "The Benefits of Medical Research and the Role of the NIH," May 2000, available at http://jec.senate.gov.

[9] Iain Cockburn and Rebecca Henderson, "Public-Private Interaction and the Productivity of Pharmaceutical Research," National Bureau of Economic Research working paper 6018, pp. 10-11, cited in Joint Economic Committee, U.S. Senate, "The Benefits of Medical Research and the Role of the NIH," May 2000.

[10] Ibid.

[11] CHI Research, "Industry Technology Has Strong Roots in Public Science," March 1997, available at http://www.chiresearch.com/nltv1.htm.

[12] Ralph Nader and James Love, "Federally Funded Pharmaceutical Inventions," testimony before the Special Committee on Aging, United States Senate, February 24, 1993, p. 7.

[13] See http://ww.cptech.org/pharm/pryor.html.

[14] Daniel Newman, "The Great Taxol Giveaway," *Multinational Monitor*, May 1992, pp. 17-21.

[15] According to James Love, Bristol-Myers Squibb quoted $6.09 per milligram as the Red Book average wholesale price for Taxol on September 19, 2000, while a generic producer reported that his costs of making Taxol were $.07 per milligram. http://www.cptech.org/ip/health/taxol.

[16] See http://www.cptech.org/ip/health/taxol, for the Consumer Project on Technology website on Taxol.

[17] These numbers are taken from Ralph Nader and James Love, "Looting the Medicine Chest," *The Progressive*, February 1993, pp. 26-28, and Merrill Goozner, "The Price Isn't Right," *The American Prospect*, September 11, 2000, pp. 25-29. See also, Daniel Newman, "The Great Taxol Giveaway," *Multinational Monitor*, May 1992, pp. 17-21.

[18] An extensive account of Xalatan's development can be found in Jeff Gerth and Sheryl Gay Stolberg, "Drug Firms Reap Profits on Tax-Based Research," *The New York Times*, April 23, 2000, p.1

[19] See http://www.cptech.org/ip/health/aids/gov-role.html.

[20] House Amendment 791, enacted on June 14, 2000. See Sanders' press release, http://www.house.gov/bernie/press/2000/06-14-2000.html.

[21] According to a preliminary report by the Inspector General of the Department of Health and Human Services, as reported by Gerth and Stolberg, *The New York Times*, April 23, 2000, p. 1.

[22] U.S. Congressional Budget Office, "How Increased Competition from Generic Drugs Has Affected Prices and Returns in the Pharmaceutical Industry," July 1998, Summary, p. 1.

[23] Sheryl Gay Stolberg and Jeff Gerth, "In a Drug's Journey to Market, Discovery is Just the First of Many Steps," *The New York Times*, July 23, 2000, p. 13.

[24] See, e.g., Gregg Fields, "Brand-name drug makers' tactics slow generics," *Miami Herald*, August 17, 2000. See also Sheryl Gay Stolberg and Jeff Gerth, "How Companies Stall Generics and Keep Themselves Healthy," *The New York Times*, July 25, 2000, p. 1.

[25] According to the Kaiser Family Foundation, drug companies spent three times as much on marketing and general and administrative expenses than on R&D, as a percentage of sales, in 1998. See Stolberg and Gerth, "How Companies Stall Generics and Keep Themselves Healthy," *The New York Times*, July 25, 2000, p. 13. See also an April 2000 report by the Consumer Project on Technology which finds that 11 of 19 pharmaceutical companies studied spent the majority of its money on marketing and administration, not R&D. *FDA Week*, April 26, 2000, p. 12.

[26] James Love, "Government Information as a Public Asset," Taxpayer Assets Project, Working Paper No. 4 [testimony before the Joint Committee on Printing], April 25, 1991. See also, John Markoff, "U.S. Shifts to a Freer Data Policy," *The New York Times*, October 22, 1993, p. D1. See also David Hilzenrath, "SEC Plans Computer Access to Business Filings," *Washington Post*, October 23, 1993, p. C1.

[27] Three possible "homes" for the NTIS include the Library of Congress, the Department of Commerce, or the Government Printing Office.

[28] See Senator John Warner, "The Growing Crisis in Public Access to Public Information, *Congressional Record*, Senate, February 27, 1997, p. S1730. Also, Robert M. Gellman, "Twin Evils: Government Copyright and Copyright-Like Controls Over Government Information," *Syracuse Law Review*, Vol. 45 (1995), p. 999.

[29] An excellent review of Congress' own information policies can be seen in David Corn, "Filegate.gov," *Wired*, November 2000, pp. 226-236.

[30] Testimony of Gary Ruskin, Committee on Rules and Administration, U.S. Senate, Hearing on S. 2288, the Wendell H. Ford Government Publications Reform Act of 1998, July 29, 1998.

[31] Dwight Thompson, "A Hill Hearing Aid," *Washington Post*, May 22, 2000, p. A4. Timothy Noah, "Privatizing Congressional Hearings," *Slate.msn.com*, at http://www.slate.msn.com/Code/chatterbox/chatterbox.asp.

[32] Eve Gerber, "How Congress Resists the Web," *Slate*, November 30, 1999, at http://www.lsate.msn.com/netelection/entries/99-11-30_56807.asp.

[33] See, e.g., Rep. Christopher Shays' site, http://www.house.gov/shays/CRS/CRSProducts.htm.

Chapter Nine

[1] Cited in Eric Barnouw, *Tube of Plenty: The Evolution of American Television* (New York: Oxford University Press, 1975), p. 74.

[2] The literature on the commercialization of American culture is burgeoning. Worthwhile books include Gary Cross, *An All Consuming Century: Why Commercialism Won in Modern America* (New York: Columbia University Press, 2000); Juliet Schor, *Do Americans Shop Too Much?* (Boston: Beacon Press, 2000), James Twitchell, *Lead Us Into Temptation: The Triumph of American Materialism* (New York: Columbia University Press, 2000); Thomas Frank, *One Market Under God: Extreme Capitalism, Market Populism and the End of Economic Democracy* (New York: Doubleday, 2000); Naomi Klein, *No Logo: Taking Aim at the Brand Bullies* (New York: Picador, 2000); Michael F. Jacobson and Laurie Ann Mazur, *Marketing Madness: A Survival Guide for a Consumer Society* (Washington, D.C.: Center for Science in the Public Interest, 1995); Alan Durning, *How Much is Enough? Consumer Society and the Future of the Earth* (New York: Norton, 1992); Leslie Savan, *The Sponsored Life: Ads, TV and American Culture* (Philadelphia: Temple University Press, 1994). An excellent review of some of these books is Alan Wolfe, "America Consumed by Consumption," *The New Republic*, October 23, 2000.

[3] An excellent history of this struggle over the public's airwaves is Robert W. McChesney, *Telecommunications, Mass Media and Democracy: The Battle for Control of U.S. Broadcasting, 1928-1935* (New York: Oxford University Press, 1995).

[4] *Red Lion Broadcasting Co. v. FCC*, 395 U.S. 367 (1969), p. 389. The Supreme Court later elaborated that a licensee must "share his frequency with others and conduct himself as a proxy or fiduciary with obligations to present those views and voices which are representative of his community and which would otherwise, by necessity, be barred from the airwaves." *Office of Communication of United Church of Christ v.* FCC, 359 F.2d 994 (D.C. Circuit, 1966) p. 1003

[5] See, e.g., Barry Cole and Mal Oettinger, *Reluctant Regulators: The FCC and the Broadcast Audience* (1978).

[6] Under the Telecommunications Act of 1996, licensing periods for TV were extended from five years to eight years, the criteria for FCC non-renewal of a license were raised, the ability of third parties to challenge license renewals was restricted, and station ownership limits were relaxed. In a separate action, the Fairness Doctrine was formally rescinded.

[7] Newton N. Minow and Craig L. LaMay, *Abandoned in the Wasteland: Children, Television and the First Amendment* (New York: Hill & Wang, 1996).

[8] Alliance for Better Television and its offshoot, GreedyTV.org, at http://www.bettercampaigns.org.

[9] Paul Taylor, Alliance for Better Campaigns, Testimony before the FCC, October 16, 2000.

[10] Benton Foundation, "Market Conditions and Public Affairs Programming," March 27, 2000, at http://www.Benton.org/Television/lpa.pdf.

[11] Helen Payne Watt, *Common Assets: Asserting Rights to Our Shared Inheritance* (San Francisco: Redefining Progress, 2000), p. 23. Watt derived an estimate of $80 to $100 billion from Congressional Budget Office estimates of the value of analog and digital television licenses, a National Telecommunications and Information Agency methodology for calculating the value of radio licenses, and November 1999 revenue from auctions of FCC licenses. More recently, in January 2001, wireless phone companies bid a record $16.8 billion for a band of prime spectrum equivalent to about 15 percent of the spectrum allocated to broadcasters, suggesting that a one-time auction of broadcast spectrum would yield in excess of $100 billion.

[12] Christopher Stern, "Mixed Signals," *The Washington Post*, December 17, 2000, p. H1.

[13] Congress forfeited any political leverage in dictating public interest requirements for digital broadcasters, leaving that task to a federal advisory panel, The Gore Commission, which was politically divided and whose recommendations were a mishmash of modest proposals that have gone nowhere. See *Charting the Digital Broadcasting Future: Final Report of the Advisory Committee on Public Interest Obligations of Digital Television Broadcasters* (Washington, D.C.: National Telecommunications and Information Administration, December 18, 1998).

[14] William Safire, "Spectrum Squatters," *The New York Times*, October 9, 2000.

[15] Stephen Labaton, "FCC to Approve Low-Power Radio, Seeking Diversity," *The New York* Times, January 20, 2000, p. A1. For more on the low-power radio proposal, see the websites of the FCC (www.fcc.gov/mmd/prd/lpfm, the Benton Foundation (www.Benton.org) and the Media Access Project (www.mediaaccess.org).

[16] Gary Ruskin, "Why They Whine: How Corporations Prey on Our Children," *Mothering Magazine*, November/December 1999.

[17] James U. McNeal [professor of marketing at Texas A&M], "Tapping the Three Kids' Markets," *American Demographics*, April 1998.

[18] Mike Searles, cited in Brian Bennett, "Uniforms Aid Student Performance, Academics: Not Only Do Uniforms Eliminate Status Wars, They Help Students Concentrate on Schoolwork," *Los Angeles Times*, December 10, 1989.

[19] Bruce Horovitz, "Targeting the Kindermarket," *USA Today*, March 3, 2000, p. 1.

[20] Joseph Pereira, "Kids' Advertisers Play Hide-and-Seek, Concealing Commercials in Every Cranny," *Wall Street Journal*, April 30, 1990.

[21] Janet Maslin, "Like the Toy? See the Movie," *The New York Times*, December 17, 1989, Section 2, p. 1.

[22] Constance L. Hays, "Channel One's Mixed Grades in Schools," *The New York Times*, December 5, 1999, p. 13-14.

[23] Steven Manning, "Students for Sale," *The Nation*, September 27, 1999, p. 17.

[24] Constance L. Hays, "District Rethinks a Soda-Pop Strategy," *The New York Times*, April 19, 2000.

[25] U.S. General Accounting Office, "Commercial Activities in Schools," [GAO/HEHS-00-156], September 14, 2000, available at http://www.gao.gov/new.items/he00156.pdf.

[26] Naomi Klein, *No Logo: Taking Aim at the Brand Bullies* (New York: Picador, 1999), p. 51 and 54.

[27] Verne G. Kopytoff, "Now, Brought to You by Coke (or Pepsi): Your City Hall," *The New York Times*, November 29, 1999, p. C17.

[28] "Corporate Bail-Out: General Motors Buys a State Sponsorship," in TomPaine.com, at http://www.tompaine.com/opinion/2000/06/12/a,html.

[29] Lisa Gubernick, "A Night at the Previews," *Wall Street Journal*, October 1, 1999, p. W1.

[30] Alex Kuczynski, "Radio Squeezes Empty Air Space for Profit," *The New York Times*, January 6, 2000, p. C1.

[31] Alex Kuczynski, "On CBS News, Some of What You See Isn't There," *The New York Times*, January 12, 2000, p. 1.

[32] Stuart Elliot, "Real or Virtual? You Call It," *The New York Times*, October 1, 1999, p. C1.

Chapter Ten

[1] This principle was famously asserted by the U.S. Supreme Court in the 1892 case of *Central Railroad v. Illinois*, 146 U.S. 387 (1892), when the Court held that the Illinois state legislature could not simply give away most of Lake Michigan and its powers to regulate commerce to the Illinois Central Railroad. That was an inalienable obligation of a public trustee.

[2] See Russell Mokhiber and Robert Weissman, "The Real Thing: Democracy as a Contact Sport," *Focus on the Corporation* syndicated column, December 13, 2000, available at http://www.essential.org, which details the Library of Congress hosting a promotional event for Coca-Cola.

[3] Robert W. McChesney, *Telecommunications, Mass Media and Democracy: The Battle for Control of U.S. Broadcasting, 1928-1935* (New York: Oxford University Press, 1995). See also McChesney, *Rich Media, Poor Democracy: Communications Politics in Dubious Times* (Urbana, Ill.: University of Illinois Press, 1999).

[4] For more information on the Alaska Permanent Fund Corporation, go to http://www.apfc.org.

[5] The discussion here draws upon Helen Payne Watt, *Common Assets: Asserting Rights to Our Shared Inheritance* (Washington, D.C.: Corporation for Enterprise Development and Redefining Progress, 1999), p. 16.

[6] For a full exposition of the Sky Trust proposal, see *Who Owns the Sky? Our Common Assets and the Future of Capitalism* (Washington, D.C.: Island Press, forthcoming in 2001). The Corporation for Enterprise Development in Washington, D.C., is also involved in producing analyses and studies in support of the Sky Trust proposal.

[7] Peter Barnes and Rafe Pomerance, "Pie in the Sky: The Battle for Atmospheric Scarcity Rents" [report], Corporation for Enterprise Development, 2000, p. 9.

[8] Bruce Ackerman and Anne Alstott, *The Stakeholder Society* (New Haven, Conn.: Yale University Press, 1999), p. 36.

[9] A key information resource for the Land and Water Conservation Fund is the advocacy group, Americans for Our Heritage and Recreation, a coalition dedicated to revitalizing the Fund.

[10] Peter Barnes, "Who Owns the Sky?" (Washington, D.C.: Island Press, forthcoming, 2001).

[11] Sax sought to "liberate" the public trust doctrine from his "historical shackles" — its application only to navigation and waterways — and to make the doctrine a more general-purpose legal doctrine for protecting community resources. See Sax, "The Public Trust Doctrine in Natural Resource Law: Effective Judicial Intervention," *Michigan Law Review*, Vol. 68 (1970), pp. 471. A wonderful overview of Sax's thinking about the public trust is made by Carol M. Rose, "Takings, Public Trust and Unhappy Truths and a Helpless Giant," in *Ecology Law Quarterly*, Vol. 25 (1998), p. 351.

[12] Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (New York: Cambridge University Press, 1990), pp. 103-142.

[13] James M. Acheson, "The Lobster Fiefs Revisited: Economic and Ecological Effects of Territoriality in Maine Lobster Fishing," in Bonnie J. McCay and James M. Acheson, editors, *The Question of the Commons: The Culture and Ecology of Communal Resources* (Tucson, Ariz.: University of Arizona Press, 1996), pp. 37-65.

[14] Robert C. Ellickson, *Order Without Law: How Neighbors Settle Disputes* (New Haven, Conn.: Yale University Press, 1991). See also Dan Dagget, "It's un-American, or at best unWestern, but cooperation works," *High Country News*, October 16, 1995, available at http://www.hcn.org/1995/oct16/dir/Opinion_It's_unAme.html.

[15] Meredith Lathbury and Redefining Progress, "Appendix III: The Edwards Aquifer," in Helen Payne Watt, *Common Assets: Asserting Rights to Our Shared Inheritance* (Washington, D.C.: Corporation for Enterprise Development and Redefining Progress, 2000, pp. 44-51.

[16] Meredith Lathbury and Redefining Progress, "Appendix IV: Alaska Halibut Fishery," in Helen Payne Watt, *Common Assets*, pp. 52-59.

[17] The website for Terra Civitas, an Illinois-based nonprofit, is http://www.chaordic.org.

[18] Brian Donahue, *Reclaiming the Commons: Community Farms and Forests in a New England Town* (New Haven, Conn.: Yale University Press, 1999).

[19] Ellen Graham, "Community Groups Print Local (and Legal) Currencies," *Wall Street Journal*, June 27, 1996, p. B1.

[20] Ronald Lee Fleming and Lauri A. Halderman, *On Common Ground: Caring for Shared Land from Town Common to Urban Park* (Harvard, Mass.: Harvard Common Press, 1982).

[21] Michael H. Shuman, *Going Local: Creating Self-Reliant Communities in a Global Age* (New York: Routledge, 2000). Another useful book in this regard is Christopher Gunn and Hazel Dayton Gunn, *Reclaiming Capital: Democratic Initiatives and Community Development* (Ithaca, N.Y.: Cornell University Press, 1991).

[22] Jeff Gates, *The Ownership Solution: Toward a Shared Capitalism for the Twenty-First Century* (Reading, Mass.: Perseus Books, 1999), p. xxi.

[23] See, e.g., Roger E. Alcaly, "Reinventing the Corporation," *The New York Review of Books*, April 10, 1997, pp. 38-44.

[24] A nice survey of different types of vehicles for public ownership can be found in Gar Alperovitz, "Distributing Our Technological Inheritance," *Technology Review*, October 1994, p. 30.

[25] David Morris and Daniel Kraker, "Rooting the Home Team: Why the Packers Won't Leave — and Why the Browns Did," *The American Prospect*, September/October 1998, pp. 38.

[26] The IP Commons is being organized by a coalition of faculty at the University of California at Berkeley, Berkman Center for Internet & Society at Harvard Law School, MIT and Stanford Law School. Professor Lawrence Lessig at Stanford Law School is one of the lead organizers.

[27] Katharina Kopp, "The DOT Campaign: Making ".us" Work for All of US," *The Digital Beat* [online newsletter of the Benton Foundation], October 24, 2000.

[28] This phenomenon is explored at length by John Seely Brown and Paul Duguid in *The Social Life of Information* (Cambridge, Mass.: Harvard Business School Press, 2000).

[29] Robert D. Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon and Schuster, 2000), and Robert E. Lane, *The Loss of Happiness in Market Democracies* (New Haven, Conn.: Yale University Press, 2000). See also Jonathan Rowe, "Rebuilding the Nonmarket Economy," *The American Prospect*, Winter 1993, pp. 109-117.

[30] Amy Jo Kim, *Community Building on the Web: Secret Strategies for Successful Online Communities* (Berkeley, Calif.: Peachpit Press, 2000), p.xiii — xvi.

[31] Open letter for the Public Library of Science, at http://www.publiclibraryofscience.org.

[32] An excellent refutation of traditionalists can be found in Julie E. Cohen, "*Lochner* in Cyberspace: The New Economic Orthodoxy of 'Rights Management'," *Michigan Law Review*, Vol. 97), November 1998, pp. 462-563.

[33] Bonnie J. McCay and James M. Acheson, editors, *The Question of the Commons: The Culture and Ecology of Communal Resources* (Tucson, Ariz.: University of Arizona Press, 1996), p. 25.

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