chapter one

The Theories Behind Intellectual Property

Every student is familiar with the theoretical throat-clearing that often appears at the beginning of a course—“what do we really mean by inorganic chemistry?”—never to reappear in either the student’s understanding of the materials or on the exam. It needs to be stressed that this chapter is not like that at all. The theories that explain the justifications for and limitations on intellectual property get applied every day in intellectual property disputes. The parties themselves have to decide whether or not to object to a particular use or benefit that flows from their creations. They have to decide how to structure their activities so as to make a profit or achieve some social goal. In both cases, the analysis of the costs and benefits of exclusion and the economics of information covered in the first section of the course are central to the activity. And finally, if a legal dispute arises, the theoretical ideas behind intellectual property are very much part of the picture. As a result, this chapter is devoted to the theories behind intellectual property and the ways those theories play out in practice.

**Framing:** The first theme is the way that intellectual property issues are “framed,” the analogies, metaphors and moral baselines that define the discussion. Social, regulatory or legal disputes about information issues do not arrive in popular consciousness or courtroom automatically “preformatted.” We have many strong, and sometimes contradictory, sets of normative assumptions about information. It plays a vital role in:

* our conception of privacy, a term we assume to begin with informational control, the ability to control the flow of information about ourselves, for reasons both dignitary and instrumental.
* our conception of the public sphere of speech, free expression and debate; from “sunlight is the best disinfectant” to “the marketplace of ideas,” our baseline when thinking about issues we frame as “speech issues” is that the free flow of information is both right and good.
* our conception of the efficient, competitive market. Precisely because individual informed choice is what leads to aggregate overall efficiency, in the perfect market, information is free, instantaneous and perfect.
* our conception of information property—the intangible information or innovation goods that I should be able to own and control, either because that property right will encourage others to socially useful innovative activities, or because we think that in some deontological—duty-based—sense, the information is simply *mine*—for example, because I worked hard to generate it.

Notice how these implicit normative frames are (often) at odds with each other. Privacy is a value that will not always further the goal of free expression, and *vice versa*. Think of the European “right to be forgotten” on search engines. (Though privacy may also reinforce free speech—the anonymous whistleblower, the secret ballot.) The search for costless instantaneous information-flow will conflict fundamentally with the postulate that someone has to be paid for generating that information in the first place, perhaps by being granted a property right to control that information—a contradiction that you will find to be central in this course. And the conflicts are not just binary, or between those pairs alone.

It would be one thing if we conducted our debates by saying “should we think of this with our ‘information property,’ or our ‘costless information’ glasses on?” “Speech or privacy?” But the rhetorical frames are often implicit rather than explicit. We characterize some new issue or technology using similes and metaphors that hark back to the past, each of which is freighted with normative associations that conjure up one or other of these frames. Is an online social network a *private* mall, a local *newspaper*, a *public* park or a *common carrier* like the phone company? Is a search engine just like the *travel guide book* that maps the city—good neighborhoods and bad—or like the guy who *takes a cut* for steering you towards the man with the illegal drugs? Speech? Property? Privacy? Competition? By being aware of the implicit messages and associations that come with our metaphors and our framings, we can challenge our unreflective way of classifying the issue, alerting ourselves to nuances we might otherwise have missed. But these framings can also be used as a matter of advocacy, whether in court or in the media, thoroughly transforming the way a question is perceived, regulated or decided.

**Justifying Intellectual Property:** The second theme goes to the ‘why,’ ‘when,’ and ‘how much’ of intellectual property.

Can a scriptwriter get a copyright on the stock plot themes used in spy movies—spies with silenced pistols, car chases, glamorous assassins in tight clothing? What if he were the first person to come up with those particular plot lines? Does the answer to that question have to do with how detailed the plot line is, or does it have to do with the effect that copyrighting stock plot lines would have on film? Or both?

Does ownership of a copyright in software give you the right to forbid another person from “decompiling” that software—reverse engineering it so that he can build a compatible or “interoperable” program? Should it give you the right to forbid that activity? Does the answer to those questions depend on whether an unauthorized *copy* is created while the program is being reverse engineered? Or does it depend on the effect that prohibiting reverse engineering would have on the software market? Or both?

Trademark gives you the exclusive right to use a name or symbol in connection with a particular kind of commercial activity—Delta for airlines (or Delta for faucets, or coffee—at least in Europe.) Bass for ale (or Bass for electronics.) Prius for hybrid cars. Should you be able to prohibit a competitor from using your trademarked name in comparative advertising? “Toyota Prius owners will find that the Nissan Leaf is superior to their existing hybrid. It is 100% electric! Say ‘no’ to the gas guzzling Prius and ‘yes’ to Leaf!”

Can you patent an algorithm that can be used to “hedge” or guard against risk in the energy market? Does that depend, should that depend, on whether the algorithm is implemented in a computer or does it depend on some theory about leaving free certain raw material for the next generation of inventors? On whether or not we need patents to encourage the development of new business methods?

We cannot answer all those questions here—that will take the entire course. But dis­cuss­ing them would be hard without some grasp of the ideas we will discuss in the first section.

Three linked questions will come up as we consider these issues.

* If I put my labor into gathering some information or developing some innovation, do I presumptively gain a right over that information or innovation? (And if so, how extensive a right?)
* Should we view intellectual property rights in terms of their utilitarian effects rath­er than on some notion of labor and value? In other words, should we grant rights when that is necessary to produce more innovation and information, or to facilitate signaling between producers and consumers, but only then and only to that extent?
* Every day our activities produce effects on others. When we are not forced to internalize those effects, we call them externalities. Some of those externalities are negative (pollution, for which the factory does not have to pay) and others positive (the great TV chef who starts a cooking craze that ends up making most food served in a culture better, including food served by and to people who never watched the show). Many intellectual property claims have to do with positive externalities. Someone says “you have benefited from what I did! Therefore I should be able to control your activity, or at least get paid!” When do we find these arguments convincing and when not? Why?

Those are our three basic questions about intellectual property.

Let us now turn back to the preliminary step, the framing of information issues in the first place.

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| Problem 1-1Framing.Every time someone uses a phone, the phone company necessarily ends up with a lot of information: what number was called, when it was called, how long the call lasted. In the eloquent regulatory parlance of telecommunications law this data is called Customer Proprietary Network Information or CPNI.This data accretes over time, so that the phone company can see how often a particular customer calls a particular number, and when he or she typically does so and so on. What’s more, this information can be cross-indexed with other sources of information or other databases. On the macro level, calls can be grouped by area code, which gives a rough guide to the geographical location of the person called, though less so in the era of cell phones. On the micro level, numbers can be identified by reverse lookup, so that the company—or the entity it provides this information to—can identify exactly who or what is being called: your mother, your local market, your hairdresser.CPNI is important for another reason. By having unrestricted ability to use their own existing customer data, incumbent telephone companies have an advantage over startups that want to break into the market. The advantage comes in two related areas. First, marketing. Because they have the CPNI of their own customers, telephone companies know precisely the people to whom they might market a “friends and family plan”, or a long distance plan, a big data plan, or an international calling plan with unlimited talk time. Caller data identifies the chatty out-of-stater, the lonely expatriate, or the small town queen bee. It is a treasure trove for the marketing of the plans that would appeal to each—rather than a confusing welter of options broadcast to the world at large. Studies have shown that consumers respond much more positively to this kind of targeted advertising rather than the “shotgun” approach that those seeking to enter the market must use. Second, CPNI is also (though telephone companies do not typically stress this fact) extremely valuable in *pricing* such offerings. Willingness to pay is best gleaned from past behavior and CPNI reveals past behavior. For these two reasons, new telephone companies have claimed incumbents’ ability to mine their own customers’ data is a significant barrier to market-entry.**We have mentioned four “frames” into which information issues can be placed.****i.) Information as that which must be controlled to protect privacy.****ii.) Perfect information—free, instant and available to all—as a necessary condition of a competitive market.****iii.) Information as something that can be owned, as property.****iv.) Information as that which must circulate freely in the service of freedom of expression and free speech—both political and commercial.****Assume that Congress gave the FCC authority to regulate telephone companies’ use of CPNI. What framings would you suggest in order to make the strongest case for regulating use of CPNI tightly? (For example, requiring that consumers “opt in” to having their information used for any purpose other than billing and solving technical problems.) What kinds of anecdotes or analogies might you use to strengthen the salience and appeal of those ways of framing the problem? If you were a lawyer or strategist for the telephone companies, how would you respond? What alternative framings, or moral “baselines” could you provide? What analogies or anecdotes would you use to strengthen *these* frames or baselines? Without getting into the details of administrative law, how might you frame the broad outlines of a court challenge to any such regulations?** |

James Boyle, The Apple of Forbidden Knowledge

Financial Times, August 12, 2004

You could tell it was a bizarre feud by the statement Apple issued, one strangely at odds with the Palo Alto Zen-chic the company normally projects. “We are stunned that Real­Networks has adopted the tactics and ethics of a hacker to break into the iPod, and we are investigating the implications of their actions under the DMCA [Digital Millennium Copyright Act] and other laws.” What vile thing had RealNetworks done? They had developed a program called Harmony that would allow iPod owners to buy songs from Real’s Music Store and play them on their own iPods. That’s it. So why all the outrage? It turns out that this little controversy has a lot to teach us about the New Economy.

Apple iPods can be used to store all kinds of material, from word processing documents to MP3 files. If you want to use these popular digital music players to download copy-protected music, though, you have only one source: Apple’s iTunes service, which offers songs at 99 cents a pop in the US, 79p in the UK. If you try to download copy-protected material from any other service, the iPod will refuse to play it. That has been the case until now. Real’s actions would mean that consumers had two sources of copy-protected music for their iPods. Presumably all the virtues of com­pe­ti­tion, including improved variety and lowered prices, would follow. iPod owners would be happy. But Apple was not.

The first lesson of the story is how strangely people use the metaphors of tangible property in new economy disputes. How exactly had Real “broken into” the iPod? It hadn’t broken into my iPod, which is after all my iPod. If I want to use Real’s service to download music to my own device, where’s the breaking and entering? What Real had done was make the iPod “interoperable” with another format. If Boyle’s word processing program can convert Microsoft Word files into Boyle’s format, allowing Word users to switch programs, am I “breaking into Word”? Well, Microsoft might think so, but most of us do not. So leaving aside the legal claim for a moment, where is the ethical foul? Apple was saying (and apparently believed) that Real had broken into something different from my iPod or your iPod. They had broken into the idea of an iPod. (I imagine a small, Platonic white rectangle, presumably imbued with the spirit of Steve Jobs.)

Their true sin was trying to understand the iPod so that they could make it do things that Apple did not want it to do. As an ethical matter, is figuring out how things work, in order to compete with the original manufacturers, breaking and entering? In the strange nether land between hardware and software, device and product, the answer is often a morally heartfelt “yes!” I would stress “morally heartfelt”. It is true manufacturers want to make lots of money, and would rather not have competitors. Bob Young of Red Hat claims “every business person wakes up in the morning and says ‘how can I become a monopolist?’” Beyond that, though, innovators actually come to believe that they have the moral right to control the uses of their goods after they are sold. This isn’t your iPod, it’s Apple’s iPod. Yet even if they believe this, we don’t have to agree.

In the material world, when a razor manufacturer claims that a generic razor blade maker is “stealing my customers” by making compatible blades, we simply laugh. The “hacking” there consists of looking at the razor and manufacturing a blade that will fit. But when information about compatibility is inscribed in binary code and silicon circuits, rather than the molded plastic of a razor cartridge, our moral intuitions are a little less confident. And all kinds of bad policy can flourish in that area of moral uncertainty.

This leads us to the law. Surely Apple’s legal claim is as baseless as their moral one? Probably, but it is a closer call than you would think. And that is where the iPod war provides its second new economy lesson. In a competitive market, Apple would choose whether to make the iPod an open platform, able to work with everyone’s music service, or to try to keep it closed, hoping to extract more money by using consumers’ loyalty to the hardware to drive them to the tied music service. If they attempted to keep it closed, competitors would try to make compatible products, acting like the manufacturers of generic razor blades, or printer cartridges. The war would be fought out on the hardware (and software) level, with the manufacturer of the platform constantly seeking to make the competing products incompatible, to badmouth their quality, and to use “fear, uncertainty and doubt” to stop consumers switching. (Apple’s actual words were: “When we update our iPod software from time to time, it is highly likely that Real’s Harmony technology will cease to work with current and future iPods.”) Meanwhile the competitors would race to untangle the knots as fast as the platform manufacturer could tie them. If the consumers got irritated enough they could give up their sunk costs, and switch to another product altogether. All of this seems fine, even if it represents the kind of socially wasteful arms race that led critics of capitalism to prophesy its inevitable doom. Competition is good, and competition will often require interoperability.

But thanks to some rules passed to protect digital “content” (such as copyrighted songs and software) the constant arms race over interoperability now has a new legal dimension. The Digital Millennium Copyright Act and equivalent laws worldwide were supposed to allow copyright owners to protect their content with state-backed digital fences that it would be illegal to cut. They were not supposed to make interoperability illegal, still less to give device manufacturers a monopoly over tied products, but that is exactly how they are being used. Manufacturers of printers are claiming that generic ink cartridges violate the DMCA. Makers of garage door openers portray generic replacements as “pirates” of their copyrighted codes. And now we have Apple claiming that RealNetworks is engaged in a little digital breaking and entering. In each case the argument equates the actions required to make one machine or program work with another to the actions required to break into an encrypted music file. For a lot of reasons this is a very bad legal argument. Will it be recognised as such?

There the answer is less certain. In the United States, there are exceptions for reverse engineering, but the European copyright directive bobbled the issue badly, and some of the efforts at national implementation have the same problem. In the legitimate attempt to protect an existing legal monopoly over copyrighted content, these “technological measure” provisions run the risk of giving device and software manufacturers an entirely new legal monopoly over tied products, undercutting the EU’s software directive and its competition policy in the process. Pity the poor razor manufacturers. Stuck in the analogue world, they will still have to compete to make a living, unable to make claims that the generic sellers are “breaking into our razors.”

Though this is an entirely unnecessary, legally created mess there is one nicely ironic note. About 20 years ago, a stylish technology company with a clearly superior hardware and software system had to choose whether to make its hardware platform open, and sell more of its superior software, or whether to make it closed, and tie the two tightly together. It chose closed. Its name: Apple. Its market share, now? About 5 per cent. [In 2020 it was 9.6%.] Of course, back then competition was legal. One wishes that the new generation of copyright laws made it clearer that it still is.

Questions:

1.) What are the differences in the way that Boyle and Apple frame the Apple/Real Networks controversy? Do any of the arguments they use apply to Problem 1-1?

2.) Boyle uses as an example the manufacturer of a razor or a printer trying to prevent competing companies from offering generic versions of the blade or the toner cartridge. The razor company and printer company produced this market—in that sense they provide a “benefit” to the generic companies which did nothing to develop either product. Why do we commonly assume nevertheless that the original companies do not have the right to control complementary products? Does that assumption apply with information age goods? Why? Why not?

3.) Might there be socially negative effects if Apple and other providers of “platform technologies” like phones and game consoles are not allowed to exclude a competitor from its ecosystem? What would they be?

4.) Three different ways of seeing intellectual property issues are posed on pages 2–3; as rightful rewards to labor, as incentives to innovation and facilitators of market signals between producers and consumers, and finally as claims that arise whenever an activity yields a positive externality to a third party. Can Apple make any or all of these claims? What is Boyle’s response?

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| Problem 1-2Justifying and Limiting.It is early in the days of the Internet and you and your friends have just had a great idea. You are avid football fans, fond of late night conversations about which team is really the best, which player the most productive at a particular position. Statistics are thrown about. Bragging is compulsory. Unlike other casual fans, you do not spend all your time rooting for a particular *team*. Your enjoyment comes from displaying your knowledge of *all* the players and *all* the teams, using statistics to back up your claims of superiority and inferiority. You find these conversations pleasant, but frustrating. How can one determine definitively who wins or loses these debates? Then you have a collective epiphany. With a computer, the raft of statistics available on football players could be harvested to create imaginary teams of players, “drafted” from every team in the league, that would be matched against each other each week according to a formula that combined all the statistics into a single measure of whether your team “won” or “lost” as against all your friends’ choices. By adding in prices that reflected how “expensive” it was to choose a particular player, one could impose limits on the tendency to pick a team composed only of superstars. Instead, the game would reward those who can find the diamond in the rough, available on the cheap, who know to avoid the fabled player who is actually past his best and prone to injury.At first, you gather at the home of the computer-nerd in your group, who has managed to write the software to make all this happen. Then you have a second epiphany. Put this online and *everyone* could have their own team—you decide to call them FANtasy Football Teams, to stress both their imaginary nature and the intensity of the football-love that motivates those who play. Multiple news and sports sites already provide all the basic facts required: the statistics of yardage gained, sacks, completed passes and so on. The NFL offers an “official” statistics site, but many news outlets collect their own statistics. It is trivial to write a computer program to look up those statistics automatically and drop them into the FANtasy game. Even better, the nature of a global network makes the markets for players more efficient while allowing national and even global competition among those playing the game. The global network means that the players never need to meet in reality. FANtasy Football Leagues can be organized for each workplace or group of former college friends. Because the football players you draft come from so many teams, there is always a game to keep track of and bragging to be done on email or around the water cooler.FANtasy Football is an enormous success. You and your friends are in the middle of negotiations with Yahoo! to make it the exclusive FANtasy Football League network, when you receive a threatening letter from the NFL. They claim that you are “stealing” results and statistics from NFL games, unfairly enriching yourself from an activity that the league stages at the cost of millions of dollars. They say they are investigating their legal options and, if current law provides them no recourse, that they will ask Congress to pass a law prohibiting unlicensed fantasy sports leagues. (Later we will discuss the specific legal claims that might actually be made against you under current law.) As this drama is playing out, you discover that other groups of fans have adapted the FANtasy Football idea to baseball and basketball and that those leagues are also hugely popular.**i.) Your mission now is to lay out the ethical, utilitarian or economic arguments that you might make in support of your position that what you are doing should not be something the NFL can control or limit—whether they seek to prohibit you, or merely demand that you pay for a license. What might the NFL say in support of its position or its proposed law?****ii.) Should you be able to stop the “copycat” fantasy leagues in baseball and basketball? To demand royalties from them? Why? Are these arguments consistent with those you made in answer to question i.)?** |

John Locke, Of Property

Two Treatises on Government

§ 26. Though the earth and all inferior creatures be common to all men, yet every man has a “property” in his own “person.” This nobody has any right to but himself. The “labour” of his body and the “work” of his hands, we may say, are properly his. Whatsoever, then, he removes out of the state that Nature hath provided and left it in, he hath mixed his labour with it, and joined to it something that is his own, and thereby makes it his property. It being by him removed from the common state Nature placed it in, it hath by this labour something annexed to it that excludes the common right of other men. For this “labour” being the unquestionable property of the labourer, no man but he can have a right to what that is once joined to, at least where there is enough, and as good left in common for others.

§ 27. He that is nourished by the acorns he picked up under an oak, or the apples he gathered from the trees in the wood, has certainly appropriated them to himself. Nobody can deny but the nourishment is his. I ask, then, when did they begin to be his? when he digested? or when he ate? or when he boiled? or when he brought them home? or when he picked them up? And it is plain, if the first gathering made them not his, nothing else could. That labour put a distinction between them and common. That added something to them more than Nature, the common mother of all, had done, and so they became his private right. And will any one say he had no right to those acorns or apples he thus appropriated because he had not the consent of all mankind to make them his? Was it a robbery thus to assume to himself what belonged to all in common? If such a consent as that was necessary, man had starved, notwithstanding the plenty God had given him. We see in commons, which remain so by compact, that it is the taking any part of what is common, and removing it out of the state Nature leaves it in, which begins the property, without which the common is of no use. And the taking of this or that part does not depend on the express consent of all the commoners. Thus, the grass my horse has bit, the turfs my servant has cut, and the ore I have digged in any place, where I have a right to them in common with others, become my property without the assignation or consent of anybody. The labour that was mine, removing them out of that common state they were in, hath fixed my property in them. . . .

§ 29. Thus this law of reason makes the deer that Indian’s who hath killed it; it is allowed to be his goods who hath bestowed his labour upon it, though, before, it was the common right of every one. And amongst those who are counted the civilised part of mankind, who have made and multiplied positive laws to determine property, this original law of Nature for the beginning of property, in what was before common, still takes place, and by virtue thereof, what fish any one catches in the ocean, that great and still remaining common of mankind; or what amber-gris any one takes up here is by the labour that removes it out of that common state Nature left it in, made his property who takes that pains about it. And even amongst us, the hare that any one is hunting is thought his who pursues her during the chase. For being a beast that is still looked upon as common, and no man’s private possession, whoever has employed so much labour about any of that kind as to find and pursue her has thereby removed her from the state of Nature wherein she was common, and hath begun a property.

§ 30. It will, perhaps, be objected to this, that if gathering the acorns or other fruits of the earth, etc., makes a right to them, then any one may engross as much as he will. To which I answer, Not so. The same law of Nature that does by this means give us property, does also bound that property too. “God has given us all things richly.” Is the voice of reason confirmed by inspiration? But how far has He given it us “to enjoy”? As much as any one can make use of to any advantage of life before it spoils, so much he may by his labour fix a property in. Whatever is beyond this is more than his share, and belongs to others. Nothing was made by God for man to spoil or destroy. And thus considering the plenty of natural provisions there was a long time in the world, and the few spenders, and to how small a part of that provision the industry of one man could extend itself and engross it to the prejudice of others, especially keeping within the bounds set by reason of what might serve for his use, there could be then little room for quarrels or contentions about property so established.

§ 31. But the chief matter of property being now not the fruits of the earth and the beasts that subsist on it, but the earth itself, as that which takes in and carries with it all the rest, I think it is plain that property in that too is acquired as the former. As much land as a man tills, plants, improves, cultivates, and can use the product of, so much is his property. He by his labour does, as it were, enclose it from the common. Nor will it invalidate his right to say everybody else has an equal title to it, and therefore he cannot appropriate, he cannot enclose, without the consent of all his fellow-commoners, all mankind. God, when He gave the world in common to all mankind, commanded man also to labour, and the penury of his condition required it of him. God and his reason commanded him to subdue the earth—i.e., improve it for the benefit of life and therein lay out something upon it that was his own, his labour. He that, in obedience to this command of God, subdued, tilled, and sowed any part of it, thereby annexed to it something that was his property, which another had no title to, nor could without injury take from him.

§ 32. Nor was this appropriation of any parcel of land, by improving it, any prejudice to any other man, since there was still enough and as good left, and more than the yet unprovided could use. So that, in effect, there was never the less left for others because of his enclosure for himself. For he that leaves as much as another can make use of does as good as take nothing at all. Nobody could think himself injured by the drinking of another man, though he took a good draught, who had a whole river of the same water left him to quench his thirst. And the case of land and water, where there is enough of both, is perfectly the same.

§ 33. God gave the world to men in common, but since He gave it them for their benefit and the greatest conveniencies of life they were capable to draw from it, it cannot be supposed He meant it should always remain common and uncultivated. He gave it to the use of the industrious and rational (and labour was to be his title to it); not to the fancy or covetousness of the quarrelsome and contentious. He that had as good left for his improvement as was already taken up needed not complain, ought not to meddle with what was already improved by another’s labour; if he did it is plain he desired the benefit of another’s pains, which he had no right to, and not the ground which God had given him, in common with others, to labour on, and whereof there was as good left as that already possessed, and more than he knew what to do with, or his industry could reach to.

§ 34. It is true, in land that is common in England or any other country, where there are plenty of people under government who have money and commerce, no one can enclose or appropriate any part without the consent of all his fellow commoners; because this is left common by compact—i.e., by the law of the land, which is not to be violated. And, though it be common in respect of some men, it is not so to all mankind, but is the joint propriety of this country, or this parish. Besides, the remainder, after such enclosure, would not be as good to the rest of the commoners as the whole was, when they could all make use of the whole; whereas in the beginning and first peopling of the great common of the world it was quite otherwise. The law man was under was rather for appropriating. God commanded, and his wants forced him to labour. That was his property, which could not be taken from him wherever he had fixed it. And hence subduing or cultivating the earth and having dominion, we see, are joined together. The one gave title to the other. So that God, by commanding to subdue, gave authority so far to appropriate. And the condition of human life, which requires labour and materials to work on, necessarily introduce private possessions.

Questions:

1.) Which side in Problem 1-2 can appeal to Locke’s arguments? The NFL? The FANtasy Football Players? Both? Find the passage that supports your answers.

2.) Should Locke’s argument apply to information goods? Why? Why not?

3.) Locke talks about a realm that is “left common by compact.” What does this consist of in the realm of information? Would Locke imagine that private property needs to be introduced to the “great common” of the information world, just as it was to the wilderness?

James Boyle, Why Intellectual Property?

Please read [The Public Domain](http://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=5385&context=faculty_scholarship) pp 1–16

Imagine yourself starting a society from scratch. Perhaps you fought a revolution, or perhaps you led a party of adventurers into some empty land, conveniently free of indigenous peoples. Now your task is to make the society work. You have a preference for democracy and liberty and you want a vibrant culture: a culture with a little chunk of everything, one that offers hundreds of ways to live and thousands of ideals of beauty. You don’t want everything to be high culture; you want beer and skittles and trashy delights as well as brilliant news reporting, avant-garde theater, and shocking sculpture. You can see a role for highbrow, state-supported media or publicly financed artworks, but your initial working assumption is that the final arbiter of culture should be the people who watch, read, and listen to it, and who remake it every day. And even if you are dubious about the way popular choice gets formed, you prefer it to some government funding body or coterie of art mavens.

At the same time as you are developing your culture, you want a flourishing economy—and not just in literature or film. You want innovation and invention. You want drugs that cure terrible diseases, and designs for more fuel-efficient stoves, and useful little doodads, like mousetraps, or Post-it notes, or solar-powered backscratchers. To be exact, you want lots of innovation but you do not know exactly what innovation or even what types of innovation you want. . . . [*Read the rest*](http://boyle.yupnet.org/chapter-1-intellectual-property/)[[1]](#footnote-1)

Note:

1.) The Locke and Boyle excerpts present perhaps the central question of intellectual property policy: the balance between the incentives provided by exclusive property rights and the preser­va­tion of the commons, the raw material for future creativity and competition.

[[2]](#footnote-2)\*



Selling Wine Without Bottles

The Economy of Mind on the Global Net

John Perry Barlow, 1992

“If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of everyone, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me. That ideas should freely spread from one to another over the globe, for the moral and mutual instruction of man, and improvement of his condition, seems to have been peculiarly and benevolently designed by nature, when she made them, like fire, expansible over all space, without lessening their density at any point, and like the air in which we breathe, move, and have our physical being, incapable of confinement or exclusive appropriation. Inventions then cannot, in nature, be a subject of property. . . .”

—Thomas Jefferson

Throughout the time I’ve been groping around Cyberspace, there has remained unsolved an immense conundrum which seems to be at the root of nearly every legal, ethical, governmental, and social vexation to be found in the Virtual World. I refer to the problem of digitized property. The riddle is this: if our property can be infinitely reproduced and instantaneously distributed all over the planet without cost, without our knowledge, without its even leaving our possession, how can we protect it? How are we going to get paid for the work we do with our minds? And, if we can’t get paid, what will assure the continued creation and distribution of such work?

Since we don’t have a solution to what is a profoundly new kind of challenge, and are apparently unable to delay the galloping digitization of everything not obstinately physical, we are sailing into the future on a sinking ship. This vessel, the accumulated canon of copyright and patent law, was developed to convey forms and methods of expression entirely different from the vaporous cargo it is now being asked to carry. It is leaking as much from within as without.

Legal efforts to keep the old boat floating are taking three forms: a frenzy of deck chair rearrangement, stern warnings to the passengers that if she goes down, they will face harsh criminal penalties, and serene, glassy-eyed denial.

Intellectual property law cannot be patched, retrofitted, or expanded to contain the gasses of digitized expression any more than real estate law might be revised to cover the allocation of broadcasting spectrum. (Which, in fact, rather resembles what is being attempted here.) We will need to develop an entirely new set of methods as befits this entirely new set of circumstances.

Most of the people who actually create soft property—the programmers, hackers, and Net surfers—already know this. Unfortunately, neither the companies they work for nor the lawyers these companies hire have enough direct experience with immaterial goods to understand why they are so problematic. They are proceeding as though the old laws can somehow be made to work, either by grotesque expansion or by force. They are wrong.

The source of this conundrum is as simple as its solution is complex. Digital technology is detaching information from the physical plane, where property law of all sorts has always found definition.

Throughout the history of copyrights and patents, the proprietary assertions of thinkers have been focused not on their ideas but on the expression of those ideas. The ideas them­selves, as well as facts about the phenomena of the world, were considered to be the col­lective property of humanity. One could claim franchise, in the case of copyright, on the pre­cise turn of phrase used to convey a particular idea or the order in which facts were presented.

The point at which this franchise was imposed was that moment when the “word became flesh” by departing the mind of its originator and entering some physical object, whether book or widget. The subsequent arrival of other commercial media besides books didn’t alter the legal importance of this moment. Law protected expression and, with few (and recent) exceptions, to express was to make physical.

Protecting physical expression had the force of convenience on its side. Copyright worked well because, Gutenberg notwithstanding, it was hard to make a book. Furthermore, books froze their contents into a condition which was as challenging to alter as it was to reproduce. Counterfeiting or distributing counterfeit volumes were obvious and visible activities, easy enough to catch somebody in the act of doing. Finally, unlike unbounded words or images, books had material surfaces to which one could attach copyright notices, publisher’s marques, and price tags.

Mental to physical conversion was even more central to patent. A patent, until recently, was either a description of the form into which materials were to be rendered in the serv­ice of some purpose or a description of the process by which rendition occurred. In either case, the conceptual heart of patent was the material result. If no purposeful object could be rendered due to some material limitation, the patent was rejected. Neither a Klein bottle nor a shovel made of silk could be patented. It had to be a thing and the thing had to work.

Thus the rights of invention and authorship adhered to activities in the physical world. One didn’t get paid for ideas but for the ability to deliver them into reality. For all practical purposes, the value was in the conveyance and not the thought conveyed.

In other words, the bottle was protected, not the wine.

Now, as information enters Cyberspace, the native home of Mind, these bottles are vanishing. With the advent of digitization, it is now possible to replace all previous information storage forms with one meta-bottle: complex—and highly liquid—patterns of ones and zeros.

Even the physical/digital bottles to which we’ve become accustomed, floppy disks, CD-ROM’s, and other discrete, shrink-wrappable bit-packages, will disappear as all computers jack in to the global Net. While the Internet may never include every single CPU on the planet, it is more than doubling every year and can be expected to become the principal medium of information conveyance if [not], eventually, the only one.

Once that has happened, all the goods of the Information Age—all of the expressions once contained in books or film strips or records or newsletters—will exist either as pure thought or something very much like thought: voltage conditions darting around the Net at the speed of light, in conditions which one might behold in effect, as glowing pixels or transmitted sounds, but never touch or claim to “own” in the old sense of the word.

Some might argue that information will still require some physical manifestation, such as its magnetic existence on the titanic hard disks of distant servers, but these are bottles which have no macroscopically discrete or personally meaningful form.

Some will also argue that we have been dealing with unbottled expression since the advent of radio, and they would be right. But for most of the history of broadcast, there was no convenient way to capture soft goods from the electromagnetic ether and reproduce them in anything like the quality available in commercial packages. Only recently has this changed and little has been done legally or technically to address the change.

Generally, the issue of consumer payment for broadcast products was irrelevant. The consumers themselves were the product. Broadcast media were supported either by selling the attention of their audience to advertisers, using government to assess payment through taxes, or the whining mendicancy of annual donor drives.

All of the broadcast support models are flawed. Support either by advertisers or government has almost invariably tainted the purity of the goods delivered. Besides, direct marketing is gradually killing the advertiser support model anyway.

Broadcast media gave us another payment method for a virtual product in the royalties which broadcasters pay songwriters through such organizations as ASCAP and BMI. But, as a member of ASCAP, I can assure you this is not a model which we should emulate. The monitoring methods are wildly approximate. There is no parallel system of accounting in the revenue stream. It doesn’t really work. Honest.

In any case, without our old methods of physically defining the expression of ideas, and in the absence of successful new models for non-physical transaction, we simply don’t know how to assure reliable payment for mental works. To make matters worse, this comes at a time when the human mind is replacing sunlight and mineral deposits as the principal source of new wealth.

Furthermore, the increasing difficulty of enforcing existing copyright and patent laws is already placing in peril the ultimate source of intellectual property, the free exchange of ideas.

That is, when the primary articles of commerce in a society look so much like speech as to be indistinguishable from it, and when the traditional methods of protecting their ownership have become ineffectual, attempting to fix the problem with broader and more vigorous enforcement will inevitably threaten freedom of speech.

The greatest constraint on your future liberties may come not from government but from corporate legal departments laboring to protect by force what can no longer be protected by practical efficiency or general social consent.

Furthermore, when Jefferson and his fellow creatures of The Enlightenment designed the system which became American copyright law, their primary objective was assuring the widespread distribution of thought, not profit. Profit was the fuel which would carry ideas into the libraries and minds of their new republic. Libraries would purchase books, thus rewarding the authors for their work in assembling ideas, which otherwise “incapable of confinement” would then become freely available to the public. But what is the role of libraries in the absence of books? How does society now pay for the distribution of ideas if not by charging for the ideas themselves?

Additionally complicating the matter is the fact that along with the physical bottles in which intellectual property protection has resided, digital technology is also erasing the legal jurisdictions of the physical world, and replacing them with the unbounded and perhaps permanently lawless seas of Cyberspace.

In Cyberspace, there are not only no national or local boundaries to contain the scene of a crime and determine the method of its prosecution, there are no clear cultural agreements on what a crime might be. Unresolved and basic differences between European and Asian cultural assumptions about intellectual property can only be exacerbated in a region where many transactions are taking place in both hemispheres and yet, somehow, in neither.

Notions of property, value, ownership, and the nature of wealth itself are changing more fundamentally than at any time since the Sumerians first poked cuneiform into wet clay and called it stored grain. Only a very few people are aware of the enormity of this shift and fewer of them are lawyers or public officials.

Those who do see these changes must prepare responses for the legal and social confusion which will erupt as efforts to protect new forms of property with old methods become more obviously futile, and, as a consequence, more adamant.

From Swords to Writs to Bits

Humanity now seems bent on creating a world economy primarily based on goods which take no material form. In doing so, we may be eliminating any predictable connection between creators and a fair reward for the utility or pleasure others may find in their works.

Without that connection, and without a fundamental change in consciousness to accommodate its loss, we are building our future on furor, litigation, and institutionalized evasion of payment except in response to raw force. We may return to the Bad Old Days of property.

Throughout the darker parts of human history, the possession and distribution of property was a largely military matter. “Ownership” was assured those with the nastiest tools, whether fists or armies, and the most resolute will to use them. Property was the divine right of thugs. By the turn of the First Millennium A.D., the emergence of merchant classes and landed gentry forced the development of ethical understandings for the resolution of property disputes. In the late Middle Ages, enlightened rulers like England’s Henry II began to codify this unwritten “common law” into recorded canons. These laws were local, but this didn’t matter much as they were primarily directed at real estate, a form of property which is local by definition. And which, as the name implied, was very real.

This continued to be the case as long as the origin of wealth was agricultural, but with dawning of the Industrial Revolution, humanity began to focus as much on means as ends. Tools acquired a new social value and, thanks to their own development, it became possible to duplicate and distribute them in quantity.

To encourage their invention, copyright and patent law were developed in most western countries. These laws were devoted to the delicate task of getting mental creations into the world where they could be used—and enter the minds of others—while assuring their inventors compensation for the value of their use. And, as previously stated, the systems of both law and practice which grew up around that task were based on physical expression.

Since it is now possible to convey ideas from one mind to another without ever making them physical, we are now claiming to own ideas themselves and not merely their expression. And since it is likewise now possible to create useful tools which never take physical form, we have taken to patenting abstractions, sequences of virtual events, and mathematical formulae—the most un-real estate imaginable.

In certain areas, this leaves rights of ownership in such an ambiguous condition that once again property adheres to those who can muster the largest armies. The only difference is that this time the armies consist of lawyers.

Threatening their opponents with the endless Purgatory of litigation, over which some might prefer death itself, they assert claim to any thought which might have entered another cranium within the collective body of the corporations they serve. They act as though these ideas appeared in splendid detachment from all previous human thought. And they pretend that thinking about a product is somehow as good as manufacturing, dis­tributing, and selling it.

What was previously considered a common human resource, distributed among the minds and libraries of the world, as well as the phenomena of nature herself, is now being fenced and deeded. It is as though a new class of enterprise had arisen which claimed to own air and water.

What is to be done? While there is a certain grim fun to be had in it, dancing on the grave of copyright and patent will solve little, especially when so few are willing to admit that the occupant of this grave is even deceased and are trying to up by force what can no longer be upheld by popular consent.

In a more perfect world, we’d be wise to declare a moratorium on litigation, legislation, and international treaties in this area until we had a clearer sense of the terms and conditions of enterprise in Cyberspace. Ideally, laws ratify already developed social consensus. They are less the Social Contract itself than a series of memoranda expressing a collective intent which has emerged out of many millions of human interactions.

Humans have not inhabited Cyberspace long enough or in sufficient diversity to have developed a Social Contract which conforms to the strange new conditions of that world. Laws developed prior to consensus usually serve the already established few who can get them passed and not society as a whole.

To the extent that either law or established social practice exists in this area, they are already in dangerous disagreement. The laws regarding unlicensed reproduction of commercial software are clear and stern . . . and rarely observed. Software piracy laws are so practically unenforceable and breaking them has become so socially acceptable that only a thin minority appears compelled, either by fear or conscience, to obey them.

I sometimes give speeches on this subject, and I always ask how many people in the audience can honestly claim to have no unauthorized software on their hard disks. I’ve never seen more than ten percent of the hands go up.

Whenever there is such profound divergence between the law and social practice, it is not society that adapts. And, against the swift tide of custom, the Software Publishers’ current practice of hanging a few visible scapegoats is so obviously capricious as to only further diminish respect for the law.

Part of the widespread popular disregard for commercial software copyrights stems from a legislative failure to understand the conditions into which it was inserted. To assume that systems of law based in the physical world will serve in an environment which is as fundamentally different as Cyberspace is a folly for which everyone doing business in the future will pay.

As I will discuss in the next segment, unbounded intellectual property is very different from physical property and can no longer be protected as though these differences did not exist. For example, if we continue to assume that value is based on scarcity, as it is with regard to physical objects, we will create laws which are precisely contrary to the nature of information, which may, in many cases, increase in value with distribution.

The large, legally risk-averse institutions most likely to play by the old rules will suffer for their compliance. The more lawyers, guns, and money they invest in either protecting their rights or subverting those of their opponents, the more commercial competition will resemble the Kwakiutl Potlatch Ceremony, in which adversaries competed by destroying their own possessions. Their ability to produce new technology will simply grind to a halt as every move they make drives them deeper into a tar pit of courtroom warfare.

Faith in law will not be an effective strategy for high tech companies. Law adapts by continuous increments and at a pace second only to geology in its stateliness. Technology advances in the lunging jerks, like the punctuation of biological evolution grotesquely accelerated. Real world conditions will continue to change at a blinding pace, and the law will get further behind, more profoundly confused. This mismatch is permanent.

Promising economies based on purely digital products will either be born in a state of paralysis, as appears to be the case with multimedia, or continue in a brave and willful refusal by their owners to play the ownership game at all.

In the United States one can already see a parallel economy developing, mostly among small fast moving enterprises who protect their ideas by getting into the marketplace quicker than their larger competitors who base their protection on fear and litigation.

Perhaps those who are part of the problem will simply quarantine themselves in court while those who are part of the solution will create a new society based, at first, on piracy and freebooting. It may well be that when the current system of intellectual property law has collapsed, as seems inevitable, that no new legal structure will arise in its place.

But something will happen. After all, people do business. When a currency becomes meaningless, business is done in barter. When societies develop outside the law, they develop their own unwritten codes, practices, and ethical systems. While technology may undo law, technology offers methods for restoring creative rights.

A Taxonomy of Information

It seems to me that the most productive thing to do now is to look hard into the true nature of what we’re trying to protect. How much do we really know about information and its natural behaviors?

What are the essential characteristics of unbounded creation? How does it differ from previous forms of property? How many of our assumptions about it have actually been about its containers rather than their mysterious contents? What are its different species and how does each of them lend itself to control? What technologies will be useful in creating new virtual bottles to replace the old physical ones?

Of course, information is, by its nature, intangible and hard to define. Like other such deep phenomena as light or matter, it is a natural host to paradox. And as it is most helpful to understand light as being both a particle and a wave, an understanding of information may emerge in the abstract congruence of its several different properties which might be described by the following three statements:

* Information is an activity.
* Information is a life form.
* Information is a relationship.

In the following section, I will examine each of these.

I. INFORMATION IS AN ACTIVITY

Information Is a Verb, Not a Noun.

Freed of its containers, information is obviously not a thing. In fact, it is something which happens in the field of interaction between minds or objects or other pieces of information. . . .

The central economic distinction between information and physical property is the ability of information to be transferred without leaving the possession of the original owner. If I sell you my horse, I can’t ride him after that. If I sell you what I know, we both know it.

II. INFORMATION IS A LIFE FORM

Information Wants To Be Free.

Stewart Brand is generally credited with this elegant statement of the obvious, recognizing both the natural desire of secrets to be told and the fact that they might be capable of possessing something like a “desire” in the first place.

English Biologist and Philosopher Richard Dawkins proposed the idea of “memes,” self-replicating, patterns of information which propagate themselves across the ecologies of mind, saying they were like life forms.

I believe they are life forms in every respect but a basis in the carbon atom. They self-reproduce, they interact with their surroundings and adapt to them, they mutate, they persist. Like any other life form they evolve to fill the possibility spaces of their local environments, which are, in this case the surrounding belief systems and cultures of their hosts, namely, us. . . .

Like DNA helices, ideas are relentless expansionists, always seeking new opportunities for lebensraum. And, as in carbon-based nature, the more robust organisms are extremely adept at finding new places to live. Thus, just as the common housefly has insinuated itself into practically every ecosystem on the planet, so has the meme of “life after death” found a niche in most minds, or psycho-ecologies.

The more universally resonant an idea or image or song, the more minds it will enter and remain within. Trying to stop the spread of a really robust piece of information is about as easy as keeping killer bees South of the Border. The stuff just leaks.

Information Wants To Change

If ideas and other interactive patterns of information are indeed life forms, they can be expected to evolve constantly into forms which will be more perfectly adapted to their surroundings. And, as we see, they are doing this all the time.

But for a long time, our static media, whether carvings in stone, ink on paper, or dye on celluloid, have strongly resisted the evolutionary impulse, exalting as a consequence the author’s ability to determine the finished product. But, as in an oral tradition, digitized information has no “final cut.”

Digital information, unconstrained by packaging, is a continuing process more like the metamorphosing tales of prehistory than anything which will fit in shrink wrap. From the Neolithic to Gutenberg, information was passed on, mouth to ear, changing with every re-telling (or re-singing). The stories which once shaped our sense of the world didn’t have authoritative versions. They adapted to each culture in which they found themselves being told.

Because there was never a moment when the story was frozen in print, the so-called “moral” right of storytellers to keep the tale their own was neither protected nor recognized. The story simply passed through each of them on its way to the next, where it would assume a different form. As we return to continuous information, we can expect the importance of authorship to diminish. Creative people may have to renew their acquaintance with humility.

But our system of copyright makes no accommodation whatever for expressions which don’t at some point become “fixed” nor for cultural expressions which lack a specific author or inventor.

Jazz improvisations, standup comedy routines, mime performances, developing monologues, and unrecorded broadcast transmissions all lack the Constitutional requirement of fixation as a “writing.” Without being fixed by a point of publication the liquid works of the future will all look more like these continuously adapting and changing forms and will therefore exist beyond the reach of copyright.

Copyright expert Pamela Samuelson tells of having attended a conference last year convened around the fact that Western countries may legally appropriate the music, designs, and biomedical lore of aboriginal people without compensation to their tribe of origin since that tribe is not an “author” or “inventor.”

But soon most information will be generated collaboratively by the cyber-tribal hunter-gatherers of Cyberspace. Our arrogant legal dismissal of the rights of “primitives” will be back to haunt us soon.

Information Is Perishable

With the exception of the rare classic, most information is like farm produce. Its quality degrades rapidly both over time and in distance from the source of production. But even here, value is highly subjective and conditional. Yesterday’s papers are quite valuable to the historian. In fact, the older they are, the more valuable they become. On the other hand, a commodities broker might consider news of an event which is more than an hour old to have lost any relevance.

III. INFORMATION IS A RELATIONSHIP

Meaning Has Value and Is Unique to Each Case

In most cases, we assign value to information based on its meaningfulness. The place where information dwells, the holy moment where transmission becomes reception, is a region which has many shifting characteristics and flavors depending on the relationship of sender and receiver, the depth of their interactivity.

Each such relationship is unique. Even in cases where the sender is a broadcast medium, and no response is returned, the receiver is hardly passive. Receiving information is often as creative an act as generating it. . . .

Familiarity Has More Value than Scarcity

With physical goods, there is a direct correlation between scarcity and value. Gold is more valuable than wheat, even though you can’t eat it. While this is not always the case, the situation with information is usually precisely the reverse. Most soft goods increase in value as they become more common. Familiarity is an important asset in the world of information. It may often be the case that the best thing you can do to raise the demand for your product is to give it away.

While this has not always worked with shareware, it could be argued that there is a connection between the extent to which commercial software is pirated and the amount which gets sold. Broadly pirated software, such as Lotus 1-2-3 or WordPerfect, becomes a standard and benefits from Law of Increasing Returns based on familiarity.

In regard to my own soft product, rock and roll songs, there is no question that the band I write them for, the Grateful Dead, has increased its popularity enormously by giving them away. We have been letting people tape our concerts since the early seventies, but instead of reducing the demand for our product, we are now the largest concert draw in America, a fact which is at least in part attributable to the popularity generated by those tapes.

True, I don’t get any royalties on the millions of copies of my songs which have been extracted from concerts, but I see no reason to complain. The fact is, no one but the Grateful Dead can perform a Grateful Dead song, so if you want the experience and not its thin projection, you have to buy a ticket from us. In other words, our intellectual property protection derives from our being the only real-time source of it.

Exclusivity Has Value

The problem with a model which turns the physical scarcity/value ratio on its head is that sometimes the value of information is very much based on its scarcity. Exclusive possession of certain facts makes them more useful. If everyone knows about conditions which might drive a stock price up, the information is valueless.

But again, the critical factor is usually time. It doesn’t matter if this kind of information eventually becomes ubiquitous. What matters is being among the first who possess it and act on it. While potent secrets usually don’t stay secret, they may remain so long enough to advance the cause of their original holders.

Point of View and Authority Have Value

In a world of floating realities and contradictory maps, rewards will accrue to those commentators whose maps seem to fit their territory snugly, based on their ability to yield predictable results for those who use them.

In aesthetic information, whether poetry or rock ’n’ roll, people are willing to buy the new product of an artist, sight-unseen, based on their having been delivered a pleasurable experience by previous work.

Reality is an edit. People are willing to pay for the authority of those editors whose filtering point of view seems to fit best. And again, point of view is an asset which cannot be stolen or duplicated. No one but Esther Dyson sees the world as she does and the handsome fee she charges for her newsletter is actually for the privilege of looking at the world through her unique eyes.

Time Replaces Space

In the physical world, value depends heavily on possession, or proximity in space. One owns that material which falls inside certain dimensional boundaries and the ability to act directly, exclusively, and as one wishes upon what falls inside those boundaries is the principal right of ownership. And of course there is the relationship between value and scarcity, a limitation in space.

In the virtual world, proximity in time is a value determinant. An informational product is generally more valuable the closer the purchaser can place himself to the moment of its expression, a limitation in time. Many kinds of information degrade rapidly with either time or reproduction. Relevance fades as the territory they map changes. Noise is introduced and bandwidth lost with passage away from the point where the information is first produced.

Thus, listening to a Grateful Dead tape is hardly the same experience as attending a Grateful Dead concert. The closer one can get to the headwaters of an informational stream, the better his chances of finding an accurate picture of reality in it. In an era of easy reproduction, the informational abstractions of popular experiences will propagate out from their source moments to reach anyone who’s interested. But it’s easy enough to restrict the real experience of the desirable event, whether knock-out punch or guitar lick, to those willing to pay for being there.

The Protection of Execution

In the hick town I come from, they don’t give you much credit for just having ideas. You are judged by what you can make of them. As things continue to speed up, I think we see that execution is the best protection for those designs which become physical products. Or, as Steve Jobs once put it, “Real artists ship.” The big winner is usually the one who gets to the market first (and with enough organizational force to keep the lead).

Information as Its Own Reward

It is now a commonplace to say that money is information. With the exception of Krugerands, crumpled cab-fare, and the contents of those suitcases which drug lords are reputed to carry, most of the money in the informatized world is in ones and zeros. The global money supply sloshes around the Net, as fluid as weather. It is also obvious, as I have discussed, that information has become as fundamental to the creation of modern wealth as land and sunlight once were.

What is less obvious is the extent to which information is acquiring intrinsic value, not as a means to acquisition but as the object to be acquired. I suppose this has always been less explicitly the case. In politics and academia, potency and information have always been closely related.

However, as we increasingly buy information with money, we begin to see that buying information with other information is simple economic exchange without the necessity of converting the product into and out of currency. This is somewhat challenging for those who like clean accounting, since, information theory aside, informational exchange rates are too squishy to quantify to the decimal point.

Nevertheless, most of what a middle class American purchases has little to do with survival. We buy beauty, prestige, experience, education, and all the obscure pleasures of owning. Many of these things can not only be expressed in non-material terms, they can be acquired by non-material means.

And then there are the inexplicable pleasures of information itself, the joys of learning, knowing, and teaching. The strange good feeling of information coming into and out of oneself. Playing with ideas is a recreation which people must be willing to pay a lot for, given the market for books and elective seminars. We’d likely spend even more money for such pleasures if there weren’t so many opportunities to pay for ideas with other ideas.

This explains much of the collective “volunteer” work which fills the archives, newsgroups, and databases of the Internet. Its denizens are not working for “nothing,” as is widely believed. Rather they are getting paid in something besides money. It is an economy which consists almost entirely of information.

This may become the dominant form of human trade, and if we persist in modeling economics on a strictly monetary basis, we may be gravely misled.

Getting Paid in Cyberspace

How all the foregoing relates to solutions to the crisis in intellectual property is something I’ve barely started to wrap my mind around. It’s fairly paradigm-warping to look at information through fresh eyes—to see how very little it is like pig iron or pork bellies, to imagine the tottering travesties of case law we will stack up if we go on treating it legally as though it were.

As I’ve said, I believe these towers of outmoded boilerplate will be a smoking heap sometime in the next decade and we mind miners will have no choice but to cast our lot with new systems that work.

I’m not really so gloomy about our prospects as readers of this jeremiad so far might conclude. Solutions will emerge. Nature abhors a vacuum and so does commerce.

Indeed, one of the aspects of the electronic frontier which I have always found most appealing—and the reason Mitch Kapor and I used that phrase in naming our foundation—is the degree to which it resembles the 19th Century American West in its natural preference for social devices which emerge from it conditions rather than those which are imposed from the outside.

Until the west was fully settled and “civilized” in this century, order was established according to an unwritten Code of the West which had the fluidity of etiquette rather than the rigidity of law. Ethics were more important than rules. Understandings were preferred over laws, which were, in any event, largely unenforceable.

I believe that law, as we understand it, was developed to protect the interests which arose in the two economic “waves” which Alvin Toffler accurately identified in The Third Wave. The First Wave was agriculturally based and required law to order ownership of the principal source of production, land. In the Second Wave, manufacturing became the economic mainspring, and the structure of modern law grew around the centralized institutions which needed protection for their reserves of capital, manpower, and hardware.

Both of these economic systems required stability. Their laws were designed to resist change and to assure some equability of distribution within a fairly static social framework. The possibility spaces had to be constrained to preserve the predictability necessary to either land stewardship or capital formation.

In the Third Wave we have now entered, information to a large extent replaces land, capital, and hardware, and as I have detailed in the preceding section, information is most at home in a much more fluid and adaptable environment. The Third Wave is likely to bring a fundamental shift in the purposes and methods of law which will affect far more than simply those statutes which govern intellectual property.

The “terrain” itself—the architecture of the Net—may come to serve many of the purposes which could only be maintained in the past by legal imposition. For example, it may be unnecessary to constitutionally assure freedom of expression in an environment which, in the words of my fellow EFF co-founder John Gilmore, “treats censorship as a malfunction” and re-routes proscribed ideas around it.

And, despite their fierce grip on the old legal structure, companies which trade in information are likely to find that in their increasing inability to deal sensibly with technological issues, the courts will not produce results which are predictable enough to be supportive of long-term enterprise. Every litigation becomes like a game of Russian roulette, depending on the depth the presiding judge’s clue-impairment.

Uncodified or adaptive “law,” while as “fast, loose, and out of control” as other emergent forms, is probably more likely to yield something like justice at this point. In fact, one can already see in development new practices to suit the conditions of virtual commerce. The life forms of information are evolving methods to protect their continued reproduction.

While I believe that the failure of law will almost certainly result in a compensating re-emergence of ethics as the ordering template of society, this is a belief I don’t have room to support here.

Instead, I think that, as in the case cited above, compensation for soft products will be driven primarily by practical considerations, all of them consistent with the true properties of digital information, where the value lies in it, and how it can be both manipulated and protected by technology.

Relationship and Its Tools

I believe one idea is central to understanding liquid commerce: Information economics, in the absence of objects, will be based more on relationship than possession.

One existing model for the future conveyance of intellectual property is real time performance, a medium currently used only in theater, music, lectures, stand-up comedy and pedagogy. I believe the concept of performance will expand to include most of the information economy from multi-casted soap operas to stock analysis. In these instances, commercial exchange will be more like ticket sales to a continuous show than the purchase of discrete bundles of that which is being shown.

The other model, of course, is service. The entire professional class—doctors, lawyers, consultants, architects, etc.—are already being paid directly for their intellectual property. Who needs copyright when you’re on a retainer?

In fact, this model was applied to much of what is now copyrighted until the late 18th Century. Before the industrialization of creation, writers, composers, artists, and the like produced their products in the private service of patrons. Without objects to distribute in a mass market, creative people will return to a condition somewhat like this, except that they will serve many patrons, rather than one.

We can already see the emergence of companies which base their existence on supporting and enhancing the soft property they create rather than selling it by the shrink-wrapped piece or embedding it in widgets. . . .

Interaction and Protection

Direct interaction will provide a lot of intellectual property protection in the future, and, indeed, it already has. No one knows how many software pirates have bought legitimate copies of a program after calling its publisher for technical support and being asked for some proof of purchase, but I would guess the number is very high.

The same kind of controls will be applicable to “question and answer” relationships between authorities (or artists) and those who seek their expertise. Newsletters, magazines, and books will be supplemented by the ability of their subscribers to ask direct questions of authors.

Interactivity will be a billable commodity even in the absence of authorship. As people move into the Net and increasingly get their information directly from its point of production, unfiltered by centralized media, they will attempt to develop the same interactive ability to probe reality which only experience has provided them in the past. Live access to these distant “eyes and ears” will be much easier to cordon than access to static bundles of stored but easily reproducible information.

In most cases, control will be based on restricting access to the freshest, highest bandwidth information. It will be a matter of defining the ticket, the venue, the performer, and the identity of the ticket holder, definitions which I believe will take their forms from technology, not law.

In most cases, the defining technology will be cryptography.

Crypto Bottling

Cryptography, as I’ve said perhaps too many times, is the “material” from which the walls, boundaries—and bottles—of Cyberspace will be fashioned.

Of course there are problems with cryptography or any other purely technical method of property protection. It has always appeared to me that the more security you hide your goods behind, the more likely you are to turn your sanctuary into a target. Having come from a place where people leave their keys in their cars and don’t even have keys to their houses, I remain convinced that the best obstacle to crime is a society with its ethics intact.

While I admit that this is not the kind of society most of us live in, I also believe that a social over-reliance on protection by barricades rather than conscience will eventually wither the latter by turning intrusion and theft into a sport, rather than a crime. This is already occurring in the digital domain as is evident in the activities of computer crackers.

Furthermore, I would argue that initial efforts to protect digital copyright by copy protection contributed to the current condition in which most otherwise ethical computer users seem morally untroubled by their possession of pirated software.

Instead of cultivating among the newly computerized a sense of respect for the work of their fellows, early reliance on copy protection led to the subliminal notion that cracking into a software package somehow “earned” one the right to use it. Limited not by conscience but by technical skill, many soon felt free to do whatever they could get away with. This will continue to be a potential liability of the encryption of digitized commerce.

Furthermore, it’s cautionary to remember that copy protection was rejected by the market in most areas. Many of the upcoming efforts to use cryptography-based protection schemes will probably suffer the same fate. People are not going to tolerate much which makes computers harder to use than they already are without any benefit to the user.

Nevertheless, encryption has already demonstrated a certain blunt utility. New subscriptions to various commercial satellite TV services sky-rocketed recently after their deployment of more robust encryption of their feeds. This, despite a booming backwoods trade in black decoder chips conducted by folks who’d look more at home running moonshine than cracking code.

Even in cases such as images, where the information is expected to remain fixed, the unencrypted file could still be interwoven with code which could continue to protect it by a wide variety of means.

In most of the schemes I can project, the file would be “alive” with permanently embedded software which could “sense” the surrounding conditions and interact with them. For example, it might contain code which could detect the process of duplication and cause it to self-destruct. Other methods might give the file the ability to “phone home” through the Net to its original owner. The continued integrity of some files might require periodic “feeding” with digital cash from their host, which they would then relay back to their authors.

Of course files which possess the independent ability to communicate upstream sound uncomfortably like the Morris Internet Worm. “Live” files do have a certain viral quality. And serious privacy issues would arise if everyone’s computer were packed with digital spies.

The point is that cryptography will enable a lot of protection technologies which will develop rapidly in the obsessive competition which has always existed between lock-makers and lock-breakers. But cryptography will not be used simply for making locks. It is also at the heart of both digital signatures and the afore-mentioned digital cash, both of which I believe will be central to the future protection of intellectual property.

An Economy of Verbs

The future forms and protections of intellectual property are densely obscured from the entrance to the Virtual Age. Nevertheless, I can make (or reiterate) a few flat statements which I earnestly believe won’t look too silly in fifty years.

In the absence of the old containers, almost everything we think we know about intellectual property is wrong. We are going to have to unlearn it. We are going to have to look at information as though we’d never seen the stuff before.

The protections which we will develop will rely far more on ethics and technology than on law. Encryption will be the technical basis for most intellectual property protection. (And should, for this and other reasons, be made more widely available.) The economy of the future will be based on relationship rather than possession. It will be continuous rather than sequential. And finally, in the years to come, most human exchange will be virtual rather than physical, consisting not of stuff but the stuff of which dreams are made. Our future business will be conducted in a world made more of verbs than nouns.

John Perry Barlow: 1947–2018

John Perry Barlow was a friend of ours. He was also a lyricist for the Grateful Dead, wordsmith, cowboy, co-founder of the Electronic Frontier Foundation, Burning Man regular and *bon vivant* extraordinaire. We could go on. John Perry was known not just for the essay you have just read but for his extraordinary 1996 *Declaration of the Independence of Cyberspace*. This is how it begins.

Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather. We have no elected government, nor are we likely to have one, so I address you with no greater authority than that with which liberty itself always speaks.

I declare the global social space we are building to be naturally independent of the tyrannies you seek to impose on us. You have no moral right to rule us nor do you possess any methods of enforcement we have true reason to fear. Governments derive their just powers from the consent of the governed. You have neither solicited nor received ours. We did not invite you. You do not know us, nor do you know our world. Cyberspace does not lie within your borders. Do not think that you can build it, as though it were a public construction project. You cannot. It is an act of nature and it grows itself through our collective actions.

You have not engaged in our great and gathering conversation, nor did you create the wealth of our marketplaces. You do not know our culture, our ethics, or the unwritten codes that already provide our society more order than could be obtained by any of your impositions. You claim there are problems among us that you need to solve. You use this claim as an excuse to invade our precincts. Many of these problems don’t exist. Where there are real conflicts, where there are wrongs, we will identify them and address them by our means. We are forming our own Social Contract. This governance will arise according to the conditions of our world, not yours.

Our world is different. Cyberspace consists of transactions, relationships, and thought itself, arrayed like a standing wave in the web of our communications. Ours is a world that is both everywhere and nowhere, but it is not where bodies live. We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth. We are creating a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity. Your legal concepts of property, expression, identity, movement, and context do not apply to us. They are all based on matter, and there is no matter here.

Recent events—the manipulation of social media and elections, the attack on net neutrality, the invasions of privacy by spam, phishing, and big data commercialism—might lead many to see these words as hopelessly naïve. Since the future of intellectual property depends in so many ways on the future of the internet, that is a question we will discuss. But here is a contrary view from Cindy Cohn, the Executive Director of EFF.

Barlow was sometimes held up as a straw man for a kind of naïve techno-utopianism that believed that the Internet could solve all of humanity’s problems without causing any more. As someone who spent the past 27 years working with him at EFF, I can say that nothing could be further from the truth. Barlow knew that new technology could create and empower evil as much as it could create and empower good. He made a conscious decision to focus the former: “I knew it’s also true that a good way to invent the future is to predict it. So I predicted Utopia, hoping to give Liberty a running start before the laws of Moore and Metcalfe delivered up what Ed Snowden now correctly calls ‘turn-key totalitarianism.’” Barlow’s lasting legacy is that he devoted his life to making the Internet into “a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth . . . a world where anyone, anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity.”

*Requiescat in pace*, dude. The words will never be quite as elegant, the civil rights activism so good-humored, the vision of the future so all-encompassing. And the parties? The parties will definitely suffer. We are all the poorer for your loss.

Questions:

*Selling Wine Without Bottles* was written from 1992 to 1993, right at the birth of the World Wide Web. You live in the world John Perry Barlow was trying to predict.

1.) What are his essential points?

2.) What did he get right? Wrong? What struck you with the force of the new?

3.) Which of his predictions are still up for grabs? Does the Declaration of the Independence of Cyberspace still sound a chord, or is it both obsolete and hopelessly naïve?

4.) Focus on music. Judging by your own behavior and that of your peers, is he right about the efficacy or lack of efficacy of the law? About ethics? About the new business models of the music industry?

International News Service v. The Associated Press

248 U.S. 215 (1918)

Mr. Justice PITNEY delivered the opinion of the court.

The parties are competitors in the gathering and distribution of news and its publication for profit in newspapers throughout the United States. The Associated Press, which was complainant in the District Court, is a cooperative organization, incorporated under the Membership Corporations Law of the State of New York, its members being individuals who are either proprietors or representatives of about 950 daily newspapers published in all parts of the United States. Complainant gathers in all parts of the world, by means of various instrumentalities of its own, by exchange with its members, and by other appropriate means, news and intelligence of current and recent events of interest to newspaper readers and distributes it daily to its members for publication in their newspapers. The cost of the service, amounting approximately to $ 3,500,000 per annum, is assessed upon the members and becomes a part of their costs of operation, to be recouped, presumably with profit, through the publication of their several newspapers. Under complainant’s by-laws each member agrees upon assuming membership that news received through complainant’s service is received exclusively for publication in a particular newspaper, language, and place specified in the certificate of membership, that no other use of it shall be permitted, and that no member shall furnish or permit anyone in his employ or connected with his newspaper to furnish any of complainant’s news in advance of publication to any person not a member. And each member is required to gather the local news of his district and supply it to the Associated Press and to no one else.

Defendant is a corporation organized under the laws of the State of New Jersey, whose business is the gathering and selling of news to its customers and clients, consisting of newspapers published throughout the United States, under contracts by which they pay certain amounts at stated times for defendant’s service. It has wide-spread news-gathering agencies; the cost of its operations amounts, it is said, to more than $ 2,000,000 per annum; and it serves about 400 newspapers located in the various cities of the United States and abroad, a few of which are represented, also, in the membership of the Associated Press.

The parties are in the keenest competition between themselves in the distribution of news throughout the United States; and so, as a rule, are the newspapers that they serve, in their several districts.

Complainant in its bill, defendant in its answer, have set forth in almost identical terms the rather obvious circumstances and conditions under which their business is conducted. The value of the service, and of the news furnished, depends upon the promptness of transmission, as well as upon the accuracy and impartiality of the news; it being essential that the news be transmitted to members or subscribers as early or earlier than similar informa­tion can be furnished to competing newspapers by other news services, and that the news fur­nished by each agency shall not be furnished to newspapers which do not contribute to the expense of gathering it. And further, to quote from the answer: “Prompt knowledge and pub­li­cation of world-wide news is essential to the conduct of a modern newspaper, and by rea­son of the enormous expense incident to the gathering and distribution of such news, the only practical way in which a proprietor of a newspaper can obtain the same is, either through cooperation with a considerable number of other newspaper proprietors in the work of collecting and distributing such news, and the equitable division with them of the expenses thereof, or by the purchase of such news from some existing agency engaged in that business.”

The bill was filed to restrain the pirating of complainant’s news by defendant in three ways: First, by bribing employees of newspapers published by complainant’s members to furnish Associated Press news to defendant before publication, for transmission by telegraph and telephone to defendant’s clients for publication by them; Second, by inducing Associated Press members to violate its by-laws and permit defendant to obtain news before publication; and Third, by copying news from bulletin boards and from early editions of complainant’s newspapers and selling this, either bodily or after rewriting it, to defendant’s customers. . . .

The only matter that has been argued before us is whether defendant may lawfully be restrained from appropriating news taken from bulletins issued by complainant or any of its members, or from newspapers published by them, for the purpose of selling it to defendant’s clients. Complainant asserts that defendant’s admitted course of conduct in this regard both violates complainant’s property right in the news and constitutes unfair competition in business. And notwithstanding the case has proceeded only to the stage of a preliminary injunction, we have deemed it proper to consider the underlying questions, since they go to the very merits of the action and are presented upon facts that are not in dispute. As presented in argument, these questions are: 1. Whether there is any property in news; 2. Whether, if there be property in news collected for the purpose of being published, it survives the instant of its publication in the first newspaper to which it is communicated by the news-gatherer; and 3. Whether defendant’s admitted course of conduct in appropriating for commercial use matter taken from bulletins or early editions of Associated Press publications constitutes unfair competition in trade.

Complainant’s news matter is not copyrighted. It is said that it could not, in practice, be copyrighted, because of the large number of dispatches that are sent daily; and, according to complainant’s contention, news is not within the operation of the copyright act. Defendant, while apparently conceding this, nevertheless invokes the analogies of the law of literary property and copyright, insisting as its principal contention that, assuming complainant has a right of property in its news, it can be maintained (unless the copyright act be complied with) only by being kept secret and confidential, and that upon the publication with complainant’s consent of uncopyrighted news by any of complainant’s members in a newspaper or upon a bulletin board, the right of property is lost, and the subsequent use of the news by the public or by defendant for any purpose whatever becomes lawful. . . .

In considering the general question of property in news matter, it is necessary to recognize its dual character, distinguishing between the substance of the information and the particular form or collocation of words in which the writer has communicated it.

No doubt news articles often possess a literary quality, and are the subject of literary property at the common law; nor do we question that such an article, as a literary production, is the subject of copyright by the terms of the act as it now stands.

But the news element—the information respecting current events contained in the literary production—is not the creation of the writer, but is a report of matters that ordinarily are publici juris; it is the history of the day. It is not to be supposed that the framers of the Constitution, when they empowered Congress “to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries” (Const., Art I, § 8, par. 8), intended to confer upon one who might happen to be the first to report a historic event the exclusive right for any period to spread the knowledge of it.

We need spend no time, however, upon the general question of property in news matter at common law, or the application of the copyright act, since it seems to us the case must turn upon the question of unfair competition in business. And, in our opinion, this does not depend upon any general right of property analogous to the common-law right of the proprietor of an unpublished work to prevent its publication without his consent; nor is it foreclosed by showing that the benefits of the copyright act have been waived. We are dealing here not with restrictions upon publication but with the very facilities and processes of publication. The peculiar value of news is in the spreading of it while it is fresh; and it is evident that a valuable property interest in the news, as news, cannot be maintained by keeping it secret. Besides, except for matters improperly disclosed, or published in breach of trust or confidence, or in violation of law, none of which is involved in this branch of the case, the news of current events may be regarded as common property. What we are concerned with is the business of making it known to the world, in which both parties to the present suit are engaged. That business consists in maintaining a prompt, sure, steady, and reliable service designed to place the daily events of the world at the breakfast table of the millions at a price that, while of trifling moment to each reader, is sufficient in the aggregate to afford compensation for the cost of gathering and distributing it, with the added profit so necessary as an incentive to effective action in the commercial world. The service thus performed for newspaper readers is not only innocent but extremely useful in itself, and indubitably constitutes a legitimate business. The parties are competitors in this field; and, on fundamental principles, applicable here as elsewhere, when the rights or privileges of the one are liable to conflict with those of the other, each party is under a duty so to conduct its own business as not unnecessarily or unfairly to injure that of the other. *Hitchman Coal & Coke Co. v. Mitchell*.

Obviously, the question of what is unfair competition in business must be determined with particular reference to the character and circumstances of the business. The question here is not so much the rights of either party as against the public but their rights as between themselves. See *Morison v. Moat*. And although we may and do assume that neither party has any remaining property interest as against the public in uncopyrighted news matter after the moment of its first publication, it by no means follows that there is no remaining property interest in it as between themselves. For, to both of them alike, news matter, however little susceptible of ownership or dominion in the absolute sense, is stock in trade, to be gathered at the cost of enterprise, organization, skill, labor, and money, and to be distributed and sold to those who will pay money for it, as for any other merchandise. Regarding the news, therefore, as but the material out of which both parties are seeking to make profits at the same time and in the same field, we hardly can fail to recognize that for this purpose, and as between them, it must be regarded as quasi property, irrespective of the rights of either as against the public. . . .

Not only do the acquisition and transmission of news require elaborate organization and a large expenditure of money, skill, and effort; not only has it an exchange value to the gatherer, dependent chiefly upon its novelty and freshness, the regularity of the service, its reputed reliability and thoroughness, and its adaptability to the public needs; but also, as is evident, the news has an exchange value to one who can misappropriate it.

The peculiar features of the case arise from the fact that, while novelty and freshness form so important an element in the success of the business, the very processes of distribution and publication necessarily occupy a good deal of time. Complainant’s service, as well as defendant’s, is a daily service to daily newspapers; most of the foreign news reaches this country at the Atlantic seaboard, principally at the City of New York, and because of this, and of time differentials due to the earth’s rotation, the distribution of news matter throughout the country is principally from east to west; and, since in speed the telegraph and telephone easily outstrip the rotation of the earth, it is a simple matter for defendant to take complainant’s news from bulletins or early editions of complainant’s members in the eastern cities and at the mere cost of telegraphic transmission cause it to be published in western papers issued at least as early as those served by complainant. Besides this, and irrespective of time differentials, irregularities in telegraphic transmission on different lines, and the normal consumption of time in printing and distributing the newspaper, result in permitting pirated news to be placed in the hands of defendant’s readers sometimes simultaneously with the service of competing Associated Press papers, occasionally even earlier.

Defendant insists that when, with the sanction and approval of complainant, and as the result of the use of its news for the very purpose for which it is distributed, a portion of complainant’s members communicate it to the general public by posting it upon bulletin boards so that all may read, or by issuing it to newspapers and distributing it indiscriminately, complainant no longer has the right to control the use to be made of it; that when it thus reaches the light of day it becomes the common possession of all to whom it is accessible; and that any purchaser of a news-paper has the right to communicate the intelligence which it contains to anybody and for any purpose, even for the purpose of selling it for profit to newspapers published for profit in competition with complainant’s members.

The fault in the reasoning lies in applying as a test the right of the complainant as against the public, instead of considering the rights of complainant and defendant, competitors in business, as between themselves. The right of the purchaser of a single newspaper to spread knowledge of its contents gratuitously, for any legitimate purpose not unreasonably interfering with complainant’s right to make merchandise of it, may be admitted; but to transmit that news for commercial use, in competition with complainant—which is what defendant has done and seeks to justify—is a very different matter. In doing this defendant, by its very act, admits that it is taking material that has been acquired by complainant as the result of organization and the expenditure of labor, skill, and money, and which is salable by complainant for money, and that defendant in appropriating it and selling it as its own is endeavoring to reap where it has not sown, and by disposing of it to newspapers that are competitors of complainant’s members is appropriating to itself the harvest of those who have sown. Stripped of all disguises, the process amounts to an unauthorized interference with the normal operation of complainant’s legitimate business precisely at the point where the profit is to be reaped, in order to divert a material portion of the profit from those who have earned it to those who have not; with special advantage to defendant in the competition because of the fact that it is not burdened with any part of the expense of gathering the news. The transaction speaks for itself, and a court of equity ought not to hesitate long in characterizing it as unfair competition in business. . . .

It is to be observed that the view we adopt does not result in giving to complainant the right to monopolize either the gathering or the distribution of the news, or, without complying with the copyright act, to prevent the reproduction of its news articles; but only postpones participation by complainant’s competitor in the processes of distribution and reproduction of news that it has not gathered, and only to the extent necessary to prevent that competitor from reaping the fruits of complainant’s efforts and expenditure, to the partial exclusion of complainant, and in violation of the principle that underlies the maxim sic utere tuo, etc. . . .

The decree of the Circuit Court of Appeals will be

*Affirmed.*

Mr. Justice CLARKE took no part in the consideration or decision of this case.

Mr. Justice HOLMES, dissenting.

When an uncopyrighted combination of words is published there is no general right to forbid other people repeating them—in other words there is no property in the combination or in the thoughts or facts that the words express. Property, a creation of law, does not arise from value, although exchangeable—a matter of fact. Many exchangeable values may be destroyed intentionally without compensation. Property depends upon exclusion by law from interference, and a person is not excluded from using any combination of words merely because someone has used it before, even if it took labor and genius to make it. If a given person is to be prohibited from making the use of words that his neighbors are free to make some other ground must be found. One such ground is vaguely expressed in the phrase unfair trade. This means that the words are repeated by a competitor in business in such a way as to convey a misrepresentation that materially injures the person who first used them, by appropriating credit of some kind which the first user has earned. The ordinary case is a representation by device, appearance, or other indirection that the defendant’s goods come from the plaintiff. But the only reason why it is actionable to make such a representation is that it tends to give the defendant an advantage in his competition with the plaintiff and that it is thought undesirable that an advantage should be gained in that way. Apart from that the defendant may use such unpatented devices and uncopyrighted combinations of words as he likes. The ordinary case, I say, is palming off the defendant’s product as the plaintiff’s, but the same evil may follow from the opposite falsehood—from saying, whether in words or by implication, that the plaintiff’s product is the defendant’s, and that, it seems to me, is what has happened here.

Fresh news is got only by enterprise and expense. To produce such news as it is produced by the defendant represents by implication that it has been acquired by the defendant’s enterprise and at its expense. When it comes from one of the great news-collecting agencies like the Associated Press, the source generally is indicated, plainly importing that credit; and that such a representation is implied may be inferred with some confidence from the unwillingness of the defendant to give the credit and tell the truth. If the plaintiff produces the news at the same time that the defendant does, the defendant’s presentation impliedly denies to the plaintiff the credit of collecting the facts and assumes that credit to the defendant. If the plaintiff is later in western cities it naturally will be supposed to have obtained its information from the defendant. The falsehood is a little more subtle, the injury a little more indirect, than in ordinary cases of unfair trade, but I think that the principle that condemns the one condemns the other. It is a question of how strong an infusion of fraud is necessary to turn a flavor into a poison. The dose seems to me strong enough here to need a remedy from the law. But as, in my view, the only ground of complaint that can be recognized without legislation is the implied misstatement, it can be corrected by stating the truth; and a suitable acknowledgment of the source is all that the plaintiff can require. I think that within the limits recognized by the decision of the Court the defendant should be enjoined from publishing news obtained from the Associated Press for hours after publication by the plaintiff unless it gives express credit to the Associated Press; the number of hours and the form of acknowledgment to be settled by the District Court.

Mr. Justice McKENNA concurs in this opinion.

Mr. Justice BRANDEIS dissenting.

There are published in the United States about 2,500 daily papers. More than 800 of them are supplied with domestic and foreign news of general interest by the Associated Press—a corporation without capital stock which does not sell news or earn or seek to earn profits, but serves merely as an instrumentality by means of which these papers supply themselves at joint expense with such news. Papers not members of the Associated Press depend for their news of general interest largely upon agencies organized for profit. Among these agencies is the International News Service which supplies news to about 400 subscribing papers. It has, like the Associated Press, bureaus and correspondents in this and foreign countries; and its annual expenditure in gathering and distributing news is about $ 2,000,000. Ever since its organization in 1909, it has included among the sources from which it gathers news, copies (purchased in the open market) of early editions of some papers published by members of the Associated Press and the bulletins publicly posted by them. These items, which constitute but a small part of the news transmitted to its subscribers, are generally verified by the International News Service before transmission; but frequently items are transmitted without verification; and occasionally even without being re-written. In no case is the fact disclosed that such item was suggested by or taken from a paper or bulletin published by an Associated Press member.

No question of statutory copyright is involved. The sole question for our consideration is this: Was the International News Service properly enjoined from using, or causing to be used gainfully, news of which it acquired knowledge by lawful means (namely, by reading publicly posted bulletins or papers purchased by it in the open market) merely because the news had been originally gathered by the Associated Press and continued to be of value to some of its members, or because it did not reveal the source from which it was acquired?

The “ticker” cases, the cases concerning literary and artistic compositions, and cases of unfair competition were relied upon in support of the injunction. But it is admitted that none of those cases affords a complete analogy with that before us. The question presented for decision is new; and it is important.

News is a report of recent occurrences. The business of the news agency is to gather systematically knowledge of such occurrences of interest and to distribute reports thereof. The Associated Press contended that knowledge so acquired is property, because it costs money and labor to produce and because it has value for which those who have it not are ready to pay; that it remains property and is entitled to protection as long as it has commercial value as news; and that to protect it effectively the defendant must be enjoined from making, or causing to be made, any gainful use of it while it retains such value. An essential element of individual property is the legal right to exclude others from enjoying it. If the property is private, the right of exclusion may be absolute; if the property is affected with a public interest, the right of exclusion is qualified. But the fact that a product of the mind has cost its producer money and labor, and has a value for which others are willing to pay, is not sufficient to ensure to it this legal attribute of property. The general rule of law is, that the noblest of human productions—knowledge, truths ascertained, conceptions, and ideas—become, after voluntary communication to others, free as the air to common use. Upon these incorporeal productions the attribute of property is continued after such communication only in certain classes of cases where public policy has seemed to demand it. These exceptions are confined to productions which, in some degree, involve creation, invention, or discovery. But by no means all such are endowed with this attribute of property. The creations which are recognized as property by the common law are literary, dramatic, musical, and other artistic creations; and these have also protection under the copyright statutes. The inventions and discoveries upon which this attribute of property is conferred only by statute, are the few comprised within the patent law. There are also many other cases in which courts interfere to prevent curtailment of plaintiff’s enjoyment of incorporeal productions; and in which the right to relief is often called a property right, but is such only in a special sense. In those cases, the plaintiff has no absolute right to the protection of his production; he has merely the qualified right to be protected as against the defendant’s acts, because of the special relation in which the latter stands or the wrongful method or means employed in acquiring the knowledge or the manner in which it is used. Protection of this character is afforded where the suit is based upon breach of contract or of trust or upon unfair competition.

The knowledge for which protection is sought in the case at bar is not of a kind upon which the law has heretofore conferred the attributes of property; nor is the manner of its acquisition or use nor the purpose to which it is applied, such as has heretofore been recognized as entitling a plaintiff to relief. . . .

Plaintiff further contended that defendant’s practice constitutes unfair competition, because there is “appropriation without cost to itself of values created by” the plaintiff; and it is upon this ground that the decision of this court appears to be based. To appropriate and use for profit, knowledge and ideas produced by other men, without making compensation or even acknowledgment, may be inconsistent with a finer sense of propriety; but, with the exceptions indicated above, the law has heretofore sanctioned the practice. Thus it was held that one may ordinarily make and sell anything in any form, may copy with exactness that which another has produced, or may otherwise use his ideas without his consent and without the payment of compensation, and yet not inflict a legal injury; and that ordinarily one is at perfect liberty to find out, if he can by lawful means, trade secrets of another, however valuable, and then use the knowledge so acquired gainfully, although it cost the original owner much in effort and in money to collect or produce.

Such taking and gainful use of a product of another which, for reasons of public policy, the law has refused to endow with the attributes of property, does not become unlawful because the product happens to have been taken from a rival and is used in competition with him. The unfairness in competition which hitherto has been recognized by the law as a basis for relief, lay in the manner or means of conducting the business; and the manner or means held legally unfair, involves either fraud or force or the doing of acts otherwise prohibited by law. In the “passing off” cases (the typical and most common case of unfair competition), the wrong consists in fraudulently representing by word or act that defendant’s goods are those of plaintiff. See *Hanover Milling Co. v. Metcalf*. In the other cases, the diversion of trade was effected through physical or moral coercion, or by inducing breaches of contract or of trust or by enticing away employees. In some others, called cases of simulated competition, relief was granted because defendant’s purpose was unlawful; namely, not competition but deliberate and wanton destruction of plaintiff’s business. . . .

That competition is not unfair in a legal sense, merely because the profits gained are unearned, even if made at the expense of a rival, is shown by many cases besides those referred to above. He who follows the pioneer into a new market, or who engages in the manufacture of an article newly introduced by another, seeks profits due largely to the labor and expense of the first adventurer; but the law sanctions, indeed encourages, the pursuit. He who makes a city known through his product, must submit to sharing the resultant trade with others who, perhaps for that reason, locate there later. *Canal Co. v. Clark*; *Elgin National Watch Co. v. Illinois Watch Co.* He who has made his name a guaranty of quality, protests in vain when another with the same name engages, perhaps for that reason, in the same lines of business; provided, precaution is taken to prevent the public from being deceived into the belief that what he is selling was made by his competitor. One bearing a name made famous by another is permitted to enjoy the unearned benefit which necessarily flows from such use, even though the use proves harmful to him who gave the name value.

The means by which the International News Service obtains news gathered by the Associated Press is also clearly unobjectionable. It is taken from papers bought in the open market or from bulletins publicly posted. No breach of contract such as the court considered to exist in *Hitchman Coal & Coke Co. v. Mitchell*; or of trust such as was present in *Morison v. Moat*; and neither fraud nor force, is involved. The manner of use is likewise unobjectionable. No reference is made by word or by act to the Associated Press, either in transmitting the news to subscribers or by them in publishing it in their papers. Neither the International News Service nor its subscribers is gaining or seeking to gain in its business a benefit from the reputation of the Associated Press. They are merely using its product without making compensation. See *Bamforth v. Douglass Post Card & Machine Co.*; *Tribune Co. of Chicago v. Associated Press*. That, they have a legal right to do; because the product is not property, and they do not stand in any relation to the Associated Press, either of contract or of trust, which otherwise precludes such use. The argument is not advanced by characterizing such taking and use a misappropriation.

It is also suggested, that the fact that defendant does not refer to the Associated Press as the source of the news may furnish a basis for the relief. But the defendant and its subscribers, unlike members of the Associated Press, were under no contractual obligation to disclose the source of the news; and there is no rule of law requiring acknowledgment to be made where uncopyrighted matter is reproduced. The International News Service is said to mislead its subscribers into believing that the news transmitted was originally gathered by it and that they in turn mislead their readers. There is, in fact, no representation by either of any kind. Sources of information are sometimes given because required by contract; sometimes because naming the source gives authority to an otherwise incredible statement; and sometimes the source is named because the agency does not wish to take the responsibility itself of giving currency to the news. But no representation can properly be implied from omission to mention the source of information except that the International News Service is transmitting news which it believes to be credible. . . .

The rule for which the plaintiff contends would effect an important extension of property rights and a corresponding curtailment of the free use of knowledge and of ideas; and the facts of this case admonish us of the danger involved in recognizing such a property right in news, without imposing upon news-gatherers corresponding obligations. A large majority of the newspapers and perhaps half the newspaper readers of the United States are dependent for their news of general interest upon agencies other than the Associated Press. The channel through which about 400 of these papers received, as the plaintiff alleges, “a large amount of news relating to the European war of the greatest importance and of intense interest to the newspaper reading public” was suddenly closed. The closing to the International News Service of these channels for foreign news (if they were closed) was due not to unwillingness on its part to pay the cost of collecting the news, but to the prohibitions imposed by foreign governments upon its securing news from their respective countries and from using cable or telegraph lines running therefrom. For aught that appears, this prohibition may have been wholly undeserved; and at all events the 400 papers and their readers may be assumed to have been innocent. For aught that appears, the International News Service may have sought then to secure temporarily by arrangement with the Associated Press the latter’s foreign news service. For aught that appears, all of the 400 subscribers of the International News Service would gladly have then become members of the Associated Press, if they could have secured election thereto. It is possible, also, that a large part of the readers of these papers were so situated that they could not secure prompt access to papers served by the Associated Press. The prohibition of the foreign governments might as well have been extended to the channels through which news was supplied to the more than a thousand other daily papers in the United States not served by the Associated Press; and a large part of their readers may also be so located that they can not procure prompt access to papers served by the Associated Press.

A legislature, urged to enact a law by which one news agency or newspaper may prevent appropriation of the fruits of its labors by another, would consider such facts and possibilities and others which appropriate enquiry might disclose. Legislators might conclude that it was impossible to put an end to the obvious injustice involved in such appropriation of news, without opening the door to other evils, greater than that sought to be remedied. Such appears to have been the opinion of our Senate which reported unfavorably a bill to give news a few hours’ protection; and which ratified, on February 15, 1911, the convention adopted at the Fourth International American Conference; and such was evidently the view also of the signatories to the International Copyright Union Of November 13, 1908; as both these conventions expressly exclude news from copyright protection.

Or legislators dealing with the subject might conclude, that the right to news values should be protected to the extent of permitting recovery of damages for any unauthorized use, but that protection by injunction should be denied, just as courts of equity ordinarily refuse (perhaps in the interest of free speech) to restrain actionable libels, and for other reasons decline to protect by injunction mere political rights; and as Congress has prohibited courts from enjoining the illegal assessment or collection of federal taxes. If a legislature concluded to recognize property in published news to the extent of permitting recovery at law, it might, with a view to making the remedy more certain and adequate, provide a fixed measure of damages, as in the case of copyright infringement. . . .

Courts are ill-equipped to make the investigations which should precede a determination of the limitations which should be set upon any property right in news or of the circumstances under which news gathered by a private agency should be deemed affected with a public interest. Courts would be powerless to prescribe the detailed regulations essential to full enjoyment of the rights conferred or to introduce the machinery required for enforcement of such regulations. Considerations such as these should lead us to decline to establish a new rule of law in the effort to redress a newly-disclosed wrong, although the propriety of some remedy appears to be clear.

Questions:

Examine the arguments made by Pitney, Holmes and Brandeis in *INS v. AP*.

1.) Look back at the three basic questions asked on pages 2–3 of this book. How would each judge answer them?

2.) Compare the legal tools proposed by Pitney and Holmes to solve the problems they see. What type of “property” right is being proposed by each? What are its limits? Why?

3.) What position would each judge take on the FANtasy football hypothetical laid out in Problem 1-2? Do they add anything to the arguments you already made?

4.) Is Pitney using the same arguments for property given in chapter 1 of *The Public Domain*? In the excerpt from Locke?

5.) Does *INS v. AP* support or undermine Barlow’s thesis about law’s inability to reg­u­late information using the jurisprudential tools of property rights?

6.) Can we solve public goods problems without intellectual property rights? What would Brandeis say?

7.) Does it change your attitude towards the case if you are told that the British government had denied the use of the only transatlantic telegraph network to INS—owned by William Randolph Hearst (the man on whom *Citizen Kane* was based)—because the government objected to the INS’s coverage of the war? Hearst and his newspapers were thought to take a pro-German line and to exaggerate the amount of war-related damage in the UK. As a result of the ban, only the Associated Press had the ability to do real time reporting; taking data from bulletin boards and published newspapers was the only way for INS papers to report the war. How, if at all, does this change the way you structure or analyze the questions posed in the case? How would you use these facts if you were the lawyer for INS?

8.) The next excerpt is *The New York Times* article on the argument that INS put forward in the Supreme Court. How does Mr. Untermyer present the issue? What is his answer to the questions on pages 2–3? What alternative framings of the dispute does he offer?

The New York Times

NEWS PIRATING CASE

IN SUPREME COURT

Untermyer Argues for Dissolu-

tion of Associated Press In-

juntion Against Hearst.

MAKES MONOPOLY CHARGE

Admits, However, That International

Has Sold News Sent Out by

the Other Service.

**WASHINGTON, May 2.**—Argu­ments in proceedings brought in an effort to have set aside injunctions restraining the International News Service, or Hearst Service, from pirating news dispatches of The Associated Press began today in the Supreme Court. The opening argument was made by Samuel Untermyer, representing the Hearst Service, who will conclude tomorrow, after which Frederick W. Lehmann will present The Associated Press’s side of the suit. Senator Johnson of California will close for the Hearst Service.

Mr. Untermyer attacked especially the contention of The Associated Press that news had property value, and charged that if the lower court injunctions were sustained The Associated Press would be allowed to become a “despotic monopoly.”

Admitting that the International News Service had been guilty of selling news sent out by the other organization, the attorney insisted The Associated Press had been guilty of the same practice despite affidavits of employees of The Associated Press denying it.

The Associated Press also was attacked by Mr. Untermyer for bringing the present proceedings at a time when Great Britain and the allied Governments had denied the use of their cables to the International News Service for the transmission of news. He declared The Associated Press took advantage of this situation to institute the suit “because they thought the International News Service could be destroyed.”

In explanation of the action of the Allied Governments, Mr. Untermyer declared it was due to news matter sent by the International News Service to its office in this country regarding the torpedoing of the British battleship Audacious and the naval battle of Jutland, and because headlines printed in one newspaper receiving the Hearst Service de­scribed London as being in flames.

Frequent questions were asked during the argument by members of the court regarding the property value of news. They wanted to know also why, although the lower courts restrained the International News Service from pirating Associated Press news through employees of newspapers taking the latter service, an appeal was taken to the Supreme Court only from the part of the injunctions enjoining the taking of news from bulletin boards and early editions of Associated Press newspapers.

**Property Value of News**

Mr. Untermyer summarized the questions involved as follows:

“Is there a right of property in news or knowledge of the news or in the quality of ‘firstness’ in the news that will survive its publication by the gatherer in any of the newspapers to which it has been delivered for the express purpose of publication and sale until the gatherer of the news and all of its customers have secured their reward; or does this news become public property as soon as it has been published by any of the papers to which it has been surrendered without restriction for that specific purpose? In other words, is there a sanctity of property right reserved to the news gatherer against the effects of publication as to matter that is admittedly uncopyrightable greater than that given by the statute to copyright matter?

“Assuming that the court would create a precedent in a case where it would be necessary to preserve a business against piracy in this case both parties and their respective members and customers have apparently from the time of their organization acted upon exactly opposite construction and understanding of the law. News displayed on bulletin boards and printed and sold in early editions of newspapers has been regarded as public property, which it is in law and in fact. Each of these parties has freely taken the other’s news and they are bound by that practical construction of their rights and obligations. The fact that one of them claims that it verifies and rewrites the story it takes from the other, while the other does not, is purely a question of business policy that in no wise affects their legal rights as determined by their long continued acts.

“There can be no remedy in law or equity unless actual damage is shown. Courts are not established to try out moot or academic questions. The complainant says it is not organized for profit, and that it makes no money difference to it what is the financial outcome of its activities. That being so, if there are any remedies, they inhere in the members and not in the corporation, which is organized on the grotesque theory that it is not engaged in business.

“The attempt by this order to protect complainant’s members in their local news in a suit to which they are not parties and in which the judgment could not, therefore, be binding or reciprocal is without precedent or reason. Conversely, if the defendant sued the complainant, could it secure an injunction that would run in favor of all the defendant’s stockholders and customers?

**Element of Competition**

“There is no element of unfair competition involved. The defendant is not seeking to palm off complainant’s news as its (defendant’s) news, nor as complainant’s news, but simply as news that has been made available to everyone. It has not secured it surreptitiously or as the result of a breach of contract, but publicly by paying for the paper containing it and in which it was authorized to be published. If defendant is right in its contention that it is public property, as the parties have always regarded it, there is nothing unfair in taking it. If, contrary to precedent and to the acts of the parties as evidencing their constructions of their rights—both parties—it is now held to be private property, its use would be enjoined on that ground, but in no event on the theory of what is known as unfair competition. There is no such element in this case.

“Both the parties are in the position with respect to news that has been published of the man with an unpatentable idea or trade secret that has cost him years of labor and vast sums of money to develop. Or of the ar-chitect who has created a beautiful structure, or the landscape gardener who has laid out a novel garden, or of any one of the many inventions in beauty, usefulness, and science, that are not patentable. So long as he keeps these things to himself he will be protected against their surreptitious taking. When he releases them they belong to the public.

“What the complainant is here trying to do is to release the news and at the same time hold on to it. That is impossible and in this case it is inequitable, for in the past it has been taken from the defendant, and now that events have temporarily changed, it seeks to escape from the consequences of its own action.

**Calls Decision Dangerous.**

“There is a manifest inconsistency in the attitude of the District Court, when it very properly declined to differentiate between ‘tips’ and ‘re-writes,’ decided that the practice was universal in the newspaper trade and yet enjoined the defendant from continuing it on condition that the complainant would submit to a like injunction which the later was, of course, delighted to do at that particular juncture.

“This decision sets up a new and dangerous rule. The measure of a plaintiff’s right is now made dependent, not on the extent to which the defendant has infringed a definite known rule of law, but upon an intangible unknown element that depends upon the extent of the activities of the plaintiff and those whom it happens at the moment to represent. If the news is taken from a paper of local circulation it may be immediately taken and used all over the United States except in that locality, for its commercial value will have passed away after the paper has been circulated in its own town. If, however, it happens to be a member of The Associated Press that same item of local news becomes ipso facto inviolate until every one of the 1,630 Associated Press newspapers in the United States and possibly until after The Associated Press agencies in foreign countries have utilized it. Is not this a reductio ad absurdum?”

James Boyle, Thomas Jefferson Writes a Letter

Please read [The Public Domain](http://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=5385&context=faculty_scholarship) pp 17–41

On August 13, 1813, Thomas Jefferson took up his pen to write to Isaac McPherson. It was a quiet week in Jefferson’s correspondence. He wrote a letter to Madison about the appointment of a tax assessor, attempted to procure a government position for an acquaintance, produced a fascinating and lengthy series of comments on a new “Rudiments of English Gram­mar,” discussed the orthography of nouns ending in “y,” accepted the necessary delay in the publication of a study on the anatomy of mammoth bones, completed a brief biography of Governor Lewis, and, in general, confined himself narrowly in subject matter. But on the 13th of August, Jefferson’s mind was on intellectual property, and most specifically, patents.

Jefferson’s writing is, as usual, apparently effortless. Some find his penmanship a little hard to decipher. To me, used to plowing through the frenzied chicken tracks that law students produce during exams, it seems perfectly clear. If handwriting truly showed the architecture of the soul, then Jefferson’s would conjure up Monticello or the University of Virginia. There are a few revisions and interlineations, a couple of words squeezed in with a caret at the bottom of the line, but for the most part the lines of handwriting simply roll on and on—“the fugitive fermentation of an individual brain,” to quote a phrase from the letter, caught in vellum and ink, though that brain has been dust for more than a century and a half. . . . [*Read the rest*](http://boyle.yupnet.org/chapter-2-thomas-jefferson-writes-a-letter/)

Questions:

Jefferson is a deeply problematic figure. Polymath. Principal drafter of the Declaration of Independence, with its majestic words about equality and inalienable rights. (He included a draft clause disavowing slavery, which was rejected by others.) Yet he himself was a slaveholder! He had over 600 slaves, freeing only 2 during his life and 7 after his death. Knowing that, why pay any attention to his words? First, just as the Declaration of Independence continues to be important to American law, so too does Jefferson’s vision of intellectual property, a vision that appears to have been central to the Constitutional framework for copyright and patent and one that continues to be referenced, explicitly and implicitly, by courts. Jefferson even played a major role in the drafting of the first patent act and served on the country’s first patent examination board. Second, Jefferson’s ideas about intellectual property deserve attention in their own right, the evil of his actions notwithstanding. They force us to articulate the differences between intellectual property and tangible property in ways that are central to the subject.

1.) What problems is Jefferson concerned with? Beyond the question of incentives what additional dangers did he and Macaulay see? Does Macaulay see intellectual property as a matter of necessary incentive, restraint on competition, or restriction of speech?

2.) What are the basic differences between the baseline assumptions of Diderot and Condorcet? What are the strongest arguments for and against the notion of a natural right to intellectual property?

3.) Boyle lays out a multi-part “Jefferson Warning” that he says is vital to making good intellectual property decisions. How would you respond to that formulation of good policy if you were General Counsel of the Recording Industry Association of America? Of Google? Of the National Academy of Sciences? Diderot?

1. These are optional additional readings, keyed to the discussions in the book. *The Public Domain* is also available under a Creative Commons license. Ask your teacher if this is required. [↑](#footnote-ref-1)
2. \* All comic book pages are taken from Aoki, Boyle & Jenkins, *Theft!: A History of Music* which is available under a Creative Commons license at <https://web.law.duke.edu/musiccomic/>. [↑](#footnote-ref-2)