Chapter 2: Creation Under Competition

The basic conclusion of this book is that intellectual monopoly – patents, copyrights and restrictive licensing agreements – are unnecessary. Always beware of theorists bearing radical ideas – most ideas are bad, and most theories are wrong. This book may be yet another entry in that long list of confused and confusing dreamers.

Therefore, we must first and foremost convince you that our ideas are firmly grounded in facts and practice – most innovations have taken place without the benefit of intellectual monopoly. Indeed, the system of intellectual monopoly as it exists today is of recent vintage – some parts of the current system are only a few years old and their damaging effects are already visible and dramatic.

No Gardens of Utopia, then, but the fertile fields of Practical Experience, as illustrated by thriving markets without intellectual monopoly, that is what this and the next chapter are about.

Software

In spite of being all around us, facts are often invisible because we look at them with wrong shaded glasses. Look closely at the computer on your desk. You see a mouse, a keyboard, and, on your screen, a bunch of different overlapping windows with word processors, spreadsheets, instant messengers and a web browser through which you can access a vast array of information on a large diversity of subjects. At the end of the Second World War – sixty years ago – digital computers did not exist – nor of course did the software that makes them work. In few industries has there been such extensive innovation as in the software industry – and few technologies have changed our way of life as much. Will it surprise you to learn that virtually none of the innovations in this industry took place with the protection of intellectual monopoly? Our tour of the hidden world where innovation flourishes under competition starts here, in the software industry.

We read about Amazon suing Barnes and Noble for patent infringement – and being sued by IBM for the same – and we do not know whether to laugh or to cry. We find Microsoft hinting that they will sue us for patent infringement if we use GNU/Linux instead of Windows.[1] It seems as if no industry is as hemmed in

with intellectual monopoly as the software industry. But it was not always like this. It turns out that over the last two decades, the software industry has "benefited" from massive changes in the law, legislated by that duly elected body, the U.S. Supreme Court. Indeed, prior to the 1981 U.S. Supreme Court decision in *Diamond vs Diehr*, it was not possible to patent software at all and the current craze to patent every click of the mouse originates in the subsequent extension of patents to software products in the 1994 Federal Circuit Court ruling *In re Alapat*.

Did this judicial legislation bring forth an explosion in software innovation? We mentioned Amazon suing Barnes and Noble over purchasing on line with just "one click." Some might wonder how difficult and innovative this invention is, so it may seem a straw man. Whatever the merits of "one click," there are certainly many software inventions that we all agree are important and innovative. There are all the graphical user interfaces, the widgets such as buttons and icons, the compilers, assemblers, linked lists, object oriented programs, databases, search algorithms, font displays, word processing, computer languages – all the vast array of algorithms and methods that go into even the simplest modern program. Not only are these innovations all difficult and important, the fact is that every single one of these innovations is used and is necessary to make the one click, or for that matter the "two click," work.

We do not mention any of these significant inventions as a consequence of patents into software innovation for one simple reason. Each and every one of these key innovations occurred prior to 1981 and so occurred without the benefit of patent protection. Not only that, had all these bits and pieces of computer programs been patented, as they certainly would have in the current regime, far from being enhanced, progress in the software industry would never have taken place. According to Bill Gates – hardly your radical communist or utopist – "If people had understood how patents would be granted when most of today's ideas were invented, and had taken out patents, the industry would be at a complete standstill today." [2]

Not only did patents play no role in software innovation, copyrights played only a limited role. While computer programs were often copyrighted, in the early years of the PC industry, copyright was seldom respected or enforced. Consumers would purchase programs and use them on a variety of computers in violation of license agreements. People bought and sold computer programs and created new ones by using bits and pieces, modules

and ideas from existing programs. While copyright may have limited the widespread copying of software by other publishers, it was not enforced in the draconian way it is today.

The software industry is a leading illustration of one of the sub-themes of this book. Intellectual monopoly is not a cause of innovation, but it is rather an unwelcome consequence of it. In a young dynamic industry full of ideas and creativity, intellectual monopoly does not play a useful role. It is when ideas run out and new competitors come in with fresher ideas, that those bereft of them turn to government intervention – and intellectual "property" – to protect their lucrative old ways of doing business.

If we examine the efforts of Microsoft to prevent "piracy" of their software, we find that they made little effort either legal or technical to protect their "intellectual property" in their early creative days. It is now, in the 21st century, that they invest their time and energy in the prevention of copying. However, if we compare releases of their operating systems or word processors over the last five or even ten years, it would be difficult to detect much "innovation." What was Microsoft's greatest innovation since 1994? No doubt, the web browser, the Internet Explorer. But who invented the web browser? Not Microsoft, but a small group of creative competitors from whom, later on, Microsoft took the idea and then acquired most of the basic code: The first popular version of a browser, NCSA Mosaic, appeared in March 1993, while it was only in August of 1995 that Microsoft released Internet Explorer 1.0.[3]

Try imagining how the economic and social history of the last fifteen years would have to be rewritten if the creators of Mosaic had Microsoft's deep pockets and, in anticipation of Amazon patenting of the one click concept, they had managed to patent the "idea of the web browser." Would we all have been better served by such an application of the doctrine of intellectual "property?"

Open Source Software

The best evidence that copyright and patents are not needed and that competition leads to thriving innovation in the software industry, is the fact that there is a thriving and innovative portion of the industry that has voluntarily relinquished its intellectual monopoly – both copyright and patent. This striking example of creation under competition is the open-source software movement. Often this software is released under a license that is the opposite of copyright – in many cases forcing those who wish to sell it to

allow their competitors to copy it. This "copyleft" agreement is a voluntary commitment by software producers to avoid intellectual monopoly and to operate under conditions of free competition.[4]

It is an amazing testament to the benefits of competition, that firms and individuals choose to voluntarily subject themselves to it. How, you ask, can it be in the economic self-interest of a firm or individual to voluntarily relinquish a monopoly? The answer is that it provides an important assurance to purchasers. For example, a new entry into the software market may find its market limited by the fact that potential customers are concerned about the long-term viability of the firm. Purchasers do not wish to become locked into proprietary software, only to see the sole legal supplier disappear. For obvious reasons, firms and individuals also have a preference for purchasing software where they expect to benefit from future competition. In some cases the income from being first to market is sufficiently high that it is worth voluntarily giving up a future monopoly in order to be able to enter the market.

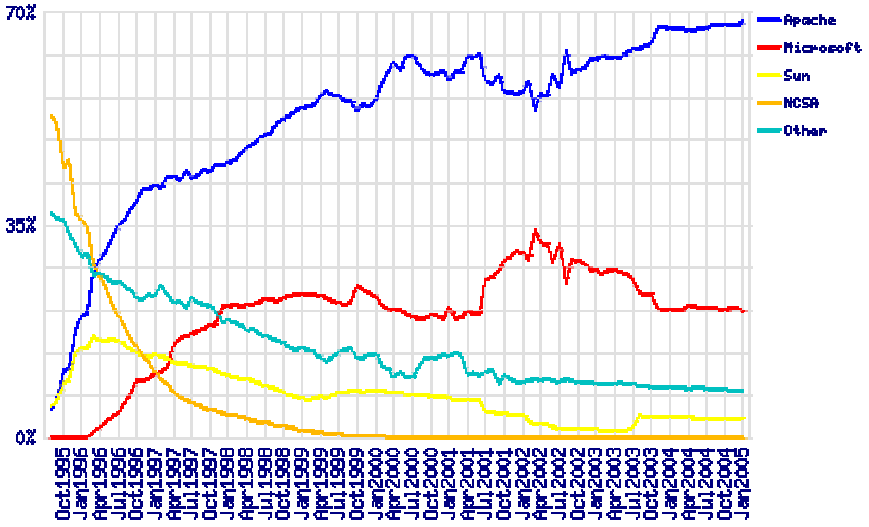
In the case of open source software, the startling fact is how widespread it is, a fact our shaded glasses often prevents us from noticing. If you browsed the web today, then it is virtually certain that you used open-source software. Although you probably think of yourself as a "Windows user" or a "Macintosh user", the fact is that you are also a "Linux user:" every time you use Google, your request is processed by the open source software originated by Linus Torvalds.

In addition to Windows and the Macintosh, there are three other widely used operating environments: Solaris, Linux and FreeBSD. Solaris, Linux and FreeBSD are all open source, and so is a good chunk of the Macintosh code. In the server market, Google is scarcely exceptional – it is estimated that the Linux operating system has a 25% market share.[5] Not only does Google use Linux – so does the widely used Tivo digital video recorder. Even in desktops, Linux is estimated to be passing the Macintosh in popularity.

A great deal of the data you find on the Internet – for example that amusing blog about the shenanigans of Washington politicians you are reading – is stored in databases. There are six major databases, Oracle, DB2, SQL server, Sybase, Mysql and Postgres. Two are open source, and the odds are the blog you are reading uses the open source Mysql database – along with the open source scripting language PHP. Mysql, by the way, is developed and supported by a private for profit company, as is the scripting language PHP. In addition, PHP has recently supplanted the open

source Perl langage as the premier scripting language for the world wide web – and four of the other widely used scripting languages, Lua, Python, Ruby, and Tcl are also open source. Only the Microsoft ASP language is proprietary.

Open source dominates the Internet. Whatever you are viewing on the web – we hesitate to ask what it might be – is served up by a webserver. Netcraft regularly surveys websites to see what webserver they are using. In December 2004 they polled all of the 58,194,836 web sites they could find on the Internet, and found that the open source webserver Apache had a 68.43% of the market, Microsoft had 20.86% and Sun only 3.14%. Apache's share is increasing; all other's market shares are decreasing. So again – if you used the web today, you almost certainly used open source software.[6]



Even on the desktop – open source is spreading and not shrinking. Ten years ago there were two major word processing packages, Word and Wordperfect. Today the only significant competitor to Microsoft for a package of office software including word-processing is the open source program Openoffice.

Thousands of productive and highly paid programmers voluntarily choose to produce and market software products that are distributed freely to end users and to other developers. This must surely lead one to question the common assumption that – without copyright and patents – the Information Technology (or IT) revolution would have not come about, or that it will die in the years to come.

Why has the software market worked so well under competition and without intellectual monopoly? The wide use of free software licenses has unleashed the great collaborative benefit of competition. Open source software makes available the underlying source code from which the computer programs are compiled. Of particular importance is the free software movement, pioneered by Richard Stallman and others. Free software is not only open source, but is released under a license such as the GNU General Public License (GPL) which allows modifications and distribution only when the source code to those modifications is made available under the same license. It should be understood here that the word "free" here means (according to the motto) "free as in freedom, not free as in beer." Although free software is often distributed without charge, it is the freedom of the user to make use of the software that distinguishes free software, not the price at which it is sold. The free software license serves as a commitment for those who wish that their contribution will also be freely available, and as a guarantee to users that they will have access to the source code in the future, if they so wish.

These free software licenses have allowed most open source software to be written by large and loosely organized teams of programmers, each of whom contributes small pieces of code, and all of whom benefit from the sharing of information and ideas. Because of the commitment to make public all the ideas and code, each individual collaborator expects to benefit from the advances made by his colleagues, and so has strong incentive to share ideas and code. Moreover, individuals who may not actually be part of the "formal" team often contribute ideas and expertise – also assured that they will ultimately benefit from the innovation triggered by their information.

It is striking that such intellectual "luminaries" as Ken Brown, President of the Alexis de Tocqueville Institute, armed with a clear understanding of the great benefits of the free enterprise system, but only a vague understanding of how it works, argue against public licenses such as the GPL.[7] Brown apparently feels that this private institution is some form of government socialism. While there is a strong case for eliminating or deregulating intellectual monopoly such as copyright and patents – which are inimical to free enterprise and capitalism, there is also a strong case for preserving "copyleft" contracts such as the GPL, which strengthen free enterprise and the system of competitive markets.

The success of open source software is not some strange miracle, unrepeatable under normal circumstances. On the contrary, it is the ever repeating pattern in innovating and growing industries. Later we will learn about an identical episode, which took place in England about 150 years earlier: the development of the Cornish steam power engine, without which the Industrial Revolution would have been a shadow of what it turned out to be. Too bad we have not time to write an entire encyclopedia of competitive innovations. We could tell of similar wonders in the American automobile industry, the Swiss and German chemical industries, the worldwide oxygen steel making, the Italian textile and fashion industries, the Swiss watch industry, the wine farms of Europe and California, the Czech and Venetian glass industries, and so on.[8]

"Pirating" Software

The idea that a software producer – say Microsoft – could earn a profit without copyright protection always puzzles people. Without copyright protection, would not "pirates" step in and sell cheaper imitations, putting Microsoft out of business? While this is an interesting theory of how markets work, it is not one supported by the facts.

Again, we turn to open source software and the Linux computer operating system. Because it is open source, Linux may be resold commercially, but only if the source code is made freely available, including any modifications made to the original program. For example, Red Hat is a company that sold a modified and customized Linux system with easy installation and many other useful features. Although the underlying Linux system is obtained by Red Hat for free, the customization and testing conducted by Red Hat is costly. Using prices quoted on the Internet on July 10, 2002, Red Hat charged $59.95 for a package containing its system. Because it is based on the underlying Linux system, Red Hat must also make available its code to competitors. As a result, anyone who wishes to can sell their own "Red Hat" system. And, in fact, there were at least two companies, Hcidesign and Linuxemporium, that did exactly this. For example, on July 10, 2002, Hcidesign offered for sale Red Hat Linux 7.2 for a price of $16.00, about 1/3rd of the price charged by Red Hat. Linuxemporium.co.uk offered a similar deal.

So how does Red Hat stay in business? For starters, it turns out that Red Hat sold many more $59.95 packages than Hcidesign and Linuxemporium sold $16.00 packages. Moreover Red Hat is a

large well known company, while no one has ever heard of the other two, nor does it appear that they ever represented a dangerous market threat to Red Hat.[9] How could this be? Or more accurately, how could this not be? Have you ever used software that worked properly? If you had a problem with software you bought, and had to call the seller for advice – who would you prefer to call – the people who wrote the program, or the people who copied it?

The story is not over yet, please bear with us. Taking years in writing a book chapter is not a proof of high productivity, but there is a silver lining. On December 24, 2006, we went back to the Internet to see what happened to these three companies. All three of them still exist, and many other have joined the game. After years of having all its innovations mercilessly "pirated" Red Hat is still the market leader, has a world wide web of offices, sells lots of Linux-based software products while also giving away lots of others for free and its revenues are soaring. Hcidesign, in spite the advantage of being a legal pirate does not seem to have done very well; it is still there, but it is selling very few products and all Linux-based products are now off its shelves. Linuxemporium had a more interesting life. After either changing its name to or been acquired by ChyGwyn, it is back in business under the original name and it is thriving. Indeed, it has pioneered an entire new line of business: it sells at positive prices software that is downloadable for free from the original companies, by claiming it sells "high class software for the cognoscenti". The power and creativity of competitive markets sometimes surprise even us!

Copyrightables: Books, News, Movies and Music

Copyright has traditionally been used for literary works, and for media ranging from newspapers to music and movies. Large media firms, such as Disney, and industry associations, such as the RIAA (the recording industry) and MPAA (the movie industry), argue loudly and vociferously for ever increasing control of their "intellectual property." So you might imagine that creative activity is low and artists are poor when and where copyright is weak. Needless to say, nothing could be further from the truth.

Fiction and Literature

People find it hard to wrap their head around the concept that ideas can be rewarded without a copyright or patent. Without a copyright, how will the author of a novel get paid? Consider the facts.

Start with English authors selling books in the United States in the nineteenth century. "During the nineteenth century anyone was free in the United States to reprint a foreign publication"[10] without making any payment to the author, besides purchasing a legally sold copy of the book. This was a fact that greatly upset Charles Dickens whose works, along with those of many other English authors, were widely distributed in the U.S., and

> *yet American publishers found it profitable to make arrangements with English authors. Evidence before the 1876-8 Commission shows that English authors sometimes received more from the sale of their books by American publishers, where they had no copyright, than from their royalties in [England]*[11]

where they did have copyright. In short without copyright, authors still got paid, sometime more without copyright than with it.[12]

How did it work? Then, as now, there is a great deal of impatience in the demand for books, especially good books. English authors would sell American publishers the manuscripts of their new books before their publication in Britain. The American publisher who bought the manuscript had every incentive to saturate the market for that particular novel as soon as possible, to avoid cheap imitators to come in soon after. This led to mass publication at fairly low prices. The amount of revenues British authors received up front from American publishers often exceeded the amount they were able to collect over a number of years from royalties in the UK. Notice that, at the time, the US market was comparable in size to the UK market.[13]

More broadly, the lack of copyright protection, which permitted the United States publishers' "pirating" of English writers, was a good economic policy of great social value for the people of United States, and of no significant detriment, as the Commission report and other evidence confirm, for English authors. Not only did it enable the establishment and rapid growth of a large and successful publishing business in the United States; also, and more importantly, it increased literacy and benefited the cultural development of the American people by flooding the market with cheap copies of great books. As an example: Dickens' *A Christmas Carol* sold for six cents in the US, while it was priced at roughly two dollars and fifty cents in England. This dramatic increase in literacy was probably instrumental for the emergence of

a great number of United States writers and scientists toward the end of the nineteenth century.

But how relevant for the modern era are copyright arrangements from the nineteenth century? Books, which had to be moved from England to the United States by clipper ship, can now be transmitted over the internet at nearly the speed of light. Furthermore, while the data show that some English authors were paid more by their U.S. publishers than they earned in England – we may wonder how many, and if they were paid enough to compensate them for the cost of their creative efforts. What would happen to an author today without copyright?

This question is not easy to answer – since today virtually everything written is copyrighted, whether or not intended by the author. There is, however, one important exception – documents produced by the U.S. government. Not, you might think, the stuff of best sellers – and hopefully not fiction. But it does turn out that some government documents have been best sellers. This makes it possible to ask in a straightforward way – how much can be earned in the absence of copyright? The answer may surprise you as much as it surprised us.

The most significant government best seller of recent years has the rather off-putting title of *The Final Report of the National Commission on Terrorist Attacks Upon the United States*, but it is better known simply as the *9/11 Commission Report*.[14] The report was released to the public at noon on Thursday July 22, 2004. At that time, it was freely available for downloading from a government website. A printed version of the report published by W.W. Norton simultaneously went on sale in bookstores. Norton had signed an interesting agreement with the government.

> *The 81-year-old publisher struck an unusual publishing deal with the 9/11 commission back in May: Norton agreed to issue the paperback version of the report on the day of its public release.…Norton did not pay for the publishing rights, but had to foot the bill for a rush printing and shipping job; the commission did not hand over the manuscript until the last possible moment, in order to prevent leaks. The company will not reveal how much this cost, or when precisely it obtained the report. But expedited printings always cost extra, making it that much more difficult for Norton to realize a profit.*

> *In addition, the commission and Norton agreed in May on the 568-page tome's rather low cover price of $10, making it that much harder for the publisher to recoup its costs. (Amazon.com is currently selling copies for $8 plus shipping, while visitors to the Government Printing Office bookstore in Washington, D.C. can purchase its version of the report for $8.50.) There is also competition from the commission's Web site, which is offering a downloadable copy of the report for free. And Norton also agreed to provide one free copy to the family of every 9/11 victim.*[15]

This might sound like Norton struck a rather bad deal – one imagines that other publishers were congratulating themselves on not having been taken advantage of by sharp government negotiators. It turns out, however, that Norton's rivals were in fact envious of this deal. One competitor in particular – the *New York Times* – described the deal as a "royalty-free windfall,"[16] which does not sound like a bad thing to have.

To be clear: what Norton received from the government was the right to publish first, and the right to use the word "authorized" in the title. What they did not get was the usual copyright – the right to exclusively publish the book. Because it is a U.S. government document, the moment it was released, other individuals, and more important, publishing houses, had the right to buy or download copies and to make and resell additional copies – electronically or in print, at a price of their choosing, in direct competition with Norton. In other words: after the release of the book on July 22, the market became a conventional competitive market. And the right to compete with Norton was not a purely hypothetical one. Another publisher, St. Martin's, in collaboration with the New York Times, released their own version of the report in early August, about two weeks after Norton, and this version contained not only the entire government report – but additional articles and analysis by New York Times reporters. Like the Norton version, this version was also a best seller.[17] In addition it is estimated that 6.9 million copies of the report were (legally) downloaded over the Internet. Competition, in short, was pretty fierce.

Despite this fierce competition, the evidence suggests that Norton was able to turn a profit. We do not know, unfortunately, how much they would have paid up front to the "author" had the rights to go first been put out to bid. But we do have some idea of how much they made after the fact. First, we know that they sold

about 1.1 million copies, and that they charged between a dollar and a dollar fifty more than St. Martin's did.[18] Other publishers also estimated Norton made on the order of a dollar of profit on each copy. Assuming that St. Martin's has some idea of how to price a book to avoid losing money, this suggests Norton made at the very least on the order of a million dollars. We also know that their contract with the government called upon them to donate their "profits" to charity – and we know that they did in fact "donate $600,000 to support the study of emergency preparedness and terrorism prevention."[19] Since the entire Hollywood movie industry has managed by creative accounting to avoid earning a profit during its entire history, we can be forgiven if we suspect that Norton earned a bit more than the $600,000 they admitted to.

We have already mentioned that it took us a few years to revise this book for final publication. The delay was probably bad for our reputation as professional book writers, but the three years that passed between the first draft and the revised edition allowed for a number of our wild conjectures to be tested by facts. Just recently a second natural experiment, similar to the 9/11 Commission Report, has taken place. The Iraq Study Group, also known as the Baker-Hamilton Commission, was appointed on March 15, 2006 by the United States Congress. Its task was to carry out a bipartisan evaluation of the situation in Iraq following the US-led invasion and subsequent occupation, and to make policy recommendations about how that dramatic situation could be improved.

The United States Institute of Peace provided support for the Iraq Study Group, whose final report was released on the USIP website on December 6, 2006 for free downloading. Vintage Books, a division of Random House, published the same report and put it on sale at bookstores and internet sites around the world on the same day. We have been unable to find evidence of how much Vintage Books paid for the right to access the manuscript before it was freely downloadable, but it is probably not zero. Recall the report cannot be copyrighted and any other publisher may, and probably will, get on the fray without having to pay Vintage a single penny. We checked the web, and the book is widely available at prices that oscillate between about $9 and $11. It quickly made Amazon's 25 best sellers list and, on December 25, 2006 (the last day we have data for) Amazon ranked it as 191 for total sales under the category "books", meaning among all books Amazon had available. Not bad for a document that anyone can

also download for free, in about thirty seconds, from the UISP and many other websites.[20]

What, then, do these facts mean for fiction without copyright? By way of contrast to the 9/11 commission report, which was in paperback and, including free downloads, seems to have about 8 millions copies in circulation, the initial print run for *Harry Potter and the Half-Blood Prince* was reported to be 10.8 million hardcover copies.[21] So we can realistically conclude that if J. K. Rowling were forced to publish her book without the benefit of copyright, she might reasonably expect to sell the book to a publishing house for several million dollars – or more. This is certainly quite a bit less money than she earns under the current copyright regime. But it seems likely, given her previous occupation as a part-time French teacher, that it would still give her adequate incentive to produce her great works of literature.[22]

News Reporting

The distribution of news on the Internet makes an interesting contrast with the distribution of music. While the RIAA has used every imaginable legal (and in some cases illegal) strategy to keep music off the Internet, the news reporting industry has embraced the Internet. Most major news agencies have a website where news stories may be viewed for, at most, the cost of a free registration. Far from discouraging the copying of news stories, most sites invite you to "email a copy of this story to a friend." In fact, news is available so freely over the Internet, it is possible to create an entire newspaper simply by linking to stories written by other people. An example of such a "newspaper" is the site run by Matt Drudge, which consists almost entirely of links to stories on other sites. Yet the incentive to gather the news has not disappeared. According to intellectual monopolists' preaching, this should be impossible: to report from Sudan requires the huge cost of going there in person, but copying that same report is as cheap as it can possibly get. So, why are highly paid journalists travelling to Sudan to get the news?

The fact is that prior to the advent of the Internet, the news industry was already a relatively competitive one, with many hundreds of news organizations employing reporters to gather news and write stories on the same subjects. Copyright has never provided a great deal of protection, and the copying of news stories is endemic: the enterprising reporter who manages to get his helicopter over the car chase first, is not rewarded with the exclusive right to fly helicopters over the site. Copyright protects

specific words, but not the news itself – and new reports of the form "The AP is reporting that the government of Pakistan has just captured Osama Bin Laden" is perfectly legal and not a violation of copyright at all. Because the news industry has been thriving, profitable, and highly competitive for a long while, the advent of the Internet scared off only a few incompetent fellows.

Still, everyone wants a monopoly, and the news industry is scarcely immune to greed. The arrival of innovative technologies and creative competitors makes the temptation of using existing copyright legislation to preserve or gain monopoly power particularly hard to resist. In fact, the impression one gets from a cross country comparison is that the less competitive and more inefficient the news industry of a country is, the stronger is the demand for monopolistic protection from new entrants. Consider the example of Spain, a country where very few publishers, about five, control most of the national market with one of them, *Grupo Prisa*: the grateful darling of every socialist government since 1982, acting as the undisputed leader. In 2002 the four largest Spanish publishing companies began lobbying for the creation of an industry cartel that would mandate a complete monopolization of the news distribution industry. This would be accomplished through the creation of a national agency, Gedeprensa, owned and managed by the same publishing companies, and entrusted with the right and duty of overseeing the distribution of news through all kinds of media. News would be licensed and a "user fee" collected whenever it was "used," something analogous to the royalties that music monopolies collect whenever a tune is played in public. According to plans released by the lobbying group, this fee-collecting activity would range from the Internet to the photocopied press clips and news briefs distributed for internal usage in large organizations.

How the monopolies backing the Gedeprensa initiative planned to monitor and enforce exclusive proprietorship of the news escapes our imagination, but the proposal is a fact. Unfortunately for the would be monopolists, on May 12, 2004, the Spanish *Tribunal de Defensa de la Competencia* firmly denied the requested authorization to proceed with the Gedeprensa project. One wishes the Supreme Court of the United States had shown the same understanding of basic economics, and the same concern with preserving market competition and improving social welfare, when ruling in the *Eldred vs Ashcroft* case that a monopoly that lasts forever last only for a limited time. Alas, it did not.[23]

How would the news industry operate in the complete absence of copyright? Obviously local newspapers would no longer feel the need to license stories from the AP and Reuters. Most likely, the big news services would sell first to a few impatient and highly motivated customers, for whom getting the news an hour earlier than other people is highly valuable. Among the very impatient customers of *Reuters*, we might find the *Washington Post* and the *New York Times*, and maybe other "news replicators," who then give away the replicas of the *Reuters* story with a few hours delay and at a substantially lower price. It is possible that, depending on technology, speed of replication, and stratification of the market for news, a third or fourth layer of "Reuters replicators" would appear.

If this does not sound like a Star-Trek story to you, it is simply because we already witness a very similar arrangement in the market for financial and most other valuable news. Here, highly impatient customers pay substantial fees to purchase from *Bloomberg*, *Moodys*, or *Reuters* the real-time news and quotes. The news and quotes then trickle down from websites to cable TVs, to national newspapers, and so on until, often a whole day later, the NYSE quotes are published in most newspapers around the world. In fact, just click on the Yahoo site, or the Reuters site, or the CNN site before going to sleep at night. What do you get? You get the main ingredients of the articles you will read tomorrow morning from your beloved newspaper. The only difference with the financial news is that, for "normal news," people's degree of impatience is a lot smaller, which does not allow Reuters or CNN to charge you a high fee for feeding the news on line before they get published by the newspapers. Reuters and CNN, then, must get by with the revenues they collect from advertisers, or with the smaller fees they charge other professional news organizations. Still, the news gets collected, written and distributed, and most journalists, apparently, seem to find the salary they make in this competitive industry a reasonable compensation for their creative effort.

Similar considerations apply to the parroted questions about the highly paid author, the sleek imitators, and the money-losing publisher standing idly in the middle: the latter would stop standing idly in the middle, and would get smart. This is not to say that an author might receive only a modest amount for his work – for example, Stephen King might not spend weeks and weekends writing his latest great work if he could sell it for only a grand-total of $19.95. But as we have seen – the evidence of the 9/11

commission report suggests he would command a rather higher price than this.

The Modern American Newspaper[24]

The very form in which the news is currently distributed is itself a triumph of competitive innovation. The innovation was that of Benjamin Day, who in September 1833 started publishing the New York daily *Sun*, which he managed to sell at a penny while other newspapers sold at five or six cents. His low price came from two simple innovations: he collected lots of advertising instead of relying on subscriptions, and his paper was sold on street corners by armies of newsboys.

In the current parlance these are "innovative business methods" and today they would be patentable. Fortunately for the American newspaper sector and for millions of American readers, they were not patentable in 1833; Day's innovation spread like fire to the whole country, including New York City itself. Yet despite the competition from his imitators, Day became one of the most important publishers in the U.S. and, by 1840 the *Sun* and its direct competitor, the *Herald*, were the two most popular dailies.

Notice that Day's innovations were very costly, as he had to change completely the whole distribution chain for the newspaper and set up and train an entirely new sales force to acquire advertisement. At the same time, copying him was only apparently easy: the idea was quite straightforward, but implementing it was not so cheap. It involved roughly the same set up costs that the *Sun* had to face in the first place.

"And this is where your anti-intellectual property stance is revealed to be just anti-business!" would-be Bill Gateses are thinking at this point – but, equally probably, not Bill Gates himself as our earlier quote of his own words suggests. You see, without any intellectual property protection brave inventors will try out expensive new things, while parasitic imitators will sit out, letting the experiments run their course, and then imitating only successful practices. In this way, as the Recording Industry Association of America (RIAA) constantly reminds us on their anti-piracy web site, "The thieves [...] go straight to the top and steal the gold" bringing the recording company to economic ruin.

This argument may sound smart and "oh-so-common-sense" right when you hear it the first time – but pause for a minute, and you will realize it makes no business sense. Picking only winners means waiting until it is clear who is a winner. Well, try it: try getting somewhere by imitating the leaders only after you

are certain they are the leaders. Try ruining the poor pop star by pirating her tunes only once you are certain they are big hits! Excuse us, we thought that "being a hit" meant "having sold millions of copies." Try competing in a real industry by imitating the winners only when they have already won and you have left them plenty of time to make huge profits, establish and consolidate their position – and probably not leaving much of a market for you – the sleek imitator.

The World Before Copyright

Movies and news, not to speak of software code, are relatively new products. Music and literature go back to the dawn of civilization – and for at least three thousand years, musical and literary works have been created in pretty much every society, and in the complete absence, in fact: often under the explicit prohibition, of any kind of copyright protection. For the economic and legal theories of "no innovation without monopolization" this plain fact is as inexplicable a mystery as the catholic dogma of *virginitas ante partum* is for most of us.[25] To see the actual impact of copyright on creativity, let us start with some history. Copyright emerged in different European countries only after the invention of the printing press. Copyright originated not to protect the profits of authors from copyists, or to encourage creation, but rather as an instrument of government censorship. Royal and religious powers arrogated to themselves the right of deciding what could and could not be safely printed. Hence, the "right to copy" was a concession of the powerful to the citizenry to print and read what the powerful thought proper to print and read; Galileo's trial was, in an important way, an exercise in copyright enforcement by the Pope of Rome.

Later on, and mostly in the second half of the eighteenth century, in parallel with the diffusion, for the same purpose, of royal patents, copyright concessions began to be used as tax instruments. Selling a copyright, exactly like selling a patent, amounted to giving monopoly power to someone in exchange for bribing the royal power. The creation, in the United Kingdom, of the Stationers Company, with virtual monopoly over printing and publishing, is probably the best known example of such practice. There is no evidence, from the UK and from other European countries such as the Republic of Venice, which adopted similar laws, that they provided any particular boost to either literary creation or the spread of literacy.

The *Statute of Anne*, adopted in England by 1710, is considered the first piece of legislation that, in the modern spirit, separates the censorship function from that of the personal ownership of the literary product, allocating to authors, or to the lawful buyers of their manuscript, an exclusive right of publication that lasted fourteen years. Notice the number: fourteen, not as it is today, the life of author plus seventy-five; William Shakespeare had found incentives for writing his *opus* even without those fourteen years, and yet no Shakespeare appeared after 1710.

It took almost a century of controversial ups and downs for the copyright legislation to be fully accepted in England, and to spread to the rest of Europe.[26] Around the time of the French Revolution, and under the label of *propriete litteraire*, the idea that the works of art, literature and music belonged to their authors who could sell or reproduce them at will, without royal authorization, became popular. The fight for *propriete litteraire* was not a fight for monopoly but, instead, a request to abolish a particularly hideous royal monopoly: that over ideas and their expression. The institutional arrangements surrounding eighteenth century French publishing in the absence of copyright is also of some interest. Books were copied frequently and quickly. There were no royalties and authors were paid in advance. Many small firms were organized just to publish a single book. In short, books were published, authors were paid, and all without the benefit of copyright.

We have already mentioned, early in this chapter, the very particular form in which literary copyright was introduced in the United States in 1790 and how the absence of copyright protection for foreign writers favored the diffusion of literacy in the country. In Germany, it was the monopoly friendly Bismarck who, in 1870, introduced a uniform copyright legislation, modeled along the British lines; Goethe and Schiller, Kant and Hegel did not profit from it. It is only in 1886 that the Berne Conference and the signing of the first international copyright treaty began to bring a degree of uniformity to copyright throughout the Western world.

Literature and a market for literary works emerged and thrived for centuries in the complete absence of copyright. Most of what is considered “great literature” and is taught and studied in universities around the world comes from authors who never received a penny of copyright royalties. Apparently the commercial quality of the many works produced without copyright has been sufficiently great that Disney, the greatest champion of intellectual monopoly for itself, has made enormous use of the

public domain. Such great Disney productions as Snow White, Sleeping Beauty, Pinocchio and Hiawatha are, of course, all taken from the public domain. Quite sensibly, from its monopolistic viewpoint, Disney is reluctant to put anything back. However, the economic argument that these great works would not have been produced without an intellectual monopoly is greatly weakened by the fact that they were.

How New is Napster?

It is tempting to think that everything under the sun is new. For example, the Napster phenomenon is surely new, and cries out for new laws and regulation; surely the music industry can not survive the advent of widespread copying. Or can it?

At the turn of nineteenth century, the music industry was different from the one we are familiar with today. No CDs, no mass concerts, and no radio and TV. The core source of revenue was the sale of printed sheet music, which was carried out worldwide and on a very large scale. We learn, for example, that in Britain alone about twenty million copies were printed annually. The firms carrying out this business were not large multinationals as today, but family owned companies, such as Ricordi in Milano, which, nevertheless, managed to reach also foreign countries. Apparently these "majors" managed to collude quite efficiently among themselves. The records show that the average script sold in the U.K. for about a fourteen pence. Then piracy arrived, as a consequence of two changes: the development of photolithography, and the spread of "piano mania", which increased the demand for musical scripts by orders of magnitude. Pirated copies were sold at two pence each.[27]

Naturally the "authorized publishers" had a hard time defending their monopoly power against the pirates, enforcement costs were high and the demand for cheap music books was large and hard to monitor. Music publishers reacted by organizing raids on pirate houses aimed at seizing and destroying the pirated copies. This started a systematic and illegal "hit and destroy" private war, which lead, in 1902, to the approval of a new copyright law. The latter made violation of copyrights a matter for the penal code, putting the police in charge of enforcing what, until then, was protected only by the civil code.

The Southpark portrayal above of the "copyright police" storming the house to arrest children for sharing files exaggerates the current situation. In the early twentieth century, however, the hit squads of the authorized publishers did indeed burn down entire warehouses filled with "pirated" copies of sheet music – so perhaps Southpark should remind us of what might be if Congress continues in its current direction.

At least in the case of sheet music, the police campaign did not work. After a few months, police stations were filled with tons of paper on which various musical pieces were printed. Being unable to bring to court what was a de-facto army of "illegal" music reproducers, the police itself stopped enforcing the copyright law.

The eventual outcome? The fight continued for a while, with "regular" music producers keen on defending their monopoly and restricted sales strategy, and "pirates" printing and distributing cheap music at low prices and very large quantities. Eventually, in 1905, the king of the pirates, James Frederick Willett, was convicted for conspiracy. The leader of one of the music publishers associations, and the man who had invented the raids, launched the Francis, Day & Hunter's new sixpenny music series. Expensive sheet music never returned.[28]

The Birth of the Movie and of the Recording Industries[29]

A fact not heavily advertised by the Motion Picture Association of America (MPAA) is that the Hollywood film industry was built by pirates escaping the heavy hand of intellectual monopoly. After a long period of competitive fighting, in 1908 the major producers of film and movie equipment – including the Edison Film Manufacturing Company and the Biograph company – formed a cartel in the form of the Motion Picture Patents Company (MPCC). Through this instrument, they demanded licensing fees from all film producers, distributors, and exhibitors. They vigorously prosecuted "independent" filmmakers who refused to pay royalties. In 1909 a subsidiary of the MPPC, the General Film Company, tried to confiscate equipment used by the unlicensed companies, disrupting their operations.

To avoid the legal battles and royalties payments, the independents responded by moving from New York to California.

> *California was remote enough from Edison's reach that filmmakers like Fox and Paramount could move there and, without fear of the law, pirate his inventions. Hollywood*

> *grew quickly, and enforcement of federal law eventually spread west. But because patents granted their holders a truly "limited" monopoly of just 17 years (at that time), the patents had expired by the time enough federal marshals appeared. A new industry had been founded, in part from the piracy of Edison's creative property.*[30]

Roughly during the same period of time the recording industry grew out of a similar kind of piracy. In fact, the 1909 legislation that gave the MPCC the right to charge licensing fees to all moviemakers also began regulating the recording industry by introducing statutory licensing for recorded music. By doing so, Congress struck a compromise between composers, who wanted complete monopoly over the performance of their pieces, and recording artists, whose trade had grown briskly and competitively during the previous two or three decades. Between 1878, when Edison's first tinfoil phonograph was patented, and 1889, when The Columbia Phonograph Co. started to market a treadle-powered graphophone, recording music to be sold for commercial purposes became possible. The development, following Henry Fourneaux's prototype, of the player piano also greatly facilitated recording of music that would, otherwise, require an expensive ensemble to be performed. Although composers had exclusive rights to control sheet music and public performances, there was no clear right to control over recordings of music – something that had not previously existed. This ended in 1909 when Congress extended copyright to recordings but imposed statutory licensing; the recording industry grew – largely on the basis of recordings "pirated" from composers.

Ironically, these parallel and contemporaneous stories teach us something about the principles guiding the fight for or against the enforcement of intellectual property rights. The reader may have already noted, in fact, that Thomas Edison was sitting on both sides of the fence in this period. When it came to movies, because he was holding strong patents on the main tools used to tape and show movies, Edison had to favor a strong enforcement of intellectual property. At the same time, though, his interests in the recorded music industry argued against an extension of copyright protection. Demand for Edison's phonograph obviously increased as cheaper and more abundant recordings of music became available, which was facilitated by a weak enforcement of the composers' monopoly power.

Encrypted versus Unencrypted Sales

The book, recorded music, and movie industries have been heavily influenced by the Napster experience in which music has been given away for free over peer-to-peer networks. Consequently these industries have made a strong effort both to encrypt their products, and have lobbied the government to mandate encryption schemes. The Digital Millenium Copyright Act, or DMCA, for example, makes it a federal crime to reverse engineer encryption schemes used to protect copyright. When it comes to competitive markets, the Napster experience is deceptive – not only is the product distributed on Napster-like networks cheaper than the commercial product – it is also better. An unencrypted song in a standard MP3 format can easily and readily be played on and transferred to many devices. Music in the chosen format of the major labels can be played inconveniently and only by a small number of devices. So, the experience of music on Napster begs the question about the performance of a market without copyright: will a good product sold at a reasonable price be widely distributed for free?

Within the book industry we have considerable evidence with which to answer this question, because, while most publishers have released electronic editions only in encrypted form, a few have sold unencrypted editions. Moreover, many books are currently available on peer-to-peer networks, and there have been lawsuits by a number of authors attempting to prevent this. So we might expect that the sale of unencrypted electronic books results in relatively few sales since they will immediately appear for free on peer-to-peer networks, while encrypted books will sell better, since they are not subject to "piracy." Strikingly, the data shows exactly the opposite.

The case of fictionwise.com is an especially instructive natural experiment, since depending on the publisher and author, they sell some books in encrypted form, and others in unencrypted form. The encrypted books tend to be by the best known authors. When we collected data on September 1, 2002, for example, the most highly rated book (by purchasers) was encrypted. Both types of books sell for a similar price – about $5 for a novel. On the other hand, fictionwise.com also provides some sales data: they list the top 25 recent best-sellers and the top 25 best-sellers for the last 6 months. On the randomly chosen date of September 1, 2002 no encrypted ebook appeared on either list. Almost five years later, the situation has changed somewhat in favor of encrypted books, but not dramatically so. Ranging through the same categories, one

observes that the market is now about fifty-fifty between encrypted and not encrypted books. Interestingly, the prices seem to be the same, signaling that either the unencrypted books are systematically a lot better than the encrypted ones, or the impact of "piracy" on the demand for the legitimate products is quite negligible.

Data prior to the advent of fictionwise tells the same story. At that time there were many outlets, including most of the major publishers, for encrypted ebooks, and only one, Baen, for unencrypted ebooks. Here is a report from author Eric Flint on the success of the unencrypted webscriptions, compared to other encrypted ebook enterprises:

> *Webscriptions, unlike all other electronic outlets I know of, pays me royalties in substantial amounts. As of now, I've received about $2,140 in electronic royalties from Baen Books for the year 2000…That sum is of course much smaller than my paper edition royalties, but it can hardly be called "peanuts." Every other electronic outlet I know of, in contrast, pays royalties – if at all – in two figures. My friend Dave Drake has given me permission to let the public know that his best-earning book published by anyone other than Baen, in one reporting period, earned him $36,000 in royalties for the paper edition – and $28 for the electronic edition. And that's about typical for even a successful book issued electronically [in encrypted form].*[31]

Interestingly, searching the Gnutella peer-to-peer network on September 1, 2002, and on a number of subsequent occasions, the keyword "ebook" turns up a number of books released by Baen in electronic form. But they are legal copies of books given away by Baen for free – none of the books that Baen sells was found.

In the end, it is difficult to avoid the conclusion that it is the unpopularity of the music industry with its customers, combined with the inferiority of the "legitimate" product, that has led to the widespread giving away of MP3s for the cost of personal time and bandwidth. In the case of products sold in a superior form at a reasonable price, there appears to be little effort to trade it on peer-to-peer networks – so much so that the unencrypted product outsells the encrypted version.

Pornography

What would the entertainment industry look like without copyright? As a model, we might examine the segment of the industry for which copyright is not so important. While the pornography industry is nominally protected by copyright, it does not receive the type of social approval that other industries have, and as a result the industry has not focused on the use of the legal system to protect its intellectual monopoly. When we read of the FBI seizing illegal DVDs in raids in Hong Kong, it seems that they seize illegal copies of *The Sound of Music*, and not illegal copies of *Debbie Does Dallas*, although we suspect that pirated copies of the latter are widely sold.

Despite social disapprobation, in most relevant respects the pornography industry is similar to "legitimate" movies and recordings. Producing and distributing a pornographic movie or magazine is technically and economically no different from producing and distributing a "legitimate" movie or magazine – so we can gain considerable insight into how the "legitimate" industries might operate in the absence of copyright by examining the pornography industry. In an earlier era, with the large overhead of producing movies and glossy magazines, the pornographic industry operated much as the "legitimate" industry operates. However the tenuous legal status of the industry has made it difficult for them to use copyright laws to inhibit competition, and so as technology has changed, pornography has become a cottage industry with many competing small scale producers. It is perhaps not so difficult to imagine that in the absence of copyright, the legitimate industry would have been forced to adopt the same model, so we may see the current stage of the pornography industry as a model of the "legitimate" industry without copyright.

If we turn the clock back to the 1960s, when the legal pornographic industry first became widespread in the U.S., we find that publishing costs were high, and that the industry was dominated by a few giants, most notably *Playboy* and *Penthouse*. However, unlike the "legitimate" industry, these large monopolists were not able to inhibit entry through the manipulation of the legal system, the abuse of copyright law, or through political favoritism. The consequence has been that as technology has changed, this has become an industry in which entry is frequent, and innovation constant. Still, as long as the main technology for the reproduction and distribution of pornographic materials consisted of glossy magazines and movies circulating through the chain of X-rated

movie theaters, the threat of competition and imitation was weak, and the big houses thrived.

All through the 1980s and then, at a much faster pace, the 1990s technologies such as videotapes and the Internet became available and were quickly adopted. Indeed it is arguable that the replication and distribution of pornographic materials was one of the reasons for the early explosive growth of the Internet during the 1994-1999 period. The thousands of Internet sites distributing pornographic materials around the globe are, most of the time, imitators of the main initial producers, most often in violation of copyrights and licensing restrictions. Online pornographers are usually among the first to exploit new technologies — from video-streaming and fee-based subscriptions to pop-up ads and electronic billing. Their bold experimentation has helped make porn one of the most profitable online industries, and their ideas have spread to other "legitimate" companies and became the source of many successful and highly valuable imitations.

Notice that if intellectual monopoly were a necessary requisite for sustained innovation, the circumstances we are describing should have brought the porn industry to commercial standstill, halted innovation, and greatly reduced the amount of pornographic materials available to consumers. We are all well aware that exactly the opposite has happened. The consequence of the tremendous reduction in the cost of copying and redistributing visual materials, and the advent of peer-to-peer networks has not brought about any reduction in the quantity of new pornography available to consumers – indeed it seems to have expanded considerably – nor are we aware of complaints about a reduction in quality. There has, however, been an extremely adverse impact on the monopolies that originally dominated the industry – with *Penthouse* filing for Chapter 11 protection, and *Playboy* and *Hustler* dramatically losing profitability and market share. When we originally wrote this section, during a visit to Hong Kong in March 2004, the local newspapers announced the shutting down of the Asian edition of *Penthouse*, yet the newsstands in Kowloon and Hong Kong were bursting with pornographic materials, all from the many competitive imitators of those fading monopolies.[32]

If we compare the pornographic movie and entertainment industry to its "legitimate" counterpart, we find an industry that is more innovative, creates new products and adopts new technologies more quickly, and for which the reduction in distribution cost has resulted in more output at lower prices, and a more diverse product. We also find an industry populated by many

small producers, and no dominant large firms capable of manipulating the market either nation- or world-wide. European intellectuals and politicians, obsessively fearing colonization by American movies and music, should take a note: strengthening copyright protection, as you are all advocating, may just make you a couple of euros richer and a lot more intellectually colonized.

Finally, in pornography we find an industry in which "stars," be they actresses and actors or directors, earn a good living but are far from accumulating the fabled fortunes of the "stars" of its monopolistic counterparts. The evidence shows that porno stars make many more movies and earn between one and two orders of magnitude less, overall, than regular stars. In other words, they work more and make less money. This may seem a "bad" feature of the non-protected industry, but from a social point of view it need not be. Indeed, it is the other side of the fact that more and cheaper porno movies are available. The stars of the porno movie industry are simply a lot closer to earning their "opportunity wage" – economic parlance for what they would be earning, given their skills and the prevailing market conditions, in their best alternative occupation – than are the stars of the "legitimate" movie industry.

Organizing markets and industries in such a way that goods and services are provided while factors of production, either labor or capital, earn no more than their opportunity cost, is what a socially desirable policy should aim at. Now, on the basis of the available evidence, we cannot rule out the possibility that Sharon Stone or Brad Pitt – unlike Tera Patrick and Rocco Siffredi – have such lucrative alternative occupations that they would have given up Hollywood had they not earned the tens of million of dollars per movie that copyright laws allowed them to earn. Still, we cannot help but wonder if many "legitimate" actors and actresses would leave the industry if intellectual monopoly protection evaporated. While it is clear that the dominant firms and the big players in the "legitimate" industry might fear such an outcome, there is certainly no reason for the consumers of these products, "legitimate" or not, to do so.

Comments

Nobody, unfortunately, has yet written a historical book on competitive innovation but many valuable histories of technology do exist from which the reader can gather an idea of how many inventions took place, over two thousand years, absent intellectual monopoly.

Notes

[1] Hints that Microsoft might sue GNU/Linux users have been widespread since they announced in May 2007 that GNU/Linux infringes on 235 Microsoft patents. The announcement as well as reaction has been widely covered in the press, e.g. on Fortune magazine on May 14, 2007, available on line at http://money.cnn.com/magazines/fortune/fortune_archive/2007/05/28/100033867/.

[2] Bill Gates, Microsoft Challenges and Strategy Memo (16 May 1991).

[3] Extensive discussion of the role of copyright and patents in the software market can be found in Bessen and Hunt [2003]. The first browser and webserver were written by Tim Berners-Lee of CERN, who was also instrumental in persuading his superiors at CERN to keep the code and protocols free and open. NSCA Mosaic was the first popular browser and provided the source code for both Netscape and Internet Explorer. The original Internet Explorer was based on code licensed from Spyglass, the commercial arm of NSCA Mosaic. See, for example, www.blooberry.com.

[4] Note that "copyleft" as it works today uses copyright law to force the release of source-code for derivative works. One consequence of abolishing copyright would be to eliminate the GPL and similar agreements that restrict the right of downstream users and innovators to keep their source-code secret. One could argue in favor of "negative copyright" disallowing copyright that serves collusively to inhibit competition, but allowing copyright such as the GPL that serves to enhance it. However, we do not think that government trying to enforce anti-secrecy agreements such as the GPL makes little more sense than having them enforce secrecy agreements. Moreover, we doubt in practice that in the absence of

copyright source-code secrecy would prove to be an important practical problem.

[5] The estimate of Linux's 25% share of the server market is from news.zdnet.co.uk/story/0,,t289-s2122729,00.html.

[6] Statistics on the popularity of web servers can be found at www.netcraft.com. Updated information about Netcraft web server survey, reporting that as of January 2007 Apache stands at 60% of the market while Microsoft is a distant second at 30%, can be found at news.netcraft.com/archives/web_server_survey.html.

[7] Brown [2005].

[8] A readable, short, complete story of the OSS movement, drawing interesting and clear parallels with two nineteenth century episodes of "collective invention" in the complete absence of intellectual monopoly that we also often quote – for example the Cleveland blast furnace and the Cornish pumping engine – can be found in Nuvolari [2005].

[9] Recent information about the viability of the Red Hat approach to producing and distributing OSS can be found, for example, in Gilbert [2005] reporting that Red Hat revenues were growing at a rate of 46% a year in middle 2005, and in Flynn and Lohr [2006] describing the details of a deal between Novell and Microsoft through which the latter would ensure that Novell's version of Linux could operate together with Windows in the corporate environment.

[10] Arnold Plant [1934].

[11] Arnold Plant [1934], p. 172.

[12] The earnings of English authors from American publishers is discussed in Arnold Plant [1934]. His perspective on intellectual property is similar to ours.

[13] According to the Census, in 1850 U.S. population was 23.2 million; in 1851, U.K. population from the census was 27.5 million. During those same years per capita GDP, in 1996 U.S. dollars, was roughly $1930 in the U.S. and $2838 in the U.K.

Literacy rates in both countries were roughly 85%. Thus our conclusion that the market for books was of similar size in the two countries.

[14] The story of the *9/11 Commission Report* is from several sources, primarily Koerner [2004] and Wyatt [2004].

[15] Koerner [2004] p. 1.

[16] *The New York Times* article by Wyatt [2004] entitled "For Publisher of 9/11 Report, a Royalty-Free Windfall".

[17] That the St. Martin's version was a best seller is reported in the Washington Post [2004] – with the Norton version at #1 and the St. Martin's version at #8.

[18] May [2005].

[19] Associated Press [2005].

[20] Details about the Iraq Study Group report and its sale performances are widely available on the web, e.g. at www.cnn.com/2006/SHOWBIZ/books/12/07/us.iraq.book.ap/index.html.

[21] The initial print run of *Harry Potter and the Half Blood Prince* was widely reported, see for example www.veritaserum.com.

[22] J. K. Rowling's previous occupation is from an on-line biography at gaga.essortment.com.

[23] The same Spanish newspapers involved in the Gedeprensa project have been quite eager to publish editorials by one of us and fellow Spanish economist Juan Urrutia on a wide variety of economic subjects. Not surprisingly, they have refused to publish editorials by the same authors criticizing the Gedeprensa proposal. The editorials are at the website lasindias.com/articulos/grandes_firmas/gedeprensa.html

[24] The story of Benjamin Day is taken from Surowiecki [2003], who correctly notices that

> *This is how American business worked until very recently. Innovators came up with new ways of selling products, handling suppliers, running organizations, or managing information. If the ideas were good, the innovators got rich, but they also got imitated, which made them less rich than they might have been. It was great for everyone else, though. The competition lowered prices and increased quality; the new ideas spread and were improved upon. The mail-order catalogue, the moving assembly line, the decentralized corporation, the frequent-flier mile, the category-killer store - none of these radical ideas were patented.*

The ultimate monopolistic fate of the American publishing industry is discussed in the excellent historical review by Hesse [2002].

[25] Should our passing reference to catholic dogmas make the reader curious about virginitas ante partum, in partu, and post partum, www.answersingenesis.org is a starting point for delving into the doctrine.

[26] That in the nineteenth century literacy was higher in England than anywhere else in Europe, with the possible exception of the kingdom of Prussia, we learned from Cipolla [1969].

[27] Almost all the facts reported here were taken from Coover [1985], which we discovered thanks to Mann [2000], and Johns [2002] who, apart for the information contained in Coover, seems to have also checked a number of original references.

[28] See Johns [2002], pp. 70-71.

[29] The stories of Hollywood and of the origin of sound recording are from Lessig [2004].

[30] Lessig [2004] p. 54.

[31] Flint [2002] p. 1.

[32] Reporting of *Penthouse*'s financial problems, and indication that they are due to the advent of the Internet are widespread in the press. See for example, David Carr [2002]. Our main source of information about the pornography industry was Swartz [2004].