

# BAD SAMARITANS



THE MYTH OF  
**FREE TRADE**  
AND THE SECRET HISTORY OF  
**CAPITALISM**

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## CHAPTER 6

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### Windows 98 in 1997

#### Is it wrong to 'borrow' ideas?

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In the summer of 1997, I was attending a conference in Hong Kong. The boundless energy and commercial bustle of the city were thrilling even to a Korean, who is no stranger to such things. Walking down the busy street, I noticed dozens of street hawkers selling pirated computer software and music CDs. What caught my eye was the display of the Windows 98 operating system for PCs.

I knew that people in Hong Kong were, like my fellow Koreans, good at pirate-copying, but how could the copy come out before the real thing? Had someone invented a time machine? Unlikely, even in Hong Kong. Someone must have smuggled out the prototype Windows 98 that was being given the final touch in the research labs of Microsoft and knocked off a bootleg version.

Computer software is notoriously easy to duplicate. A new product which is the result of hundreds of man-years of software development effort can be duplicated onto a disk in a few seconds. So, Mr. Bill Gates may be exceptionally generous in his charity work, but he is a pretty hard man when it comes to someone copying his software. The entertainment industry and the pharmaceutical industry have the same problem. This is why they are exceptionally aggressive in promoting the strong protection of intellectual property rights (IPRS), such as patents, copyrights and trademarks.

Unfortunately, this handful of industries has been driving the whole international agenda on IPRs over the past two decades. They led the campaign to introduce the so-called TRIPS (Trade-Related Intellectual Property Rights) agreement in the WTO. This agreement has widened the scope, extended the duration and heightened the degree of protection for IPRs to an unprecedented extent, making it much more difficult for developing countries to acquire the new knowledge they need for economic development.

### 6.1. *'The fuel of interest to the fire of genius'*

Many African countries are suffering from an HIV/AIDS epidemic.<sup>[1]</sup> Unfortunately, HIV/AIDS drugs are very expensive, costing \$10–12,000 per patient per year. This is three to four times the annual income per person of even the richest African countries, such as South Africa or Botswana, both of which happen to have the most serious HIV/AIDS epidemic in the world. It is 30–40 times that of the poorest countries, like Tanzania and Uganda, which also have a high incidence of the disease.<sup>[2]</sup> Given this, it is understandable that some African countries have been importing 'copy' drugs from countries like India and Thailand, which cost only \$3–500, or 2–5% of the 'real' thing.

The African governments have not been doing anything revolutionary. All patent laws, including the most pro-patentee US law, have a provision for restricting the rights of IPR-holders when they clash with the public interest. In such circumstances, governments can cancel patents, impose compulsory licensing (forcing the patent holder to license it to third parties—at a reasonable fee) or allow parallel imports (imports of copy products from countries where the product is not patented). Indeed, in the aftermath of the anthrax terror scare in 2001, the US government utilized the public interest provision to maximum effect—it used the threat of compulsory licensing to extract a whopping 80% discount for Cipro, the patent-protected anti-anthrax drug from Bayer, the German pharmaceutical company.<sup>[3]</sup>

Despite the legitimacy of the actions of African countries concerning the HIV/AIDS drugs, 41 pharmaceutical companies banded together and decided to make an example of the South African government and took it to court in 2001. They argued that the country's drug laws allowing parallel imports and compulsory licensing were contrary to the TRIPS agreement. The ensuing social campaigns and public uproar showed the drug companies in a bad light, and they eventually withdrew the lawsuit. Some of them even offered substantial discounts on their own HIV/AIDS drugs to African countries to make up for the negative publicity generated by the episode.

During the debate surrounding the HIV/AIDS drugs, the pharmaceutical companies argued that, without patents, there will be no more new drugs - if anyone can 'steal' their inventions, they would have no reason to invest in inventing new drugs. Citing Abraham Lincoln—the only US president to be issued a patent\*—who said that 'patent adds the fuel of interest to the fire of genius', Harvey Bale, director general of the International Federation of Pharmaceutical Manufacturers Associations, asserted that 'without [intellectual property rights] the private sector will not invest the hundreds of millions of dollars needed to develop new vaccines for AIDS and other infectious and non-infectious diseases.'<sup>[4]</sup>

Therefore, the drug companies went on to say, those who are criticizing the patent system (and other IPRS) are threatening the future supply of new ideas (not just drugs), undermining the very productivity of the capitalist system.

The argument sounds reasonable enough, but it is only a half-truth. It is not as if we always have to 'bribe' clever people into inventing new things. Material incentives, while important, are not the only things that motivate people to invest in producing new ideas. At the height of the HIV/AIDS debate, 13 fellows of the Royal Society, the highest scientific society of the UK, put this

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\*Lincoln received US Patent #6,469 for 'A Device for Buoying Vessels Over Shoals' on May 22 1849. The invention consists of a set of bellows attached to the hull of a ship just below the waterline. On reaching a shallow place, the bellows are filled with air and the vessel, thus buoyed, is expected to float clear. It was never marketed, probably because the extra weight would have increased the probability of running onto sandbars more frequently.

point powerfully in an open letter to the *Financial Times*: ‘Patents are only one means for promoting discovery and invention. Scientific curiosity, coupled with the desire to benefit humanity, has been of far greater importance throughout history.’<sup>[5]</sup>

Countless researchers all over the world come up with new ideas all the time, even when they do not directly profit from them. Government research institutes or universities often explicitly refuse to take out patents on their inventions. All these show that a lot of research is not motivated by the profit from patent monopoly.

This is not a fringe phenomenon. A lot of research is conducted by non-profit-seeking organizations—even in the US. For example, in the year 2000, only 43% of US drugs research funding came from the pharmaceutical industry itself. 29% came from the US government and the remaining 28% from private charities and universities.<sup>[6]</sup>

So, even if the US were to abolish pharmaceutical patents tomorrow and, in response, all the country’s pharmaceutical companies shut down their research labs (which will not happen), there would still be more than half as much drugs research as there is today in that country. A slight weakening of patentee rights—for example, being forced to charge lower prices to poor people/countries or being made to accept a shorter patent life in developing countries—is even less likely to result in the disappearance of new ideas, despite the patent lobby mantra.

We should also not forget that patents are critical only for some industries, such as pharmaceutical and other chemicals, software, and entertainment, where copying is easy.<sup>[7]</sup>

In other industries, copying new technology is not easy, and innovation automatically gives the inventor a temporary technological monopoly, even in the absence of the patent law. The monopoly is due to the natural advantages accorded to the innovator, such as imitation lag (due to the time it takes for others to absorb new knowledge); reputational advantage (of being the first and

so best-known producer); and the head start in ‘racing down learning curves’ (i.e., the natural increase in productivity through experience).<sup>[8]</sup> The resulting temporary monopoly profit is reward enough for the innovative activity in most industries. This was indeed a popular argument against patents in the 19<sup>th</sup> century.<sup>[9]</sup>

This is also why patents do not feature at all in the Austrian-born American economist Joseph Schumpeter’s famous theory of innovation – Schumpeter believed that the monopoly rent (or what he calls the entrepreneurial profit) that a technological innovator will enjoy through the above mechanisms is a big enough incentive for investing in generating new knowledge.<sup>[10]</sup> Most industries actually do not *need* patents and other ‘IPRS to generate new knowledge—although they will be more than happy to take advantage of them, if they are offered to them. The patent lobby talks nonsense when it argues that there will be no new technological progress without patents.

Even in those industries where copying is easy and thus patents (and other IPRS) are necessary, we need to get the balance right between the interests of the patentees (and the holders of copyrights and trademarks) and the rest of society. One obvious problem is that patents, by definition, create monopolies, which impose costs on the rest of society. For example, the patentee could use its technological monopoly to exploit the consumers, as some people believe Microsoft is doing. But it is not just the problem of income distribution between the patentee and the consumers. Monopoly also creates net social loss by allowing the producer to maximize its profit by producing at a less than socially desirable quantity, creating net social loss (this is explained in chapter 5). Also, because it is a ‘winner takes all’ system, critics point out, the patent system often results in the duplication of research among competitors—this may be wasteful from the social point of view.

The unstated presumption in the pro-patent argument is that such costs will be more than offset by the benefits that flow from increased innovation (that is, higher productivity), but this is not guaranteed. Indeed, in mid-i9 th-

century Europe, the influential anti-patent movement, famously championed by the British free-market magazine, *The Economist*, objected to the patent system on the grounds that its costs would be higher than its benefits.<sup>11-6</sup> Of course, the 19th-century anti-patent liberal economists were wrong. They failed to recognize that some forms of monopoly, including the patent, can create more benefits than costs. For example, infant industry protection does produce inefficiency by artificially creating monopoly power for domestic firms, as free-trade economists are only too pleased to point out. But such protection may be justified, if it raises productivity in the long run and more than offsets the damages from the monopoly it creates, as I have repeatedly explained in the earlier chapters. In exactly the same manner, we advocate the protection of patents and other intellectual property rights, despite their potential to create inefficiency and waste, because we believe they will more than compensate for those costs in the long run by generating new ideas that raise productivity. But accepting the potential benefits of the patent system is different from saying that there is no cost involved. If we design it wrong and give too much protection to the patentee, the system can create more costs than benefits, as is the case with excessive infant industry protection.

The inefficiency from monopolies and the waste from ‘winner-takes-all’ competition are neither the only, nor the most important, problems with the patent system, and other similar forms of intellectual property rights protection. The most detrimental impact lies in its potential to block knowledge flows into technologically backward countries that need better technologies to develop their economies. Economic development is all about absorbing advanced foreign technologies. Anything that makes it more difficult, be it the patent system or a ban on the export of advanced technologies, is not good for economic development. It is as simple as that. In the past, the Bad Samaritan rich countries themselves understood this clearly and did everything to prevent this from happening.

## 6.2. *John Law and the first technological arms race*

As water flows from high to low, knowledge has always flowed from where there is more to where there is less. Those countries that are better at absorbing the knowledge inflow have been more successful in catching up with the more economically advanced nations. On the other side of the fence, those advanced nations that are good at controlling the outflow of core technologies have retained their technological leadership for longer. The technological ‘arms race’, between backward countries trying to acquire advanced foreign knowledge and the advanced countries trying to prevent its outflow has always been at the heart of the game of economic development.

The technological arms race started to take on a new dimension in the 18<sup>th</sup> century, with the emergence of modern industrial technologies that had much greater potential for productivity growth than traditional technologies. The leader in this new technological race was Britain. Not least because of the Tudor and Georgian economic policies that we discussed in chapter 2, it was rapidly becoming Europe’s, and the world’s, leading industrial power. Naturally, it was reluctant to part with its advanced technologies. It even set up legal barriers to technology outflows. The other industrialising countries in Europe, and the US, had to violate those laws in order to acquire superior British technologies.

This new technological arms race was started in full spate by John Law (1671–1729), the legendary Scottish financier-economist who even became France’s finance minister for just under a year. Law was named the ‘moneymaker’ by the author of his popular biography, Janet Gleeson.<sup>[12]</sup> He was a moneymaker in more than one sense. He was an extremely successful financier, making huge killings on currency speculation, setting up and merging large banks and trading companies, getting royal monopolies for them and selling their shares at huge profits. His financial scheme was too successful for its own good. It led to the Mississippi Bubble—a financial bubble three times bigger than the contemporary South Sea Bubble discussed in chapter 2 -which wrecked the

French financial system.\* Law was also known as a great gambler with an incredible ability to calculate the odds. As an economist, he advocated the use of paper money backed by a central bank.<sup>[13]</sup> The idea that we can make worthless paper into money through government fiat was a radical notion then. At the time, most people believed that only things that have a value of their own, like gold and silver, could serve as money.

John Law is today remembered mainly as the financial wheeler-dealer who created the Mississippi Bubble, but his understanding of economics went far beyond mere financial engineering. He understood the importance of technology in building a strong economy. While he was expanding his banking operation and building up the Mississippi Company, he also recruited hundreds of skilled workers from Britain in an attempt to upgrade France's technology.<sup>[14]</sup>

At the time, getting skilled workers was the key to accessing advanced technologies. No one could say, even today, that workers are mindless automata repeating the same task in the manner so hilariously but poignantly depicted by

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\*Law was born into a banking family in Scotland. In 1694, he had to flee to the Continent after killing a man in a duel. In 1716, after years of lobbying, Law was given a licence by the French government to set up a note-issuing bank, Banque Générale. His main backer was the Duc d'Orleans, Louis XIV's nephew and the then regent for the child king, Louis XV, the great-grandson of Louis XIV. In 1718, Banque Générale became Banque Royale, with its notes guaranteed by the king. In the meantime, Law bought the Compagnie du Mississippi (the Mississippi Company) in 1717 and floated it as a joint-stock company. The company absorbed other rival trading companies and, in 1719, became Compagnie Perpetuelle des Indes, although it was still commonly called Compagnie du Mississippi. The company had a royal monopoly on all overseas trading. With Law launching high-profile settlement schemes in Louisiana (French North America) and generating rumours vastly exaggerating their prospects, a speculative frenzy on the company's stocks started in the summer of 1719. The share price rose by more than 30 times between early 1719 and early 1720. So many large fortunes were made so quickly—and subsequently lost in many cases—that the term *millionaire* was coined to describe the new mega-rich. In January 1720, Law was even made the finance minister (the Controller General of Finances). But the bubble soon burst, leaving the French financial system in ruins. The Duc d'Orléans dismissed Law in December 1720. Law left France and eventually died penniless in Venice in 1729.

Charlie Chaplin in his classic film, *Modern Times*. What workers know and can do matters greatly in determining a firm's productivity. In earlier times, though, their importance was even more pronounced, since they themselves embodied a lot of technologies. Machines were still rather primitive, so productivity depended very much on how skilled the workers who operated them were. The scientific principles behind industrial operations were poorly understood, so technical instructions could not be written down easily in universal terms. Once again, the skilled worker had to be there to run the operation smoothly.

Galvanized by Law's attempt to poach skilled workers and also by a similar Russian attempt, Britain decided to introduce a ban on the migration of skilled workers. The law, introduced in 1719, made it illegal to recruit skilled workers for jobs abroad—known as 'suborning'. Emigrant workers who did not return home within six months of being warned to do so would lose their right to lands and goods in Britain and have their citizenship taken away. Specifically mentioned in the law were industries such as wool, steel, iron, brass, other metals and watch-making; but in practice the law covered all industries.<sup>[15]</sup>

With the passage of time, machines became more complex and began to embody more technologies. This meant that getting hold of key machinery started to become as important as, and increasingly more important than, recruiting skilled workers. Britain introduced a new act in 1750 banning the export of 'tools and utensils' in the wool and silk industries. The ban was subsequently widened and strengthened to include the cotton and linen industries. In 1785, the Tools Act was introduced to ban the export of many different types of machinery.<sup>[16]</sup>

Other countries intent on catching up with Britain knew that they had to get hold of these advanced technologies, whether the method used to do so was 'legal' or 'illegal' from the British point of view. The 'legal' means included apprenticeships and factory tours.<sup>[17]</sup> The 'illegal' means involved the governments of continental Europe and the US luring skilled workers contrary to British law. These governments also routinely employed industrial spies. In the 1750s, the French government appointed John Holker, a former Manchester textile fin-

isher and Jacobite officer, as Inspector-General of Foreign Manufactures. While also advising French producers on textile technologies, Holker's main job was running industrial spies and poaching skilled workers from Britain.<sup>[18]</sup> There was also a lot of machine smuggling. Smuggling was hard to detect. Because machines were still quite simple and had relatively few parts, they could be taken apart and smuggled out bit by bit relatively quickly.

Throughout the 18<sup>th</sup> century, the technological arms race was fought viciously, using recruitment schemes, machine smuggling and industrial espionage. But by the end of the century, the nature of the game had changed fundamentally with the increasing importance of 'disembodied' knowledge—that is, knowledge that can be separated from the workers and the machines that used to hold them. The development of science meant that a lot of—although not all—knowledge could be written down in a (scientific) language that could be understood by anyone with appropriate training. An engineer who understood the principles of physics and mechanics could reproduce a machine simply by looking at the technical drawings. Similarly, if a chemical formula could be acquired, medicines could be easily reproduced by trained chemists.

Disembodied knowledge is more difficult to protect than knowledge embodied in skilled workers or actual machines. Once an idea is written down in general scientific and engineering language, it becomes much easier to copy it. When you have to recruit a skilled foreign worker, there are all sorts of personal and cultural problems. When you import a machine, you may not get the maximum out of it because you may only poorly understand its operative principles. As the importance of disembodied knowledge grew, it became more important to protect the ideas themselves than the workers or machines that embody them. Consequently, the British ban on skilled worker emigration was abolished in 1825, while that on machinery export was dropped in 1842. In their place, the patent law became the key instrument in managing the flow of ideas.

The first patent system is supposed to have been used by Venice in 1474, when it granted ten years' privileges to inventors of 'new arts and machines'. It

was also somewhat haphazardly used by some German states in the 16<sup>th</sup> century and by Britain from the 17<sup>th</sup> century.<sup>[19]</sup>

Then, reflecting the growing importance of disembodied knowledge, it spread very quickly from the late 18<sup>th</sup> century, starting with France in 1791, the US in 1793 and Austria in 1794. Most of today's rich countries established their patent laws within half a century of the French patent law.<sup>[20]</sup> Other intellectual property laws, such as copyright law (first introduced in Britain in 1709) and trademark law (first introduced in Britain in 1862) were adopted by most of today's rich countries in the second half of the 19<sup>th</sup> century. Over time, there emerged international agreements on IPRs, such as the Paris Convention on patents and trademarks (1883)<sup>[21]</sup> and the Berne Convention on copyrights (1886). But even these international agreements did not end the use of 'illegal' means in the technological arms race.

### 6.3. *The lawyers get involved*

The year 1905 is known as the *annus mirabilis* of modern physics. In that year, Albert Einstein published three papers that changed the course of physics for good.<sup>[22]</sup> Interestingly, at the time, Einstein was not a professor of physics but a humble patent clerk (an assistant technical examiner) in the Swiss Patent Office, which was his first job.<sup>[23]</sup>

Had Einstein been a chemist rather than a physicist, his first job could *not* have been in the Swiss Patent Office. For, until 1907, Switzerland did not grant patents to chemical inventions.<sup>[24]</sup>

Switzerland, in fact, had no patent law of any kind until 1888. Its 1888 patent law accorded protection only to 'inventions that can be represented by mechanical models'. The clause automatically (and intentionally) excluded chemical inventions—at the time, the Swiss were 'borrowing' a lot of chemical and pharmaceutical technologies from Germany, the then world leader in those fields. It was thus not in their interest to grant chemical patents.

Only in 1907, under the threat of trade sanctions by Germany, did the Swiss decide to extend patent protection to chemical inventions. However, even the new patent law did not protect chemical technologies to the degree expected in today's TRIPS system. Like many other countries at the time, the Swiss refused to grant patents for chemical substances (as opposed to chemical processes). The reasoning was that those substances, unlike mechanical inventions, already existed in nature and, therefore, the 'inventor' had merely found a way to isolate them, rather than inventing the substance itself. Chemical substances remained unpatentable in Switzerland until 1978.

Switzerland was not the only country at the time without a patent law. The Netherlands actually abolished its 1817 patent law in 1869, not to introduce it again until 1912. When the Dutch abolished the law, they were in no small measure influenced by the anti-patent movement I mentioned above—they were convinced that patent, as artificially created monopoly, went against their free-trade principle.<sup>[25]</sup> Exploiting the absence of a patent law, the Dutch electronics company, Philips, a household name today, started out in 1891 as a producer of light bulbs based on the patents 'borrowed' from the American inventor, Thomas Edison.<sup>[26]</sup>

Switzerland and the Netherlands may have been extreme cases. But throughout much of the 19<sup>th</sup> century, the IPR regimes in today's rich countries were all very bad at protecting *foreigners'* intellectual property rights. This was partly the consequence of the general laxity of early patent laws in checking the originality of an invention. For example, in the US, before the 1836 overhaul of its patent law, patents were granted without any proof of originality; this encouraged racketeers to patent devices already in use ('phony patents') and then to demand money from their users under threat of suit for infringement.<sup>[27]</sup> But the absence of protection for foreigners' intellectual property rights was often deliberate. In most countries, including Britain, the Netherlands, Austria, France and the US, patenting of *imported invention* was explicitly allowed. When Peter Durand took out a patent in 1810 in Britain for canning technology, using the

Frenchman Nicolas Appert's invention, the application explicitly stated that it was an 'invention communicated to me by a certain foreigner', then a common proviso used when taking out a patent on a foreigner's invention.<sup>[28]</sup>

'Borrowing' ideas was not simply done in relation to inventions that could be patented. There was also extensive counterfeiting of trademarks in the 19<sup>th</sup> century—in a manner similar to what was subsequently done by Japan, Korea, Taiwan and, today, China. In 1862, Britain revised its trademark law, the Merchandise Mark Act, with the specific purpose of preventing foreigners, especially the Germans, from making counterfeit English products. The revised act required the producer to specify the place or country of manufacture as a part of the necessary 'trade description'.<sup>[29]</sup>

The law underestimated German ingenuity, however—the German firms came up with some brilliant evasive tactics.<sup>[30]</sup> For example, they placed the stamp indicating the country of origin on the packaging instead of on the individual articles. Once the packaging was removed, customers could not tell the product's country of origin. This technique is said to have been particularly common in the case of imported watches and steel files. Alternatively, German manufacturers would send some articles, like pianos and bicycles, over in pieces and have them assembled in England. Or they would place the stamp indicating the country of origin where it was practically invisible. The 19<sup>th</sup>-century British journalist Ernest Williams, who wrote a book about German counterfeiting, *Made in Germany*, documents how 'One German firm, which exports to England large numbers of sewing machines, conspicuously labeled 'Singer' and 'North-British Sewing Machines', places the Made in Germany stamp in small letters underneath the treadle. Half a dozen seamstresses might combine their strength to turn the machine bottom-upwards, and read the legend; otherwise it would go unread'.<sup>[31]</sup>

Copyrights were also routinely violated. Despite its currently gung ho attitude towards copyright, the US in the past refused to protect foreigners' copyrights in its 1790 copyright law. It only signed the international copyright agreement (the

Berne Convention of 1886) in 1891. At the time, the US was a net importer of copyright materials and saw the advantage of protecting only American authors. For another century (until 1988), it did not recognize copyrights on materials printed outside the US.

The historical picture is clear. Counterfeiting was not invented in modern Asia. When they were backward themselves in terms of knowledge, all of today's rich countries blithely violated other people's patents, trademarks and copyrights. The Swiss 'borrowed' German chemical inventions, while the Germans 'borrowed' English trademarks and the Americans 'borrowed' British copyrighted materials—all without paying what would today be considered 'just' compensation.

Despite this history, the Bad Samaritan rich countries are now forcing developing countries to strengthen the protection of intellectual property rights to a historically unprecedented degree through the TRIPS agreement and a raff of bilateral free-trade agreements. They argue that stronger protection of intellectual property will encourage the production of new knowledge and benefit everyone, including the developing countries. But is this true?

#### 6.4. *Making Mickey Mouse live longer*

In 1998, the US Copyright Term Extension Act extended the period of copyright protection from 'life of the author plus 50 years, or 75 years for a work of corporate authorship' (as set in 1976) to 'life of the author plus 70 years, or 95 years for a work of corporate authorship. Historically speaking, this was an incredible extension in the period of copyright protection from the original 14 years (renewable for another 14 years) laid down by the 1790 Copyright Act.

The 1998 act is derisively known as the Mickey Mouse Protection Act, from the fact that Disney was heading the lobby for it in anticipation of the 75<sup>th</sup> birthday of Mickey Mouse, first created in 1928 (*Steamboat Willie*). What is particularly remarkable about it is that it was applied *retrospectively*. As should

be immediately obvious to anyone, extending the term of protection for existing work can never create new knowledge.<sup>[32]</sup>

The story does not end with copyrights. The US pharmaceutical industry has already successfully lobbied to extend *de facto* patents by up to eight years, using excuses like the need to compensate for delays in the drugs approval process by the FDA (Food and Drugs Administration) or the need for data protection. Given that US patents, like copyright, used to be for only 14 years, this means that the pharmaceutical industry has effectively doubled the patent life for its inventions.

It is not just in the US that the terms of IPR protection have been lengthening. In the third quarter of the 19<sup>th</sup> century (1850–75), the average patent life in a sample of 60 countries was around 13 years. Between 1900 and 1975, this was extended to 16 or 17 years. But recently the US has played the leading role in accelerating and consolidating this upward trend. It has now made its 20-year term for patent protection a ‘global standard’ through enshrining it in the WTO’s TRIPS agreement—the 60-country average stood at 19 years as of 2004.<sup>[33]</sup> Anything that goes beyond TRIPS, such as the *de facto* extension of drug patents, the US government has been spreading through bilateral free-trade agreements. I know of no economic theory that says that 20 years is better than 13 years or 16 years as the term of patent protection from social point of view, but it is obvious that the longer it is, the better it is for the patent-holders.

As the protection of intellectual property rights involves monopoly (and its social costs), extending the period of protection clearly increases those costs. Lengthening the term—like any other strengthening of IPR protection—means that society is paying more for new knowledge. Of course, those costs may be justified if the term extension produces more knowledge (by strengthening the incentive for innovation), but there is no evidence that this has been happening—at least not enough to compensate for the increased costs of protection. Given this, we need to carefully examine whether the current terms of IPR protection are appropriate and shorten them if necessary.

### 6.5. *Sealed crustless sandwiches and turmeric*

One basic assumption behind IPR laws is that the new idea that is awarded protection is worth protecting. This is why all such laws demand the idea to be original (to possess ‘novelty’ and ‘non-obviousness’, in the technical jargon). This may sound incontrovertible in abstract terms, but it is more difficult to put into practice, not least because investors have an incentive to lobby for lowering the originality bar.

For example, as I mentioned when discussing the history of Swiss patent law, many people believe that chemical *substances* (as opposed to the process) are *not* worthy of patent protection, because those who have extracted them have not done anything really original. For this reason, chemical and/or pharmaceutical substances could not be patented in most rich countries—such as Germany, France, Switzerland, Japan and the Nordic countries—until the 1960s or the 1970s. Pharmaceutical products remained unpatentable in Spain and Canada right up to the early 1990s.<sup>[34]</sup> Before the TRIPS agreement, most developing countries did not give pharmaceutical product patents.<sup>[35]</sup> Most countries had never given them; others, such as India and Brazil, had abolished the pharmaceutical product patents (process patent as well, in the case of Brazil) that they once had.<sup>[36]</sup>

Even for things whose patentability is not disputed, there is no obvious way to judge what is a worthy invention. For example, when Thomas Jefferson was the US patent commissioner—quite ironic given that he opposed patents (more on this later), but this was *ex officio* as secretary of state—he did a very good job of rejecting patent applications at the slightest excuse. It is reported that the number of patents granted each year trebled after Jefferson resigned from his cabinet post and thus ceased to be the patent commissioner. This was, of course, not because the Americans suddenly became three times more inventive.

Since the 1980s, the originality hurdle for patents has been significantly lowered in the US. In their important book on the current state of the US patent system, Professors Adam Jaffe and Josh Lerner point out that patents have been

granted to some very obvious things, like Amazon.com's 'one-click' internet shopping, the Smuckers food company's 'sealed crustless sandwiches', and even things like a 'bread refreshing method' (essentially toasting the stale bread) or a 'method of swinging on a swing' (apparently 'invented' by a five-year-old).<sup>[37]</sup> In the first two cases, the patent holders even used their new rights to take their competitors to court—barnesandnoble.com in the former case and a small Michigan catering company called Albie's Foods, Inc. in the latter.<sup>[38]</sup> While these cases are at the wackier end of the spectrum, they reflect the general trend that 'the tests for novelty and non-obviousness, which are supposed to ensure that the patent monopoly is granted only to truly original ideas, have become largely non-operative'.<sup>[39]</sup> The result of this has been what Jaffe and Lerner call a 'patent explosion'. They document how the number of patents granted in the US grew by 1% a year between 1930 and 1982, the year when the American patent system was loosened, but grew by 5.7% a year during 1983–2002, when patents were more liberally granted.<sup>[40]</sup> This increase is definitely not due to some sudden explosion in American creativity!<sup>[41]</sup>

But why should the rest of the world care if the Americans are issuing silly patents? They should care because the new American system has encouraged the 'theft' of ideas that are well-known in other countries, especially developing countries, but are not legally protected precisely because they have been so well known for such a long time. This is known as the theft of 'traditional knowledge'. The best example in this regard is the patent granted in 1995 to two Indian researchers at the University of Mississippi for the medicinal use of turmeric, whose wound-healing properties have been known in India for thousands of years. The patent was only cancelled thanks to the challenge mounted in the American courts by the New Delhi-based Council for Agriculture Research. This patent might be still there if the wronged country had been some small and very poor developing nation that lacked India's human and financial resources to fight such battles.

Shocking though these examples may be, the consequences of the lowering

of originality bar is not the biggest problem with the recent unbalancing of the intellectual property rights system. The most serious problem is that the IPR system has begun to be an obstacle, rather than a spur, to technological innovation.

#### 6.6. *The tyranny of interlocking patents*

Sir Isaac NEWTON once famously said, ‘if I have seen a little further, it is by standing on the shoulders of giants.’<sup>[42]</sup> He was referring to the fact that ideas develop in a cumulative manner. In the early controversy around patents, some people used this as an argument against them—when new ideas emerge from a ferment of intellectual endeavour, how can we say that the person who put the ‘finishing touches’ to an invention should take all the glory - and the profit? Thomas Jefferson opposed patents on this very basis. He argued that ideas were ‘like air’ and cannot, therefore, be owned (although he saw no problem in owning people—he himself owned many slaves).<sup>[43]</sup>

The problem is inherent in the patent system. Ideas are the most important inputs in producing new ideas. But if other people own the ideas you need in order to develop your own new ideas, you cannot use them without paying for them. This can make producing new ideas expensive. Worse, you run the danger of being sued for patent infringement by your competitors, who may own patents closely related to yours. Such a lawsuit would not only waste your money but also keep you from further developing the technology in dispute. In this sense, patents can become an obstacle, rather than a spur, to technological development.

Indeed, patent infringement suits have been major obstacles to technological progress in US industries like sewing machines (mid 19<sup>th</sup> century), aeroplanes (early 20<sup>th</sup> century) and semiconductors (mid-20<sup>th</sup> century). The sewing machine industry (Singer and a few other companies) came up with a brilliant solution to this particular problem—a ‘patent pool’, where all the companies

involved cross-licensed all the relevant patents to one another. In the cases of the aeroplanes (the Wright brothers vs Glenn Curtiss) and the semiconductors (Texas Instrument vs Fairchild), the firms concerned could not reach a compromise, so the US government stepped in to impose patent pools. Without these government-imposed patent pools, these industries could not have progressed as they have done.

Unfortunately, the problem of interlocking patents has recently become worse. More and more minute pieces of knowledge have become patentable, down to the level of individual genes, thereby increasing the risk of patents becoming an obstacle to technological progress. The recent debate surrounding so-called golden rice illustrates this point very well.

In 2000, a group of scientists led by Ingo Potrykus (Swiss) and Peter Beyer (German) announced a new technology to genetically engineer rice with extra beta carotene (which turns into Vitamin A when digested). Because of the natural colour of beta carotene, the rice has a golden hue, which gives it its name. The rice is also considered 'golden' by some because it can potentially bring important nutritional benefits to millions of poor people in countries where rice is the basic staple.<sup>[44]</sup> Rice is nutritionally very effective, able to sustain more people than wheat, given the same area of land. But it lacks one critical nutrient—Vitamin A. Poor people in rice-eating countries tend to eat little else other than rice and therefore suffer from Vitamin A deficiency (VAD). At the beginning of the 21st century, it is estimated that 124 million people in 118 countries in Africa and Asia are affected by VAD. VAD is thought to be responsible for one or two million deaths, half a million cases of irreversible blindness and millions of cases of the debilitating eye-disease, xerophthalmia, every year.<sup>[45]</sup>

In 2001, Potrykus and Beyer caused controversy by selling the technology to the multinational pharmaceutical/biotechnology firm, Syngenta (AstraZeneca at the time).<sup>[46]</sup> Syngenta already had a legitimate partial claim on the technology, thanks to its indirect funding of the research through the European Union. And the two scientists, to their credit, negotiated hard with Syngenta to allow farmers

making less than \$10,000 a year out of golden rice to use the technology for free. Even so, some people found the sale of such a valuable 'public good' technology to a profit-making firm unacceptable.

In response to the criticisms, Potrykus and Beyer said they had had to sell their technology to Syngenta because of the difficulties involved in negotiating licences for the other patented technologies they needed in order to operationalize their technology. They argued that, as scientists, they simply did not have the necessary resources or the skills to negotiate for the 70 relevant patents belonging to 32 different companies and universities. Critics countered that they were exaggerating the difficulties. They pointed out that there are only a dozen or so patents that are truly relevant for countries where the golden rice would bring about the largest benefits.

But the point remains. The days are over when technology can be advanced in laboratories by individual scientists alone. Now you need an army of lawyers to negotiate the hazardous terrain of interlocking patents. Unless we find a solution to the problem of interlocking patents, the patent system may actually impede the very innovation it was designed to encourage.

#### 6.7. *Harsh rules and developing countries*

The recent changes in the system of intellectual property rights have magnified its costs, while reducing the benefits. Lowering the originality bar and the extension of patent (and other IPR) life have meant that we are, in effect, paying more for each patent, whose average quality, however, is lower than before. Changes in the attitudes of rich country governments and corporations have also made it more difficult to override the commercial interests of patent holders for the sake of the public interest, as we saw in the HIV/AIDS case. And making increasingly minute pieces of knowledge patentable has worsened the problem of interlocking patents, slowing down technological progress.

These negative impacts have been much greater for developing countries.

The lower originality bar set in the rich countries, especially the US, has made the theft of already existing traditional knowledge from developing countries easier. Much needed medicines have become far more expensive, as developing countries are not allowed to make (or import) copy drugs any more, while their political weakness *vis-à-vis* rich country pharmaceutical companies constrains their ability to use the public interest provision.

But the biggest problem is, to put it bluntly, that the new IPR system has made economic development more difficult. When 97% of all patents and the vast majority of copyrights and trademarks are held by rich countries, the strengthening of the rights of IPR-holders means that acquiring knowledge has become more expensive for developing countries. The World Bank estimates that, following the TRIPS agreement, the increase in technology licence payments alone will cost developing countries an extra \$45 billion a year, which is nearly half of total foreign aid given by rich countries (\$93 billion a year in 2004–5).<sup>[47]</sup> Although it is hard to quantify the impact, strengthening of copyright has made education, especially higher education that uses specialized and advanced foreign books, more costly.

This is not all. If it is to comply with the TRIPS agreement, each developing country needs to spend a lot of money building up and implementing a new IPR system. The system does not run itself. Enforcement of copyright and trademarks requires an army of inspectors. The patent office needs scientists and engineers to process the patent applications and the courts need patent lawyers to help sort out disputes. Training and hiring all these people costs money. In a world with finite resources, training more patent lawyers or hiring more inspectors to hunt down DVD pirates means training fewer medical doctors and teachers while hiring fewer nurses or police officers. It is obvious which of these professions developing countries need more.

The wretched thing is that developing countries are going to get hardly anything in return for paying increased licensing fees and incurring additional expenditures to implement the new IPR system. When rich countries strengthen

their IPR protection, they can at least expect some increase in innovation, even if its benefits are not enough to cover the increased costs arising from strengthened protection. In contrast, most developing countries do not have the capabilities to conduct research. The incentive to conduct research may have been increased, but there is no one to take advantage of it. It is like the story of my son, Jin-Gyu, which I discussed in chapter 3. If the capability is not there, it does not matter what the incentives are. This is why even the renowned British financial journalist Martin Wolf, a self-proclaimed defender of globalization (despite his full awareness of its problems and limitations), describes IPR as ‘a rent-extraction device’ for most developing countries, ‘with potentially devastating consequences for their ability to educate their people (because of copyright), adapting designs for their own use (ditto) and deal with severe challenges of public health’.<sup>[48]</sup>

As I keep emphasizing, the foundation of economic development is the acquisition of more productive knowledge. The stronger the international protection for IPRs is, the more difficult it is for the follower countries to acquire new knowledge. This is why, historically, countries did not protect foreigners’ intellectual property very well (or at all) when they needed to import knowledge. If knowledge is like water that flows downhill, then today’s IPR system is like a dam that turns potentially fertile fields into a technological dustbowl. This situation clearly needs fixing.

### 6.8. *Getting the balance right*

One common question that I am asked when I criticize the current IPR system in my lectures is: ‘seeing that you are against intellectual property, would you let other people steal your research papers and publish them under their own names?’ This is symptomatic of the simplistic mentality that pervades our debate on intellectual property rights. Criticizing the IPR regime as it exists today is not the same as arguing for the wholesale abolition of intellectual property itself.

I am *not* arguing that we should abolish patents, copyrights or trademarks. They do serve useful purposes. But the fact that some protection of intellectual property rights is beneficial, or even necessary, does not mean that more of it is always better. An analogy with salt may be useful in explaining this point more clearly. Some salt is essential to our survival. Some more of it makes our eating more pleasurable, even though it may do some harm to our health. But, above a certain level, the harm that salt does to our health outweighs the benefits we get from tastier food. Protection of intellectual property rights is like this. Some minimum amount of it may be essential in creating incentives for knowledge creation. Some more of it may bring more benefits than costs. But too much of it may create more costs than benefits so that it ends up harming the economy.

So the real question is not whether IPR protection is good or bad in principle. It is how we get the balance right between the need to encourage people to produce new knowledge and the need to ensure that the costs from the resulting monopoly do not exceed the benefits that the new knowledge brings about. In order to do that, we need to weaken the degree of IPR protection prevailing today—by shortening the period of protection, by raising the originality bar, and by making compulsory licensing and parallel imports easier.

If a weaker protection leads to insufficient incentives for potential inventors, which may or may not be the case, the public sector can step in. This may involve the direct conduct of research by public bodies -national (e.g., the US National Institutes of Health) or international (e.g., the International Rice Research Institute that developed the Green Revolution varieties of rice). It may be done by means of targeted R&D subsidies to private-sector companies, with a condition attached regarding public access to the end product.<sup>[49]</sup> The public sector, at the national and international level, is already doing these things anyway, so it would not be a radical departure from existing practice. It would simply be a matter of stepping up and redirecting existing efforts.

Above all, the international IPR system should be reformed in a way that helps developing countries become more productive by allowing them to ac-

quire new technical knowledge at reasonable costs. Developing countries should be allowed to grant weaker IPRs—shorter patent life, lower licensing royalty rates (probably graduated according to their abilities to pay) or easier compulsory licensing and parallel imports.”<sup>[50]</sup> Last but not least, we should not only make technology acquisition easier for developing countries but also help them develop *the capabilities to use and develop* more productive technologies. For this purpose, we could institute an international tax on patent royalties and use it to provide technological support to developing countries. The cause may also be promoted by a modification to the international copyright system, which makes access to academic books easier.\*

Like all other institutions, intellectual property rights (patents, copyrights and trademarks) may or may not be beneficial, depending on how they are designed and where they are used. The challenge is not to decide whether to scrap them altogether or strengthen them to the hilt, but to get the balance right between the interests of the IPR-holders and the rest of the society (or the rest of the world, if you like). Only when we get the balance right will the IPR system

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\* Access to academic books is crucial in enhancing the productive capabilities of developing countries, as my own experience with pirate-copied books, described in the Prologue, suggests. Rich country publishers should be encouraged to allow cheap reproduction of academic books in developing countries—they are not going to lose much by this, because their books are too expensive for developing country consumers anyway. We could also set up a special international fund to subsidize the purchase of academic books by developing country libraries, academics and students. A similar argument can put the current hysteria in the rich countries about counterfeit products from developing countries into perspective. As I pointed out in the Prologue, it is not as if those people who buy counterfeit products in developing countries (including many tourists who buy them there) can afford the genuine articles. So as long as they are not smuggled into the rich countries and sold as the genuine articles (which rarely happens), the original manufacturers lose little actual revenue from the counterfeit goods. One could even argue that the developing country consumers in effect, doing free advertising for the original manufacturers. Especially in high-growth economies, today’s counterfeit consumers are going to be tomorrow’s consumers of the genuine articles. Many Koreans who used to buy fake luxury goods in the 1970s are now buying the real things.

serve the useful purpose it was originally set up to serve—that is, encouraging the generation of new ideas at the lowest possible costs to society.