

# THE DAVID HUME INSTITUTE



## Intellectual Property

Lord Hoffmann

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## **Foreword**

The Hume Lecture for 2010 was given on 13 April by the distinguished judge, Lord Hoffmann, at the Royal Society of Edinburgh.

Leonard Hoffmann stepped down from the bench in the summer of 2009 after quarter of a century as a judge in England, and, for the last fifteen of those years, as a Lord of Appeal in Ordinary, that is, as a Law Lord in the House of Lords in its capacity as the highest court in the United Kingdom.

During that time Lord Hoffmann established himself as possibly the finest appellate judge of his time, and his contributions to the development of the law across a wide range of subjects were truly remarkable. In field after field of law – company law, contract, tort (or delict, as we call it here in Scotland), taxation, human rights and constitutional law – you find his name as having given the leading or most important judgment which is now the starting point for any further discussion of the particular subject today.

What I think gave the Hoffmann judgment its characteristic strength and enduring quality was its basis on a knowledge of the law that was both wide and deep. A philosophical background enabled him to bring out the law's underlying ideas, and gave him insight into links between seemingly different areas of law. He could discourse at a highly abstract level on issues such as causation and the interpretation of utterances; but he never lost sight of the realities with which law had to deal, and the practical problems of those whose business it was to give advice on law, or indeed to make law.

One of the many subjects of which Lord Hoffmann was the acknowledged master was intellectual property – the law of patents, copyright and trade marks. When I was asked to chair his lecture, I could instantly think of three leading judgments on which his is the last word:

- Biogen v Medeva on biotechnological patents (an Edinburgh connection here, incidentally, because the patent in question was based on the Hepatitis B research of Professor Sir Kenneth Murray of Edinburgh University);
- The Kirin-Amgen case, where Lord Hoffmann explained definitively how to read the claims in patent specifications in order to determine the scope of the patent rights;

And finally -

- The Designers Guild copyright case, in which he defined the point at which an unprotectable idea becomes a protectable copyright work, and how you can say when one work has been illegitimately copied from another.

During his speech in this last case he also referred to that enigmatic line of ancient Greek poetry, "The fox knows many things, but the hedgehog knows one big thing", to help him to hold that copyright protects the fox better than the hedgehog.

As the text now printed in this pamphlet shows, Lord Hoffmann clearly falls into the category of "fox" rather than "hedgehog". His lecture ranges widely in time and place – from Venice in the fifteenth century to his native South Africa at almost the present day. He focuses on patents for inventions and the controversies which have attended their existence almost from the beginning. Naturally he draws on David Hume in the process, suggesting that it is possible to see “intellectual property” as indeed property in Hume-an terms, as a way of allocating resources; but that still leaves open the possibility that it fails to do so fairly and efficiently. This argument Lord Hoffmann in the end rejects after reviewing many of the issues where this matters – most notably in relationships between the developed and developing worlds in matters of health and medical treatment. He touches also on biotechnological and software patents and the still unresolved debates about them in Europe. All this means that, while the future may not be clear, it is likely to include the patent system.

Lord Hoffmann's lecture prompted many questions from the floor of the lecture-hall and across the table at the dinner following the lecture, marvellously hosted by Adam & Company at the elegant home of the Royal Bank of Scotland in St Andrew Square, Edinburgh.

It was a delight for The David Hume Institute to be able to provide such a stimulating and thought-provoking evening, although as ever it remains our duty as a charitable body to disclaim espousal of any of the ideas or arguments put forward by our distinguished speaker. We are confident, however, that this permanent record of those ideas and arguments will be welcomed by all who were present at the lecture and, indeed, a very large number of others.

Hector MacQueen  
Trustee, The David Hume Institute

## **Sponsor**

The Royal Bank of Scotland Group has had a longstanding relationship with The David Hume Institute and Adam & Company were happy to continue this by supporting the Annual Lecture. Events such as these play an important role in informing discussion on areas that matter for policy makers and the business and finance community. The subject of Intellectual Property has wide appeal and this particular speaker delivered a particularly impressive presentation. The question and answer session was enjoyed by all and clients benefitted greatly from the many insights shared on the evening. We are very grateful to Hector MacQueen for so ably chairing the seminar.

Kerry McGuire  
Head of Banking, Adam & Company

## Intellectual Property

My subject this evening is intellectual property and the patent system in particular. The principal forms of intellectual property are patents, copyrights and trademarks, but I shall say very little about copyright and nothing at all about trademarks. For the most part, I want to talk about patents. I imagine that this might be thought a rather technical subject to be presented in a lecture to a general audience in honour of David Hume, but I will say little about the technicalities. I shall instead concentrate upon the economic and moral questions raised by intellectual property, which are very much matters of general concern. Even the Pope recently weighed with his opinion on intellectual property, in his encyclical *Caritas in veritate* published last year, when he said:

“Sunt enim nimiae formae tuendi cognitionem ex parte Nationum divitum per nimis severam iuris proprietatis intellectualis applicationem, praesertim in ambitu sanitatis.”

Or for those of you who need a translation:

“On the part of rich countries there is excessive zeal for protecting knowledge through an unduly rigid assertion of the right to intellectual property, especially in the field of health care.”

I shall come back later to this question raised by the Pope, which is indeed very important. But since this is a Hume lecture, I want to start with a more general question of moral philosophy and economics. In the *Enquiry Concerning the Principles of Morals*, Hume pointed out that no rights of property were required in things which were so abundant that everyone could enjoy them in common: the air, water in countries where there was plenty of it, the sea for the purposes of navigation. It is only if people are competing for resources that a law of property is needed. Hume says that this is required as a matter of morality and justice, because it is morally right that people should enjoy what they have created or earned and should be able to pass it on to their children. Otherwise scarce resources would be taken by whoever was the strongest.



It is also economically efficient, because those who can make the most profitable use of scarce resources will bid the most to acquire them.

The case of intellectual property, however, is different because there seems no inherent reason why the ideas which form the subject of intellectual property – inventions which form the subject of patents and literary and artistic works which form the subject of copyrights – should be scarce resources. Thomas Jefferson put the point eloquently in a letter which he wrote in 1813:

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

This characteristic of the nature of ideas led Sir Arnold Plant, a professor of economics at LSE and the University of Cape Town, to write a well known article in 1934 in which he said that intellectual property did not fit Hume’s explanation for the existence of property. Intellectual property was not a scarce resource; the law artificially created scarcity by giving the patentee or the copyright owner exclusive rights, so that they could limit the use of the patented idea or the literary creation and thereby earn a rent, as a economists say, by charging a higher price than they would have got if everyone had been free to use their invention or creation.

I am not sure that this is right. If the purpose of having a law of property is, so far as possible, to secure a fair and efficient use of resources, then intellectual property serves that purpose as well as any other. The resources which have to be expended on making inventions or literary or artistic works – principally in human time, are scarce. They could be spent on doing other things. So the creation of intellectual property – to give the inventor a monopoly in the exploitation of his invention, or the writer a monopoly in the exploitation of his literary work – is a system of allocating scarce resources. Instead of allowing the owner of the field the exclusive enjoyment of the harvest he has sown, it allows the inventor to enjoy the fruit of his invention. In the case of the land owner, very little adaptation of property rights is necessary to achieve this effect. All you need is a rule that the corn grown in the fields belongs to the owner of the land. In the case of an invention, you need a new, highly abstract form of property: the exclusive right to the exploitation of the invention, which you grant to the inventor. That right is intellectual property. But the justification for creating this form of property is much the same as the rule that the corn belongs to the owner of the land. Where you have sown, you should be entitled to reap.

The question remains, however, whether the grant of rights of intellectual property is the most efficient way of ensuring that the resources put into innovation and creativity are most effectively used. In the agricultural analogy, it is easy to see that no one would plant the corn unless he was reasonably confident that no one else would be entitled to come and reap the harvest. But that is a relatively simple situation: first, unless the weather is bad, there is a reasonable expectation that sowing the seed will produce a marketable crop which will sell for a more or less foreseeable amount in money. Secondly, apart from the prospect of selling the crop, there is little incentive to plant it. But with intellectual property, the position is much more complicated. First, an inventor who puts time and resources into some project may or may not obtain a patent. There are several possible slips between the cup and the lip. Quite apart from the notorious technicalities of patent law, there is always the possibility that someone else may sneak in first. You only get a patent if what you have invented is new.

And then, even if you were first and have got your patent, there is no guarantee that you will make any money out of it. Many patents are never commercially exploited and some of the most famous inventions like the jet engine were ignored for many years after the patent was taken out. So the inventor, far from having a reasonable expectation of harvesting the crop, is really being rewarded with a lottery ticket at fairly long odds. Secondly, many people make inventions or do creative work for reasons other than the hope of being able to make money out of intellectual property rights. Milton sold the rights to *Paradise Lost* to his publisher for a down payment of £5 and the promise of another £5 when the first edition had been sold. We have the contract, dated 27 April 1667. There was no author's copyright in those days but the Stationers' Company had a monopoly of the printing of books, which meant that stationers were willing to pay authors for books likely to sell. Still, I think Milton is likely to have written *Paradise Lost* whether or not his publisher had a monopoly. People write books to achieve fame, win Nobel, Booker and other prizes, obtain tenure and grants at universities, satisfy obsessions. As for inventors, most original work cannot be the subject of patents at all. You cannot patent a principle, like  $e=mc^2$ , or a discovery about nature, like the double helix structure of DNA. You can patent only a method of doing something practical, like putting bits of DNA into cells which can express useful proteins *in vitro*. Although the whole of biotechnology is based upon what Crick and Watson discovered about DNA, their discovery was not patentable. They did it for fame and advancement in their profession. Sometimes invention can be encouraged by offering prizes, such as the prize offered by the British government for the invention of a chronometer which would enable ships to establish their latitude. It is therefore far from clear that, in the absence of intellectual property, creativity and innovation would come to an end.

Nevertheless, I think that intellectual property is not a counter-example to Hume's thesis that property is a method for regulating the distribution and use of scarce resources. It regulates the use of the resources which are put into creativity and innovation, into R & D. The real question is whether it is an efficient method of doing this or whether the advantages are outweighed by deleterious side effects.

The use of the patent system to encourage innovation goes back a long way. The Venetian Republic passed a Patent Act in 1474, which stated its policy in the clearest terms:

“We have among us men of great genius, apt to invent and discover ingenious devices; and in view of the grandeur and virtue of our city, more such men come to us every day from diverse parts. Now, if provision were made for the works and devices discovered by such persons, so that others who see them could not build them and take away their honour, more men would then apply their genius, would discover, and would build devices of great utility and benefit to our commonwealth.”

Notice however that Venice, that unashamedly commercial republic, does not say that, without a patent, the inventor would be unable to make money out of his invention. They say that copyists would take away the *honour* of the inventor, his ability *fare una bella figura*. In England it was recognised that the point of a monopoly was to make money. Queen Elizabeth I and James I granted monopolies of all kinds of articles to raise funds or reward friends. The *Case of Monopolies*, in which the grant of a monopoly by the Crown was declared unlawful at common law, concerned an exclusive right to sell playing cards. The law was put on a statutory basis by the Statute of Monopolies 1623, which declared all these monopolies void. But section 6 created an exception for -

“any Letters Patents and grants of privilege for the term of 14 years or under hereafter to be made for the sole working or making of any manner of new manufacture within this Realm to the true and first inventor and inventors of such manufactures...”

The purpose of such a grant was, and remains to this day, to encourage innovation. The monopoly granted by a patent allows the inventor to charge a higher price than would have been possible if there had been competition and so to secure his reward.

As I have said, this is not the only way in which the state might encourage innovation. It could offer rewards.

But that would require the State to know in advance what it is looking for. That may sometimes happen, as in the case of Harrison's chronometer. But it is rare. And funding more general research also involves the authorities in trying to pick winners. A patent system has the great advantage that the cost does not fall directly upon the government. The additional profits earned by the monopolist are paid by his customers, although sometimes, as in the case of the defence and pharmaceutical industries, the only or principal customer is the government. A patent system also has the advantage that the rewards are determined by the hidden hand of the market. It is no coincidence that the establishment of patent systems in Europe coincided with the rise of capitalism. The rewards can be quite unpredictable. They often bear no relationship to the amount of R & D expenditure or time taken to produce the invention. Few people know when they take out a patent whether or not they have a commercial winner. This appeals to the instinct which makes people take out tickets at huge odds in lotteries with large prizes. In 1785 James Watt wrote to Lord Loughborough about his patent for a steam engine:

“There seem to be only three motives that can excite a man to make improvements in the arts; the desire of doing good to society, the desire of fame, and the hope of increasing his private fortune. The two first, when unmixed with the latter, ought only to actuate men who are already independent or have a competency of the goods of fortune; for it would be reckoned folly in any man in circumscribed circumstances to devote his time and money solely to the public good or to the pursuit of the bubble reputation; but when the three motives are united they must prove the strongest stimulus which can act upon the human mind, and they can make it to struggle with anxiety, the unremitting attention and the frequent disappointment and the labour and expense which infallibly attend every attempt at improvement in the arts.”

There has been a fair amount of historical research into the question of whether the British patent system contributed to the Industrial Revolution, but the results are quite inconclusive. The difficulty of showing cause and effect remains today.

There is no control which would enable us to say what would have happened without a patent system, although in some cases we can make a fair guess. But the eighteenth and early nineteenth century system was such a hit or miss affair that one cannot tell whether it did more harm than good. There was no examination of applications for patents. You paid your fee and you were granted a patent. If you sued for infringement, it was up to the defendant to challenge the validity of your patent. And few people wanted to get involved in a patent action. As Lord Esher, the Master of the Rolls once said in a patent appeal:

“A man had better have his patent infringed, or have anything happen to him in this world, short of losing all his family by influenza, than have a dispute about a patent.”

The result was that the value of a patent often depended more upon the size of the respective war chests of the patentee and his opponents than the actual validity of the patent. In the late eighteenth century, Arkwright used a very doubtful patent for spinning machinery to extract royalties from Lancashire spinners under threat of litigation which individual mill owners could not afford to oppose. In the end they banded together to set up a defence fund and had the patent revoked. In 1799 Lord Kenyon, trying a case on Watt's' steam engine patent, said:

“I confess that I am not one of those who greatly favour patents; for though in many instances and particularly in this, the public are benefited by them, yet on striking a balance on the subject, I think that great oppression is practised on inferior mechanics by those who are more opulent.”

These defects of the early patent system led in the first half of the nineteenth century to a powerful movement to abolish them.

The House of Lords established a Select Committee to look into the matter. Isambard Kingdom Brunel gave evidence. He was against patents, for two reasons. First, he felt they appealed to the gambling instinct and distracted engineers from useful work by the prospect of an immense fortune if they could obtain a valuable patent. Patents produced a misallocation of resources because skilled people wasted their time on inventions which turned out to be useless.

The second reason was that patents obstructed further development. The law was that if you had the idea of, say, an internal combustion engine and you were able to describe one which worked, even though very badly, you were entitled to patent the principle of an internal combustion engine. Anyone who wanted to develop an improved internal combustion engine would have to obtain a licence from you or else infringe your patent. Brunel, with his fertile mind for making improvements to machines, found that patents got in his way. He did not see why someone who had devised an inferior engine should be able to prevent the development of a better one.

Both of these arguments are alive and well today, but the patent system survived its mid-century Victorian crisis. Not everywhere in Europe. In the Netherlands, patents were abolished in 1869 and not reintroduced until 1911. In the United Kingdom, a patent office was established to examine applications for patents, search the prior art and see whether they were for something new and inventive. The patentee is required to file a specification which describes his invention in sufficient detail to enable a person skilled in the relevant art to carry it out. He cannot both have a patent and keep all or part of his invention secret. That, as Lord Mansfield once put it, is the consideration which he gives for the grant of the monopoly. The disclosure in the specification is not only to enable other people to work the invention when the patent has expired but to make an immediate contribution to technical knowledge, which others may be able to put to use in ways which do not infringe his monopoly. So patent specifications add to the general stock of knowledge information which inventors might otherwise keep secret. If there were no patents, the only way in which you could keep a monopoly of your invention would be secrecy, like the formula for Coca-Cola. Secrecy, if you can manage it, is more efficacious than a patent. For example, patents last 20 years but secrecy lasts as long as you can keep the information secret. But keeping your process secret may cost you more in security measures than getting a patent and in many cases secrecy is not possible. Once you have put your product on the market, people can take it apart, analyse it and see how it works. Only a legal monopoly can protect you. So the patent system may help the development of science by securing publication of information which would otherwise not be available.

There is however a certain tension between the requirement that the specification must make full disclosure of the invention and the requirement that it must be new. If you disclose the nature of your invention before making an application for a patent, it is no longer new. So you have to keep it secret until you have made the application. This causes irritation among scientists in universities, who have grown up in a tradition that any scientific information should be made generally available. If you have made some important scientific discovery, you publish an article in *Nature* where all your colleagues can read it. You do so as quickly as possible, because in the scientific world, where everything is going to be discovered sooner or later, credit attaches to being first. Watson's book *The Double Helix* shows what a powerful force this is. Sir Peter Medawar once said that the great difference between the arts and sciences was that this urge to be first did not apply in the arts. Wagner, he said, would not have spent 20 years writing the Ring of the Nibelung, including breaking off for five years to write Tristan and Meistersinger, if he thought that someone might nip in ahead of him with the Götterdämmerung. But Crick and Watson lived in the days before universities were required to make money by commercially exploiting the results of their research. Now you cannot publish your article in *Nature* until consideration has been given to whether your discovery might be turned to some practical use in pharmaceuticals or electronics which the University can patent. And this is very frustrating, both to the scientist who has made the discovery and to his colleagues in other universities who ask how his research is getting on and have to be answered, I can't tell you yet. Sir John Sulston, a very eminent biologist in Manchester, has taken the lead and, with some of his colleagues, published a pamphlet called *The Manchester Manifesto*, with the sub title "Who Owns Science?" You get the general idea.

The need for secrecy before the patent application leads to another problem, which is about the stage in research at which one can apply for a patent. This is particularly acute in biotechnology. Most, if not all, of the human genome has now been sequenced. You can, by patient effort and with powerful computers, work out the amino acid sequences and therefore the proteins for which a given polynucleotide codes. But in many cases, no one has any idea of what the protein does. Further research is required.



You may be able to make some kind of guess from its structural resemblance to other proteins of which the functions are known. One groups them in families or extended or superfamilies. At what stage in your research can you apply for a patent? If you find a new protein belonging some superfamily, say, proteins which mediate the functioning of the immune system, it is a fair guess that it may be helpful for diagnostic or therapeutic purposes in connection with one of the many diseases caused by malfunctioning of the immune system. Is that enough? If you can obtain a patent at that stage, other people working on the same protein, which they have independently discovered, will need your licence to use your protein, even in connection with a disease you never thought of. If they are working for a rival pharmaceutical company, they may not think it worthwhile to go on. On the other hand, if you have to wait till you can say precisely which disease it affects, you will have to keep your research secret till then. And you may get a patent race, in which several pharmaceutical companies are putting millions into research to find a way of making some desirable protein. When one of them wins, the others are excluded from further research in that area. As counsel once explained to me, it is like Jorge Luis Borges story of the Babylonian lottery: the winner gets the prize and the other competitors are put to death. That is an extreme way of saying that from the point of view of society in general, patent races can be very wasteful. It is not an ideal way of allocating resources. But what is?

Besides the requirements of novelty and inventiveness, the subject-matter of the invention must be capable of being patented. There are certain things which cannot be the subject matter of a patent, either because they are not in their nature capable of being monopolised or because there is some reason of public policy why they should not be monopolised or even commercialised. In the last few years, this question of patentable subject-matter has given rise to a great deal of controversy, both in Europe and the United States. The Statute of Monopolies, which remained our only statutory statement of what was patentable subject matter until 1977, did not give much away. It spoke only of “any manner of new manufacture”. The courts developed this notion as if it was a rule of common law rather than requiring an inquiry into what Parliament might have meant in 1623.

That was a sensible approach, because a patentable invention is by definition something which has not been thought of before and it would therefore have been perverse to try to discover what Parliament had in mind in 1623. Nevertheless, over time, two important principles have emerged. One is that you cannot patent the discovery of new information, or a system for producing new information. The reason is that a patent must be for doing something practical. Of course, the information may enable you to invent something practical. You cannot patent a genetic code which you have discovered, but knowing the gene code may enable you to make an artificial molecule which expresses the protein for which that gene coded. You can certainly get a patent for that. There are two possible justifications for this principle, both deeply embedded in the nature of patents. One is the nature of a patent as a monopoly. It is a right to stop people from doing something. But you can't stop people from thinking and therefore you can't have a monopoly of some particular piece of information. The other explanation is that the patent specification must enable the skilled person to perform the invention. So you cannot simply claim a monopoly on anything which uses the information you have discovered, like making the molecule which expresses the protein. The specification does not tell you every way in which the information may be used.

The second principle which evolved in England was that you cannot patent methods of human behaviour. That was probably based on public policy: that one should not be able to monopolise the way people may behave. It means that you cannot get a patent for novel methods of doing business, like the idea of issuing credit cards, although you can get a patent for a new and inventive form of electronics in the card or the machine that reads it. You cannot get a patent for a new method of avoiding tax, or keeping your assets out of the hands of your creditors. These may be new practical applications of inventive discoveries about psychology, economics, law and so forth, but they are not patentable. Not at any rate in Europe. In the United States, in 1998, the Court of Appeals which hears all patent cases had a rush of blood to the head and declared the human behaviour principle an unjustified extra-statutory restriction on patentable subject-matter.

The result has been a flood of applications for patents for various ways of carrying on business, some of a fairly bizarre nature. Last year, appalled by what it had let loose, the Court overruled its previous decision and leave was given to appeal to the Supreme Court, which heard the case last autumn. Judgement is expected any day now and maybe the United States and Europe will get back into line.

Besides these two general principles of patentability, there are strong social and political pressures for excluding other forms of invention. In the mid-90s the European Commission, dutifully going about its business of harmonising the laws of Member States, noticed that there were differences in the rules about bio-tech inventions. On general principles, inventions which involved the artificial manipulation of genetic material to produce some useful result capable of industrial application, like producing vaccines, medicines, new plant varieties and so on, ought to be patentable. The Commission produced a draft directive setting this out. It was greeted with huge protests from the Green movement, particularly in France and Germany, for its failure to address the ethical dimension of bio-tech inventions. Those opposed to genetically modified crops thought they should not be patentable, presumably because that would only encourage Monsanto to invent more of them. Another objection was that it said nothing about bio-piracy. This, I should explain, consists in finding some indigenous plant or animal in a Third World country which has medicinal or agricultural properties, perhaps long known to the local people, discovering how to isolate or artificially synthesise the active agent, and then obtaining a patent. For example, the Quechua Indians of Bolivia and Peru knew, before the Spaniards came, that the bark of cinchona tree, which contains what we call quinine, was good for warding off malaria and other fevers. In 1820 French scientists discovered how to isolate the active ingredient as a salt. To use the traditional knowledge without the consent of the indigenous people is bio-piracy. There are very strong and muddled feelings about bio-piracy; sometimes activists give the impression that the pharmaceutical or agricultural company has obtained a monopoly which prevents the local people from continuing to use the natural herb or crop in the old way. That happened when a Texan company obtained a patent on a new variety of basmati rice.

It is of course nonsense because the requirement that a patent must be for something new means that you cannot patent anything which has been openly done before. But mainly the argument is that the indigenous people ought to obtain some financial benefit when their traditional knowledge is used as a spring board for an invention.

The European Bio-tech directive was withdrawn and redrafted, heavily amended by the European Parliament to make provision about genetically modified crops, bio-piracy and so on, and then adopted by the Council in 1998 without most of the amendments on which the Greens had insisted. The result was that although the Directive required implementation by 2000, Member States with strong Green parties dragged their feet and it was finally adopted with gritted teeth by Germany and Belgium as late as 2005.

The other unhappy foray of the Commission into the question of patentable subject-matter was its proposed directive on inventions which use software. The European Patent Convention has a non-exhaustive list of things which are not patentable. They are all illustrations of either the practical application principle or the human behaviour principle. For example, the Convention says that discoveries, scientific theories and mathematical methods are not patentable inventions. They are all examples of the principle that an invention must have practical application. And it says that schemes and rules for playing games or doing business are not patentable. They are illustrations of the human behaviour principle. Among the illustrations of the practical application principle is the exclusion of “computer programmes as such.” A computer programme as such will simply produce information: the answer to the algorithm expressed by the programme. But of course that answer may be put to practical use, such as landing an aircraft or guiding some industrial process. In principle, there is no reason why an invention which is practical, new and inventive not should be patentable because it uses a computer programme to produce its result. The Commission noticed however that some Member States interpreted this differently from others and proposed a fairly anodyne draft directive to harmonise the law.

Again there were howls of protest, particularly from the Economic and Social Committee of the European Parliament. The gist of the opposition was a rather unfocussed feeling that computer programming, for whatever purpose, should be free from monopolies. There is a strong free software movement, both in the United States, and Europe. The argument is that whereas pharmaceutical inventions require enormous expenditure by large companies to produce blockbuster drugs, using brute force to test chemical compound after chemical compound, protein after protein, software inventions involve small incremental changes by teenage geeks who aspire to peer approval rather than great fortunes and do not have the resources to check the patent register to see whether they are infringing. There is a political impetus to this campaign for software exceptionalism: if you are a free software activist, you are also against genetically modified crops, bio-piracy and the war in Iraq and in favour of health care. On the other side of the political divide, there is another form of exceptionalism for genetically modified animals, such as the mouse produced at Harvard with genes which made it susceptible to cancer and useful for research. This creature was patented in the United States and Europe, but rejected 5-4 by the Supreme Court of Canada on the ground that you could not patent a higher form of life. If you subscribe to this form of exceptionalism, you are likely, at least in America, to be religious and believe in family values and the Republican Party.

In Europe, at any rate, the result of the campaign against the draft software directive was that it was rejected by the European Parliament and abandoned by the Commission. The European Patent Office and the national courts were left to develop the law on software related inventions as best they could.

The political pressures on patent law, some of which I have described, are most evident at the international level. A patent, as I said at the beginning, is a monopoly granted by the state. It is valid only so far as the power of the state extends. So patents are inherently national in scope. Even the patents issued by the European Patent Office in Munich are not trans-national.

The office is a central point for examining patent applications, but when granted, they take effect as a bundle of national patents and must be enforced or challenged separately in national courts. Some countries do not patent things which other countries do. Until 1978, drugs could not be patented in Italy and until very recently they could not be patented in India, so that both countries developed thriving businesses making generic versions of drugs which were subject to patents in other countries. Some countries do not have patents at all. Other countries have patent systems in theory but little mechanism for enforcement in practice.

If the advantages of a patent system for a developed country like the United States and the United Kingdom are, at least in some areas of industry, unclear, the disadvantages for an underdeveloped country may be clearer. The early economic development of underdeveloped countries is traditionally based on imitation of the products of developed countries. There is usually, in the early stages, very little local innovation. If there is a patent system, few patents will be granted to local people and most to foreigners from developed countries, who may use their patents to preserve their monopolies but serve the local market with exports from their own countries. That adds little to local economic growth. Even in Britain, in the years before the First World War, there was bitter complaint about the way in which German chemical companies in particular took out British patents and then did not manufacture locally but supplied the goods from Germany. That led to an amendment of the Patent Act to allow compulsory licensing of patents which had not been worked within the jurisdiction. The United States, when it was still a developing country, until 1836, granted patents only to Americans. Even afterwards, until 1861, foreigners were charged fees ten times higher than Americans, with an extra surcharge if you were British.

By 1994, however, the United States was producing intellectual property on a large scale and was in favour of world-wide protection. It secured, at the close of the Uruguay round of the GATT negotiations, an international agreement on Trade Related Intellectual Property Rights, usually known as TRIPS, to which all countries belonging to the World Trade Organisation had to subscribe.

This was the high point of free market economics after the collapse of the Soviet Union and many developing countries thought that signing up to TRIPS was a price worth paying for the access to developed markets for their raw materials and agricultural products which seemed to be on offer. TRIPS contains highly prescriptive provisions about what every country has to incorporate in its intellectual property laws; in particular, patents to be granted without any discrimination for terms of 20 years for inventions in all fields of technology. Developing countries like India and Brazil were given until 2005 to comply.

The United States has been fairly aggressive about enforcement of the TRIPS agreement and in some areas of intellectual property, like copyright in CDs or DVDs; this has been difficult but politically relatively uncontroversial. What has stirred up a good deal of passion is the effect of TRIPS on the market for pharmaceutical products. The great pharmaceutical companies were, until recently supplanted by the banks, the capitalist institutions which everybody, whether in developing or developed countries, most loved to hate. True, they produced some remarkable drugs. But they used their patents to charge monopoly prices. When a patent expired and competitors became entitled to sell generic versions of the drug, there was usually a sharp drop in the price. The more rational opponents of the drug companies accepted that unless they could obtain the reward of being able to charge monopoly prices, they would not incur the expense of research to invent new drugs or testing them to satisfy the regulators that they were safe for clinical use. The European Commission recently found that pharmaceutical companies spent 17% of turnover on research and development, although it also noted that they spent 23% on marketing a promotion. Nevertheless, it is clear that without the patent system, new drugs would not be invented. Pharmaceuticals are generally agreed to be the one area of activity in which the patent system really is necessary to incentivise innovation. But there is a constant feeling that the pharmaceutical companies are not playing fair. At the end of last year the Competition Directorate launched a sector inquiry into the pharmaceutical industry.

They had noticed that there was usually a gap between the expiry of a patent and the launch of a generic product, averaging about 7 months, and they wanted to see if they could uncover evidence of anti-competitive practices. They began with a dawn raid on the offices of several companies and took away a lot of internal e-mail records. These revealed that companies tried various means to delay the competitive launch for as long as possible. These included obtaining numerous new patents for minor aspects of the drug and sometimes launching proceedings to try to enforce them, opposing authorisation before regulatory bodies on various grounds, launching a newly patented version of substantially the same drug before the old patent has expired so as to transfer the goodwill before the generics could enter the market. All these strategies were either lawful or they were not; if the new patents were invalid, or the opposition to regulatory approval was groundless, they would fail. But the Commission felt that for drug companies to use them at all, even held lawful was somehow not cricket. There is always something of a tension between the concept of abuse of a dominant position in competition law and the exploitation of a patent, which is, after all, intended to confer a monopoly. But the Commission, in a communication issued on 8 July last, said that if it found that the companies were using their patent rights for anti-competitive purposes, it would not hesitate to act. That is as far as things have gone.

If this is the view of pharmaceutical companies held in Brussels, you can imagine how they are regarded in Rio de Janeiro, Mumbai or Johannesburg. There are two main criticisms. The first is that they show no interest in developing drugs for most of the diseases, like malaria and TB, which specifically afflict the poorer countries of the world. This has nothing to do with the patent system. It is simply that there is no profit to be made from such drugs because the potential customers cannot afford to pay for them. In 2000 Glaxo Smithkline launched its first anti-malarial drug for 40 years. It was however a prophylactic drug for sale to Western tourists visiting malarial regions. Nothing has been produced for the millions of chronic malaria sufferers in the tropics.



On the other hand, huge sums have been invested in research into drugs like anti-depressants, which are much prescribed by doctors in Western countries and sell extremely well, although there is considerable doubt as to whether they are more efficacious than placebos.

The second criticism of the pharmaceutical companies is concerned with the enforcement of the patent rights which, pursuant to TRIPS, they have obtained in developing countries. This happens when you have a disease like AIDS which affects both Western and Third World countries, so that patented drugs are developed, primarily for sale at monopoly prices in Western markets, but which would also be efficacious in poor countries. AIDS was a spectacular example because although the impetus to put the necessary resources into finding drugs which would hold the disease at bay came from its spread in Western countries, the epidemic was far worse in countries like Brazil and South Africa. It was, I think, this question which concerned the Pope.

There was a celebrated row in South Africa about 10 years ago, in which the government proposed to import the generic version of a patented AIDS drug from India, in breach of the rights of pharmaceutical companies under their South African patents. The companies launched proceedings in a South African court, complaining that this was a breach of the TRIPS agreement. There was a certain degree of unreality in these proceedings because TRIPS allows a government to licence the manufacture or importation of such drugs in the case of a “national emergency” and that seemed a fair description of the AIDS epidemic in South Africa at the time. In 2001 the WTO issued the Doha Declaration, which said that each member had the right to determine what constituted a national emergency, “it being understood that public health crises, including those relating to HIV/AIDS, tuberculosis, malaria and other epidemics can represent a national emergency”. But President Mbeki was at that time in denial and was unwilling to acknowledge that AIDS was a national emergency.

On the other hand, the pharmaceutical companies had little to gain from their litigation except bad publicity, because the government was unwilling to supply their drugs – the Minister of Health was telling people with AIDS to eat beetroot and garlic – and the people themselves could not afford to buy them. After a while, the proceedings were dropped and the anti-pharmaceutical company activists claimed a great victory.

The story of the supply of drugs to Third World countries is therefore a complicated affair and not simply one of greedy pharmaceutical companies seeking to extract the last penny from poverty stricken victims of disease. Part of the explanation for the inadequacy of health care in such countries is the lack of infrastructure capable of getting the drugs to the people, incompetent administration and wrong headed policies, like that of President Mbeki, corruption and poor government. After all, even from a business point of view, pharmaceutical companies can make more by selling their drugs in poor countries at low prices than not selling them at all. But arrangements are needed to make sure that local politicians do not simply re-export the drugs to sell at a profit in Western markets. In respect of AIDS drugs, it seems that over the past 10 years some modus vivendi between the drug companies and the South African government has been worked out and the same is probably true of other countries as well.

In 1959 a respected American academic said that if we did not have a patent system he would not recommend introducing one, at any rate not in the form in which we now have it. But it appeared to work reasonably well, we were used to it, and we could not tell what unintended consequences might happen if we abolished it. In all these respects it seemed to me rather like the House of Lords. And I should think that its future is just as unpredictable

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