1 Introduction

> I do not wish to make a secret of the fact that I see the best solution for the future in a total repeal of the exclusionary provisions currently in force in the European Patent Convention and in national patent legislation.
>
> (Straus 1987: 737)

> [The point is not] that intellectual property is undeserving of protection, but rather that such protection as it gets ought to reflect its unique susceptibility to conceptual imprecision and to infinite replication … [T]he field of intellectual property [begins] to resemble a game of conceptual Pac Man in which everything in sight is being gobbled up.
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> (Lange 1981: 147, 156)

1.1 The most basic of the safeguards

The basic requirements for patentability under modern international patent law are that there be an invention and that it be new, non-obvious and useful. Those requirements alone, however, leave certain subject-matter capable of being patented that may nonetheless be inappropriate for patenting. As a result we have both statutory exclusions from patentability and, where the words of the statute are insufficient, judicially derived exclusions. The subject of this book is the statutory exclusions under the European Patent Convention.

Exceptions to patentability, as well as restrictions on patent holders' ability to enforce their patents, have long provided important safeguards to society, nascent industries, academics, farmers, members of the medical professions and the public at large. Such safeguards include: exclusions to what may be patented; requirements to be met before a patent may be granted; limitations to the duration of the patent; requirements to be met for the maintenance of the patent; limitations on the actions a patent holder may ask the courts to restrain; restrictions on the ability of patent holders to collaborate to exclude others from the market;

restrictions on the ability of a patent holder to prevent resale of products he has put on the market; and the possibility to challenge the validity of the patent. Of these safeguards, the most basic are the exclusions to what may be patented, for, if no patent can be granted, the remaining safeguards are unnecessary.

In this introductory chapter the importance of the existence of limitations to patenting will be highlighted from an ethical perspective, focusing on various arguments that have been invoked to justify patents while at the same time paying attention to some important historical and economic developments.[1]

1.2 The 'New Wealth of Nations'

The economic importance of intellectual property rights has increased enormously, especially in the last three decades, to the extent that some commentators refer to intellectual property as the 'New Wealth of Nations'.[2] This has to do with diverse factors, for example the continuing increase of the commercial value of scientific and technological information in various domains. The idea that the true wealth of a country lies in its inventions and innovations began to prevail after the Second World War, for example in the writings of the well-known economist Jacob Schmookler (Schmookler 1965).

Another trend that has boosted the economic importance of intellectual property rights is the fact that global economic competition is not only increasing, but is also increasingly centred on technological leadership. Technological innovation becomes ever more important in export policies. As noted by Keith Maskus, an eminent specialist on the economics of intellectual property: 'goods that rely extensively on [intellectual property rights] protection tend to be among the fastest-growing items in international trade and also are distinctive in terms of international comparative advantage' (Maskus 2000: 73).

The debate on the desirability of (particular aspects of) the patent system has a very long and turbulent history. The entry into force of the TRIPS Agreement (the Agreement on Trade-Related Aspects of Intellectual Property Rights 1994) – a component of the agreement establishing the World Trade Organization that has resulted in a globalisation of strong protection and enforcement standards for intellectual property rights, including patents – has by no means silenced this

[1] In the interest of brevity and in view of the focus of this book, these comments will not be in depth. The relevant issues are discussed in more detail in Sterckx (2005).
[2] See for example Shulman (1999: 13) and Warshofsky (1994: 1).

debate but rather reinvigorated it. As noted by Maskus and Reichman in the preface to an influential analysis of the ways in which the current global intellectual property regime is affecting the provision of public goods and technology transfer:

> There has emerged, at an unprecedented level, both a globalized regime of private rights in information and new foundations for a basic international system of innovation. This new system will have profound implications for the nature of such processes as innovation, technology transfer, market competition, and economic development. It also raises essential and sometimes disturbing questions about potential impacts on the ability of governments to provide critical public goods, both within and across countries. Such goods include public health, nutrition, education, environmental protection, cultural identity, and other elements of social importance that must rely increasingly on the exercise of private rights over technical inputs. (Maskus and Reichman 2005a: xiii)

Attempts to justify the patent system or, put differently, to identify the 'fundamental nature' of the patent system,[3] can be based on three foundations: natural rights; distributive justice; and utilitarian arguments. As we will briefly explain in the following three sections, each of these justificatory attempts involves several problems.

1.3 Natural rights as the foundation for patents?

A natural rights justification would imply that man has a natural right to his ideas and that society is obliged to recognise and enforce that right. From this perspective, the use of ideas without the authorisation of their 'owner' must be regarded as theft. A 'natural' property right is to be considered as a moral imperative, that is, this property right takes precedence over social institutions and should be respected whatever the consequences.

Debates on the natural rights argument for patents frequently refer to John Locke's highly influential 'labour theory of property', which he formulated in Chapter V of his *Second Treatise on Government* (1690) (Locke 1988: 285–302).

[3] We borrow the use of the words 'fundamental nature' in this context from Edith Penrose, a noted commentator on the economic aspects of the patent system: 'Only in the first of the international conferences that led to the [1883 Paris Convention – see Chapter 2] did the delegates try to lay down the basic justification for patents … [T]hey were unable to agree which of the various theories were the "true" ones. They therefore in subsequent conferences refrained from stating explicitly just what should be considered the fundamental nature of the patent law. They … wisely left each delegate free to adhere in good conscience to any theory of the patent system that pleased him' (Penrose 1951: 20).

Locke wanted to ground his general theory of government in natural law, and one of the things he sought to 'prove' in the context of this project was that property rights could be explained in accordance with natural law. In his *Essay Concerning Human Understanding* (1690), Locke had already explained that God was a 'maker' and that, by virtue of the analogy between God and man, both being 'makers', anything true of one will be true of the other (Tully 1980: 37–8). The act of creating, he argued, gives rise to a right to the creation, and this includes the right to *use* the creation in certain ways. More specifically, the right created is a *property right*. God has a property right over man and man, made by God in his image, has a property right over his own creations.

According to Locke, property is conditional upon convention and agreement of the members of society: 'by *positive agreement*, [they] *settled a Property* amongst themselves, in distinct Parts and parcels of the Earth' (Second Treatise, Chapter V, section 45) (Locke 1988, emphasis in original). This needs to be emphasised since Locke's property theory is commonly interpreted as a justification of private property through proof that private property is natural, whereas in fact he drew attention to the conventional (as opposed to natural) character of private property.

Locke used two basic propositions as a starting point to establish how men might come to have a property right to things which God had given to mankind in common. His first proposition was that the preservation of mankind is a fundamental law of nature. It is God's will. From this, Locke inferred that man has a natural obligation to ensure his preservation. This then was said to imply that man has *a natural right* to his preservation and to the *means* necessary for his preservation (e.g. meat and drink) (Second Treatise, Chapter V, section 25) (Locke 1988).

The second basic proposition was that God had given the earth to mankind in common. However, for the 'fruits' of the earth to be of any use or benefit to any particular man, there necessarily had to be a way to *appropriate* these 'fruits' so that others could no longer claim them (Second Treatise, Chapter V, section 26) (Locke 1988).

Locke also asserted that everyone has a property right over his own person[4] and thus also over the labour of his body and the work of his hands (Second Treatise, Chapter V, section 27) (Locke 1988). This brought him to his famous explanation of the origin of property: the appropriation of a thing occurs by man applying his *labour* to it, by *mixing* the thing with his labour. By means of his labour, he adds something

[4] The reader should note that many commentators, e.g. in debates on organ sales, mistakenly claim that Locke argued for property in the *body* rather than the *person*.

of his own to the thing and thereby excludes others from having a right to it. For such acquisition of property, the consent of the other 'Commoners' is *not* required according to Locke (Second Treatise, Chapter V, section 28) (Locke 1988). Appropriation can never amount to robbery of others because everybody has the right to his share and no more. 'His share' means what he can use, so there can be no violation of the rights or liberties of others (Second Treatise, Chapter V, sections 36 and 46) (Locke 1988).

However, Locke stipulated two conditions ('provisos') that must be met in order for the appropriation to be justifiable. First, there must be 'enough, and as good left in common for others' (Second Treatise, Chapter V, section 27) (Locke 1988). Thus, the appropriation of things is only permitted if, afterwards, a sufficient number of the same or similar things remain. The second proviso is that there should be no waste. Man is not allowed to appropriate more than he can use (*even* if he made the things in question himself) (Second Treatise, Chapter V, section 31, 37 and 38) (Locke 1988).

For the purposes of our discussion, the key question is of course whether Locke's arguments regarding property are applicable to *intellectual* property. Some commentators clearly think they are (see, for example, Baird 1983 and Spector 1989). We will come back to this. However, Robert Nozick, the libertarian philosopher who elaborated a so-called 'entitlement theory' of property (Nozick 1974), which is partly based on Locke's theory, has raised the following pertinent question:

> Why does mixing one's labor with something make one the owner of it? Perhaps because one owns one's labor, and so one comes to own a previously unowned thing that becomes permeated with what one owns. Ownership seeps over into the rest. *But why isn't mixing what I own with what I don't own a way of losing what I own rather than a way of gaining what I don't?* … If I own a can of tomato juice and spill it in the sea so that its molecules (made radioactive, so I can check this) mingle evenly throughout the sea, do I thereby come to own the sea, or have I foolishly dissipated my tomato juice? (Nozick 1974: 174–5, emphasis added)

Furthermore, if mixing labour with something would give rise to a property right, a further question arises as to the *boundaries* of that property right: what exactly has become the property of the person who performed the labour and how should this be determined? This question can also be formulated in terms of the *value* of the result. A difference exists between the value attributed to the object of the labour and the value attributed to the labour itself (or the *added* value). Determining the proportionality of each of these values in respect of the total value of

the object to which labour has been applied can be very difficult, which poses a problem for the justificatory strength of the labour theory of property.

Moreover, 'intellectual objects' do not suddenly appear out of the blue, but usually stem from ideas of predecessors. The labour of these predecessors also contributes to the total value of the final result. This has important ramifications for the question as to who is entitled to the value of the final result. As Hettinger rightly notes:

> A person who relies on human intellectual history and makes a small modification to produce something of great value should no more receive what the market will bear than should the last person needed to lift a car receive full credit for lifting it. If laboring gives the laborer the right to receive the market value of the resulting product, this market value should be shared by all those whose ideas contributed to the origin of the product. The fact that most of these contributors are no longer present to receive their fair share is not a reason to give the entire market value to the last contributor. (Hettinger 1989: 38)

Again, it may be hard, and sometimes virtually impossible, to determine the relative share of each of the different components in the final result.

Let us now briefly examine whether Locke's two provisos (the 'enough and as good' condition and the 'non-waste' condition) are only relevant in the context of physical or tangible things, or whether they are also applicable to intellectual or intangible objects.

As for the second 'proviso' – man is only allowed to appropriate what he can use – the question arises, for example, whether ideas can ever be wasted. It seems improbable that an idea as such can be 'wasted', but surely the possibilities offered by an idea can be. If a person acquires an intellectual property right to something and does nothing with it, the 'non-waste' provision would be violated. If something were left unused by the appropriator, *while others needed it*, the waste would be all the greater.

One aspect of the patent system that can certainly generate waste is the fact that the patent system in its present form does not oblige patent holders to 'work' (exploit) their invention. The history of the patent system shows that this has not always been the case. Naturally, such 'working requirements' have always been defended on utilitarian grounds (see below), that is on the basis of a positive balance of societal benefits over disadvantages. For in a patent system grounded in natural law, the essence of the patent right would imply that the patent holder decides what happens with the object of the patent, that is he could not be forced to use the object of the patent.

Moreover, even if a patent *is* exploited, waste may still occur. After all, the result of granting a patent is that the patentee can put restrictions on the use of the invention. Since an important feature of the subjects of patents is what economists call their 'non-excludability', that is the fact that they can be used by many people *simultaneously*, artificially limiting their use can indeed amount to waste. The extent of the waste will depend on the utility of the invention for those who, because of the patent, are forbidden from using the invention.

So far we have considered the second proviso. As far as Locke's first proviso is concerned – 'enough and as good left in common for others' – many commentators perceive no problems with respect to intellectual property. Hughes, for example, states that:

> [A] growing set of central ideas are never permitted to become private property and are held in a *permanent common*. By preventing private control of these particular ideas, intellectual property law resolves a major inequity often present in physical property systems. Even in a vast wilderness, an individual should not be permitted to claim certain physical goods as property because their extraction from the common will not leave 'as good and as many' for the remaining individuals. (Hughes 1988: 319, emphasis in original)

However, the set of things that are not under consideration for privatisation is growing smaller, instead of growing bigger as Hughes claims, and it is precisely the set of things on which intellectual property rights can be claimed that is growing (see, for example, Shulman 1999 and Boyle 2003).

Nozick has applied Locke's 'enough and as good' proviso to the rights conferred by a patent. He correctly observes that, when an object becomes somebody's property, the situation of all the others *changes* since the object can be used by others only if the owner allows this. According to Nozick: 'The crucial point is whether appropriation of an unowned object worsens the situation of others' (Nozick 1974: 175). He believes this is not necessarily the case, and provides the following illustration:

> If I appropriate a grain of sand from Coney Island, no one else may now do as they will with *that* grain of sand. But there are plenty of other grains of sand left for them to do the same with. Or if not grains of sand, then other things. Alternatively, the things I do with the grain of sand I appropriate might improve the position of others, counterbalancing their loss of the liberty to use that grain. (Nozick 1974: 175, emphasis in original)

However, when applied in the context of patents, Nozick's arguments do not seem convincing. As to his statement that, if not enough samples of a specific object remain for others to use, sufficient samples of *another* object will be available to them, it can be argued that this is immaterial

if that particular object is exactly the one they need (e.g. a specific drug). The fact that they are excluded from using that object as a result of the grant of a patent *does* imply that they are worse off than they might be.

As to Nozick's argument that the situation of others can be *improved* as a consequence of what the owner does with the object, and that this can compensate for the fact that others are not allowed to use the object, we need to point out once more that, certainly in the post-TRIPS world we find ourselves in, patentees are under no obligation to do anything with their invention.

Nozick further argues that the existence of a patent does not deprive others of anything since, were it not for the inventor, the subject-matter of the patent would not exist (Nozick 1974: 181). However, we may assume that at some point in time another person would have independently discovered it, and this could be a reason for putting a time limit on patent rights. Everybody who is aware of the enormous number of patent disputes regarding priority is familiar with the phenomenon of simultaneous independent inventing. Nozick himself acknowledges that a patent deprives independent inventors and argues that independent inventors should have the right to use their invention (Nozick 1974: 182).

The natural rights argument for patents became very popular in the nineteenth century, albeit mostly in continental Europe (Dutton 1984: 18; MacLeod 1988: 197, 199). It has been called a 'tired old ghost' (Schiff 1971: 73), but in fact the natural rights justification is frequently used in current debates on patenting. Sixty years ago Edith Penrose made an important observation that remains valid today:

> [T]he loose use of the word 'stealing' remains in most patent discussions to remind us of the natural property right conception of patents. Stealing … is used in a [wide] and [vague] sense to include the use by another of a man's ideas even though they are not in fact patented or patentable under the law applying to him who uses them. Upon this concept all charges of 'piracy' are based when they are leveled against nations who permit their nationals to use freely inventions patented elsewhere but which are not patentable under their own laws. (Penrose 1951: 24–5)

Referring to natural law as justification for the patent system, both as we know it today and as it has existed in the past, is problematic for several reasons, inter alia: the fact that certain categories are excluded from patentability; the fact that the validity of patents is limited in time and space;[5] the fact that an independent inventor cannot use her own

[5] Patents granted under a system based on natural rights could be expected to be perpetually valid (or at least valid until the death of the patent holder) and to be globally enforceable.

invention if someone else already has a patent on it;[6] the fact that patents are only granted if certain requirements (novelty, inventive step, applicability and sufficiency of disclosure) are met; and the fact that patents can be declared void.

1.4 Distributive justice as the foundation for patents?

Let us now take a look at the second type of justification for the patent system. According to the distributive justice argument, it is only *fair* that society rewards inventors since they do society a service. The establishment of a patent system is justified because it would be unfair to allow people a 'free ride' at the expense of others who apply themselves to the act of inventing. Free-riders, by definition, have not invested time or money in the development of an invention, thus it would be unacceptable to allow them to compete with the inventor under normal market conditions.

Several problems arise when evaluating the patent system from a distributive justice perspective. We will only mention a few here, without elaborating. First, there are two possible grounds for reward: the *extent of the effort* and the *value of the result achieved*. Which of these two criteria should determine whether or not a person deserves a reward? The value of the result is often influenced by factors on which the person can have no impact (e.g. luck). As rightly noted by Hettinger, giving a greater reward to 'workers' whose products have greater social value might be justified if this is needed as an incentive, but this has nothing to do with giving a person what she *deserves* (Hettinger 1989: 42). The extent to which someone has made an effort is obviously more difficult to determine than the value of the result of her efforts, but pragmatic arguments such as this are not decisive in a framework of distributive justice.

It seems that the patent system does not give proper consideration to the extent to which an applicant has tried, although the patentability requirement of non-obviousness might create the impression that it does. First of all, inventors who have tried very hard, but ultimately produce nothing that works, are not rewarded under the patent system. If we accept the justice-based principle that efforts must be rewarded, then

[6] This could be justified on utilitarian grounds (see below), by referring to the incentive effect of the patent system, which would be eroded if independent inventors were also allowed to lay claim to the invention. But a justification of the exclusion of independent inventors on the basis of natural rights is clearly problematic, since from this perspective independent inventors have the same natural property right to their invention as the inventor who was the first to knock at the door of the patent office.

unsuccessful inventors who have made efforts also deserve a reward. Moreover, findings in fields that are excluded from patentability (e.g. mathematical formulae) can also involve huge efforts and/or represent a great service to society. Does fairness not require that people who work in these fields also be rewarded with patents?

Obviously, patents represent only one of the possible reward mechanisms. Hettinger has rightly observed that the argument that an inventor deserves to be rewarded does *not* imply that inventors deserve an exclusive right of ownership on their invention: 'The mistake is to conflate the created object which makes a person deserving of a reward with what that reward should be. Property rights in the created object are not the only possible reward. Alternatives include fees, awards, acknowledgements, gratitude, praise, security, power, status, and public financial support' (Hettinger 1989: 41).

What about the proportionality of the reward? Adam Smith considered the patent system to be the fairest mechanism for rewarding inventors:

> For if the legislature should appoint pecuniary rewards for the inventors of new machines, etc., they would hardly ever be so precisely proportioned to the merit of the invention as this [the patent grant] is. For here, if the invention be good and such as is profitable to mankind, he will probably make a fortune by it; but if it be of no value he will also reap no benefit. (Meek *et al.* 1978: 83)

Indeed, under a system based on distributive justice every inventor would be rewarded according to his merit. However, in its current form the patent system offers no guarantee as to the proportionality of the effort/service provided by the inventor and the reward received. For there is no link at all between the social usefulness of an invention on the one hand and the scope and duration of protection of the patent on the other hand. Admittedly, the patentability requirement of 'sufficiency of disclosure' should (at least theoretically) guarantee some 'correspondence' between the actual *contribution* the invention represents and the specific *scope* of the legal protection awarded to the patentee, but this bears no relevance to the *social merit* of inventions. All patents may be kept in force for twenty years, irrespective of the social usefulness of the invention in question and irrespective of the effort invested in developing the invention. However, it is not easy to remedy this rigidity, for it would be very difficult to fairly determine the proper level of reward on a case-by-case basis.

Finally, yet another problem concerns the unequal access to inventions that results from the granting of patents. Is this not unfair too? From a utilitarian perspective (see below) the unequal access to inventions is