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The Venetian Moment: New Technologies, Legal Innovation and the Institutional Origins of Intellectual Property[1]

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ABSTRACT *The role of the Venetian republic in the history of intellectual property is not well known although the innovations which were later codified into law by the British Crown, and which are usually regarded as heralding the age of intellectual property, were first developed a century before in Venice. This article explores these precursors to the more commonplace understanding of the origins of intellectual property law, and draws some parallels between the current debates about property in knowledge and the time of its first formal emergence some 500 years ago.*

Keywords: intellectual property, patents, Venice, printing, strategic trade policy.

Introduction

The history of intellectual property reflects the triangulation of three interlinked histories: the legal institutional, technological and political/ideological.[2] Although this history is often presented as one of institutional refinement, intellectual property has been subject to changes in the technologies available by which knowledge might be made valuable or exploitable, and by the manner in which knowledge creation is conceived. Although the 'information society' has focused attention on many issues surrounding intellectual property, the issues themselves are not new, nor are they important only to this specific technological revolution. Many of our contemporary concerns were already apparent in the institutional origins of intellectual property in Venice 500 years ago. Indeed, one historian of intellectual property has argued that 'the international patent experience of nearly 500 years has merely brought amendments or improvements upon the solid core established in Renaissance Venice'.[3] As this is hardly a commonplace in the current debates about intellectual property, this paper explores the Venetian origins of intellectual property and recovers some earlier research into this issue.[4]

Venice and the First Patent System

The first patent system was developed in fifteenth century Venice and was explicitly utilised to promote innovation. For the first time a legal and institutional form of

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intellectual property rights (IPRs) was developed to establish the 'ownership' of knowledge. Giulio Mandich suggests that:

> Venice was the first to have continuously and constantly applied certain rules to patents of invention, instead of granting an occasional isolated monopoly. Among these rules were these: that protection always was extended to an inventor, provided his invention was recognised as useful; that the patent term was limited; that the right was transferable *inter vivos* and *mortis causa*; that it was subject to a compulsory license in favour of the state; that a patent was forfeited by failure to use it within a certain term; and that it failed in cases of prior knowledge within the territory of the Republic.[5]

This, rather than the British law of monopolies in the next century, is the beginning of patents as a formalised institution. And while intellectual property in the form of patents did not emerge fully-formed in Venice, the subsequent history of legal 'refinement' has had much less substantive effect on the central tenets of the patent than the transformation enacted in the Venetian statute of 1474.

The Venetian authorities were concerned about their ability to retain the advantages that technological innovation provided, which is clearly demonstrated in the statute discussed below. In the end, Venice was unable to retain its position of dominance, but at the beginning of the sixteenth century the city stood at the centre of a world economy that stretched across the Mediterranean and Western Europe, as far as the Baltic, and through the Levant ports, into the Indian Ocean. Visiting Venice in 1495, Phillipe de Commynes declared it was 'the most triumphant city I have ever seen'.[6] As Fernand Braudel discusses at some length, the claims that Venice was the crucible of capitalism are overstated. Nevertheless,

> Venice succeeded in establishing a system which from the very first raised all the problems of the relations between Capital, Labour and the State, relations which would increasingly come to be identified with the word *Capitalism* in the course of its long subsequent development.[7]

And at this point of consolidation if not birth, (quasi) capitalists were already struggling with the need to make property of knowledge and information. Although the idea of industrial property already existed in some form in Venetian law as a customary practice, in the late fifteenth century it was finally codified into a form which is recognisably patent-like in a statute adopted by the city's ruling Senate. However, it is as well to recall that the Venetian government was not a state in the sense that became widespread in the following centuries. There was no formal constitution, and

> there was no clear separation of authority between legislative, administrative and judicial bodies. Instead, customs and precedents guided behaviour and overlapping authorities of various councils were supposed to verify that it was impartial.[8]

This leads to a problem regarding the emergence of the statute of 1474. How does this important statute fit into the political economic relations of fifteenth century Venice? One clear possibility is that the reinforcement of impartiality in the face of increasingly partisan demands for the protection of valuable knowledge and

information may have been itself a driving force behind the adoption of the statute. But the new statute-derived patents were not universally adopted by Venetian inventors before the turn of the century, perhaps because there was no single political authority to enforce the new practice. Nevertheless, the statute confirms that the Venetian authorities were concerned with the management of the city's economy and recognised the importance of technological innovation to its success.

Conventionally, the emergence of patents is identified in the 1624 Statute of Monopolies in British law. However, the form of patents that is institutionalised in this legislation, is preceded by a century and a half of practices and legislation in Venice. The idea of intellectual property specifically encapsulated in British patent law was possibly drawn from knowledge prior to Venetian practice. The myth of Venetian political stability and constitutional excellence, although a product of the city's own propaganda, was by the early sixteenth century well established. Linked with perceived longevity and freedom from domestic upheavals, Venetian modes of governance were well respected by the political classes of Italy and further afield in Europe.[9] Certainly, in the early seventeenth century, the Venetian authorities were well regarded in their practices of governance by the political classes in Britain.[10] Therefore, any legislative innovation characterised as Venetian would have received a sympathetic hearing and would have been unlikely to be dismissed without careful consideration. Although there has been some dispute about the mechanism for such a transfer of legislative innovation, Jeremy Phillips makes a strong case that Jacobus Acontius (who probably received the first patent explicitly for innovation issued in Britain) had already registered a patent in Venice while a resident there. When he emigrated to Britain, Acontius brought with him the notion that the innovator should receive certain benefits and rights relative to his invention.[11] On the other hand, there were many domestic reasons for adopting the particular British laws and the direct link should not be over-emphasised.

Patents in the fifteenth and sixteenth century had a double meaning or function: they conveyed 'not only the enjoyment of a monopoly, but also a licence to operate within the field in question'.[12] This dual function distinguishes the early development of patents from their later history. As patents were consolidated into a clear legislative institutional structure, the identification of innovation completely supplanted the additional monopoly aspect of patent grants. While patents still conferred monopoly rights, these rights accrued only to innovations and did not confer a right to operate in a field regardless of whether or not an innovative method was being utilised. Although both elements were retained in some Venetian patents of the late fifteenth century, for the first time a general rule regarding innovations was developed in the form of legislative statute alongside other methods of obtaining monopoly rights over certain industrial or economic practices and trades. It is also important to stress that, before the statute of 1474, the Venetian authorities had already sought to recognise innovation through individual grants of *privilegi*.

During the fourteenth and fifteenth centuries, the granting of patents to construct *monopolies*, as opposed to the reward for innovation, was broadly similar across the continent of Europe and in Britain. Specific grants similar to Venetian *privilegi* were far from unknown and survive in the legal archives of many states. But on 19 March 1474, Venice adopted a practice then unique. The Senate passed the following decree:

> There are in this city and its neighbourhood, attracted by its excellence and greatness, many men of diverse origins, having most subtle minds and able to devise and discover various ingenious artifices. And, if it should be provided that no-one else might make or take to himself to increase his own honour the works and devices discovered by such men, those same men would exercise their ingenuity, and would discover and make things which would be of no little utility and advantage to our state.
>
> Therefore it is enacted by the authority of this body that whoever makes in this city any new and ingenious device, not previously made within our jurisdiction, is bound to register it at the office of the *Provveditori di Comun* as soon as it has been perfected, so that it will be possible to use and apply it. It will be prohibited to anyone else within any of our territories to make any other device in the form or likeness of that one without the author's consent or licence, for the term of ten years. But if anyone should act thus, the aforesaid author and inventor would be free to cite him before every office of this city, by which office the aforesaid infringer would be prepared to pay one hundred ducats and his artifice would be immediately destroyed. But our Government will be free, at its total pleasure, to take for its own use and needs any of the said devices or instruments, on this condition, that others than the authors may not employ them.[13]

For the first time, patents were subject to a generalised law rather than a process of individual petition and grant.

Previously, some patents had awarded monopolies in innovations; there was no necessary requirement for absolute innovation for the award of patents prior to this decree.[14] There was no requirement for the petitioner to be the innovator or originator of the practice for which a patent was requested. It remains unclear whether the statute merely codified existing practice as represented by previous individual grants,[15] or represented a legislative departure. Even if the statute was mainly the formal recognition of customary Venetian practice with regard to innovation, the lack of a previous *generalised* law makes this statute important. For the first time grants were based not on the relationship between the petitioner and the authorities, but rather on the applicant's ability to fulfil certain fixed criteria. Nevertheless,

> it appears that between 1474 and 1490, very few patents actually were issued under the Venetian code, despite the fact that right through to the middle of the sixteenth century many patent *privilegi* continued to be granted, conferring exclusive production rights for terms varying between 5 and 80 years as well as monopolistic trade privileges.[16]

The *privilegi* were not displaced by formal patents for innovation. The *privilegi* retained their utility by virtue of their relationship with the guild-controlled sectors of the economy. When an invention or a new technological improvement was proposed which would in some manner impact on an existing guild monopoly, *privilegi* allowed the government-sanctioned monopoly to be breached on the grounds of socio-economic utility.

Privilegi were not of unlimited duration, nor necessarily exclusive (they diluted monopoly rights previously held), but 'were granted and revoked by the state

depending on what was deemed to be useful'.[17] This form of rewarding innovation (as opposed to a formalised law of patent) was around 150 years old when the new patent statute was enacted. The Venetian authorities had maintained, at least since 1332, a fund for encouraging certain activities. In that year a payment was made to

> Bartolmomeo Verde, who had promised to erect a windmill. Verde had six months to complete his installation and to make it work. On failure to do so, he had to refund the privilege money at once; otherwise within 12 years. He had to furnish security. Verde was not necessarily the first inventor of this kind of mills. [But] he was probably the only one who knew how to build them, and the government hoped to spread and promote this knowledge.[18]

The spread of knowledge would be achieved through use and experience rather than by access to documentation. In the years preceding the statute of 1474 a number of such *privilegi* were granted, and in some cases granted in the face of established guild monopolies. There was often more reward from breaking an existing monopoly than from developing a new one (with a new technology or product), although new monopolies could still be very profitable.

Some monopolies were explicitly forbidden by the Venetian legislators, such as that for reading glasses. Having prohibited the glassmakers guild from the manufacture of 'glasses for the eyes, for reading', the *privilegi* were thrown open to the public, to allow for maximum distribution. Within this emerging realm of intellectual property the Venetians already had a developed and practical view regarding the balance between public and private benefits from the ownership of knowledge, allied to the need to support innovation (although only practices that actually worked, as the revocation clause for the windmills *privilegi* shows). The balance between private rights to reward and the public good of dissemination of innovation has been crucial to the law of intellectual property and its legitimisation ever since.[19]

The Patent Statute's Effect

Once the statute had been adopted, a formal distinction emerged between proto-patents, which encompassed a bargain between private reward and public availability of knowledge, and the notion of privileged private reward encoded through *privilegi*. Even so, for some time potential patent applicants were able to choose *privilegi* over the mechanism of the 1474 statute. Although some applicants utilised the wording of the statute, others continued to relate their applications to customary law, especially in the period immediately after its adoption by the Senate.[20] Given the novelty of the statute and the competing monopoly grants, it should be no surprise that there was less of a 'big bang' and more of a gradual expansion of coverage for the nascent idea of a form of intellectual property. But this should not detract from the statute's historical importance as the first formal institutionalisation of patent.

Within the text of the 1474 Venetian decree are the outlines of the modern patent system. Key components of the statute included: a balance of knowledge available through a state sanctioned public realm; the rights of the 'innovator' to benefit from his intellectual endeavour; and the notion of reward for effort. The last, which is one of the key justifications mobilised to legitimise (intellectual)

property, is expressed here well in advance of its classic codification by John Locke in the seventeenth century.[21] Within the above text, labour's desert is made explicit:

> . . . if it should be provided that no-one else might make or take to himself to increase his own honour the works and devices discovered by such men, those same men would exercise their ingenuity, and would discover and make things which would be of no little utility and advantage . . .

Provided these men of ingenuity can have their new ideas protected by the Senate (acting on behalf of the Venetian commune), they will continue to develop new ideas. However, while the Senate will act to ensure that any infringer is punished for his act, it reserves the right to use such innovations for its own strategic ends. If the Senate can be said in a general sense to represent the interests of its public, then this provision is a first recognition that the (proto-) state itself has a developed interest in securing advances for the development of its economy.[22] As Braudel notes:

> Nine times out of ten the patents of invention, serious or not, recorded on the pages of registers and dossiers in the Venetian Senate corresponded to the particular problems of the city . . . Social considerations were the uppermost'.[23]

Although public interest in innovation is not yet fully-fledged, a preliminary version of the central public/private trade-off usually associated with patents is evident.

Furthermore, in a general sense, the Venetian authorities had historically 'aimed at least to use the guilds as a means of balancing public and private interests in everyday economic life'.[24] Thus, the logic of balancing public and private was hardly alien to the legislators who drafted the statute. Indeed, at this time the political and social structure of Venice was overwhelmingly corporatist in character.[25] Corporatist governance would likely support some notion of the social good represented by a public realm of knowledge. If the Renaissance marked the emergence of the individual as a recognisable social actor,[26] then the Venetian city authorities would have found themselves attempting to balance their corporatist view of the organisation of the city's affairs with demands from individuals to be recognised as worthy of reward in their own right. Thus, this conjuncture of emerging individualism (the sovereign knowledge creator) alongside the relatively rare governance structure of Venice at this time (not based on an individual autocratic ruler) produced a unique opportunity to develop a notion of intellectual property in the form of the patent grant's public/private bargain over innovation and its dissemination.

The new statute was quite open as regards the petitioners' reward and the scope of the legislation itself. Applications sometimes requested funds from the Senate, or tax exemptions, and the notion of patent was still deemed to cover tentative ideas rather than fully developed inventions. Nevertheless, 'applicants generally ask[ed] for an exclusive right, and . . . requests for monetary rewards as consideration for an assignment to the Public or State, are quite exceptional'.[27] Thus, although formally available, the public/private trade-off was not as formalised as it became in later patent law. But the general economic advantage to Venice was recognised in the preamble to the statute, valuing 'things which would be of no little utility and

advantage to our state'.[28] Already the strategic argument for economic innovation (which is to say the social value of innovation) is apparent in the minds of the Senate's legislators.

The issue of *usefulness* (which is one of the three central criteria of modern patent law, alongside novelty and non-obviousness) is clearly articulated in the phrase 'as soon as [the device] has been perfected, so that it will be possible to use and apply it'. The issue of *novelty* within the Venetian territory is explicitly stated: 'any new and ingenious device, not previously made within our jurisdiction' would be subject to the statute. Thus, in this decree 'in outline, a requirement of inventive merit seems to emerge, according to which the invention must not be a trifling, all too obvious application of known technology'.[29] The distinction between previous monopolies and the reward for innovation is made explicit. However, the magistrates empowered to examine claims for *novelty* and *usefulness* were often unable to ascertain completely a petition's validity either because applicants were still in the early stages of developing their particular technological innovation, or because previous patents were incompletely recorded. In a number of cases the patents were awarded with the *provisos* 'without prejudice to other patents previously granted' or 'assuming without deciding that this is a new invention, not heretofore disclosed by others'.[30] If there was a dispute between two applicants, the magistrates embarked on a fuller investigation. Even then, given the lack of formal criteria for patent submissions and the differing modes of application, the investigating magistrates could never be absolutely sure of their conclusions. In this sense, the 1474 statute was a blunt and unrefined instrument for the protection of intellectual property. But where there was doubt arising from these inconclusive investigations, it was always resolved in favour of the applicant concerned: the records indicate that between 1474 and 1550 not a single petition for a patent was rejected by the Senate.[31]

On the other hand, the Senate was also fully aware of the act's requirement for a device to have been 'perfected' for protection to be awarded. Thus, although not refusing any grants, a considerable number had further tests inserted to ensure that at a later date the shortcomings of the initial investigation into *usefulness* and *novelty* could be made good. In some cases, the clause 'the patent shall be void, as though it had never been issued' was inserted to cover the instance of an inventor failing the test set at a specified later date. If the device could not be operated, or turned out not to be novel, again the particular patent was cancelled. And the Senate required the test not merely to show actual use, but successful use *vis-à-vis* its claimed purpose. Some patents were written to run only from the successful completion of such tests and were therefore only provisional.[32]

Overall it seems that the patent system in Venice did a reasonable job of protecting the rights of 'owners' of specific forms of intellectual property, and was certainly good enough to encourage emigrants to import the system into other jurisdictions. By the middle of the sixteenth century the arrangements in Venice to protect innovation were becoming known abroad, even though they were not immediately adopted. In 1549 Thomas Smith wrote in his *Discourse on the Commonweal of this Realm of England* that:

> In Venice, as I heard, and in many places beyond the sea, they reward and cherish every man that brings in any new art or mystery whereby the people may be set to work.[33]

Given that economic development was becoming an increasingly important interest for rulers at this time, Smith's observation cannot have been without interest in the Court of Elizabeth or her successors. It seems likely that it was not only Acontius who travelled from Venice with the idea that innovation could be regarded as a form of property.

The migration of Venetian glassblowers is an additional route by which the Venetian system of granting patents for inventions may have spread further afield:

> . . . glass was then so precious that many Venetian artists were tempted to establish works abroad, and knowing the Venetian patent system, the first thing they sought in foreign countries was a monopoly for the new methods they brought with them.[34]

The letter of patent allowed them a limited (but usually renewable) monopoly with regard to their imported practices, in exchange for the transfer of technological advances to the letter-granting authority, through an obligation to instruct apprentices. These letters were not legally constituted, but rather were only enjoyed through the favour of the sovereign. As a return to Venice was impossible (the death penalty awaited glassmakers who breached the Venetian monopoly in manufacturing), these artisans needed to establish themselves and protect their advantage in their new home. The first patent awarded in France, a grant of 1551 to Theseus Mutio from Bologna for the production of glass, is to a migrant from the jurisdiction of the Venetian system of patent.[35]

While Venice was a major economic city due to its major trade centre, it attracted streams of artisans and entrepreneurs of various sorts. As the city declined in the face of new trade routes and the rise of other European trade centres, the flow of individuals reversed. With the beginnings of decline, artisans left taking with them their skills, their technologies, and the developed understanding of intellectual property, which had become relatively commonplace in Venice. As Prager argues, in 'most places the patent system was adopted almost exactly as developed in Venice . . . all of the basic rules developed in Venice were preserved in the subsequent systems'.[36] The appeal of the patent system for rulers in whose territories these migrants settled lay in the benefits to the economy overall through the importation of new methods of manufacturing. The competition for these artisans should not be under-estimated. One way of encouraging their immigration was to ensure their special skills and practices enriched them. The central components and rationale of patent law have hardly changed in 500 years. The Venetian moment produced the skeleton of a system that has been remarkably robust in its central elements.

The Role of the Guilds

The development of a form of intellectual property in Venice was prefigured by the recognition by craft guilds of the value of craft knowledge. Many had already developed a proprietary view of their knowledge resources. Pamela Long argues that it is 'clear that within medieval cities the attitude developed that craft processes constituted intangible property with commercial value subject to conditions of ownership'.[37] The first known attempt to protect craft knowledge in Venice was in a decree issued by the Council of Venice on 21 May 1297, which stated:

> If a physician makes a medicine based on his own secret, he too must make it only of the best materials; it all must be kept within the Guild; and all Guild members must swear not to pry into it.[38]

By issuing a decree to this effect, the Council gave limitations on the diffusion of knowledge the weight of law rather than merely of guild regulation. Craft knowledge was not generally linked to particular owners or to innovation, rather it was seen as a corporate resource, part of the governance structure of the guild's communal activities. Of particular interest in the innovation of the patent, was the close relationship between the Venetian guilds and the city's government. Although formally a separate organisational entity, the Senate was able to control the guilds through the choice of magistrates who represented the guilds' interests to the government and also played a major role in the guilds' own governance. While other officers of the guilds were chosen from their own ranks, they were still beholden to the governing magistracy and the regulations it approved. But it is a mistake to see the guilds as merely a method of governmental control of economic life in Venice; the well-established appeal procedures enabled the guildsmen to restrain the practice of guild officers.[39]

There was therefore, a well-established link between the guilds and the government of Venice. This link would have alerted the Senate to the manner in which guilds perceived their knowledge resources, and would probably have had some impact on the manner in which the Senate's members started to think about the value of similar resources for Venice as a whole.[40] Indeed, for both the Senate and the Council of Ten, which had day-to-day oversight of legislation, responding to pressure from below regarding issues of governance was accepted and quite usual practice.[41] Thus, the guilds could have made their needs known directly and also through their membership of the General Assembly, to which the Senate and Council were tied in a relationship of at least casual accountability.

That the statute of 1474 was the result of pressure from below combined with the city authority's own wishes not only seems likely, but would fit with the normal political practices of Venice at this time. Given the close links between the guilds and the city's government, the fact that the statute was passed by the senate by a vote of 116 to 10 with three abstentions suggests it had the general support of the guilds.[42] As Prager notes, the statute clearly reflects guild notions of the 'unity of work', that products needed to be recognised as the final responsibility of one maker or craftsman as reflected in the long practice of trade marking.[43] And while in one sense the statute, by introducing the possibility of time limits on knowledge-based monopolies, was against the interests of the guilds, the pressure of competition from non-guild, foreign artisans may have led their representatives to compromise on some protection for their position rather than see it further eroded by new entrants to the city's economy. Although it is difficult to be sure, the authorities may also have seen the compromise as one way of reducing the guilds' opposition to migrant artisans entering Venice.

Although the guilds never called it 'intellectual property', their assertion that they owned the craft knowledge and practices of their occupation, collectively as guild members, exhibits the recognition of the value to be gained from the scarcity of knowledge (in this case through guild membership). Even within the guilds there was recognition that individual members might have an exclusive right to certain knowledge. In 1432, the Genoese silk manufacturers adopted a number of general articles for the governance of their practices, of which one clearly stated: 'if

anyone of said guild has had some pattern or figure designed, no one else shall have such figure or pattern worked'.[44] In the same year the Venetian statute was adopted, the Florentine Woollen Guild adopted a more specific article:

> It has been noted that certain fabricators of figured serge, by their own efforts have invented designs and patterns for figured serge, and that many other fabricators of such material are trying by means of fraud and deceit to steal such patterns from said fabricators.[45]

The use of the word 'steal' clearly signifies that such knowledge (patterns and designs) was regarded as property.[46] As the guilds developed and used these rules prior to statutes being enacted, so the model of intellectual property, enacted in the form of patent grants in the 1474 statute, was developed. Just as the private sector helped develop the key elements of the TRIPS agreement over 500 years later,[47] so at the beginning of intellectual property's institutionalisation, the private sector (in the form of the guilds) influenced legislation that would have a major impact on its well-being.

As craft knowledge became more clearly valuable, it also became subject to appropriation. Individuals who broke from their guilds, taking their stock of guild knowledge with them, were often able to arrive in a new jurisdiction claiming their knowledge was innovative and therefore amenable to protection through the introduction of some form of intellectual property law. Where such legislative moves were successful, the protection of knowledge as a property right was established. Just as important, previously communal knowledge became individual knowledge.[48] Furthermore, once protection of knowledge as property was married to the notion of the individual as knowledge creator (the genius or inventor) the scene was set for the most typical patent dispute, argument over priority. It is hardly surprising that in the sixteenth century disputes between contemporaries over precedence in invention or discovery became much more frequent.[49] Once the Venetian model of patent, with its clear requirement for novelty was codified, the need to establish priority in invention became a key area for dispute. This individualisation of intellectual property struck at the heart of guild knowledge ownership; the members themselves became the possible owners of novel practices they developed, not the guild membership in general.

Guilds were organised, particularly in the fourteenth and fifteenth centuries, to protect their members from competition, and in that sense resembled cartels. They sought to control specific sectors, and maintain or even raise prices for the products of their members. One way of achieving this end was to retain a monopoly on the knowledge and practices which made up their members' trade. As organised groups, one of their most important roles was to bring pressure to bear on the shaping of law and custom in their sector of the economy. Despite such pressure, the guilds were often unable to further the aims for which they were formed—the protection of the interests of their members through the support and regulation of trade.[50] Certain Venetian guilds may have sought to strengthen their control over strategic knowledge by persuading the state to support their efforts through customary law, cumulating in the statute of 1474. But, perhaps unforeseen by the Venetian guilds, a number of patents subsequently awarded under the statute were granted to non-Venetians, and thus the statute may have actually been more effective at encouraging the importation of techniques and technology. Furthermore, new knowledge was often likely to infringe guild monopolies. Thus,

while innovation within the guild's membership was valued, innovation outside was dangerous and threatening. In any case, as demand rose for cheap consumables (textiles, food), the guilds found themselves increasingly subject to competition from sectors outside their historic cartels.[51] In this sense, the guilds' support for patents in Venice may have been a reaction to economic problems arising from new competition and new technologies. Their leaders, through contacts with the Senate, may have sought laws that would (at least temporarily) guard their knowledge-related advantage.[52]

Patents in Venice, while formally introduced to protect innovation, may have been intended, by the guilds at least, to protect extant knowledge against non-guild members. The Venetian authorities had more general concerns for the economic well being of the city. The promotion of industry and innovation by the Venetian authorities was quite conceivably a response to the shifting nature of international trade during the fifteenth and sixteenth centuries. Venice had prospered and grown rich as a merchant city, controlling trade routes and trade in a wide range of commodities, but this was not sustainable against competition from other merchant cities and the Italian mainland more generally. Trade was endangered by the rise of the Turkish Empire and its control of the routes to (and trade with) the Levant ports. In the other direction, the rise of Antwerp in this period started to drain the commercial importance from Venice.[53] Thus, while commercial capital remained more important to the city's wealth than industrial capital well into the eighteenth century, from the fifteenth century the nascent industrial sector started to play a more significant role in the city's economy. Turning from an exclusive concentration on trade to a developmental strategy that included the encouragement of industry, suggests that the need to promote innovation and to encourage competitive industrial practices might have played an important part in the Senate's interest in establishing a formalised notion of intellectual property. However, in light of Venice's subsequent decline, this strategy can hardly be said to have been an unqualified success.[54]

Patents, Printing and the Venetian Economy

Although the boom in the woollen industry during the late fifteenth and sixteenth centuries was the major spur to increased prosperity in Venice, other industries also played their part. One of the key industries in Venice at this time was the newly emergent printing sector. Indeed, 'Venice had become the capital of printing' with at least 156 different editions published there between 1480 and 1482, leaving Milan with 82 known editions far behind. Venice had strong commercial links with Germany, and when German printers started to move to Italy, they often chose to set up business in Venice.[55] Mackenney goes as far as to suggest that this new trade was the 'most significant contribution that Venice made to the civilisation of the Renaissance'.[56] The industry benefited from a well-developed home market, and as Aldus Manutius realised, the concentration of scholars able to translate classical texts into the vernacular for the new popular editions made Venice a magnet for printing activities.

Printing related to intellectual property in three ways during this period. In the first instance, patents were awarded for the actual techniques of printing (most importantly, innovative typefaces such as roman and italic). Secondly, there was also a move toward a system of copyright for the contents of some publications, of which more below. And thirdly, the increased diffusion of scientific and technical

knowledge through the circulation of books in the 50 years after the invention of printing meant that the mere holding of a 'secret' process or mechanism was less likely to ensure a monopoly on its use. The printing of books of techniques (often drawn from medieval texts) may have only codified well-known practices, but it revealed intentionally concealed techniques to a wider audience.[57] Once the scarcity of information and knowledge had been adversely affected by the explosion in printed materials discussing techniques and 'science', the original 'owners' of such knowledge were likely to seek ways of re-imposing some form of scarcity, in protecting their interests. In a market of knowledge, a price can be effectively taken only by the construction of scarcity in intellectual property.[58] Although subject to intellectual property provisions in themselves, the printing trades also had a profound impact on the political and economic environment, in which intellectual property as a formal institution developed. This burgeoning public domain of information availability contributed to the 1474 statute's very clear stand on novelty. Monopolies would only be awarded henceforth if innovations were new to Venice. In this sense, the advent of printing both prompted knowledge holders to seek protection, and also limited that protection to specific sorts of knowledge (the new, the useful).

Supported by the burgeoning institutionalisation of intellectual property in the form of patents, the printing trade in Venice flourished. Although it may be a co-incidence, during the two years prior to the statute of 1474, the printing trade had found itself in a crisis of over-supply. The printing of Latin classics far outstripped the demand, and left many printers either bankrupt or at the mercy of their creditors, leading to some consolidation in the trade, with at least one press, that of Vindelinus, passing into the hands of two German entrepreneurs.[59] Such an oversupply of duplicated texts from different printers could have been avoided by the provision of some form of copyright, ensuring that each text was offered for sale by only one printer. This would not necessarily have halted oversupply, but would have at least restricted the production of competing editions of specific texts that drove down prices and undermined the economic viability of many printers. Given the Venetian authorities interest in the city's economy, it is possible that this was also a contributory factor in the innovation of property in knowledge laid out in the statute, although there is nothing in its text directly to support such a supposition.

The Aldine Press, the first 'popular' press, printing (relatively) long runs of around 1,500 per edition, was increasingly active in the 20 years after the passing of the 1474 statute. For the first time, scholars could discover the classics without recourse to the expensive and small editions hitherto produced.[60] Although an assessment of the importance of this programme of publishing is beyond the scope of this article, what this does underline is the innovative and export-oriented character of the Venetian printing trade at this time. Publishers and printers were in the market to make a profit, and even in this early period of quasi-capitalism, the logic of reducing prices (through lowered costs) to expand the market was already affecting the sector as a whole.[61] However, like content providers today, Aldine and other printers had a problem with piracy.

One strategy against pirated editions, was to patent the typeface that was used, and many printers sought protection in this manner. For instance, on 14 November 1502, Aldus was granted a monopoly for all Greek and Latin publications in italic within the Venetian jurisdiction. This grant was the first time a (known) patent was awarded over an entire type rather than the works printed with it. Indeed, the grant

seems to have caused a major rift between Aldus and the master who had cut the type, who regarded it as his own invention. However, Aldus retained the grant and the master, Francesco Griffo (along with others), wasted little time in breaking the monopoly, engendering a controversy over the first use and legitimate 'ownership' of italic that seems not to have been satisfactorily adjudicated by the Venetian authorities of the time.[62] The most prestigious printers secured patronage for their expensive editions and this freed them from reliance on sales. Aldus Manutius, however, exhibiting the modernism of fifteenth century Venice, took advantage of the economies of scale that could be secured from larger editions (runs much longer than pirates could manage) and thus competed with other editions of classic works through price and availability. Piracy remained a major problem, despite the supposed protections (including, in the Aldus case, not only Ducal letters, but a papal bull). Authority over the issue of adjudication did not rest with a single body, and neither was it always easy to ascertain the similarity of the copy, or its date. Thus patents, *privilegi* and other methods were deployed, but not with complete success.

The Aldine editions were also the first to use the new patented roman typeface, widely adopted in the next century. Perhaps more importantly, Aldine was the first press to use italics cut in 1501 and instrumental in allowing the proliferation of the pocket classics by which the press became known throughout Europe and beyond, and again initially protected through a grant of patent. But by 1518 problems of counterfeit editions carrying the Aldus mark could no longer be ignored, as the preface to that year's edition of *Livy* testifies:

> Lastly, I must draw the attention of the student to the fact that some Florentine printers, seeing that they could not equal our diligence in correcting and printing, have resorted to their usual artifices. To Aldus's Institutiones Gramaticae, printed in their offices, they have affixed our well known sign of the Dolphin wound round the Anchor. But they have so managed that any person who is the least acquainted with the books of our production, cannot fail to observe that this is an impudent fraud. For the head of the Dolphin is turned to the left, whereas that of ours is well known to be turned to the right.[63]

Piracy engendered not only a discourse of theft, but also a justification of intellectual property based on the just reward for labour: the pirates, unable to 'equal our diligence in correcting and printing, have resorted to their usual artifices', had resorted to passing off inferior goods under an established trademark.

The provision of copyright protection through the mechanism of appeals for grants of *privilegi* over specific texts, was also deemed crucial by many successful printers to ensure there was less competition, and that they were able to enjoy monopolies over their chosen texts. Indeed, the desire for a form of copyright protection was prompted by some strikingly familiar practices:

> Some of the petitions for copyright presented to the Venetian government during the 1490s conjure up pictures of a sinister underground at work within the industry: its agents sniff out any new and important work, which is in preparation, bribe some disaffected worker, and secure a copy; secret presses mass-produce the stolen text; a cheap version appears on the market before

> the original, and the poor printer who has invested his money and expertise in the project is left destitute.[64]

In this sort of environment, the desire for a legislative settlement regarding the issue of legitimate copyright was hardly a surprise. Additionally, almost from the start, the Venetian printers were working within a capitalist structure of production, and within this organisational pattern secure property rights over the intellectual content of their products was of paramount importance.[65] In most cases, the *privilegi*, and after 1474 monopolies (or quasi-patents), were granted to the printers, not the authors. But this was not always the case. Sabellico's *privilegi* for his history of Venice, allowed him 'to choose which printer would publish his book, and any other printer who published it would be fined 500 ducats'. Other grants included one of 1492 to Petro Francesco da Ravenna for *Foenix*, and showed some inflation in the value of such intellectual property: in 1515, Ariosto's rights to his *Orlando furioso* carried a penalty for piracy of 1,000 ducats.[66]

Responding to these developments, the earliest formal provision for the protection of copyright (as completely separate from grants of patent for textural content) was again made in Venice. However, the notion that authors should be accorded rights over their product was hardly novel in itself. It was not uncommon to find in Greek culture from the sixth century BC onwards poets claiming to be authors of specific works and artists who signed their paintings or illustrations, asserting their rights to be recognised as the creator. Under Roman law, there was a general recognition that the authors had some legitimate rights over their works. The Romans also seemed to distinguish between authorial rights to protect the integrity of the work, and the right of reproduction.[67] One dispute in the sixth century has been identified a number of times as the first relatively formal copyright dispute. As no such thing as copyright existed at this time, such claims are exaggerated, but the case does have some resonance for any notion of authors' rights. It concerns

> Saint Columba, who in the year 567 surreptitiously copied a psalm book belonging to his teacher, Finnian of Moville. When Finnian objected, the dispute went before King Diarmed. The king concluded that both the original and the copy belonged to Finnian saying, 'To every cow her calf, and accordingly to every book its copy'. Diarmed saw the book as Finnian's property, the ownership of which entitled Finnian to its product, the copy.[68]

Whether this is myth does not detract from its importance as a signal of the continuing appeal of author's rights.[69] However, while this notion had some salience for the emergence of a form of copyright in Venice, it was not the city authority's only (or even primary) consideration.

The Council of Ten in Venice, sitting between 1544 and 1545, issued a decree which 'prohibited the printing of any work unless written permission from the author or his immediate heirs had been submitted to the Commissioners of the University of Padua'. This formalisation was a legislative response to the previous scramble to secure rights on profitable titles. As with the patent statute, within the city there was considerable customary practice related to copyright prior to its formal institutionalisation. After 1493, when the Venetian Cabinet set a precedent giving Daniele Barbaro a ten-year exclusive grant to publish a book by his late brother, Ermolao (whose close connections with the Venetian authorities no doubt

eased such a grant), and before 1517, any title could be the subject of an award of monopoly. This had led to a rush by printers and publishers to secure profitable titles, either for immediate publication or so the monopolies could be sold on. In 1517, the Senate restricted '*privilegi* henceforth to "new and previously unprinted works"', to reduce the number of claims and counter-claims it was required to hear.[70] However, problems arose again: the granting of *privilegi* mushroomed after a lull of a few years and in 1534 the Senate stipulated that *privilegi* remained valid only if the title was published within a year. This was intended to halt the hoarding of unpublished titles, and thus to stimulate the continued expansion of the trade.[71] The continuing problem of 'pirated' editions prompted further legislative innovation.

In 1549, a Council decree finally organised all Venice's printers and booksellers into a guild, which allowed a full record of copyrighted works to be maintained (to police unauthorised reprinting) and gave the Church some assistance in suppressing heretical literature.[72] Authors became dependent on the guild to secure publication of their work through the legal formalisation of a protectable copyrighted text. To gain protection, a text had to pass through the offices of one of the guild's members. This guild monopoly fitted well with the perception of many European guilds of their ownership of knowledge. However, the formal wording of the law did not immediately make such a turn of events obvious. The Council of Ten ordered in the 1544 act that:

> . . . no printer of this city shall dare to print, or to offer for sale when printed, any works regardless in what language, unless the author thereof, or his immediate heirs, have declared their consent in writing to the Board of Education (*Refomatori*) in the State University of Education.[73]

Such phrasing seems to indicate that the copyright lies with the author; indeed, this may be the first time something akin to the author as individual creator is legally codified. Certainly the printer and publisher seem to move into secondary positions. However, the effect of the patent system on the practice of printing itself and on the prohibition of parallel production of specific texts undermined this position. Without rights to the means of reproduction, the Venetian copyright holder was (as is often the case today) at the mercy of a printer or publisher willing to print copies of the text that has attracted copyright.

The development of copyright prior to the organisation of the guild was very valuable to Venetian printers, despite its less than comprehensive recognition of the author's interests. Indeed, Prager goes as far as to suggest that:

> . . . authors went more readily to Venice than to any other city, in their search for publishers. This preference was caused by the copyright tradition at least as much as by the excellence of paper stock and typography.[74]

And, of course, excellence in typography was also supported by the Venetian system of intellectual property, through patents granted under the statute of 1474. As each book carried the printers 'device' showing the grant of patent and the author's formal copyright, so the idea of intellectual property spread through the export markets dominated by the Venetian presses.

During this period, the other key development in the industry (apart from the cheap editions of Greek and Roman authors) was 'the development of an extensive

"scientific" literature written in the vernacular and intended for the mass market'.[75] This literature expanded the reach of available technical knowledge, but also began to establish a truly public realm of knowledge against which patents would in future be defined. Ecclesiastical censorship eventually caused the severe contraction of the book trade. The Tridentine Index of 1564 had some adverse effects, but the Clementine Index of 1596 caused a general exodus of printers from Venice in response to the strict limitation on the types of works that could be legally printed. Within a few months of its publication, the number of presses in Venice fell from 125 to 40.[76] At this point, with the decline of Venice and the rise of its competitors (and most significantly for the history of intellectual property, the rise of London), the development of patent and copyright moved to Britain.

Conclusion

Although the formal designation of intellectual property as a legal institution with direct links to its contemporary manifestation may still rest with the British (the formalisation of patents in the 1624 Statute of Monopolies and of copyrights in the Act of Anne in 1709), this was not an unprecedented development. Rather, the idea of intellectual property in its modern sense emerged over a century earlier in Venice. What make this note worthy is that, in Venice, the invention of something akin to modern intellectual property was a response to a new revolutionary information technology. Printing changed the environment in which knowledge and information could be deployed; essentially printing changed the rules of the game for those who sought to profit from their 'ownership' of secret processes and techniques, of privileged information, or merely their access to important scholarship.

In this period of upheaval in the knowledge environment, practitioners and the political authorities innovated (or elaborated on emerging practices) to produce a new form of property rights. During the fifteenth century, the institutionalisation of intellectual property was not only directly related to the previous customary practice, but also remained only one method of providing protection. Depending on the sorts of protection required, petitioners might seek a patent related to the statute of 1474, or they might petition for *privilegi*, or they might try to retain knowledge or information through guild agreements for secrecy among their members. Thus, protection was supple and related to the needs of the knowledge 'owner'.

Certainly there is a coincidence between Venetian success and domination in printing (a strategic technology of its time) and the emergence of intellectual property that might imply some causal link. In the conventional justification for patents (as supporting and fostering individual technical innovation) this link would be seen as axiomatic. Although presented in terms of universal principles, what the Venetian moment reveals is that, from its legislative origins, intellectual property was not concerned with the idealised individual and his rights, but rather was a government-derived strategy for the development of competitive advantage. In the light of the revival of strategic trade ideas in the current era of globalisation,[77] it is perhaps unsurprising to find the Venetian state deploying legislation in the fifteenth century to enhance its advantage in a specific and important sector. In the twentieth century, both Germany and Britain would strategically deploy patents to protect and foster the development of their chemical industries. While it is now justified on the basis of the 'natural' rights of innovators

and authors, the early history of IPRs suggests another rationale altogether. Indeed, the central ideas of intellectual property were developed in the guilds (by the private sector), before being adopted by the juridical authorities. The 1474 statute was intended to shore up and improve Venice's industrial position as a response to the problems that were starting to beset its commercial empire at the end of the fifteenth century. Whatever subsequent justifications may claim, strategic economic considerations were as central to legislative innovation as any moral recognition of the rights of creators and innovators.

Notes and References

1. Professor Susan Sell, with whom I am working on a wide-ranging, and long-term history of intellectual property, read this article in draft and offered invaluable advice. I also thank the two referees for *Prometheus*, who also offered excellent advice on clarifying my argument. All remaining shortcomings are mine alone.
2. S. Sell and C. May, 'Moments in law: contestation and settlement in the history of intellectual property', *Review of International Political Economy*, 8, 3, 2001, pp. 467–500.
3. B. W. Bugbee, *Genesis of American Patent and Copyright Law*, Public Affairs Press, Washington, DC, 1967, p. 24.
4. The origins of trademarks, as a form of intellectual property, have a much longer lineage stretching back into Roman law and beyond, finding their origins in ownership marking and the branding of livestock. See B. G. Paster, 'Trademarks—their early history', *Trademark Reporter*, 59, 1969, pp. 551–72; G. Ruston, 'On the origin of trademarks', *Trademark Reporter*, 45, 1955, pp. 127–44.
5. G. Mandich, 'Venetian patents (1450–1550)', *Journal of the Patent Office Society*, 30, 3, 1948, pp. 166–224 (pp. 206–7).
6. F. Braudel, *The Perspective of the World*, Collins, London, 1984, p. 30.
7. *Ibid*, p. 128.
8. A. Greif, 'Political organisations, social structure and institutional success: reflections from Genoa and Venice during the commercial revolution', *Journal of Institutional and Theoretical Economics*, 15, 4, 1995, pp. 734–40 (p. 735).
9. R. Finlay, *Politics in Renaissance Venice*, Rutgers University Press, New Brunswick, 1980, pp. 27–37.
10. Z. S. Fink, 'Venice and English political thought in the seventeenth century', *Modern Philology*, 38, November 1940, pp. 155–72.
11. J. Phillips, 'The English patent as a reward for invention: the importation of an idea', *Journal of Legal History*, 3, 1, 1982, pp. 71–79.
12. Mandich, *op. cit.*, p. 167.
13. Quoted in Phillips, *op. cit.* pp. 75–76. The translation provided in Mandich, *op. cit.* is at variance with the text presented by Phillips, which was adapted from Frumkin's translation (see M. Frumkin, 'Early history of patents for invention', *Transactions of the Newcomen Society*, 1947–1949, pp. 47–56) and slightly different from the text provided in S. P. Ladas, *Patents, Trademarks and Related Rights. National and International Protection*, Harvard University Press, Cambridge, MA, 1975. While all four texts are similar enough to establish the meaning of the act, I have included them all in the appendix for comparison.
14. P. O. Long, 'Invention, authorship, "intellectual property" and the origin of patents: notes toward a conceptual history', *Technology and Culture*, 32, 4, 1991, pp. 846–84 (pp. 877–88).
15. Bugbee, *op. cit.*, p. 23.
16. P. A. David, 'Intellectual property institutions and the panda's thumb: patents, copyrights and trade secrets in economic theory and history', in M. B. Wallerstein, M. E. Mogee and R. A. Schoen (eds), *Global Dimensions of Intellectual Property Rights in Science and Technology*, National Academy Press, Washington, DC, 1993, pp. 19–61 (p. 47).

17. F. D. Prager, 'A history of intellectual property from 1545 to 1787', *Journal of the Patent Office Society*, 26, 11, 1944, pp. 711–60 (p. 714).
18. *Ibid.*
19. C. May, *A Global Political Economy of Intellectual Property Rights. The New Enclosures?* Routledge, London, 2000, pp. 167–78 and *passim.*
20. Mandich, *op. cit.*, p. 184.
21. May, *op. cit.*, pp. 24–26.
22. This assessment is not unqualified; in a translator's note to Mandich, *op. cit.*, Prager, *op. cit.*, fn 37b suggests: '. . . it is not clear whether this proviso in the act means that the inventor shall be the only one to operate the device (a) for the use of the government, or (b) for the use of others . . . Construction (a) is at least as plausible as (b). It is true that it leads to the question what are the precise incidents of "operation" (*exercitar*) as distinguished from "use" (*usar*). The statute is vague in this respect; however, not more so than, for instance, the U.S. act of 1910 as amended 1918 . . .'. It seems that some form of quasi public interest is implied by this injunction, but this is neither clear nor certain, although I draw the reader's attention to the first paragraph of the decree that seems more certainly to imply the social worth and value of innovations being developed in, and imported to, Venice.
23. F. Braudel, *The Structures of Everyday Life. The Limits of the Possible*, Collins, London, 1981, pp. 433–44.
24. R. Mackenney, *Tradesmen and Traders. The World of the Guilds in Venice and Europe c.1250–c.1650*, Croom Helm, London, 1987, p. 14.
25. R. Mackenney, 'Venice', in R. Porter and M. Teich (eds), *The Renaissance in National Context*, Cambridge University Press, Cambridge, 1992.
26. J. Burckhardt, *The Civilisation of the Renaissance in Italy*, Phaidon Press, Oxford, 1944, pp. 81–85.
27. Mandich, *op. cit.*, p. 182.
28. Or, valuing 'devices of great utility and benefit to our commonwealth' (*Ibid*) which is perhaps a clearer translation of the meaning of the preamble.
29. *Ibid*, pp. 177 and 183.
30. *Ibid*, p. 187.
31. *Ibid*, p. 189.
32. *Ibid.*
33. Quoted in C. MacLeod, *Inventing the Industrial Revolution. The English Patent System, 1660–1800*, Cambridge University Press, Cambridge, 1988, p. 11.
34. M. Frumkin, 'The origin of patents', *Journal of the Patent Office Society*, 27, 3, 1945, pp. 143–49 (p. 144).
35. Mandich, *op. cit.*, p. 206.
36. Prager, *op. cit.*, p. 720.
37. Long, *op. cit.*, p. 875.
38. Quoted in Bugbee, *op. cit.*, p. 20.
39. Mackenney, 1987, *op. cit.*, pp. 21–28.
40. Interestingly, Venetian guilds had been responsible for the policing of trademarks to constrain counterfeiting since the twelfth century, and so the notion of the importance of a 'knowledge' element to commodities was well established in the city.
41. Finlay, *op. cit.*, pp. 44–59.
42. Bugbee, *op. cit.*, p. 22.
43. F. D. Prager, 'The early growth and influence of intellectual property', *Journal of the Patent Office Society*, 34, 2, 1952, pp. 106–40 (pp. 128–33).
44. Quoted in *Ibid*, p. 126.
45. Quoted in *Ibid*, p. 127.
46. Both *Ibid* and Long, *op. cit.* regard such sentiments as having long histories.
47. S. Sell, *Power and Ideas. North–South Politics of Intellectual Property and Antitrust*, State University of New York Press, Albany, 1998, chapter 6.

48. The commodification or enclosure of information and knowledge is at the centre of current political debates about IPRs.
49. Long, *op. cit.*, p. 883.
50. S. L. Thrupp, 'The guilds', in M. M. Postan, E. E. Rich and E. Miller (eds), *Economic Organisation and Policies in the Middle Ages*, Cambridge University Press, Cambridge, 1963, pp. 231, 264.
51. *Ibid*, p. 276.
52. Tony Porter suggests this was also the background to the increased interest in IPRs by the US government in the late 1990s; industries threatened by new entrants (and pirates) sought better legal protection from their state and the agreements it could make. See T. Porter, 'Hegemony and the private governance of international industries', in A. C. Cutler, V. Haufler and T. Porter (eds), *Private Authority and International Affairs*, State University of New York Press, Albany, 1999, p. 276 and *passim*.
53. Braudel, 1984, *op. cit.*, pp. 136–38.
54. The issue of decline is explored in some detail by the contributors to B. Pullan (ed.), *Crisis and Change in the Venetian Economy in the Sixteenth and Seventeenth Centuries*, Methuen, London, 1968.
55. L. V. Gerulaitis, *Printing and Publishing in Fifteenth-Century Venice*, Mansell Information Publishing/American Library Association, London, 1976, p. 2.
56. Mackenney, 1992, *op. cit.*, p. 61.
57. Long, *op. cit.*, p. 860, fn 37.
58. May, *op. cit.*, p. 42.
59. Gerulaitis, *op. cit.*, p. 23; M. Lowry, *The World of Aldus Manutius. Business and Scholarship in Renaissance Venice*, Basil Blackwell, Oxford, 1979, p. 13.
60. E. L. Eisenstein, *The Printing Press as an Agent of Change*, Cambridge University Press, Cambridge, 1980, p. 223.
61. Gerulaitis, *op. cit.*, pp. 10–11, 19.
62. Lowry, *op. cit.*, pp. 89, 140.
63. Quoted in I. M. Azmi, S. M. Maniatis and B. Sodipo, 'Distinctive signs and early markets: Europe, Africa and Islam', in A. Firth (ed.), *The Prehistory and Development of Intellectual Property Systems*, Sweet and Maxwell, London, 1997, p. 138.
64. Lowry, *op. cit.*, p. 14, fn. deleted.
65. Comprehensive discussions of the Venetian printing sector can be found in *Ibid* and Gerulaitis, *op. cit.*
66. M. Rose, *Authors and Owners. The Invention of Copyright*, Harvard University Press, Cambridge, MA, 1993, p. 10.
67. E. W. Ploman and L. C. Hamilton, *Copyright. Intellectual Property in the Information Age*, Routledge & Kegan Paul, London, 1980, pp. 5–7.
68. L. Stearns, 'Copy wrong: plagiarism, process, property and the law', *California Law Review*, 80, 2, 1992, pp. 513–53 (p. 535).
69. B. Scott, 'Copyright in a frictionless world: toward a rhetoric of responsibility', *First Monday*, 6, 9, 2001, p. 2, fn 9, 10, available at: http://firstmonday.org/issues/issues6_9/scott/index.html (accessed 30 September 2001).
70. David, *op. cit.*, p. 51.
71. Gerulaitis, *op. cit.*, p. 46.
72. David, *op. cit.*, p. 52.
73. Quoted in Mandich, *op. cit.*, p. 204.
74. Prager, 1952, *op. cit.*, p. 135.
75. L. Febvre and H.-J. Martin, *The Coming of the Book. The Impact of Printing 1450–1800*, New Left Books, London, 1976, p. 276.
76. O. Logan, *Culture and Society in Venice 1470–1790. The Renaissance and its Heritage*, Batsford, London, 1972, p. 76.
77. R. Gilpin, *Global Political Economy. Understanding the International Economic Order*, Princeton University Press, Princeton, NJ, 2001, pp. 122–27.

Appendix—Four Translations of the Venetian Decree of 19 March 1474

The first translation is the one used in the main text of this article. While there is some variation in the translations, the three others confirm the intent and all details of the decree.

J. Phillips, 'The English patent as a reward for invention: the importation of an idea', *Journal of Legal History*, 3, 1, 1982, pp. 71–79 (pp. 75–76).

> There are in this city and its neighbourhood, attracted by its excellence and greatness, many men of diverse origins, having most subtle minds and able to devise and discover various ingenious artifices. And, if it should be provided that no-one else might make or take to himself to increase his own honour the works and devices discovered by such men, those same men would exercise their ingenuity, and would discover and make things which would be of no little utility and advantage to our state.
>
> Therefore it is enacted by the authority of this body that whoever makes in this city any new and ingenious device, not previously made within our jurisdiction, is bound to register it at the office of the *Provveditori di Comun* as soon as it has been perfected, so that it will be possible to use and apply it. It will be prohibited to anyone else within any of our territories to make any other device in the form or likeness of that one without the author's consent or licence, for the term of ten years. But if anyone should act thus, the aforesaid author and inventor would be free to cite him before every office of this city, by which office the aforesaid infringer would be prepared to pay one hundred ducats and his artifice would be immediately destroyed. But our Government will be free, at its total pleasure, to take for its own use and needs any of the said devices or instruments, on this condition, that others than the authors may not employ them.

S. P. Ladas, *Patents, Trademarks and Related Rights. National and International Protection*, Harvard University Press, Cambridge, MA, 1975, pp. 6–7.

> There are in this city, and also there come temporarily by reason of its greatness and goodness, men from different places and most clever minds, capable of devising and inventing all manner of ingenious contrivances. And should it be provided, that the works and contrivances invented by them, others having seen them could not make them and take their honour, men of such kind would exert their minds, invent and make things which would be of no small utility and benefit to our state. Therefore, decision will be passed that by authority of this Council, each person who will make in this city any new ingenious contrivance, not made heretofore in our dominion, as soon as it is reduced to perfection, so that it can be used and exercised, shall give notice of the same to the office of our Provisioners of Common. It being forbidden to any other in any territory and place of ours to make any other contrivance in the form and resemblance thereof, without the consent and license of the author up to ten years. And, however, should anybody make it, the aforesaid author and inventor will have the liberty to cite him before any office of this city, by which office the aforesaid who shall infringe be forced to pay him the sum of one hundred ducats and the contrivance be immediately destroyed. Being then in liberty of our Government at his will to take and use in his need any of said contrivances and instruments, with the condition, however, that no others than the authors shall exercise them.

G. Mandich, 'Venetian patents (1450–1550)', *Journal of the Patent Office Society*, 30, 3, 1948, pp. 166–224 (pp. 176–77).

> 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 divers parts. Now, if provision were made for the works and devices discovered by such persons, so that others who may see them could not build them and take the inventor's honour away,

more men would apply their genius, would discover, and would build devices of great utility and benefit to our commonwealth.

Therefore:

Be it enacted that, by the authority of this Council, every person who shall build any new and ingenious device in this City, nor previously made in our Commonwealth, shall give notice of it to the office of our General Welfare Board when it has been reduced to perfection so that it can be used and operated. It being forbidden to every other person in any of our territories or towns to make any further device conforming with and similar to said one, without the consent and licence of the author, for the term of 10 years. And if anybody builds it in violation hereof, the aforesaid author and inventor shall be entitled to have him summoned before any magistrate of this City, by which magistrate the said infringer shall be constrained to pay him hundred ducats: and the device shall be destroyed at once. It being, however, within the power and discretion of the Government, in its activities, to take and use any such device and instrument, with the condition however that no one but the author shall operate it.

M. Frumkin, 'The origin of patents', *Journal of the Patent Office Society*, 27, 3, 1945, pp. 143–49 (p. 49).

There are in this city and its neighbourhood, attracted by its excellence and greatness, many men of divers origins, having most subtle minds and apt to imagine and discover divers ingenious artifices. And, if it were provided that others may not make nor take unto themselves to increase their own honour the works and artifices they may have seen so discovered by such men, such men would use their minds, and would discover and make things which would be of no little utility and advantage to our State.

Therefore

It is enacted by the authority of the present Council that whoever will make in this city any new and ingenious artifice, not made previously in our State, will be obliged to register it at the office of our proveditors of the Commune, as soon as it will be reduced to perfection so that it will be possible to use and apply it. It shall be forbidden to anyone else in any our land and place to make any other artifice to the likeness and similarity of that one without consent and licence of the author during the term of ten years. And if nevertheless someone did so the aforesaid author and inventor would be free to cite (him) before every office of this City, and the said person who would have imitated would be compelled to pay one hundred ducats while the artifice would be immediately destroyed. But our Government will be free, at its absolute discretion, to take over and use for its needs any of the said artifices and instruments, under the condition, however, that others than the authors may not employ them.