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PARLIAMENTARY REWARDS AND THE EVOLUTION OF THE PATENT SYSTEM

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ABSTRACT. *This article examines the impact on the patent system of rewards for innovation across the eighteenth and early nineteenth centuries. During this period, Parliament would regularly grant rewards to inventors, with many of these rewards being set out in legislation. This legislation provided Parliament with the opportunity to promote a model of state support for inventors: a model that made public disclosure of the invention a precondition for assistance. This had important implications for patent law, in particular, in helping to develop the role of the patent specification and the doctrine of sufficiency of disclosure. In this way, the reward system helped establish the framework under which the state would provide support for inventors. Simultaneously, however, the reward system created a space in which inventors would have to do more than meet the minimum requirement of public disclosure. Rewards allowed the state to distinguish between different classes of inventor and to make special provision for particularly worthy individuals. In this way, the reward system recognised the contribution of the "heroic inventor", whilst leaving the core of the patent system undisturbed.*

KEYWORDS: *patents, rewards, patent specification, patent extensions, heroic inventor.*

I. INTRODUCTION

> The Acts of Parliament for conferring on individuals rights and privileges of the same nature as those granted by letters patent, constitute a class of authorities to which little attention has hitherto been directed. These may appear to be valuable … on account of the variety of special clauses which they contain for ensuring to the party, and to the public, under the peculiar circumstances of each case, their mutual and respective rights.[1]

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[1] T. Webster, *Reports and Notes of Cases on Letters Patent for Inventions, 1601–1843* (London 1844), v.

During the eighteenth and early nineteenth centuries, it was common for inventors to petition Parliament for assistance. In some cases, inventors would ask for the enactment of legislation to prolong a patent or extend its geographical scope; in others, inventors would request a direct financial payment. The process by which all such requests were initiated was, for many years, identical and Parliament always understood these forms of assistance to perform a very similar role; in some cases, even deciding to substitute one form of assistance for another. Patent extensions and direct payments can thus be regarded as forming the core elements of a system of parliamentary rewards for inventors.[2]

Parliamentary rewards have been largely neglected in legal treatments of the history of innovation. Yet this article argues that such rewards had an important influence on the development of the patent system. As such, the article sheds new light on three of the central debates in patent history. First, it examines the part played by the reward system in solidifying and developing the function of the "specification" within the patent system. It shows that the reward system played a role in making the specification central to the patent grant and in so doing helped drive the development of the doctrine of sufficiency of disclosure. It lends weight to recent claims that ideas of sufficiency emerged earlier than has generally been supposed, but suggests that Parliament played a much greater part in promoting the central importance of public disclosure than has hitherto been acknowledged. It sides with those who take the view that the obligation to enrol a specification always carried with it some sense of the importance of creating a publically accessible record of the nature of the invention, and responds to some of the objections to this interpretation. Secondly, the article examines the ways in which debates about claims for a reward shaped understandings of the normative framework governing the entitlement of inventors to profit from their discoveries. It demonstrates that the reward system contributed to the establishment of the terms of the social contract between patentees and the state. Consistent with, and as a product of, Parliament's insistence on public disclosure as a precondition for the grant of a reward, placing the invention in the public domain came to be understood as the consideration that warranted the grant of a monopoly. In this respect, rewards played some role in displacing alternative understandings of the basis of patent rights. Specifically, they helped displace the idea that the social benefit conferred by the invention should in and of itself be regarded as the consideration for the grant. Thirdly, and somewhat paradoxically, the article demonstrates that the reward system created a space in which particularly deserving inventors (or their descendants) could be given special treatment. The reward system focused inevitably

[2] R. Burrell and C. Kelly, "Public Rewards and Innovation Policy: Lessons from the Eighteenth and Early Nineteenth Centuries" (2014) 77 M.L.R. 858.

on the social benefits conferred by the invention and on the figure and fortunes of the inventor. In this way, the reward system provided one of the avenues by which claims grounded in the contribution of the inventor as transformative genius entered public debate and were reconciled with the operation of the patent system. Importantly, moreover, after 1835 patent extensions became the dominant form of reward and from this date such extensions were placed under the control of the Judicial Committee of the Privy Council. In this way, considerations of public utility and of the nature of the inventive process crept back into the purview of the judiciary and hence closer to the mainstream of the patent system. Recent claims that considerations of public utility and inventive contribution were more or less entirely excluded from the nineteenth century patent system must therefore be rejected.

II. Parliamentary Rewards and the Role of the Specification

A. Towards a Requirement of Public Disclosure

In the seventeenth century, inventors would sometimes approach Parliament seeking an extension of the term of patent protection. At the time (and throughout the period with which we are concerned), the standard term of protection was set at 14 years.[3] In 1685 and 1690, the House of Commons adopted Standing Orders that set out the procedure for petitioners seeking leave to bring before Parliament bills to extend the term of a patent. This suggests that seeking an extension of the patent term through what would now be classified as a private Act of Parliament[4] was by that time already regarded as a legitimate strategy, albeit one that was often fraught with difficulty. Debates in Parliament in the 1690s over whether to grant an extension over a patent for "convex lights" provide an illustration of these early debates. At the time, these lights – which consisted of a lantern with a series of convex lenses that helped cast light over a broad area – were beginning to revolutionise street lighting in London. Parliament eventually decided not to extend the patent[5] in the face of hostility from a number of other groups, including not only rival lighting enterprises, but also groups like the Tallow Chandlers Company that were opposed to all new forms of lighting.[6]

[3] (1623) 21 Jac. 1, c. 3, s. 6.

[4] We deliberately avoid referring to "private Acts" throughout the remainder of this article. This is because eighteenth-century usage of the public/private act dichotomy does not map onto modern usage and many of the pieces of legislation with which we are concerned were in fact styled as public measures. See generally J. Innes, "The Local Acts of a National Parliament: Parliament's Role in Sanctioning Local Action in Eighteenth-Century Britain" (1998) 17 Parliamentary History 23.

[5] Journals of the House of Commons, 30 December 1692, 765.

[6] G. Phillips, *Seven Centuries of Light: The Tallow Chandlers Company* (Cambridge 1999), 201–02. See also R. Monier Williams, *The Tallow Chandlers of London: Vol. 3 – The Guild Catholic* (London 1973), 90–104 (discussing the response of the guild to new lighting generally during this period).

The surviving record of debates around convex lights does not reflect any sense that Parliament was particularly concerned to ensure that knowledge of how to reproduce the invention was communicated to third parties during the seventeenth century. This is consistent with what we know about the operation of the patent system generally during this period. Insofar as dissemination of the inventive concept was thought to be important during the seventeenth century, it seems to have been assumed that dissemination would occur through the training of apprentices, with the patent term being set at the length of time it would take to train two sets of apprentices (the standard term of apprenticeship being seven years).[7] It was only at some point during the eighteenth century that public disclosure came to be seen as important. Scholarly disagreement has focused on when, why, and by what means public disclosure assumed a central role within the patent system.

Debates about public disclosure are closely linked to the patent specification. Disclosure is now understood to be effected by requiring patentees to file a patent specification, namely a detailed written description of the invention. That description must be such as to allow later market entrants (whose interests are now represented through the construct of the hypothetical "person skilled in the art") to reproduce the invention, else the patent will be liable to be revoked on the grounds of "insufficiency".[8] The emergence, purpose, and role of the specification are all the subject of heated historical debate. Scholars have been particularly divided over the intended role or purpose of the specification as it was introduced and became obligatory in the eighteenth century and the point at which the doctrine of sufficiency emerged.

The oldest surviving patent specification dates from 1711. Enrolling a specification was, initially, purely voluntary and seems to have been driven by patentees.[9] However, after 1734, the specification took on greater importance. From this point, the requirement to enrol a specification became standard.[10] There were a small number of patents granted without a requirement that a specification be enrolled until 1740, when a specification became required in every case.[11] The question is what motivated the shift

[7] See e.g. V. Abramson, "The Economic Bases of Patent Reform" (1948) 13 L.C.P. 339.

[8] See in the UK, Patents Act 1977, ss. 14(3), 72(1)(c).

[9] E. Hulme, "On the Consideration of the Patent Grant, Past and Present" (1897) 12 L.Q.R. 316; C. MacLeod, *Inventing the Industrial Revolution: The English Patent System, 1660–1800* (Cambridge 1988), 51; O. Bracha, "Owning Ideas: A History of Anglo-American Intellectual Property", SJD thesis, Harvard Law School 2005, available at <www.utexas.edu/law/faculty/obracha/dissertation/>, 66–68.

[10] See e.g. D. Seaborne Davies, "Early History of the Patent Specification" (1934) 50 L.Q.R. 86; N. Davenport, *The United Kingdom Patent System: A Brief History with Bibliography* (Liverpool 1979), 63; S. Bottomley, *The British Patent System and the Industrial Revolution, 1700–1852* (Cambridge 2014), 48.

[11] J. Adams and G. Averly, "The Patent Specification: The Role of Liardet v Johnson" (1986) 7 J.L.H. 156.

towards specifications becoming compulsory. One possibility is that this requirement was introduced for administrative convenience, to help office holders discriminate between broadly similar inventions.[12] In an important recent contribution, Sean Bottomley has challenged this view, arguing that the number of patents at the time was simply too low for this interpretation to be credible. Instead, Bottomley argues that the requirement for a specification to be enrolled was from the outset intended to help disseminate the invention. In support, Bottomley relies on changes in the practice of the law officers charged with examining patent applications. He argues that, until 1733, much of the focus of these officers was on the likely social utility of the invention, whereas by the 1750s this consideration had been displaced. Bottomley suggests this can only be explained by reference to fact that public dissemination had by this point come to stand in place of public utility.[13] Bottomley also suggests that ideas of sufficiency began to gain currency at much the same time. In this respect, he points to four unreported cases decided between 1736 and 1768 in which defendants appear to have raised arguments that would now be understood as going to sufficiency of disclosure.[14]

Strong support for Bottomley's claim that the requirement of public dissemination took on importance earlier than has been supposed is found in the terms on which rewards were granted from the 1730s onwards. This evidence strongly suggests that Parliament took a leading role in promoting the need for public disclosure of the invention as a precondition for assistance from the state. As was noted in the introduction, the system of parliamentary rewards came to have two components, namely patent extensions and direct financial payments. However, whereas patent extensions can be traced back into the seventeenth century, the second limb of the reward system developed somewhat later. It was only towards the middle of the eighteenth century that Parliament started to grant direct financial rewards. Over the course of the next century, Parliament conferred payments on some 30 or more individuals, worth in aggregate in excess of £200,000.[15]

[12] Macleod, *Inventing the Industrial Revolution*, p. 49.

[13] Bottomley, *British Patent System*, pp. 48–49. In this regard, Bottomley seeks to draw support from Mario Biagioli's work. Taking the US as his case study, Biagioli ties the transformation of patents from privileges into property rights to the demise of political absolutism and the rise of the modern political subject. He posits that the emergence of the specification and the decline in the importance of the assessment of utility were important stages in this process. There is, however, nothing in Biagioli's account to suggest this process would have been anything other than gradual in the context of a society such as England, where the transformation in the political system took place over a protracted period. See M. Biagioli, "Patent Republic: Specifying Inventions, Constructing Authors and Rights" (2006) 73 Soc.Res. 1129.

[14] Ibid., at p. 90.

[15] Providing the equivalent current value is complex. For example, if one takes this sum at 1800 (as representing more or less the mid-point in the system of parliamentary payments), commonly accepted methods of conversion produce a range of slightly more than £14,000,000 to considerably in excess of £800,000,000. For current purposes, however, the most useful comparator is that of equivalent "economic status" which in 2013 would equate to £206,800,000: <www.measuringworth.com>.

Parliament first approved a direct payment to an inventor in 1732 when it awarded Sir Thomas Lombe the extraordinary sum of £14,000 in respect of his machines for working silk.[16] Importantly, this reward was made conditional on Lombe depositing models of his machines in the Tower of London. The background was that Lombe had petitioned Parliament for an extension of the patent over these machines.[17] The patent, which had been granted in 1718, described the designs for three machines that Thomas Lombe's half-brother, John, had encountered during time spent in Italy. John died in 1722 (according to rumour at the hands of an Italian assassin[18]) but Thomas continued to run the business. It soon became apparent that Lombe's mechanised mill, which was located in Derby, had the potential to further transform an industry that had already experienced significant upheaval.[19] It is therefore hardly surprising that Lombe's petition for an extension of the patent over the machinery that lay at the heart of this new manufacturing process was met with fierce opposition from both other textile manufacturers in the Midlands[20] and from the Throwsters' guild of London.[21] It was in the face of this opposition that Parliament decided to award Lombe a direct financial payment.

There can be no question that Parliament wanted to ensure other manufacturers could replicate Lombe's machines. If this had not been a concern, a more straightforward extension of the patent term would have been sufficient. Lombe's case marks the start of a continued legislative push for public access to innovations as a condition of providing support to inventors through the rewards system. Initially, this served to promote the importance of the specification; later, it provided a spur to the development of the doctrine of sufficiency. Before turning to the detail of Parliament's interventions, it may be worth making a number of more general comments about developments across this period and how the notion of the "public" was understood at this time. The latter is particularly important since the steps taken to make the details of inventions available to the public during this period can seem inadequate to modern eyes.

It needs to be understood that the eighteenth-century understanding of "public" information as it was developing in Britain in particular does not map onto current usage. John Brewer examines the development of

[16] (1739) 5 Geo. II c. 8 and see *Grub Street Journal*, 13 April 1732 (noting that "A warrant hath been impressed from the Treasury to the Exchequer for the sum of £14,000 to be paid to Sir Thomas Lombe").

[17] "A brief State of the Case relating to the Machine erected at Derby for making Italian Organzine Silk, which was discover'd and brought into England, with the utmost Difficulty and Hazard, and at the Sole Expence of Sir Thomas Lombe" (Parliamentary Papers, undated); *A Bill for Preserving and Encouraging a New Invention in England by Sir Thomas Lombe, and granting him a further Term of Years for the Sole Making and Using his Three Italian Engines* (11 June 1731).

[18] *Oxford Dictionary of National Biography* (Oxford 2004; online edition 2008).

[19] See e.g. A. Plummer, *The London Weaver's Company, 1600–1970* (London 1972), ch. 8.

[20] "The Case of the Manufacturers of Woollen, Linnen, Mohair and Cotton Yarn", Parliamentary Papers, 1732–1735.

[21] "The Case of the Silk Throwers Company", Parliamentary Papers, 1732–1735.

the concept of "public knowledge" across the eighteenth century in his seminal study of the British State during this period. Driven by a number of forces, including the growth in parliamentary business, a desire to capture facts and statistics, trade interests, and the proliferation of print culture and private libraries, he argues that the century saw rapid growth in public demand for, and parliamentary recognition of, the importance of "useful knowledge". He demonstrates a widespread contemporary understanding of the terms "public information" and "public knowledge" as information that was unconcealed and in open view. Importantly, he stresses that this concept was understood as the opposite of knowledge that was "arcane, obscure or private" and, accordingly, to contemporaries information need not necessarily have been universally available to fall under the rubric of "public knowledge".[22] We can therefore attribute to Parliament during this period an understanding of a concept akin to the "public domain".

Understood in this way, parliamentary efforts to place the details of an invention in the "public domain" would not necessarily have focused on modes of communication that would serve to actively bring information to the attention of interested or affected parties, or facilitate easy or immediate access. Many rewards examined below indicate only that the knowledge was to be "made available" to the public, usually by publication but often without specifying the means by which that was to be achieved. It is, however, inconceivable that Parliament would have been satisfied with, say, disclosure of an invention to a limited class, such as members of a guild.[23]

The *de minimus* understanding of "public information" as being all information that was not "secret" was not, however, fixed. The requirement of accessibility became more rigorous across the century as the *de minimus* understanding increasingly fell out of favour. As Brewer explains, there was always a normative component to the notion of public information, there was a desire to ensure that public information be "generally known".[24] As regards technical knowledge, this desire for information to be actively shared can be seen, for example, in the preface to the posthumously published 1703 edition of Joseph Moxon's influential *Mechanick Exercises*. Even at this early stage, we find the author calling for the opening of trade secrets to scientific investigation and arguing "I find that one

[22] J. Brewer, *The Sinews of Power: War, Money and the English State 1688–1783* (London 1989), ch. 8, in particular 183, 189. See also E. Charters, *Disease, War and the Imperial State: The Welfare of British Troops during the Seven Years War, 1756–63* (Chicago 2014), 107 (exploring this concept in the context of army returns).

[23] Cf. the position in France when even some years later it was thought to be enough as a condition for the grant of a reward that other potential users of the invention could access a model of an improved loom at a guild office: L. Hilaire-Pérez, "Technology as a Public Culture in the Eighteenth Century: The Artisans' Legacy" (2007) 45 History of Science 135.

[24] Brewer, *The Sinews of Power*, p. 189.

trade may borrow many eminent helps in work of another trade".[25] Views of this type became increasingly influential and, across the eighteenth century, we find a growing belief that technological innovation "needed networking, exchanges, mixing".[26] As greater emphasis began to be placed on ease of access and speed of dissemination, "public information" came to take on something more like its modern meaning. Britain's increasing adeptness at harnessing scientific and technical knowledge across the eighteenth century has been identified by some economic historians as being central to the course of the Industrial Revolution.[27]

The above is not to suggest that the desirability of increasing ease of access to information about inventions was not at times challenged. Throughout the eighteenth century and into the early decades of the nineteenth century, there was periodic legislative interest in restricting access to patent information so as to protect English manufacturers from foreign competition.[28] Moreover, even insofar as Parliament was unambiguously committed to increasing access to information about inventions, questions remained about how this was to be achieved. In the early period in particular, we find Parliament experimenting with different mechanisms for disseminating information. A further layer of complexity was added to these experiments by the fact that there was some initial doubt as to the role of the patent specification. We have already noted that it was patentees who appear to have driven the practice of enrolling specifications. This did not occur because patentees had any desire to enable potential competitors to replicate their inventions – secrecy has always been attractive to patent owners.[29] In order to understand what motivated them, it is necessary to distinguish between the "identification"[30] and "dissemination" functions of patent documentation.

[25] J. Moxon, *Mechanick Exercises that Or, The Doctrine of Handy-works*, 3rd ed. (London 1703), iv–v.
[26] Hilaire-Pérez, "Technology as a Public Culture", p. 136.
[27] See e.g. J. Mokyr, *The Gifts of Athena: Historical Origins of the Knowledge Economy* (Princeton 2005). Such claims are, however, controversial and within the rich and diverse literature on the Industrial Revolution we find other authors who argue that the drivers of industrial growth were quite different. To take but one example, for Hobsbawm the technological developments of the eighteenth century rested on the "application of simple ideas and devices, often of ideas available for centuries". It was only once the UK had secured a vast market for its products in colonial territories by means of an aggressive military strategy that it made sense for entrepreneurs to invest in these technologies: E. Hobsbawm, *Industry and Empire* (Harmondsworth 1974), 60. Nevertheless, in contemporary accounts there seems to be a consensus that at least some attention needs to be given to the new ways in which technical information came to be shared and employed over the course of the eighteenth century.
[28] *Report from the Select Committee*, p. 179.
[29] For an illustration of the desire of eighteenth-century patent owners to preserve the greatest possible degree of secrecy, see L. Bently, "Patents and Trade Secrets in England: The Case of Newbery v James (1817)" in R. Dreyfuss and J. Ginsburg (eds.), *Intellectual Property at the Edge: The Contested Contours of IP* (Cambridge 2014).
[30] The role of the specification in allowing broadly similar inventions to be differentiated from one another should be seen as merely one aspect of the "identification" function (cf. notes 12 and 13 above and accompanying text).

We are now accustomed to thinking about patent documentation as serving to disseminate the invention. Indeed, the requirement that the information serves to capture the nature of the invention in a form that is accessible to third parties is a norm of such overriding importance that patent law has been said to treat inventions as "textual constructs".[31] In modern patent systems, the documentation becomes the invention. The idea that the documentation might not even allow the invention to be identified thus becomes nonsensical. However, this understanding of the subject matter of patent protection did not begin to emerge until much later in the eighteenth century (after the doctrine of sufficiency became firmly established, as discussed below). At the start of the period with which we are concerned, the subject of protection was understood in entirely physical terms – the law's attention was directed at the new machinery, the new medicinal preparation, and the like. This understanding of the subject matter of protection nevertheless still lent itself to the view that the patent documentation should contain at least a simple description of the invention. This is because there is a threshold below which the patent documentation cannot serve even to identify the invention – there is a point at which there will be uncertainty as to whether a particular device was even in contemplation when the patent was granted. Concerns about a complete mismatch between patents and physical objects can be traced back into the seventeenth century: one of the early objections raised by opponents of the Bill to grant a term extension for the patent over "convex lights" was that "there is no mention made, in the said patent, of convex lights".[32] It is not difficult to imagine that even patent owners would have been discomforted by this level of uncertainty. Under a system where even the basic nature of the invention could be in doubt, patentees might struggle to demonstrate that their invention was novel in the face of a later challenge and hence, as noted above, it is unsurprising that, by the early 1700s, patentees were in many cases keen to enrol a specification.

The practice of enrolling a specification may have started with patent owners, but this also created an opportunity for other interested parties to demand that patent documentation should be become much more detailed. In conceptual terms, it is useful to draw a distinction between "identification" and "dissemination", but in practical terms there is a continuum that runs from a written record that does not even allow the reader to identify the invention being claimed, through a record that is at least sufficient for this purpose, to a record that serves to disseminate the basic inventive concept, to a record of the type we find today that serves to stake out the precise boundaries of what is to be protected.

[31] A. Pottage and B. Sherman, *Figures of Invention: A History of Modern Patent Law* (Cambridge 2010), ch. 3.

[32] Journals of the House of Commons, 21 November 1692, 709 (summarising the petition of Craven Howard Esq.).

Importantly, Bottomley has been able to identify material dating back to 1717 that suggests that attention was already turning to the potential of the specification as a means of disseminating information.[33] However, Parliament was unsure of the role of the specification in this regard. Lombe had elected to enrol a specification when the patent was granted,[34] but Parliament clearly felt that more was needed, hence the insistence on allowing the Crown to make models of his Engines, and deposit those models 'in such place as his Majesty … shall appoint to secure and perpetuate the Art of making the like Engines.' The choice of the Tower as the place of deposit is itself worthy of comment. The public was accustomed to being granted a degree of access to the Tower by this time (the Crown jewels having been on public display since the seventeenth century), but it remained a restricted space that still had a function as a prison and, at least nominally, as fortification.[35] The choice of the Tower both allowed other manufacturers in England to access the invention, whilst importantly also ensuring the invention would not be available to foreign competitors.[36]

The role of the specification was thus still uncertain in the 1730s and the development of a recognisable doctrine of sufficiency still lay many years off. Nevertheless, Parliament's decision to prioritise public access Lombe's machines likely played some part in the increased emphasis that was placed on enrolling a specification after 1734. This appears to have been the conclusion of the 1829 Select Committee on patents, which noted that the origins of the requirement to enrol a specification were obscure immediately before drawing attention to Parliament's intervention in Lombe's case.[37] Here it must be remembered that throughout the eighteenth century and up to the passage of the Reform Act 1832, Parliament served as a grand tribunal for the nation.[38] Its decisions and deliberations had an importance amongst the political class that would have been much more obvious to the 1829 Select Committee than to modern eyes.

From 1732, we see a continued legislative push for public access to innovations as a condition of providing support to inventors through the rewards system. There is a good case that it was this legislation dealing with rewards that provided the single most important spur to the development of the

[33] Bottomley, *British Patent System*, p. 91.

[34] *Oxford Dictionary of National Biography*.

[35] E. Impey and G. Parnell, *The Tower of London: The Official Illustrated History* (London 2000). On the origins of public access to the Tower, see in particular pp. 97–98.

[36] *The Fifth Session of the First Parliament of King George II, Histories and Proceedings*, 140–45. This was clearly Parliament's intention. However, whether foreign traders were actually denied access to Lombe's models is rather more difficult to say, since the conditions of public access to parts of the Tower only began to be standardised in 1729 and hence there may still have been the possibility of securing additional access through the payment of a gratuity to the relevant guard or official: ibid., at p. 98.

[37] *Report from the Select Committee on the Law Relative to Patents for Inventions* (PP 332), 12 June 1829, p. 170.

[38] This characterisation of Parliament's role is now widely accepted. For detailed discussion, see e.g. P. Thomas, *The House of Commons in the Nineteenth Century* (Oxford 1971).

doctrine of sufficiency. In this respect, it should be remembered that, even into the 1760s, only 11 or so patents were being granted per year[39] and only a very small proportion of patents were litigated.

The next opportunity that Parliament had to promote public disclosure came in 1739, shortly before the enrolment of a specification became an entirely inflexible requirement. The background was a petition by Mrs. Johanna Stephens to be paid a reward in recognition of her discovery of a medicine "for removing the cause of the stone".[40] Parliament made legislative provision to pay her £5,000 on condition that she make "proper discovery" of her medicine. This was achieved by means of publication in the *London Gazette* and, compared to many patent specifications at the time, provided detailed instructions on preparation of her medicine.[41]

Stephens's case is interesting because Parliament had no choice but to accept that a written description alone might serve to disseminate the invention – unlike in Lombe's case, there was no question of a model also being required. This may have helped reconcile Parliament to the dissemination function of the patent specification as thereafter it took steps to ensure the quality of the information contained in such specifications. It had the opportunity to do so through legislation dealing with patent extensions. For example, in conferring an extension on John Elwick in 1743 for his patent over stone pipes, Parliament insisted that the invention "be particularly described by an Instrument in Writing". Importantly, Parliament went on to set out consequences for failing to comply with this requirement:

> Provided also, That if the said [inventor] shall not particularly describe the Nature and Form of his said Invention by an Instrument in Writing under his Hand and Seal, and cause the same to be inrolled in our High Court of Chancery within Two Kalendar Months next and immediately after the Date of these our Letters Patent … that then these our Letters Patent, and all Liberties and Advantages whatsoever hereby granted, shall utterly cease, determine, and become void.

Similar provisions were included in the 1751 statute that conferred an additional 14 years protection on Michael Meinzies for his means of conveying coal, Meinzies being placed under an obligation to "particularly describe and ascertain the Nature of his said Invention".

Shortly thereafter, we begin to see petitioners for rewards beginning to anticipate the need to demonstrate that the invention had been placed in the public domain. In 1755, Thomas Stephens approached Parliament for a direct financial payment in respect of his discovery of a method of making pot ash and his introducing that method to America. Stephens emphasised that he had communicated his method in writing to the Commissioners of

[39] Bottomley, *British Patent System*, p. 49.
[40] (1739) 12 Geo. II c. 23.
[41] Issue 7815, 16 June 1739.

the Treasury,[42] and Parliament eventually decided to grant him £3,000.[43] In this case, the grant was made (for the first time) by making provision in a general Appropriation Act. In other cases, however, Parliament continued to enact specific legislation to authorise the payment of a monetary reward. This legislation continued to focus on public access. For example, the 1762 legislation that authorised the payment of £5,000 to John Harrison was even entitled "An Act for the Encouragement of John Harrison, to publish and make known his Invention of a Machine or Watch, for the Discovery of the Longitude at Sea". It contained provision requiring Harrison to "make or cause to be made a full and clear Discovery of the Principles of his Said Instrument or Watch". The obligation placed on Harrison is particularly interesting in that the legislation expressly required that the discovery of the invention must be such "that other Workmen may be enabled to make other such Instruments or Watches". Here we find Parliament articulating something that is unquestionably recognisable as a requirement of sufficiency of disclosure almost two decades before the earliest of the cases that have traditionally been understood to have developed this requirement was handed down.

In a similar vein, Parliament soon thereafter authorised a payment of up to £3,000 to the widow of Tobias Mayer in recognition of his work in creating lunar tables for determining longitude. This payment was made conditional on his widow assigning "the Property of the Set of the latest Manuscript Lunar Tables, constructed by the said Tobias Meyer, to the said commissioners [for Longitude], to and for the use of the Publick".[44]

By 1770, Parliament had been emphasising the importance of public disclosure through its administration of the reward system for almost 40 years. In so doing, Parliament was acting in concert with other actors within the patent system and it is entirely unsurprising that the idea that the public had a right to access the invention had won a degree of acceptance in the legal community by this time, as Bottomley has established. This provides the context to *Brand's Patent* decided in 1771, this being the case in which Lord Mansfield first suggested that there might be a general requirement that the specification must adequately disclose the nature of the invention in order for the patent to be valid.[45] However, the definitive judicial development still lay in the future and had a direct connection with the system of parliamentary rewards.

[42] Journals of the House of Commons, 28 February 1755, 181–82.
[43] Journals of the House of Commons, 14 April 1755, 281.
[44] (1765) 5 Geo. III c. 20, s. 4.
[45] For discussion of this aspect of the unreported judgment, see E.W. Hulme, "Privy Council Law and Practice of Letters Patent for Invention from the Restoration to 1794. Part II" (1917) 33 L.Q.R. 180, p. 192.

B. Liardet and the requirement of sufficiency

Parliament continued to promote the importance of public disclosure through a flurry of rewards granted in the 1770s. By this stage, petitioners almost invariably noted that the public had access to the invention. For example, Dr. Irvine in his 1772 petition for a reward for an improved method of distilling potable water from seawater emphasised that he "hath communicated to the Commissioners of the Admiralty, the Officers of the Royal Navy, to the East India Company, and several others, the Whole of such Process".[46] He eventually received £5,000 for his invention.[47] However, the most significant developments during this period came through a spate of patent extensions in the mid-1770s, with legislation being passed in 1775, 1776, and 1777. The Acts in question are notable because they conferred very lengthy extensions.[48] Moreover, in some cases they expanded the geographical scope of protection, such that protection was conferred throughout Great Britain and the colonies. This resulted in the creation of a form of Imperial patent that was unique in the history of the British Empire (and this at a time when even within the UK it was necessary to obtain separate patents for Scotland and Ireland). For present purposes, however, the most important feature of this legislation is that Parliament began to insist not merely on the enrolment of an adequate specification, but also to state expressly that patentees were obliged to set out in a new specification any improvements that had been made to the invention since the original grant. This was true, for example, of the patent extensions granted to Elizabeth Taylor for an engine for making ships' blocks invented by her husband[49] and to William Cookworthy for his materials to make porcelain.[50] Still more importantly, as matters turned out, it was also true of the extension given to John Liardet for his patent over a composition of cement. One of the conditions laid down by the legislation in question was that a new specification be enrolled in which his by now improved formula was to be made available to the public.[51]

Thus far, we have demonstrated that parliamentary intervention on behalf of individual inventors played a significant part in helping to promote the idea that public access to the invention was crucial. This suggests, consistently with Bottomley's analysis, that the notion of sufficiency had begun to gain traction well before the 1770s and, indeed, had been enshrined in the

[46] Journals of the House of Commons, 28 February 1772, 534.
[47] Journals of the House of Commons, 6 April 1772, 661–64 (Report of the Committee); (1775) 50 Monthly Review 312.
[48] This is true, for example, of the extensions granted to James Watt for his steam engine and David Hartley for his method of securing buildings against fire. Both ended up enjoying monopolies that lasted more than 30 years. See (1775) 15 Geo. III c. 61 and (1777) 17 Geo. III c. 6, respectively.
[49] (1776) 16 Geo. III c. 18, s. 2 (requiring a new specification to be enrolled within four months).
[50] (1775) 5 Geo. III c. 52, s. 2 (requiring a "true and just Specification of the Mixture and Proportions of the said Materials" to be enrolled within four months).
[51] (1776) 16 Geo. III c. 29, ss. 3, 6.

Harrison legislation. This is not, however, to claim that a general requirement of sufficiency of disclosure had become a firmly established part of patent law before the 1770s. To explore when such a requirement did become part of the law, we have to turn to arguments over the status that should be afforded to the 1778 decision of Lord Mansfield in *Liardet v Johnson*.[52]

Historically, the consensus view was that *Liardet* was the seminal moment in the development of a general requirement of sufficiency. In particular, much has been made of a note of the case made by counsel, according to which Lord Mansfield instructed the jury that "The meaning of the Specification is that others may be taught to do a thing for which the Patent is granted, & if the Specification [is] false, the patent is void, for the meaning of the Specification is that after the term [of the Patent] the public shall have the benefit of the discovery".[53]

In more recent times, however, the importance of *Liardet* has been thrown into doubt. Writing in 1986, Adams and Averley marshalled a number of arguments to cast doubt on the significance of *Liardet*[54] and these arguments have recently been reiterated and developed by Bottomley.[55] In contrast, in another recent contribution, Lionel Bently has argued that the regular presence in the case law of carefully elaborated statements as to nature of the sufficiency requirement in the period immediately after *Liardet* strongly suggests that it was a decision of real importance.[56]

There can be no question that Adams and Averley performed a valuable service in forcing a re-examination of *Liardet.* Most strikingly, they demonstrated that the long accepted account of the outcome of the case was wrong. The patent was not set aside on the grounds of insufficiency as had been claimed and the plaintiff was in fact successful.[57] However, apart from noting that John Liardet had secured an extension for his patent, the authors paid no attention to the legislative background to the case. This is unfortunate because an understanding of this background helps explain two features of the case that have been used to cast doubt on its significance. It may also shed light on a further feature of the decision that has puzzled historians.

Most obviously, an understanding of the legislative background explains why counsel for both sides were careful to address the question of whether the specification adequately disclosed the nature of the invention. In so doing, they were merely directing themselves to the terms of the

[52] (1778) 1 Web. Pat. Cas. 53; 1 Carp. Pat. Cas. 35.
[53] Reproduced in J. Oldham, *The Mansfield Manuscripts and the Growth of English Law in the Eighteenth Century*, vol. 1 (Chapel Hill 1992), p. 754.
[54] Adams and Averley, "The Patent Specification".
[55] Bottomley, *British Patent System*, p. 91.
[56] Bently, "Patents and Trade Secrets in England".
[57] Adams and Averley, "The Patent Specification", pp. 165–66.

parliamentary grant. These submissions do not, therefore, demonstrate that a requirement of sufficiency must already have formed an entrenched part of the legal landscape. The express legislative requirement for Liardet to make his improved formula available to the public provided Lord Mansfield with an obvious opportunity to articulate a general theory of the role of the specification, which he had apparently been contemplating for some time, at least since his decision in *Brand's Patent*. The development of general requirement of sufficiency had also been foreshadowed in other cases and accorded with the long-standing practice of other players within the patent system. Most importantly, as we have shown, it was an idea that Parliament had been promoting for decades. But the fact that the development of a general rule of sufficiency had been foreshadowed for many years and, crucially, had received parliamentary approval is not to deny that *Liardet* marked a key moment in the development of patent law.

An understanding of the legislative background to *Liardet* may also explain why the case attracted much less comment in early nineteenth century works than might have been expected for such an important development. It is striking, for example, that John Collier, writing in 1803, made no mention of *Liardet* when discussing sufficiency of disclosure.[58] Adams and Averley have used this observation to cast doubt on the significance of *Liardet.* The explanation for this apparent discrepancy may well lie in the unusual nature of the patent at stake. *Liardet* almost certainly encouraged judges in later cases to develop rules on sufficiency. However, once rules on sufficiency had been expounded in cases like *R v Arkwright*[59] involving patents granted under the Statute of Monopolies, it is hardly surprising that authors preferred to cite these decisions, rather than a case of uncertain precedential value. William Hands's treatment of *Liardet* provides evidence that it was the unusual nature of the patent in that case, rather than its lack of importance to the development of the law, that explains its immediate marginalisation in the texts. Writing in 1808, Hands felt compelled to refer to *Liardet* when dealing with sufficiency but, unwilling to rest too much on the decision, his response was to use *Liardet* as an illustration of the application of a principle that he attributed to the later decision in *Arkwright.*[60] It was only later in the century, by which time the rules on sufficiency had become unassailable, that authors felt sufficiently confident to assign a more prominent role to *Liardet.*

The final feature of the case that the legislative background may help explain is why Lord Mansfield seems to have been antipathetic to the plaintiff's case. This antipathy is demonstrated, in particular, by his decision to

[58] J. Collier, *An Essay on the Law of Patents for New Inventions* (London 1803), 127.
[59] (1785) 1 Web. Pat. Cas. 64; 1 Carp. Pat. Cas. 53.
[60] W. Hands, *The Law and Practice of Patents for Inventions* (London 1808), 9.

award the defendants a second trial based on scant additional evidence. Adams and Averley speculate that Mansfield may have been influenced by his personal familiarity with the defendants, who had stuccoed his house some time before the trial.[61] The fact that a householder has had personal experience with someone involved in one of the building trades does not, however, invariably create the conditions for positive bias in favour of the artisan in the future. Some attention must also be given to the fact that Lord Mansfield was already familiar with the plaintiff and his invention. Lord Mansfield was present in the Lords on the day the bill to extend the patent was presented from the Commons and he was assigned to the Lords Committee charged with examining the bill.[62] We cannot be sure that he participated in this Committee, but we do know that the bill proved controversial in the Upper House. The bill was twice referred to Committee, the Lord Chancellor was reported to have concerns[63] and in the end the Lords was only prepared to extend the life of the patent by seven years, and not 14 as the Commons had determined.[64] Lord Mansfield must have been aware of this background. In the face of public concern that the first jury had handed down a perverse result,[65] he is likely to have been keen to ensure that Liardet was seen to have met his obligation under the Act to enrol a new specification describing the improved formula.

In this section, we have seen that the system of parliamentary rewards played an important part in the development of the role of the patent specification. In the next section, we turn to consider the role of this system in establishing the normative framework governing the entitlement of inventors to financial compensation and articulating the terms of the "social contract" that came to underpin patent grants. On the one hand, we demonstrate that the reward system helped promote a model of patent rights that remains influential to this day, namely that it is the placing of the invention in the public domain that is the consideration that warrants the grant of a monopoly. On the other hand, the reward system also had the countervailing tendency of causing attention to be focused on the social merits of the invention and on the character and standing of the inventor. In this way, the reward system had the effect of bringing into play competing understandings of the basis on which the state should intervene to confer a benefit on inventors and others involved in the introduction of new technologies. This did not, as one might expect, result in the reward system's becoming a site of conflict. Instead rewards were able to reinforce the

[61] Adams and Averley, "The Patent Specification", p. 164.
[62] Journals of the House of Lords, 20 March 1776, 602.
[63] *Morning Chronicle and London Advertiser*, 2 April 1776.
[64] Journals of the House of Lords, 28 March 1776, 621.
[65] *St. James's Chronicle or the British Evening Post*, 21 February 1778: "the Jury … to the astonishment of a numerous concourse of people assembled on the occasion brought in their verdict for the plaintiff. And what is very remarkable, many counsel present, but not engaged in the cause, after hearing the facts, laid bets of two or three to one that the verdict would be in favour of the defendant."

basic framework of patent rights whilst serving as a vehicle whereby other considerations could be taken into account. Thus, rather than being a point at which differing views came into opposition, the reward system served as a mechanism by which differing views could be reconciled.

III. Rewards and the Basis of Patent Protection

A. Inventors before Parliament 1800–35

Patent rights are now generally presented as turning, at least in part, on a bargain between the inventor and the public: the patentee receives a period of monopoly protection in return for placing the invention in the public domain.[66] There is, however, nothing inevitable about this understanding, even within a social contract paradigm. On the contrary, the original understanding was that patents were granted in recognition of the advantages conferred by the invention on society at large. William Holdsworth explained the change as follows: "Under the old practice the consideration for the grant was the introduction into, and working of, a manufacture that was new to Great Britain. Under the new practice the consideration is the written disclosure of the invention contained in the specification."[67]

Historians have disagreed about when this shift occurred. Most recently, Bottomley has contended that it is a process that began much earlier than has generally been recognised, arguing that the development of the rules on sufficiency and the eschewing of the public good as a matter for enquiry occurred simultaneously.[68]

There is, however, a potential difficulty with the idea that considerations of public utility had been excluded from the patent system by 1780. The public perception of the role of the inventor cannot be ignored as we consider the development of the modern contractarian model of patent protection. Specifically, account needs to be taken of how patent law confronted the figure of the "heroic inventor". This representation of the role of the inventor and the inventive process gained a great deal of cultural traction over the course of the nineteenth century.[69] In the remainder of this section, we suggest that a proper understanding of how patent law came to be reconciled with the figure of the heroic inventor cannot be reached without considering the practical and symbolic functions of the reward system.

[66] More specifically, the dominant justification for patent protection is normally said to be that it provides inventors with an incentive to invest in new technologies, but disclosure is understood to offer an important subsidiary public benefit and is a precondition for protection in every case. See e.g. R. Eisenberg, "Patents and the Progress of Science: Exclusive Rights and Experimental Use" (1989) 56 U.Chi.L.Rev. 1017. See also V. Denicolò and L. Franzoni (2004) 23 Int.Rev.Law & Econ. 365 (arguing that disclosure alone is sufficient to provide an economic justification for the patent system).

[67] W. Holdsworth, *A History of English Law*, vol. XI (London 1938), 427.

[68] Bottomley, *British Patent System*, chs. 2 and 3.

[69] C. MacLeod, *Heroes of Invention: Technology, Liberalism and British Identity, 1750–1914* (Cambridge 2007).

By 1800, the questions to which Parliament would address itself when deciding whether to authorise a reward had become well established. Parliament continued to emphasise the importance of public dissemination. In the case of requests for direct financial payments (and particularly those where no patent had ever been granted), the question of the public's ability to access the invention remained a key consideration. Petitioners seeking financial rewards therefore stressed that a reward was warranted precisely because the specifics of the invention had already been disclosed to the public. Detailed publications, both within the elite virtual public space of the scientific "republic of letters" and pamphlets designed to be read by (or read to) the masses, often preceded claims for direct payments.[70] Edward Jenner, discoverer of vaccination, used this to great effect. His self-published 1798 work, *An Inquiry into the Causes and Effects of the Variolæ Vaccinæ*, has been described as a "do-it-yourself guide to vaccination", displayed "for everybody to see".[71] Jenner's petition to Parliament made much of his efforts in this regard, emphasising that his discovery had "been given to the world with liberality". This clearly hit the correct note. In recommending that a reward be given, the Select Committee charged with examining Jenner's petition concluded that "the world became acquainted with this discovery … by his ample and unreserved communications".[72] Much the same is to be seen in other parliamentary reports in this period. For example, the Report from the Committee that recommended that Dr. Smyth be given a financial reward in recognition of his discovery of a method of nitrous fumigation also mentioned the liberality with which Smyth had made public his invention.[73]

Similar framing of the importance of public disclosure also continued in the way in which requests for patent extensions were handled, although in these cases the emphasis fell on whether the specification disclosed the best means of working the invention having regard to any improvements that the patentee might have made to the invention since the original grant. A nice illustration is provided by the 1807 Act to extend a patent over paper making machinery held by the Fourdrinier brothers. The legislation noted that "it would be useful and convenient to the Public that the said machine in its present improved state should be described in a specification". It then went on to require that the new specification be sufficient to "describe and ascertain the nature of the said machine", the "manner the same machine is to be

[70] On the scientific republic of letters, see J. Gascoigne, *Science in the Service of Empire, Joseph Banks, the British State and the Uses of Science in the Age of Revolutions* (Cambridge 1998).

[71] G. Williams, "From Jenner to Wakefield: The Long Shadow of the Anti-Vaccination Movement", Gresham College Lecture, 28 September 2011, full text available at <http://www.gresham.ac.uk/lectures-and-events/from-jenner-to-wakefield-the-long-shadow-of-the-anti-vaccination-movement>.

[72] *Report from the Committee on Dr. Jenner's petition, respecting his discovery of vaccine inoculation* (1801–1802) (PP 75), 7.

[73] *Report from the Committee on Dr. C. Smyth's petition, respecting his discovery of nitrous fumigation* (10 June 1802) (PP 114), 8.

made and used", and "in what manner the work to be done thereby is to be performed".[74]

It is unsurprising that Parliament continued to press the importance of public disclosure. Before handing over significant sums of public money[75] to an inventor or before disadvantaging the public by extending the period of monopoly protection, the question that inevitably arose was what was the public going to get in return? Public access to the invention must have provided the most immediately compelling answer.

The continued emphasis on the contractarian justification for conferring privileges on inventors had important implications for the shape of patent law. For example, if placing a previously unknown invention in the public domain was the primary condition for grant, then anyone who provided the public access to an innovation, whether the original inventor or not, could readily be presented as entitled to a patent. This reasoning helped justify patents of importation. By focusing on the act of public disclosure, the law could treat the importer and the inventor as equally deserving – the benefit to the British public, who would gain access to an invention for the first time, was the same in either case. Such equivalence would have been much more difficult to justify had patent law ultimately been centred on a narrative of creativity, genius, and a natural right to property.

Importantly, however, public accessibility was never treated as a sufficient condition for the grant of a reward. Petitioners and Parliament alike also invariably stressed the benefits to the public generally or (prior to 1815) to the state and the war effort. Inventors and their supporters would also seek to capture the high moral ground. Thus we find Admiral Berkeley, who introduced Jenner's petition in the House of Commons, insisting that the petitioner "if he had pursued a contrary conduct, he would have realised a princely fortune".[76] The degree of novelty enjoyed by the invention and the role of the inventor in bringing the invention to fruition were also never far from the surface. In cases where Parliament was minded to give an award, it would note the degree of time, energy, and expense incurred by the petitioner. Consequently, reflecting the concerns of the day, we find it being noted that inventors had continued to labour even at the expense of their financial well-being and physical health.

The nature of the debates in Parliament around rewards can be illustrated by reference to the petitions of Captain Manby and Elizabeth Whitfield for

[74] (1807) 47 Geo III, c. 131 (of Local and Personal Acts), s. 5.

[75] Here it might be noted that something approaching the modern notion of public money had been established in political discourse by this time. This is clearly reflected in the debate around the size of the reward to be paid to Jenner. As rhetorical devices, notions of public money, public finances and parliamentary consent may have helped give a greater degree of legitimacy to the tax burden in the UK than in other countries such as France, where the tax burden was actually considerably lower. See further P. Hudson, *The Industrial Revolution* (London 1992), 53.

[76] *House of Commons Debates*, 15 March 1802, 203 (petition presented to the House by Admiral Berkeley).

financial rewards. The background to these requests was that Captain Manby had invented a mortar that could be used to fire a line from the shore to a ship in distress, allowing crew and passengers to be rescued. Lieutenant Bell, Elizabeth Whitfield's deceased father, had conceived much the same idea and may well have influenced Manby, but did not succeed in developing a functional device. Parliament eventually decided to award £3,250 to Manby and £500 to Whitfield. The Committee charged with examining Whitfield's petition noted that Lieutenant Bell had been granted his naval commission in recognition of "his great abilities and ingenuity" and that he had died leaving a family in great distress "principally owing to the unavoidable expense incurred in bringing his said inventions to perfection".[77] The public owed a responsibility to ensure that Manby did not meet the same fate: "Captain Manby, by his exertions, had saved the lives of many. He had sacrificed his fortune, and by his assiduity endangered his life; so that if something were not done immediately, they might shortly have … as in the case of Mr. Bell, a petition not from him, but from his successors."[78]

Such examples help illustrate the fact that by the early years of the nineteenth century Britain had developed a bifurcated system for supporting inventors. In practical terms, the regular patent system was clearly the more important mechanism and its relative importance only increased as the number of patent applications rose dramatically across the early years of the nineteenth century. Nevertheless, inventors were aware of the possibility of receiving support from Parliament and other public bodies and this needs to be borne in mind when assessing the role of the state in supporting innovation during this period.[79] Moreover, the importance of the reward system cannot be assessed in practical terms alone. The reward system also played an important role in avoiding or sidelining the question of the proper basis on which the state should provide support to inventors. The patent system was understood to be underpinned by a social contract model that remains an important element of the dominant justification for patent rights. However, in order to receive additional or "special" treatment from the state, inventors would have to clear a further set of hurdles: they would have to demonstrate that their invention was of particular utility, that is was ingenious, and that they had laboured tirelessly in its production. In this way, the reward system helped accommodate both older notions of the public good and the emergent figure of the heroic inventor. The reward system thus served as a vehicle by which contradictory paradigms could be accommodated concurrently.[80]

[77] *Report on Mrs. Whitfield's Petition*, 11 July 1814 (PP 309).
[78] *Hansard, House of Commons*, 6 May 1814, cols. 1813–14.
[79] Burrell and Kelly, "Public Rewards".
[80] The emergence of modern modes of government that could nevertheless accommodate other paradigms is one that finds strong support in Weber's account of the development of the state. For Weber this was exemplified in the legal context by the persistence of "empirical justice" (which allows for ad hoc

A further illustration of how the reward system came to reflect concerns that were largely excluded from the patent system proper is by reference to the House of Lords Standing Order of 1808 that dealt with patent term extensions.[81] The background to the introduction of this Standing Order was the successful petition the year before from the Fourdrinier brothers for an extension for their patent over paper making machinery. Although the extension was granted, the brothers' request proved controversial. In large part this was because they were not the original inventors, being assignees of a patent that had originally been granted to a John Gamble. One of the important changes brought about by this Standing Order was to restrict extension requests to original inventors and their personal representatives.

Unfortunately, there is little in the parliamentary record to indicate why the Lords decided to restrict the ability of assignees to apply for extensions. One plausible explanation is that there was a concern not to protect assignees from bad bargains. If an assignee had formed an erroneous view of the likely value of the patent in whatever part of the original 14-year monopoly remained, the state ought not to intervene to protect assignees from their own profligacy. However, the effect of restriction was not to exclude entirely from consideration inventions that had been assigned. The petition only needed to proceed in the name of the inventor or his or her personal representative. Provided the assignee secured the co-operation of the inventor or his or her representative, the application could go ahead. This point can be illustrated by attempts in 1808 and 1809 to secure an extension for a patent over a method of producing cement that had been invented by James Parker in 1796. The original petition for an extension in 1808 was made by the assignee, Charles Wyatt, but the following year the petition proceeded in the name of Mary Parker, James Parker's widow and executrix.[82] The important feature of the restriction introduced in 1808 was that it forced assignees to secure the co-operation of the original inventor, thereby giving the inventor the opportunity to negotiate for an additional payment. Provided, as seems likely, this possibility was anticipated by the sponsors of the Standing Order, the better view seems to be that the Lords was seeking to ensure that any extension would confer at least some benefit on the inventor and his or her family.[83]

"practical valuations") alongside a "rational" interpretation of law (that rests on "strictly formal conceptions"): M. Weber, "Bureaucracy and Law" in H. Gerth and C.W. Mills (eds.), *From Max Weber: Essays in Sociology* (London 1970).

[81] Lords S.O. No. 94 and see *Hansard, House of Lords*, 25 March 1801, cols. 1253–54 (Earl of Lauderdale proposing new Standing Order); Journals of the House of Lords, 28 March 1808, 516 (Order adopted).

[82] See respectively *London Gazette*, 16185, 20 September 1808; *London Gazette*, 16293, 29 August 1809. The first of these announcements itself postdates the adoption of the Standing Order, but it seems reasonable to postulate that it took some time for the Order to come to the attention of petitioners.

[83] In this respect, it should be noted that copyright law at the time still contained a reversionary right that at least in theory allowed authors of successful works the opportunity to negotiate for an improved deal for

Further evidence that the Lords were concerned to distinguish between inventors and entrepreneurs is to be seen in the fact that the 1808 Standing Order also introduced a prohibition on extensions being granted in respect of "patents of importation". This restriction is striking because it is at odds with the generally accepted narrative about when such patents began to fall out of favour in the UK. As with the insistence that extensions should only benefit the original inventor or his or her heirs, this prohibition suggests a concern to tie rewards to the claims of an identifiable individual creator. We should emphasise that we are not suggesting that the image of the heroic inventor provided a clear and consistent rationale for the operation of the reward system. Even within this system, tension could arise between different understandings of the proper basis of state intervention. The Manby and Whitfield petitions again provide a useful illustration. In the course of the parliamentary debates, a division opened up between those who chose to emphasise that "Bell was the original inventor of that for which it was proposed to reward captain Manby" and those who believed that primary attention should fall on the person who "had by long study and repeated trials brought to a state of real utility, whoever might be the first, inventor of it".[84] The reward system had become a forum in which competing and contradictory understandings of the basis of state aid for inventors could be aired and debated, leaving the social contract model of patent protection undisturbed.

B. Inventors before the Privy Council (after 1835)

By the 1830s, the parliamentary reward system was in decline. A prolonged period of austerity following the Napoleonic wars made direct financial payments problematic. In this environment, a greater use of patent extensions was attractive. At the same time, it had become clear that Parliament could no longer be expected to scrutinise individual applications – there was an enormous increase in parliamentary business across the early years of the nineteenth century and workloads were becoming unsustainable.[85] What was needed was a new streamlined procedure for dealing with patent extensions. This was one of the reforms introduced by the Patents Act 1835. This Act conferred the power to award term extensions on the Judicial Committee of the Privy Council,[86] technically in the form

the second half of the copyright term. It is possible that at least some members of the Lords had this in mind when the Standing Order was introduced. For discussion of the history of the reversionary right in copyright law, see L. Bently and J. Ginsburg, "'The sole right shall return to the Author': Anglo-American Authors' Reversion Rights from the Statute of Anne to Contemporary U.S. Copyright" (2010) 25 Berkeley Tech.L.J. 1475.

[84] *Hansard, House of Commons*, 6 May 1814, cols. 728–31.

[85] See generally H.T. Dickinson, "George III and Parliament" (2011) 30 Parliamentary History 395.

[86] The Judicial Committee was established in 1833: (1833) 3 & 4 Will. IV c. 41. This Act confined the legal work of the Privy Council to those who were appropriately qualified. In practice this meant that extensions were now under the control of the judiciary, with Lord Lydhurst, Lord Brougham, Bosanquet J.,

of a recommendation to the Crown.[87] Initially, the power of the Privy Council was limited to recommending the grant of a single seven year extension, but after 1844 the Privy Council had the power to recommend two such extensions.[88]

The debates surrounding the introduction of the 1835 Act are instructive. Lord Brougham introduced the bill into the Lords. In justifying the new procedure, Brougham explained that there were many cases in which the ordinary term of protection was too short to allow inventors to recoup their costs. Importantly, he was at pains to emphasise a connection to the overriding public disclosure function of the patent system. One of the drivers of the new procedure was said to be the concern that some inventors, particularly of new medicines, would choose to keep their inventions secret without the prospect of a longer period of protection.[89] By this stage, the normative framework underpinning the grant of patents was so firmly established that reform proposals had to be couched, at least in part, by reference to this framework. There was, however, no suggestion in the debates that the tests that Parliament had employed when deciding whether to grant an extension needed to be reconsidered. On the contrary, there was a remarkable continuity in the substantive assessments made under the new procedure. This preserved a space for the continued influence of other understandings of the conceptual underpinnings of public support for inventors. Indeed it moved these understandings back closer to the core of the patent system. Extensions were now under the control of the judiciary, applicants would often seek the assistance of a patent agent when preparing their case,[90] and barristers would represent not only applicants at hearings, but also third parties who sought to oppose an extension.

Extensions continued to be an important part of the patent system for many decades after 1835. It is notable, for example, that Alfred Newton, writing in 1879, felt that patent extensions were sufficiently important to include a reference to them in the title of his patent treatise.[91] A few

Lushington J., and Knight-Bruce V.C. being particularly active during the early period. Consequently, we find Knight-Bruce V.C. hearing a request for an extension in *Wright's Patent* (1843) 1 Web. Pat. Cas. 736 and an application for the grant of an injunction in *Muntz v Foster* (1843) 2 Web. Pat. Cas. 92 within days of one another. This point is worth emphasising because there has been a tendency to present the courts and the Privy Council as being in conflict in the patent field, but this characterisation of the relationship can only hold, at best, during a much earlier period. See further Bracha, *Owning Ideas*, pp. 62–63 (arguing that the narrative of continuous struggle between the courts and the Privy Council is in any event flawed) and P. Howell, *The Judicial Committee of the Privy Council 1833–1876* (Cambridge 1979) (on the foundation and early operation of the Judicial Committee generally).

[87] (1835) 5 & 6 Will. IV c. 83, s. 4.

[88] (1844) 7 & 8 Vict. c. 69. The impetus for this change came from a petition from the Earl of Dundonald for an extension via Act of Parliament for his patent for an improvement in steam machinery: *Hansard, House of Lords*, 16 February 1844, cols. 475–76.

[89] *Hansard, House of Lords*, 3 June 1835, cols. 475–76.

[90] Patent agents began to emerge as a separate profession around this time. See H. Dutton, *The Patent System and Inventive Activity During the Industrial Revolution* (Manchester 1984), 86–87.

[91] A. Newton, *Patent Law and Practice: Showing the Mode of Obtaining and Opposing Grants, Disclaimers, Confirmations, and Extensions of Patents* (London 1879).

years later, the Patents, Designs and Trade Marks Act 1883 re-enacted the patent extension provisions virtually unaltered.[92] The Patents and Designs Act 1907 set out a different judicial procedure for such extensions,[93] but the substantive test for when an extension might be granted was left unchanged. It was only with the passage of the Patents Act 1949 that there was some tightening of the rules governing patent extensions (with the maximum extension being reduced from 14 to 10 years[94]) and it was only with the passage of the Patents Act 1977, which remains the governing UK statute, that such extensions were phased out altogether. It is also worth noting that the British provisions governing term extension and accompanying judicial practice were exported to other parts of the Empire. For example, some of the Australian colonies included extension provisions in their patent legislation,[95] as did the first Patents Act passed by the Commonwealth Parliament of Australia.[96] In relation to the latter provisions, it was said expressly that UK judicial practice should "be followed wherever applicable and not contrary to statutory provision".[97]

UK judicial practice was established within a few years of the 1835 Act being passed. The early cases therefore continued to make a mark on the law for many decades, with many of the early judgments, including those of Lord Brougham, being cited well into the twentieth century. These early decisions emphasised the link between the new system and the parliamentary procedure that preceded it. In *Kay's Patent*, decided in 1839, one of the points pressed by Cresswell, appearing for the opponent, was that "The prolongation of a patent ought not to be recommended by your Lordships unless the Houses of Parliament, for which this tribunal was substituted, would have seen it right to have granted a prolongation".[98]

The opposition was unsuccessful, but this approach found a degree of favour with Lord Brougham. For example, in *Morgan's Patent*, His Lordship indicated that the question of whether Parliament would have granted the extension ought to serve as a touchstone for the Privy Council, stating that members of the Privy Council "are to look to a certain degree at the position in which they are placed, and to consider that they represent the legislature, and that they are invested with somewhat similar powers of discretion to be exercised formerly by the whole 3 branches of Parliament".[99]

[92] (1883) 46 & 47 Vict. c. 57, s. 25.
[93] (1907) 7 Edw. VII c. 29, s. 18.
[94] (1949) 12, 13 & 14 Geo. VI c. 87, s. 23. Moreover, even this is something of an oversimplification as the Act made separate provision for extensions where the patentee's ability to work the invention had been adversely impacted by the war.
[95] This was true, for example, of the legislation in Victoria: An Act Concerning Letters Patent for Invention 1857, 20 Vict. No. 3, s. 23; Patents Act 1890, 54 Vict. No. 1123, s. 42.
[96] Patents Act 1903 (Cth), s. 84.
[97] *Robinson's Patent* (1918) 25 C.L.R. 116, 119, per Isaacs J.
[98] (1839) 1 Web. Pat. Cas. 568, 569.
[99] (1843) 1 Web. Pat. Cas. 737, 739.

He was careful to qualify this statement to make it clear that he was not suggesting that there were not any cases in which the Privy Council would go beyond Parliament – a point that comes across even more strongly in *Soame's Patent*,[100] a case decided a few months before. However, such statements set the scene for the Privy Council's consciously drawing on earlier parliamentary practice when dealing with requests for patent term extensions. Parliamentary deliberations as to whether an inventor was deserving of a reward could in many cases equally have come from the Privy Council after 1835. Most significantly, we find the Privy Council, like Parliament before it, taking account of the public utility of the invention, its inherent merit, and the labours and circumstances of the inventor.[101] In this regard, it is interesting to compare the approach taken by Parliament to granting Thomas Morton's extension for his patent over the slip dock (which reduced the cost of ship repairs) with the summary of the test for when an extension should be granted set out by Williams J. in the High Court of Australia, some 120 years later.

In assessing the merit of Morton's application, the Parliamentary Select Committee noted the ingenious nature of the invention, its importance to a maritime country, and the fact that the petitioner had made no money from the invention in the first six years of the patent, despite his endeavours to bring it into use.[102] For Williams J., the test could be summarised as follows:

> First, it must be shown that the invention is one of more than ordinary merit or utility, utility from the point of view of public interest being more important than inventive ingenuity; secondly, it must be shown that the patentees have been inadequately remunerated. And thirdly, that that inadequacy has not been due to their own fault, but that they have made all proper efforts to exploit the invention to their own profit.[103]

A further illustration of the range of considerations that the Privy Council took into account when dealing with requests for an extension and of the continued importance of prior parliamentary practice is to be found in how assignees were treated under the new procedure. It will be remembered that, as a consequence of a Standing Order adopted in 1808, the House of Lords would only entertain bills that were intended to benefit original

[100] (1843) 1 Web. Pat. Cas. 729, 733–34.

[101] See e.g. *Swaine's Patent* (1837) 1 Web. Pat. Cas. 559 (invention result of a great deal of labour, care, and science; invention extremely useful in its effects and petitioner had sustained a loss); *Dowton's Patent* (1839) 1 Web. Pat. Cas. 565 (looking, inter alia, at the ingenuity of the invention and its benefits to the public); *Kollman's Patent* (1839) 1 Web. Pat. Cas. 564, 565 (Attorney General intervening in the case to note that loss arose from "circumstances beyond the control of the patentee").

[102] *Morton's Patent Slip: Report from the Select Committee Appointed to Consider How Far It Is Expedient to Extend the Patent Granted for Morton's Slip*, 13 April 1832 (PP 380).

[103] *Northey Rotary Engines Ltd.'s Patent* (1950) 81 C.L.R. 332 (summarising the most recent UK authorities on point).

inventors. The position under the 1835 Act was more ambiguous, but at least one writer at the time took the view that assignees were not entitled to apply for an extension.[104] The Privy Council, however, took a different position. It decided that assignees were entitled to apply for an extension under the new procedure, but took steps to safeguard the position of inventors by requiring assignees to provide additional compensation to the inventor in appropriate cases. Thus, for example, in *Whitehouse's Patent*, decided in 1838, the Privy Council granted an assignee an extension on the condition that an annuity of £500 was paid to the inventor.[105] It is striking that there was no legislative basis for granting an extension subject to this condition. What we therefore see is the Privy Council going out of its way to preserve the substance of the pre-1835 position and, in so doing, a degree of protection for inventors.

The place of term extensions within patent law after 1835 is a topic that demands much greater attention. This would be true if only because term extensions were part of UK law for such a long period of time and because they spread to other parts of the Empire, where they also formed a long-standing part of local patent systems. Beyond this though, there is something important about patent extensions – something that goes to our understanding of the intellectual framework surrounding patents. This is true, in particular, of the manner in which they led members of the judiciary to make an assessment of the social utility of specific pre-existing inventions and of the character and labours of the inventor. This is at odds with the image of the patent system as built around abstract and forward-looking principles from the early nineteenth century or before. It supports our claim that the reward system served, particularly during the nineteenth century, to provide a means of accommodating the figure of the heroic inventor within the law without disrupting the day-to-day operation of the patent system.

IV. Conclusion

The modern patent system emerged from a slow and gradual process and patent historians have inevitably disagreed about how much weight should be given to particular developments. Nevertheless, a division has generally been drawn between the period before and the period after 1830. From this date onwards, there was sustained interest in legislative reform of the patent system. This eventually led to the creation of the Patent Office in 1852 (which finally threw off the Elizabethan character of the administrative processes governing the grant of patents) and to the passage of the Patents,

[104] R. Godson, *A Practical Treatise on the Law of Patents for Inventions and of Copyright*, 2nd ed. (London 1844), 199.
[105] (1838) 1 Web. Pat. Cas. 473, 476.

Designs and Trade Marks Act 1883 (that introduced further important procedural reforms).[106] In contrast, in the period before 1830, the developments that took place in patent law have been attributed to the judiciary or to the judiciary and the law officers responsible for examining patent applications.[107]

This article disrupts the temporal division described above by demonstrating that the system of parliamentary rewards needs to be assigned a prominent place in our understanding of the patent system's evolution. It shows that Parliament's interventions to reward individual inventors over the course of the eighteenth century played an important part in shaping the role of the "specification" within the patent system. Consequently, it was Parliament as much as the courts or patent officials that promoted the social contract model of the nature of patent rights that remains influential to this day. Yet, despite the role that rewards played in establishing this model of patent rights, public disclosure could not provide the touchstone for conferring a special privilege on an inventor. As a consequence, during the early years of the nineteenth century, the importance of the reward system lay not so much in its continued promotion of public dissemination (which was by then firmly entrenched), but rather in its role reconciling the law with claims grounded in the moral entitlement of inventors. This remained true after 1835 when control of the process of conferring special privileges on inventors was transferred to the Judicial Committee of the Privy Council.

A re-examination of the historical origins of the social contract model of patent rights is timely. This model has come under sustained attack over recent years. For example, Peter Drahos has argued that the focus on "technical" disclosure of the inventive concept through the specification has enabled gaming of the system, with patent attorneys becoming adept at revealing as little as possible through the documentation whilst ensuing that the patent is not void for want of sufficiency. He has therefore called for a return to a more market-based test of accessibility of the inventive concept.[108] Whilst the implementation of this suggestion might be difficult, it is important that we remind ourselves that the existing model of patent protection is not inevitable and that for many decades other understandings of the basis on which the state should intervene in favour of inventors found a place within the law.

[106] 46 & 47 Vict. c. 57, s. 25.

[107] This comes across clearly from Barbara Henry's careful historiography: B. Henry, "The Development of the Patent System in Britain, 1829–51", PhD thesis, Queen's University Belfast 2012, Introduction, in particular 23–28.

[108] P. Drahos, *The Global Governance of Knowledge: Patent Offices and Their Clients* (Cambridge 2010), 31–32 and ch. 11.