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**The discursive shaping of intellectual ownership: the case of James Watt
and Josiah Wedgwood**

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Introduction

When Steven Shapin inquired after the 'literary technology' which moulded Robert Boyle's natural philosophy¹, the tradition of studies known as *Sociology of Scientific Knowledge* (SSK) was still relatively young and had just received new inputs from the so called 'Strong Programme', a new methodological manifesto which opened up history of science to the social constructivist perspective.

As Shapin himself would point out in 2010, this challenge to Whiggish historiography, realism, and positivism was at first perceived as a manifold 'heresy' against the traditional characterization of science. In fact, the Strong Programme opposed any historiographical trend which depicted science, and men of science, like entities eradicated from their social and human needs, thereby contributing to the image of science as a universal, neutral, objective, and disinterested type of knowledge.

Rather, science was to be understood as a kind of knowledge situated in its historical moment, which belongs to a place, which is not one, unified and indivisible and does not depend upon a single and coherent Scientific Method.

Science, Shapin continues, is not the only existing source of Truth and scientists are not “morally and constitutionally diverse specimens of humankind”, although they belong to a narrow group which can exercise a very specific kind of authority in modern and contemporary societies.²

Finally, scientific knowledge is not pure thought, but a set of practices and performances.³

1 Steven Shapin, “Pump and Circumstance: Robert Boyle's Literary Technology”, *Social Studies of Science*, 14 (1984), 481-520.

2 Shapin, 2010, p. 5.

3 Ibid.

The literary technology which Shapin investigated in his 1984 paper on Boyle's experiments with the air-pump was then analysed as a discourse in this thread of practices. Shapin argues that, whilst the production and the communication of knowledge are usually regarded as different activities: "speech about natural reality is a means of generating knowledge about reality."⁴ He shows that there is no difference between discourses about Nature, which aim to be neutral and objective and more abstract discourses about the way we achieve valid knowledge. The two practices are intimately intertwined, so that scientific knowledge appears to be embedded in Boyle's metaphysics, epistemology and ultimately in the whole form of life we define as 'experimental philosophy'.

The theoretical basis of Boyle's science was thus the fundamental belief that, in order to be incontestable, a scientific claim had to refer to something external and physically observable, that is a 'matter of fact'. Experimental philosophy, nevertheless, was a system of beliefs which leaned upon a material technology, a social technology and a literary technology. The complexity of the 'technologies' which were employed in the making of Boyle's natural knowledge would be explored at much greater length in Shapin and Schaffer's landmark work *Leviathan and the air-pump*, which was published in 1985.⁵

The production of natural knowledge, according to the experimental agenda, relied upon very expensive pieces of machinery, such as the air-pump, which made it factually impossible to extend the witnesses of experiments beyond a close circle of wealthy gentlemen of science.

4 Shapin, 1984, p. 482.

5 Steven Shapin, Simon Schaffer, *Leviathan and the air-pump: Hobbes, Boyle and the Experimental Life*, Princeton University Press, Princeton, 1985.

Shapin and Schaffer shed light on the way *matters of facts* were produced. Rather than being pure observable data mirroring objective aspects of natural phenomena, matters of fact had to be generated, and the consent over them had to be procured and maintained. *Leviathan and the air-pump* shed light on the controversy between Hobbes and Boyle over the reliability experimental method. Their claim is that this contest needs be understood amid the context of Restoration society and politics. In fact, argue Shapin and Schaffer, by shifting attention to matters of fact and treating theories and philosophies less dogmatically, experimental science could serve as an instrument of cultural reunification and pacification of the English elite following the heated years of the Civil War.

On the other hand, argues Shapin, what made observable matters of fact certain in the utmost degree was the virtually universal assent of which they could be assured. This consent about the experimental results which emerged from the use of Boyle's air-pump, was procured by means of literary expedients and the mobilization of the relevant community of natural philosophers. Therefore, Shapin focuses upon the way witnesses multiplied and matters of fact were ascertained. What mattered in the construction of this 'universal' consent about the indisputable datas which grounded Boyle's natural knowledge, was the authoritative testimony of the Royal Society, the use of public spaces such as laboratories, the representation of experiments as if they could be reproduced far from their original occurrence, and the literary device of 'virtual witnessing'.

Virtual witnessing was assured by means of Boyle's skilfully crafted scientific text. Prolivity and circumstantial details served as communicative styles aimed at producing in the readers' mind: "such an image of an experimental scene as obviates the necessity for either its direct witness or its replication."⁶ Furthermore, as the actual direct observers of Boyle's experiments were very few, virtual witnessing implied a relationship of trust between the narrator of those organized and codified experiences and his readers. Shapin argues that Boyle's scientific texts contributed to the author's moral self-fashioning. In order to earn his reader's trust, Boyle deployed a series of literary devices such as displays of modesty. He also adopted a plain, puritanical style of writing which might be perceived as simply functional. He showed himself eager to report in detail any failed experiment, and made sure to assume the "appropriate moral postures, and appropriate modes of speech" for the treatment of: "epistemological items on either side of the crucial boundary that separated matters of fact from the locutions used to account for them: theories, hypotheses, speculations, and the like." Shapin's 1984 article is only one of the works which contribute, from the point of view of social constructivism, to our understanding of the intimate relationship

⁶ Shapin, 1984, p. 491.

between scientific knowledge and discursive practices. In *Making natural knowledge. Constructivism and the History of Science*, Jan Golinski dedicates a whole chapter to this branch of study within SSK. He points out that much of what scientists can be observed to do relates to their 'linguistic behavior' and communicative acts.⁷ They publish discursive accounts of their experiments, take part in conferences and give lectures. But they also seek out grants, procure political connections, and debate each other's merits.

Whilst their work is also placed in the material dimension of laboratories, scientific instruments and many different kinds of 'inscriptions', scientists: "live much of their lives in a world of words." Consequently, no constructivist analysis could consider the linguistic dimension of science as if it was merely epiphenomenal.⁸

As a result of growing awareness of the rhetorical aspects implied in the making of scientific knowledge, *Rhetoric of Science* is now a distinct field of study.⁹ The scholars who engage in this discipline are generally concerned with the *topoi* and the rhetorical figures which stand out in a scientific text, but they do not necessarily subscribe to the theoretical framework of constructivism. Nevertheless, their work, along with that of the sociologists of science, contributes to the dismissal of an old prejudice, that is, the neat contrast between rhetoric, the art of persuasion, and logic, which compels assent by means of neutral and objective lines of reasoning. Hence, even the 'plain' style of scientific texts should be considered as a rhetorical artefact, aimed at gaining the assent of a precise audience. However, any rhetorical analysis of science achieves little, from the point of view of history of science, as long as scientific modes of speaking and

7 Jan Golinski, *Making Natural Knowledge. Constructivism and the History of Science*, Chicago University Press, Chicago, 2005 (1998), p. 103.

8 Ibid.

9 Ibid. pp. 104-105; Lawrence J. Prelli, *A Rhetoric of Science: Inventing Scientific Discourse*, University of South Carolina Press, Columbia, 1989; Alan Gross, *The Rhetoric of Science*, Harvard University Press, Cambridge MA, 1990; Leah Ceccarelli, *Shaping Science with Rhetoric: The Cases of Dobzhansky, Schrödinger, and Wilson*, University of Chicago Press, Chicago, 2001; Alan G. Gross, *Starring the Text. The Place of Rhetoric in Science Studies*, Southern Illinois University Press, Carbondale, 2006.

writing are not situated against the background of available cultural resources. The literary devices employed by Boyle, for example, need to be understood as components of a whole system of meaning and as rationalizations of concrete material and social needs. Hence Shapin and Schaffer's book broadens the focus of rhetorical studies by focusing upon Boyle's scientific apparatus and on the societal dynamics which underpin the affirmation of the Royal Society as one of the most authoritative knowledge-makers in modern Britain.

Greg Myers' work on the use of dialogues in scientific texts, and Peter Dear's studies of the structure of experimental reports in the 17th century offer further examples of how the analysis of discursive practices might be relevant to the constructivist approach to history of science.

This work is also concerned with discursive practices and literary technologies. However, we shall not engage here with scientific treatises, essays or dialogues. Rather, we shall focus upon a number of informal primary sources, mainly letters and notes by two of the most iconic inventors-cum-entrepreneurs of the Industrial Revolution: James Watt and Josiah Wedgwood. My aim is to focus upon Watt and Wedgwood's justifications of their intellectual ownership hence outline their conceptions of invention and inventive work. I shall show that these notions were entrenched with their discourses on the inventor's ethical profile.

Part one is concerned with Watt's defence of his rights as patentee. My claim is that natural-law and utilitarian arguments provided a powerful set of cultural resources for Watt's understanding of invention and progress. In particular, his proposal for a reform of the patent system includes a thick narrative which is useful if we wish to understand how Watt conceived the social role of inventors and his individualistic conception of techno-scientific progress.

As Watt's defence of his monopoly over the separate condenser represents a vivid case-study for those concerned with the contemporary debate around intellectual property rights, I will draw some parallels between Watt's justification of patents as a means of rewarding the inventor's toil and the arguments and assumptions deployed by contemporary libertarians who debate the very merits of the patent

system. This analysis will show the current cultural significance of Watt's discourse on intellectual property.

In the second part of this work I will turn my attention to Wedgwood's artistic and technical innovation in British pottery so as to enucleate his notions of originality, imitation, and authorship. I shall provide an insight into his fluid demarcation of the dividing line between imitation and invention, which, I claim, is related to the lack of effective institutional protection of designs. As a result of his failure to legally secure intellectual property by means of the patent law, Wedgwood's discourse on intellectual ownership leans upon less formalized cultural resources which were available to 18th century entrepreneurs. One of these was industrial paternalism, a rhetorical attitude which Wedgwood also employed when he addressed the problem of suborned workmanship and attempted to limit the circulation of knowledge.

What was once again at stake was the need to materially, socially and discursively construct the moral integrity of Wedgwood's claim to the authorship of his pottery, which involved the expertise and artistic talent of many 'invisible' artists and technicians.

Finally, in the Historiographical Appendix I shall outline Wedgwood's scientific reputation in British 20th century historiography. I shall claim that Wedgwood's admission into the pantheon of great men of science was influenced by abstract assumptions on the moral disinterestedness of his research and by broader considerations of the relationship between science and technology.

PART ONE

Securing inventions: James Watt's rhetoric on patents and the contemporary libertarian justifications of Intellectual Property rights

Le discours, en apparence a beau être bien peu de chose, les interdits qui le frappent révèlent très tôt, très vite, son lien avec le désir et avec le pouvoir. Et à cela quoi d'étonnant: [...] puisque – cela, l'histoire ne cesse de nous l'enseigner – le discours n'est pas simplement ce qui traduit les luttes ou les systèmes de domination, mais ce pour quoi, ce par quoi on lutte, le pouvoir dont on cherche à s'emparer.

M. Foucault, *L'Ordre du Discours*, 1970, p. 12.

James Watt, a brief outline of his life

In one of his essays, with his usual optimism Ralph Waldo Emerson approaches the themes of progress, technology and art.

While espousing a profoundly Romantic world-view, “the prophet of American religion”¹⁰ describes the artistic and technological harvest gathered throughout the triumphant history of human creativity, arguing that geniality is always the manifestation of one single notion, Reason: “There is one mind common to all

¹⁰ Harold Bloom, *The American Religion*, Chu Hartley, New York, 1992, p. xii.

individual men. Every man is an inlet to the same, and to all of the same”. Every artistic and scientific work stems from this “eternal Reason”, which is recognizable in the laws of Nature and identifiable with God Himself.

Thus the whole creative history of humankind is organically coherent: “Herein is the explanation of the analogies which exist in all the arts. They are the reappearance of *one mind*, working in many materials to many temporary ends. Raphael paints wisdom; Handel sings it, Phidias carves it, Shakespeare writes it, Wren builds it, Columbus sails it, Luther preaches it, Washington arms it, *Watt mechanizes it.*”¹¹

Hence, according to Emerson, Watt had the extraordinary merit to give Reason a *mechanical* body. His sharp intellect empowered the Industrial Revolution, marking the beginning of one of the most memorable steps forward in modern history. As the American philosopher points out in *The Conduct of Life*, the inventor from Greenock embodied progress, being endowed with the divine talent of turning brute natural forces into power at the disposal of human kind: “Steam was, till the other day, the devil which we dreaded [...] But the Marquis of Worcester, Watt, and Fulton bethought themselves, that, where was power, was not devil, but was God; that it must be availed of, and not by any means let off and wasted. Could he lift pots and roofs and houses so handily? He was the workman they were in search of.”¹²

Indeed, particularly for Watt, energy optimization would become an intellectual challenge: one which required resources, experiments, and determination. However, sooner or later, Watt thought, he would be repaid for his toil.

Everything began in the winter of 1763-64, when he was appointed by Professor John Anderson to repair a model of a Newcomen engine.

Anderson taught Natural Philosophy at Glasgow College, where James Watt, aged 28 and, already an experienced instrument maker, had obtained accommodation

11 Ralph W. Emerson, *Art*, in *Civilization, Art, Eloquence and Books*, Tokio Publishing Company, Tokyo, 1886, p. 31. My italics.

12 Ralph W. Emerson, *The Conduct of Life*, Ticknor and Fields, Boston, 1860, p. 28.

and a workshop.

His job consisted mostly in repairing scientific instruments for the academic staff. Glasgow intellectual life was animated by some of the most progressive students in Britain, especially natural philosophers, prophets of the Baconian credo, who collaborated to produce an earthy, practically oriented kind of knowledge. Anderson had begun just started to deliver “anti-toga lectures”, mainly addressing local artisans and mechanics, while, besides Watt, the College hosted within its premises painters and type-founders.

In such an environment it is not surprising that the mechanic from Greenock, the son of a shipwright and a hard-working Presbyterian, soon achieved a good reputation. In 1756 Watt arrived to Glasgow and shortly after met John Robison, at that time a brilliant undergraduate, and Joseph Black, who had just been appointed to the chair of Botany and Anatomy.¹³

Much later, Robison would remember his first acquaintance with Watt: “After first fisting my Eyes with the view of fine instruments, and prying into every thing I conversed with Mr. Watt. I saw Workman and expected no more – but was surprized to find a philosopher, as young as myself; and always ready to instruct me.”¹⁴

It 1759 Robison persuaded Watt, in 1759, to investigate some profitable applications of steam.¹⁵ Thomas Newcomen's machines were already widespread, but the imagination of these young men was bolder and looked beyond the ordinary atmospheric pumps and engines: would it be ever possible to realize a steam-carriage?

At that time Watt did not know much about steam and its properties.

The first steam engines were realized long before by Thomas Savery, a military

13 Ben Marsden, *Watt's Perfect Engine. Steam and the Age of Invention*, Icon Books, Cambridge, 2002, pp. 19-20.

14 “Professor Robinson's Narrative of Mr. Watt's Invention of the improved Engine versus Hornblower and Maberley, 1796”, in Eric Robinson, Albert E. Musson, *James Watt and the Steam Revolution. A Documentary History*, Augustus M. Kelley, New York, 1969, p. 23.

15 Marsden, 2002, p. 27.

engineer, who in 1698 took out a patent for a “Fire Engine”.¹⁶ His engine was designed to help the adventurers of the mining districts to raise water, so as to exploit mines at greater depths.

Savery was probably influenced in his study by the earlier research of the Maquis of Worcester, outlined in his book *Century*.¹⁷

In 1699, when his patent was obtained and the related Act was passed, Savery's engine was brought before the Royal Society for a demonstration. It was the 14th June and the minutes recorded that: “Mr. Savery entertained the Society with showing his engine to raise water by the force of fire. He was thanked for showing the experiment, which succeeded according to expectation, and was approved thereof.” Savery also provided the Society with a drawing of his contrivance, which was printed and described in the *Transactions*.¹⁸ This first “Fire Engine” consisted of two large cylindrical vessels, alternatively filled with steam from the adjoining boiler and with cold water from the well of the mine out of which the water had to be raised.

However, when the engine was used to force up a high columns of water, the pressure required was very high. As was the risk of an explosion. Owing also to the imperfection of early boilers and receivers, the number of incidents led eventually to its discontinuation.

The application of this model of early fire-engine would be circumscribed to the pumping of water in fountains, while the task of providing the mining districts with a proper engine was undertaken by Thomas Newcomen. Newcomen, a blacksmith and ironmonger from Dartmouth, was assisted by John Calley, a glazier who eventually became his partner in the engine-business.¹⁹ Dickinson offers a clear and brief description of Newcomen's engine, which will serve our purpose:

“a piston working in a cylinder is attached by a chain to a beam or lever rocking on trunnions, to the other end of which a pump rod is hung. Steam at atmospheric

16 Samuel Smiles, *Lives of Boulton and Watt*, Nonsuch, Chalford, 2007 (1865), p. 54.

17 *Ibid.*, p. 53.

18 *Ibid.*, p. 54.

19 *Ibid.*, p. 66.

pressure, generated in a boiler below, is admitted into the cylinder and the air present is blown out through the snifting valve. The piston being overbalanced by the weight of the pump rod is at the top of its stroke. A jet of water is turned on in the cylinder to condense the steam to form a vacuum. The pressure of the atmosphere on the piston forces it down and in doing so it lifts the pump rod and with it water from the mine. With the readmission of steam, the cycle recommences.”²⁰

When the young Watt received a broken model of Newcomen's engine, he soon realized the inefficiency of its mechanics and began pondering how it could be improved. The main reason for its malfunction, he thought, had to be sought in the fact that the cylinder, where the steam acted on the piston to push it up, was cooled at every stroke, therefore losing its high temperature. Thus when injected with new hot steam, a part of it was immediately condensed by the cool metal inside the cylinder, which implied, of course, a dispersion of energy and a consequent waste of coal.

Moreover, the steam condensed, forming a deposit of water in the bottom of the cylinder, which limited the stroke produced by the atmosphere acting upon the piston and pushing it downwards. The only solution was to keep the cylinder as hot as the steam and let the latter condense elsewhere. In other words, Watt's solution had to be a *separate condenser*. Therefore, he conceived the idea of a separate vessel, connected with the cylinder, where steam would flow into the cylinder, be condensed into water and disposed of. While the cylinder could be kept hot, so as to optimize the quantity of steam necessary to push the piston up, the separate condenser would be immersed in water and thereby kept cool.

When the valve connecting the two vessels was open, the steam flew from the cylinder to the condenser, condensation would create a vacuum and due to its elasticity the whole quantity of steam contained in the cylinder would stream into the condenser.

²⁰ Henry W. Dickinson, *James Watt, Craftsman and Engineer*, Cambridge University Press, Cambridge, 1936, p. 33.

Watt came up with this simple and brilliant idea in 1765. It took him three years to turn his first intuition into a contrivance which would be eligible for a patent. However, rather than a machine, what he actually decided to patent was a *method*, one he entitled: “A New Method of Lessening the Consumption of Steam and Fuel in Fire Engines”.²¹

This patent, one of the most debated intellectual properties of modernity, was to be integrated with a specification. No drawing was enclosed, and his final draft did not include a detailed description of a concrete piece of machinery.

As Joseph Bramah would polemically comment in 1796, the effect of lessening the consumption of steam: “did not depend on nothing but the principles of proportion, and organization of the Engine; and that it might and ought to have been fully described in words, by drawings and references in the usual way.”²²

Watt's elusiveness could be interpreted as the attempt to enlarge the umbrella of patent protection. But it could also be motivated by the decision to balance institutional protection, which implied the disclosure of the new contrivance, with secrecy and discretion. Moreover, elusiveness was also prompted by the timing of his submission. In fact, much to Bramah's disdain, an organized machine was not available yet to be accurately described, and this exposed Watt to the accusation of having patented the future. The Scottish inventor, argues Bramah, was either reluctant to disclose the details of his contrivance, or simply unable to provide a complete description at the moment he took out his patent: “Whether they could not, or would not describe this Engine, is then the question.” Should the first hypothesis have been true, then: “Mr. Watt took his patent not for what he had invented, but for what he might invent in the future.”²³

21 The document is included in Robinson and Musson, 1969, p. 56.

22 “A letter to the Rt. Hon. Sir James Eyre, Lord Chief Justice of the Common Pleas; on the subject of the cause Boulton and Watt versus Hornblower and Maberley: for infringement on Mr. Watt's Patent of an Improvement on the Steam Engine. By Joseph Bramah, Engineer.” Ibid., p. 207.

23 Ibid. The problem of the right timing for registering a patent would have been perduring, and reveals how difficult it was to determine the exact moment when a new idea was developed sufficiently to be secured. Therefore, for example, John Taylor's testimony to the *Select Committee on the Law relative to Patents for Inventions* on 8 May 1829, indicates an

Before filing his much-contested specification, Watt inquired of his scientific friends, William Small and Matthew Boulton, as to how much of his invention should have been disclosed. Notably, both of them recommended discretion:

“Mr. Boulton and I have considered your paper, and think you should neither give drawings nor descriptions of any particular machinery, (if such omissions would be allowed at the office) but specify in the clearest manner you can, that you have discovered some principles, and thought of new applications of others, by means of both which joined together, you intend to construct steam engines of much greater powers, and applicable to a much greater number of useful purposes than any which hitherto have been constructed [...] As to your principles, we think they should be enunciated (to use an hard word) as generally as possible, to secure you as effectually against piracy as the nature of your invention will allow.”²⁴

This advice was taken and the choice led to lasting consequences that Watt himself, and his friends, could hardly foresee.

William Small had met Matthew Boulton, a young and ambitious industrialist, through a common American friend: Benjamin Franklin. Small soon became Boulton's physician and introduced him to Watt in 1768. In 1762 Matthew Boulton had established with his partner John Fothergill a successful ornamental metalware

underwritten sensitivity to this highly speculative issue: “Is not the first idea of an invention often very imperfect? - Certainly.

Does it not often happen that the inventor makes great alterations and improvements in his invention, between the time of his making application for his patent, and that of enrolling his specification? - Yes.

*Supposing between the time of his taking out his patent and the period for enrolling his specification, he should discover very considerable improvements in his invention, what course is he obliged to take? - The title must include the whole invention; as the law now stands, every inventor tries to frame a title that will include every thing relative to his invention, and may, in fact, make it rather a delusive title; for instance, a person taking out a patent for oil gas, may call it a patent for a better mode of lighting, or something else taking in the whole; or an improvement in steam engines may have been put under the title of certain improvements in machinery; and so on, by using very general words, taking the most ample form, so that the invention may be clearly comprehended without pointing out particulars.” Taylor's interesting testimony touches upon several other old issues, such as the opportunity to set up a commission of experts to evaluate the sufficiency of specifications and the problem of how to protect inventors during their preliminary public experiments which were essential to convert an early idea into a working machine. *Report from the Committee on the Law relative to Patents for Inventions*, ordered by the House of Commons, 12 June 1829, p. 7.*

²⁴ W. Small to J. Watt, 7 February 1769, in Robinson and Musson, 1969, p. 54.

factory in Soho, about two miles north to Birmingham, on the Wolverhampton road.

Small, Boulton and Erasmus Darwin, a physician from Lichfield and grand-father of Charles Darwin, constituted the core of one of the most studied scientific societies of the 18th century: the Lunar Society of Birmingham.

This extraordinary coterie of entrepreneurs, natural philosophers and practitioners included personalities such as Watt, Joseph Priestley, James Keir, Thomas Day, Richard Lovell Edgeworth, John Whitehurst, William Withering and Josiah Wedgwood. Given the iconic importance of the manufacturers who took part in this scientific society, and the influence of its natural philosophers, the Lunar Society of Birmingham has gained historiographical preeminence among the students of the Industrial Revolution.²⁵

With the *lunarticks*, as the members of this club cheerfully called each other, Watt established a network of solid friendships, scientific correspondence and commercial cooperation.

When Watt visited Boulton's Soho premises in 1768, six years after its foundation, he could not but be entranced. During that period the Scottish inventor was still striving to realize his first large-scale engine, which would be erected at Kinneil the following year. Boulton would replace Watt's first business partner, John Roebuck, when the latter went bankrupt. The year 1775 marked the beginning of this legendary partnership. Boulton acquired a share of Watt's rights as patentee, as

25 Robert E. Schofield claimed that: "In the long run, the most adequate evaluation of the achievement of the Lunar Society is to be made by setting them against the development of the Industrial Revolution." Robert Schofield, *The Lunar Society of Birmingham. A social history of provincial science and industry in eighteenth-century Britain*, Clarendon Press, Oxford, 1963, p. 438.

Francis Klingender would later argue that the Lunar Society played the role of "a kind of scientific general staff for the Industrial Revolution." Francis D. Klingender, *Art and the Industrial Revolution*, 1968, p. 34.

More recently Joel Mokyr stressed the role of the Birmingham group as a kind of market of knowledge in which scientific research and technical expertise was exchanged, sold, and bought thanks to the patronage of pioneer industrialists: "Within the Lunar Society and other societies, a main objective was the creation of channels through which existing knowledge could flow to those who were best situated to use it productively." Joel Mokyr, *The Enlightened Economy. An economic history of Britain 1700-1850*, Yale University Press, 2009, p. 171.

a compensation for Roebuck's indebtedness to him. However, as six years of the 14 for which the patent was originally issued had already elapsed, before investing on the engine Boulton wanted to obtain an extension of their exclusive privileges. Therefore, in the beginning of 1775 Watt paid a visit to his patent agent in London, Mr. Wedderburn, to confer with him about the best means of extending his exclusive rights. They finally agreed to apply to Parliament for an Act. According to Smiles this decision was motivated by merely economic considerations, a new patent costing 20*l.* more than an Act.²⁶

Watt petitioned Parliament in February 1775, and shortly after a Select Committee was summoned to consider the matter. Many of the commissioners were Boulton's friends.²⁷ The petition encountered stern opposition from the Cornish adventurers, represented in Parliament by Edmund Burke, who in April 1775 wrote to Robert Smith, Master of Merchants' Hall in Bristol: "I enclose you a printed Bill for Securing to Mr Watt an exclusive property in his Fire Engine for a Term of Years. This Bill at its first appearance seemed to me very exceptionable. A Mr Blakey petitioned against it, and was to be heard by Counsel on the Bill; but having suddenly withdrawn his petition, the Bill got a step forward, almost unknown to most of the house, and particularly to the Members of the Mine Counties, on our making a strong representation to those concerned in carrying it on, he has consented to my amendments which you see in Manuscript; which amendments remove most of my Objections. But as others may remain, I wish to have it communicated to such Gentlemen in Bristol as may be affected and to know their sentiments as soon as possible."²⁸

After a draining political contest, in May 1775 an Act extended Watt's 1769 patent until 1800. Thus, finally relieved by this success, on 8 May 1775 Watt wrote to his father: "After a series of various and violent Oppositions I have at last got an Act of Parliament vesting the property of my new Fire engines in me and my Assigns,

²⁶ Smiles, 2007, p. 186; Eric Robinson, "Matthew Boulton and the Art of Parliamentary Lobbying", *The Historical Journal*, 7:2 (1964), 209-229, p. 214.

²⁷ Marsden, 2002, p. 96.

²⁸ Robinson, 1964, pp. 214-215.

though out Great Britain and the plantations for twenty five years to come, which I hope will be very beneficial to me as there is already considerable demand for them.”²⁹

Almost a year later Boulton rejoiced: “the well doing of Willey Engine [erected for John Wilkinson's blast-furnaces at New Willey, Staffordshire] as I now hope and flatter my self that we are at the Eve of a fortune.”³⁰

However, it was only in 1778 that the Birmingham partners could finally rely upon an engine to their satisfaction, although Watt kept improving it, taking out five more patents between 1780 and 1785.

Such contrivances included the double-acting engine, the sun-and-planet gear, the parallel motion and the 'governor', a device meant to regulate and stabilize the engine's strokes. Despite his expertise in issues concerning patent law and whilst he and his partner had won the 1775 parliamentary confrontation, Watt and Boulton had to defend their intellectual property rights until shortly before their expiration.

Towards the end of 1780, the new generation of Cornish miners was prone to avoiding the burden of the royalties due to *Boulton & Watt*. In Dickinson's words, this widespread reluctance occasioned, in Dickinson's words, a “magnificent outburst” on Watt's part: “They charge us with establishing a monopoly, but if a monopoly, it is one by means of which their mines are made more productive than ever they were before. Have we not given over to them two-thirds of the advantages derivable from its use in the saving of fuel, and reserved only one-third to ourselves, though even that has been further reduced to meet the pressure of the times? *They say it is inconvenient for the mining interest to be burdened with the payment of engine dues; just as it is inconvenient for the person who wishes to get at my purse that I should keep my breeches pocket buttoned. It is doubtless also very inconvenient for the man who wishes to get a squire's land that there should*

29 J. Watt to his father, 8 May 1775, Robinson and Musson, 1968, p. 80.

Robinson defined the extension of Watt's patent as: “the most important single event in the Industrial Revolution”. Robinson, 1964, p. 209.

30 M. Boulton to J. Watt, March 1776, Robinson and Musson, 1968, p. 81.

*be a law tying it up by an entail. Yet the squire's land has not been so much of his own making as the condensing engine has been of mine. He has only passively inherited his property, while the invention has been the product of my own active labour and of God knows how much anguish of mind and body...Why don't they petition Parliament to take Sir Francis Bassett's mines from him? He acknowledges that he has derived great profits from using our engines, which is more than we can say of our invention; for it appears by our books that Cornwall has hitherto eaten up all the profits we have drawn from it, as well as all that we have got from other places, and a good sum of our own money into the bargain. We have no power to compel anybody to erect our engines. What then will Parliament say to any man who comes there to complain of a grievance he can avoid?"*³¹

This was only the beginning of a long contest over Watt's privileges as patentee, which culminated in the trials of, first, Edward Bull and later Jabez Hornblower later. The case against the latter proved particularly uncertain, and was only settled at the King's Bench, in 1799. Marsden estimates that legal costs amounted to over £6000.

When Boulton and Watt decided to take legal action and give a signal to their many plagiarists, they did so after much hesitation, exhausted by what they considered a continuous infringement of their intellectual property. Moreover, in 1779 Watt was convinced that his first idea of resorting to the crank to inaugurate the first rotative engines had leaked to James Pickard, probably through an incautious worker. However, there is no evidence that Watt himself would have patented the crank, as he believed it was not patentable and probably he did not think it effective. Yet the Scottish inventor became furious when he discovered that he could not use that gear because Pickard, had already taken out a patent.³² On this occasion Watt chose not to allow any collaboration with Pickard and preferred instead to circumvent the latter's exclusive rights by means of the so called sun-

³¹ 31 October 1780, reported in Dickinson, 1936, p. 121. My italics.

³² Ibid., pp. 125-127.

and-planet gear. Holding a patent, however, was not automatically sufficient to ensure property rights over an invention, if one did not have the necessary readiness to defend it. Trials were expensive and uncertain, but they also had a scaremongering effect in keeping at bay the “tribe of pirates”.³³ Writing about Hornblower and his business partner Maberley in March 1796, Watt would state: “The rascals seem to have been going on as if the patents were their own [...] We have tried every lenient means with them in vain and since the fear of God has no effect upon them, we must try what the fear of the devil can do.”³⁴

Until the very end of the trial at the King's Bench, the pivotal objection to Watt's monopoly fundamentally echoed Bramah's criticisms, that is the specification of 1769 was flawed by the fact that it described only approximately a method, rather than an organized device. Hence, in his case for the plaintiffs in error Serjeant-at-Law Le Blanc, counsel of Hornblower and Maberley claimed that: “ if he [Watt] had waited till he had brought to some degree of perfection his invention – of lessening the consumption of steam and fuel in Fire Engines till he had formed his Machine he would then have put the public in possession not of those *mechanical principles* but of those pieces of mechanism by which this method of lessening the consumption of steam and fuel in Fire Engines was to be carried into effect – any person would then have had an opportunity of purchasing that which is the invention and afterwards they might have employed their inventive faculties in making an additional improvement upon that which he had so given to the public – *but in taking his Patent in the manner he has done for a method of lessening the consumption of steam and fuel in Fire Engines and giving to the public nothing more than the principles in which his method consists he takes to himself the monopoly of the whole of the method without giving any particular mechanical construction by which that method is to be carried into practical effect and by that means no person can improve hereafter upon that method without being guilty of an infringement of his Patent.*” “To have the sole property secured by means of a

33 Marsden, 2002, p. 145.

34 Dickinson, 1936, p. 175.

Patent”, Le Blanc argued, the invention “must have some corporeal existence at the time.”³⁵ In spite of this last strenuous defence by their counsel, Hornblower and Maberley lost their case, as all the judges who formed the court decided for their opponents. Jabez Hornblower surely paid dearly his infringement, as he spent two years at the King's Bench prisons of Southwark, before leaving the British isles to work in the continent.

Legal expenses apart, Watt's steam engine only actually became remunerative only after 1787, that is more than ten years after the partnership was born. On the other hand, the Birmingham partners retained a considerable share of market. Marsden points out that the Birmingham firm produced about 30% of all the steam engines made in Britain between 1775 and 1800. In fact, the two partners had to turn a niche product into a source of factory power which could be applied to most branches of industry³⁶ For this to occur, some innovations from the 1780s were fundamental, the sun-and-planet gear made it possible to convert the vertical movement of the piston into the rotation of the wheel, thereby extending the market of the engine to the textile industry. The earliest rotative engine was built in June 1785 for a cotton mill in Nottinghamshire. To promote the diffusion of their engines Boulton and Watt also built their own mill in London. They named it Albion Mill. It was situated next to the Thames, at the foot of Blackfriars bridge. Its construction took place in 1786, under John Rennie's supervision. Rennie, who had worked for *Boulton&Watt* for two years, would later be appointed as one of its managers.

With its 50-horsepower, the mill double-engine rapidly became as sort of tourist attraction. But its existence was short-lived. On 3 March 1791 the mill was burnt down. Erasmus Darwin, who had sung the praises of this fascinating piece of machinery in his *Botanic Garden* (1791), had to update his poem with a bitter footnote: “The Albion Mill is no more; it is supposed to have been set on fire by

35 “Hornblower v. Boulton & Watt, Argument in the King's Bench 25th January 1799, of Serj. Le Blanc and Judgement of the Court”, B. R. L. MS 3219/4/227/18. My italics.

36 Marsden, 2002, p. 178.

interested or malicious incendiaries, and is burnt to the ground. Whence London has lost the credit and advantage of possessing the most powerful machine in the world!”³⁷

Apparently, the Albion Mill had attracted the antipathy of those who believed that steam-powered mills would exacerbate technological unemployment: “It seems the millers are determined to be masters of us and the public. Putting a stop to the fire-engine mills because they come into competition with water-mills, is as absurd as stopping navigable canals would be because they interfere with farmers and waggoners. The argument also applies to wind and tide mills or any other means whereby corn can be ground. So all machines should be stopped whereby men's labour is saved, because it might be argued that men were thereby deprived of a livelihood. Carry out the argument and we must annihilate water-mills themselves, and thus go back again to the grinding of corn by hand labour!”³⁸

While engaged in a fierce defence of their commercial interests, Watt and Boulton were no less active within their coeval *philosophical* community.

David Philip Miller has recently reassessed Watt's contribution to 18th century natural philosophy, particularly chemistry, showing why Watt's reputation as a chemist had been overshadowed by the early 20th century by his more consolidated characterization as engineer and craftsman. One of the reasons for Watt's dismissal from the pantheon of natural philosophy was his adherence to the phlogistic theory, which would later lose credibility in favour of Lavoisier's paradigm and redefinition of 'oxygen'. Moreover, the 1820s controversy between those who supported Watt's priority in the discovery of the composition of water and those who defended the merits of Cavendish would crucially reward the latter. As Miller points out: “the campaign that the Watt camp mounted [...] and in particular the recontextualization of Watt's chemistry that it elicited from opponents of his claims, were eventually to prove fatal to Watt's chemical reputation. The 'archaic'

37 Erasmus Darwin, *The Botanic Garden, Part I*, J. Johnson, London, 1799, p. 292. See also James C. McKusick, *Green Writing, Romanticism and Ecology*, Palgrave MacMillan, New York, 2010.
38 M. Boulton to Matthews, 30 April 1784, in Smiles, 2007, p. 355.

chemistry thus revealed could not, of course, in all its deficiencies be granted any significant role in Watt's *real* achievements.”³⁹

Nevertheless, argues Miller, even Watt's engine ought to be seen as a *chemical device*.⁴⁰ Watt's chemical credentials were recognized by Humphry Davy and Thomas Hodgskin, who pointed out that: “Mr. Watt was not only a mechanic, he was also a chemist; and we are proud of the opportunity to hold up the honours bestowed to him, as an encouragement to our youthful readers. As was happily explained at the Meeting by Sir Humphrey Davy, Mr. Watt's 'Discoveries were not owing to chance, but were founded on delicate and refined experiments connected with the discoveries as to heat, of Dr. Black. He was equally distinguished (he said) as a natural philosopher and a chemist; his first important discoveries were made in chemistry; and his first invention was an application of chemical principles to steam-engines. His great mechanical improvements in them only began at a later period. In 1769, he took out a patent for lessening the consumption of fuel in steam engines; and it was not till 1780 that he found the method of applying the movement of the pistons in straight lines to wheels and mill work.”⁴¹

Testimony for Watt's early reputation as a natural philosopher is also borne by a series of fellowships and acknowledgements in life. In 1784 he was elected fellow of the Royal Society of Edinburgh and a year later also of the Royal Society of London. In 1787 he became a member of the *Batavian Society for Experimental Philosophy* and two years later joined the *Smeatonian Society of Civil Engineers*. He was also made honorary Doctor of Laws by the University of Glasgow and Foreign Associate to the French Academy.

Scientific investigation went on in the 1790s, when both Boulton and Watt began to ease off from their business affairs and to prepare the generational transition. After 1800, their firm passed into their sons' hands - Matthew Robinson Boulton and James Watt Jr -, with their respective sons James and Gregory. Their loyal

³⁹ David P. Miller, *James Watt, Chemist: Understanding the Origins of the Steam Age*, Pickering & Chatto, London, 2009, p. 52.

⁴⁰ *Ibid.*, p. 9.

⁴¹ Reported in *Ibid.*, p. 35.

employee, William Murdock, the accredited inventor of gas-light, soon became a partner and the firm grew prosperous.

James Watt died on 25 August 1819, at the age of 83, ten years later than his business partner and friend Matthew Boulton. Both of them were buried in Handsworth Parish Church.

James Watt and the problem of intellectual appropriation

In his 1972 article on James Watt and patent law, Eric Robinson stresses the renewed interest in the economic effects of the patent system. Notwithstanding this revived scholarly attention, he claims, students still failed to properly investigate the historical development of the British patent system during the late 18th century. Watt's patent for the separate condenser seemed to Robinson a good case-study through which to understand more about a stage in history when patent law may have borne “crucial importance” for technological and economic progress.⁴² After all, according to Robinson, the Scottish innovator of the steam engine could be considered “probably the best-informed authority of his time on the patent law” and “the most imaginative and creative source of ideas” about the ways patents should be reconsidered and the patent system reformed.⁴³ Watt's views on patent law are still significant, as his proposals seem to “*anticipate* and even *extend beyond* most of the reforms that have taken place in the English law of patents *until the present day.*”⁴⁴ Thus Robinson highlights both the historical importance of Watt's patent and its topicality for the contemporary debate.

Since 1972, the gap in our knowledge of the 18th century patent system has been substantially filled by a number of scholars, including Dutton (1984), McLeod

42 Eric Robinson, “James Watt and the law of patents”, *Technology and Culture*, Vol. 13, No. 2 (1972), 115-139, p. 115.

43 Ibid., 118.

44 Ibid., My italics.

(1988), Van Dulken (1999), Mokyr (2008a, 2008b, 2009), and Bottomley. (2014).⁴⁵ On the other hand, James Watt's patent for the separate condenser has retained a central role in our understanding of the history of the steam revolution, of Watt's own life-story, and remains a paradigmatic example of how patents could influence technological progress and economic growth. Recent references to James Watt's patents have been accordingly diverse in aims and perspectives.

As we shall see, the *Watt Affair* has crossed the boundaries of History of Science and recently fuelled a lively exchange between economists, following the publication of a book by the economists Michele Boldrin and David Levine. In *Against Intellectual Monopoly*, James Watt is portrayed as a stereotype rent-seeker, his success resting more upon his astute exploitation of the legal system, and broad network of patrons, than upon superior innovation.⁴⁶

Moreover, the authors argue: “The monopoly over the 'separate condenser,' a useful innovation, blocked the development of another equally useful innovation, the 'compound engine', thereby retarding economic growth. This retardation of innovation is a classical case of what we shall refer to as intellectual-property inefficiency.”⁴⁷

I shall take the opportunity given by the publication of this book to focus more

45 Harold I. Dutton, *The patent system and inventive activity during the Industrial Revolution, 1750-1852*, Manchester University Press, Manchester, 1984; Christine McLeod, *Inventing the Industrial Revolution; the English patent system, 1660-1800*, Cambridge University Press, Cambridge, 1988; Stephen Van Dulken, *British patents of invention, 1617-1977: a guide for researchers*, British Library, 1999; Christopher May, “Antecedents to intellectual property: the European pre-history of the ownership of knowledge”, *History of Technology*, 24 (2002), 1-20; Joel Mokyr, “The Institutional Origins of the Industrial Revolution” in Elhanan Helpman (ed.), *Institutions and Economic Performance*, Harvard University Press, Cambridge, MA, 2008; Joel Mokyr, “Intellectual property rights, the Industrial Revolution, and the beginnings of modern economic growth”, *American Economic Review; Papers & Proceedings*, 99:2, 2009, 349-355; Joel Mokyr, *The Enlightened Economy. An Economic History of Britain 1700-1850*, Yale University Press, 2012, Sean Bottomley, *The British patent system during the Industrial Revolution 1700-1852*, Cambridge University Press, Cambridge, 2014.

46 Michele Boldrin, David Levine, *Against Intellectual Property*, Cambridge University Press, Cambridge, 2010 [2006], p. 3.

47 *Ibid.*, p. 4. Accordingly, many historians have argued that Watt's success in defending his monopoly hindered technological innovation. See for example Marsden, pp. 138-141 and Jennifer Tann. “Mr Hornblower and His Crew: Watt Engine Pirates at the End of the 18th Century”, Read at the *Science Museum*, London, on 9 January 1980.

upon Watt's defence of his rights as patentee, through the lens of the contemporary debate on patents and Intellectual Property rights.

I will not, however, draw conclusions about the merits of Watt's much-debated monopoly. In fact, I claim that any stance in this debate relies chiefly upon the acceptance of one of the metaphysical paradigms I wish to expose. Understanding Watt's eventful struggle over patents might also be a way to shed light upon the manner in which we act and speak of intellectual property today. It is significant that the authors decided to begin a programmatic book, with their (controversial) exposition of the Watt case. Interestingly, the first chapter, entirely focused upon Watt, has been the pivot of a continued diatribe with two other libertarian economists, George Selgin and John Turner.⁴⁸

This prolonged exchange between the economists also indicates the rift within libertarianism over the benefits of patents and the legitimacy of Intellectual Property at large. This debate revolved around an old controversy around whether Watt's 1769 patent was detrimental to economic progress or not. Watt is portrayed as an emblematic patentee, while his patent for the separate condenser embodies the very essence of modern intellectual monopolies. Therefore, broader considerations on patents, on their legitimacy, and more specifically, given the utilitarian context of this debate, on their economic effects, lay behind Boldrin and Levine's historical reassessment of Watt's case.

Commenting on Boldrin and Levine's book, Selgin and Turner contested the central arguments contained in *Against intellectual monopoly*, through a detailed criticism of the chapter on Watt.

That is to say, if one fails to understand the economy of Watt's patent, they draw faulty conclusions about the whole economy of the patent system.

⁴⁸ George Selgin, John Turner, "James Watt as intellectual monopolist: comment on Boldrin and Levine", *International Economic Review*, 47:4 (2006), 1341-1348; George Selgin, John Turner, "Watt, Again? Boldrin and Levine still exaggerate the adverse effect of patents on the progress of steam power". Prepared for the *Center for Law, Innovation & Economic Growth Conference* on "The Economics and Law of Innovation", Washington, University School of Law, 2-3 April, 2009, and George Selgin, John Turner, "Strong steam, weak patents, or, the myth of Watt's innovation-blocking monopoly, exploded", *Journal of Law and Economics*, 54 (2011), 841-861.

Thus Selgin and Turner, in their critique of the second edition of *Against Intellectual Property*, concluded: “Boldrin and Levine’s new telling of Watt’s story is hardly more persuasive than their original version. Although they have corrected some of their earlier errors, their account remains inaccurate and one-sided.” Consequently, their study of Watt and his patent should not be taken “*as a source of reliable inferences concerning the general merits and shortcomings of the patent system.*”⁴⁹

In their 2010 paper, Selgin and Turner declared their intention: “to make a small contribution to the larger debate concerning the desirability of patents”, by showing that Watt’s patent did not act as a break in the development of superior technology.⁵⁰ Ergo, what seems clear is that James Watt’s entrepreneurial story and his relationship with patent law is still a crucial case-study with which to draw some parallels between the past and the present.

Moreover, the great majority of the contemporary sources cited in this chapter conceive the justification of intellectual property rights (or critique thereof) as a threefold enterprise, grounded on natural law arguments, utilitarian theories, and (Hegelian) theories of personality. Therefore, two of the three traditions which have shaped the arguments for and against intellectual property draw from philosophies which were already well rooted in the 18th century cultural scene.

Watt was well-acquainted with Adam Smith,⁵¹ thanks to their common attendance at the “Anderston Club”, a learned informal society which includes: “Professor Millar. Dr. Robert Simpson, the mathematician, Dr. Adam Smith, Dr. Black, and Dr. Cullen”. As Watt would later recall: “Our conversations then, besides the usual subjects with young men, turned principally on literary topics, religion, belles-lettres, &c.; and to those conversations my mind owed its first bias toward such subjects, I never having attended a college, and being then but a mechanic”.⁵²

49 Selgin and Turner, 2011, p. 843.

50 Ibid.

51 Jenny Uglow, *The Lunar men. The friends who made the future*, Faber and Faber, London, 2002, p. 33.

52 Robert E. Schofield, *The Lunar Society of Birmingham. A social history of provincial Science and Industry in eighteenth-century England*, Clarendon Press, Oxford, 1963, p. 62

Sharing such learned company, therefore, Watt enjoyed the opportunity of more abstract and “literary” exchanges with some members of the Glasgow intellectual elite. Adam Smith proposed a proto-utilitarian justification of patents-related privileges as the price that the public had to pay to foster innovation and encourage the disclosure of new know-how.⁵³ In any case, looking at Watt against the theoretical background of utilitarian and natural-law arguments on intellectual property is a way of placing him in the philosophical context of his times.

This section will focus particularly upon the philosophical assumptions and argumentative styles which underpin James Watt's defence of his rights as patentee. I shall argue that Watt's ideas about patents can be read as an interplay between utilitarian rhetoric and natural law principles. These two argumentative styles, and a combination thereof, represent the philosophical context for much of the current debate over I.P. rights, particularly within⁵⁴ libertarianism. Hence I shall identify a series of *topoi* and arguments in Watt's claims which are still present in contemporary debate.

I argue that his discussion opens up another dimension of Watt's significance in that debate. Watt's relevance derives not only from his heroic role in the narrative of the Industrial Revolution,⁵⁵ from his patent, arguably the most debated and discussed in history,⁵⁶ but also from the *modern flair* of his discourse on intellectual property.

Insofar as it is possible for an 18th century inventor, Watt's discourse about patents

53 Dutton, 1984, p. 19. Witztum and Young have critically re-assessed the relationship between Smith and Utilitarianism, questioning Smith's adherence on this tradition, in Amos Witztum and Jeffrey T. Young, “Utilitarianism and the role of utility in Adam Smith”, *European Journal of the History of Economic Thought*, 4:20 (2013), 542-602.

54 See Stephan Kinsella, “Against intellectual property”, *Journal of Libertarian Studies*, 15:2 (2001), 1-53, 8-19; Peter S. Menell, “Intellectual property and the property rights movement”, *Research and Development*, 2007, 36-43, pp. 37-39.

55 On the construction of James Watt's scientific reputation in the nineteenth century, see: Marsden, 2002, pp. 183-201; Clare Pettitt, *Patent inventions. Intellectual Property and the Victorian novel*, Oxford University Press, Oxford, 2004, p. 9; Christine McLeod, *Heroes of Invention: technology, liberalism and British identity, 1750-1914*, Cambridge University Press, Cambridge, 2007, pp. 91-153, and Miller, 2009, pp. 11-59.

56 Robinson, 1972; David. P. Miller, “Watt in court: Specifying steam engines and classifying engineers in the patent trials of the 1790s”, *History of Technology*, 27 (2006), 43-76, p. 43.

crucially foresees many of the principles contemporary scholars still use to morally justify intangible properties.

Before raising my main topic, however, I shall address a possible issue of anachronism. Is it anachronistic to approach some 18th century texts with reference to the concept of *Intellectual Property*? With regard to this problem, it should be noted that several recent works have already set relevant antecedents. Recent research, from the standpoint of different disciplines, indicates the loosening of this methodological cliché. For example, in *Enlightened Economy* Mokyr mentions “intellectual property” twelve times, twice while analysing critically some recent works, and ten times with regard to facts, authors, institutions, events situated in the 18th century. Hence, when discussing Smith's ideas about patents, Mokyr states that: “In his *Lectures on Jurisprudence*, Adam Smith argued that intellectual property rights were 'actually real rights' and admitted that the patent system was the one monopoly (or *privilege* as he called it) he could live with, because it left the decision on the merit of an invention to the market rather than to officials”.⁵⁷ Similarly, in her study of the British patent system, McLeod argues that Smith's justification of patents indicates that “this “new concern for invention and its appropriate reward” was contemporary, and often informing “a novel conceptualization of it as 'intellectual property'”.⁵⁸

In her study of intellectual property in the Victorian novel, Clare Pettitt argues that: “the eighteenth century continued to supply the vocabulary for discussions of *intellectual property* in the nineteenth century”.⁵⁹ Thus Pettitt suggests an ideal continuity in the way of thinking and speaking about intellectual property between the eighteenth and the nineteenth century. Furthermore, Pottage and Sherman define the “prehistory of *intellectual property*” as “the history of a period in which literary and artistic productions were construed as material things rather than as the embodiments of intangible works”, an age which, according to the authors,

⁵⁷ Mokyr, 2009, p.1149 (digital edition, EPUB)

⁵⁸ McLeod, 1988, p. 197.

⁵⁹ Pettitt, 2004, p. 11.

overlapped with Roman and Medieval history. Following Madero's study of the *tabula picta*, Pottage and Sherman argue that the analysis of property rights carried out by *medieval* lawyers has generated a material reality: “that was relatively autonomous from reality as it was conventionally understood”⁶⁰

In his classic work on industrial espionage in the 18th century, Harris refers to Watt as: “the owner of the outstanding *intellectual property* of the age, the improved steam engine”,⁶¹ while Pamela O. Long goes much further when she claims that “although some of the components of the notion of “intellectual property” are evident in antiquity, the fully developed concept first emerges in the medieval period around the 12th or 13th centuries.”⁶²

No 18th century writer would ever write literally in terms of *intellectual property* and yet several contemporary authors frequently read enlightenment debates on patents or copyright as if the object of contention was *intellectual property*. The common assumption in these studies, which I will also espouse, is simple: concepts, facts, and problems do not coincide entirely with words. Therefore, it is at least plausible to do history using contemporary language and whenever we do so we mean to establish more or less tacit analogies between the past and the present.

Nevertheless, whenever we use the term “intellectual property” we should bear in mind that this expression originated in the 19th century and became widely used only during the 1900s. As a result of this more recent coinage, “intellectual properties” have encompassed some types of intangible properties which did not exist, or did not have any legal formalization, during Watt's time, such as industrial design rights and trade secrets.

After introducing the topic and briefly discussing some recent critical literature, I

60 Brad Sherman and Alain Pottage, “On the prehistory of intellectual property”, Howe, Griffiths (eds.) *Concepts of Property in Intellectual Property Law*, Cambridge University Press, Cambridge, 2013 p. 13.

61 John R. Harris, *Industrial Espionage and Technology Transfer: Britain and France in the Eighteenth century*, Ashgate, 2000, p. 493.

62 Pamela O. Long, “Invention, Authorship, 'Intellectual Property', and the Origin of Patents: Notes toward a Conceptual History, *Technology and Culture*, 32:4 (1991), 846-884, p. 848.

will propose a recollection of utilitarian and natural-law instances in Watt's rationalization of his rights as patentee. I shall finally try to understand what makes Watt's defence of his patents a relevant case-study, now also from the *philosophical* point of view, for the contemporary justification of intellectual property.

Watt's "old and well tried friends"

As we have briefly anticipated, Watt's experiences with the patent system began in 1768, when he finally decided to take out a patent for the separate condenser. On that occasion he went to Berwick-upon-Tweed in order to describe the nature of his invention before a Master in Chancery. That was the beginning of an unnerving, sluggish procedure which would bring him to London in August.

Watt's epistolary exchange with his wife intimates his low-spirits at the time: "I beg that you will not make yourself uneasy, though things should not succeed to your wish."⁶³ Meanwhile, his business partner, John Roebuck, showed less comprehension and insisted more and more upon executing the invention as soon as possible. In October Roebuck once again urged his melancholic partner: "You are now letting the most active part of your life insensibly glide away. A day, a moment, ought not to be lost. And you should not suffer your thoughts to be diverted by any other object, or even improvement of this, but only the speediest and most effectual manner of executing an engine of a proper size, according to your present ideas."⁶⁴

His first patent was obtained on 5 January 1769, granting to the patentee, the exclusive right to use, make, and sell a "New Method of Lessening the Consumption of Steam and Fuel in Fire Engines".

⁶³ Reported in Smiles, 2007, p. 133.

⁶⁴ Ibid.

The *principle of action* or *method* of the separate condenser now had an owner, and became a property in the form of an exclusive monopoly on the invention for 14 years.

Watt was now expected to submit a specification, the document by means of which, according to Marsden, he “greedily captured practically every possible steam engine with separate condenser.”⁶⁵ Many years later, as reported by one of his biographers, the Scottish inventor would refer to his specifications as his “*old and well-tried* friends.”⁶⁶

Miller draws attention to the way Watt and his lawyers defended his specification from those who deemed it incomplete or inaccurate. In fact, the validity of the 1769 specification was the key-focus of the legal procedure undertaken by Watt and Boulton against Bull, Hornblower and their respective partners.

Was Watt's specification sufficiently informative to enable a skilled mechanic to reproduce his engine? The final verdict was for the plaintiff, that is: Watt's specification was valid, *ergo* Watt's property rights to his invention had to be defended. The partners from Birmingham had fought a long court battle which was to finish only around a year after the expiration of their patent, following the final verdict of the King's Bench. Miller argues that the only way to understand the judgement at the Court of Common Pleas in 1796 and the final verdict at the King's Bench is by looking at the effects of what he calls the “Patent Specifier's Regress”. The author refers here to Harry Collins' sociology of calibration and to his definition of the “Experimenter's regress”.⁶⁷ According to Collins, whenever there is a dispute over the existence of a phenomenon, we first need to define the working experiment which could resolve the controversy.

However, for those who believe that the phenomenon does not exist, the working

65 Marsden, 2002, p. 80.

66 James P. Muirhead, *The Life of James Watt: with Selections from his Correspondence*, John Murray, London, 1853, p. 314

67 See Harry M. Collins, *Changing Order: Replication and Induction in Scientific Practice*, University of Chicago Press, 1985, and Harry M. Collins, “A strong confirmation of the experimenter's regress”, *Studies in history and philosophy of science part A*, 25:3 (1994), 493-503.

experiment will be that which proves its non-existence. Whereas if we assume that the phenomenon exists, then the working experiment will be defined as that which proves its existence.

For Collins, this vicious circle suggests that the solution of a controversy as such will be found outside a naturalistic perspective. It will be rather a “sociological resolution” which implies a definition of new criteria for credibility.⁶⁸

Similarly, in the case of the trials over Watt's specification, the solution to the question of its validity was “based in a contest over the classification of types of patent and, second, competing hierarchies of expertise.”⁶⁹

Anticipating this conclusion, Miller previously argued that the decision to join the Royal Society taken by Watt and his friends at the Lunar Society of Birmingham, including his business partner Matthew Boulton, can be seen as a measure: “connected with real and anticipated battles concerning patents and patent law reform.”⁷⁰ The credentials “FRS”, it was understood, may have assisted Watt and Boulton's credibility, since the most important scientific society in the kingdom was a natural pool of authoritative, “impartial” testimony to the completeness of his specification and the originality of his invention.⁷¹

Summing up, Miller demonstrates that the diatribe on the sufficiency of Watt's specification was resolved through a redefinition of the terms of the problem, that is: the question was not whether the specification was per se complete, but rather who was entitled to provide the expert testimony. Thus the definition of the relevant expertise was co-produced with the judgement on the validity of this document. In this respect, argues Miller, since specifications were written to be understandable by skilled mechanics: “a key relation was that of skill – who, with what skills, was the patent written for; who, with what skills, could realize the

68 Miller, 2006, p. 45.

69 Ibid.

70 David P. Miller, “The 'Usefulness' of natural philosophy: the Royal Society and the culture of practical utility in the later eighteenth century”, *The British Journal for the History of Science*, 32:2 (1999), 185-201, p. 193.

71 Ibid., p. 196.

invention from the specification?”⁷² Without doubt, the importance of testimony is evident in Watt's own words. In a detailed document from 5 October 1796 we find, scrupulously reported, some: “Considerations upon the measure most proper to be adopted in the present state of affairs with Maberley”. The document is in Watt Jr's hand and clearly organizes, into two columns, the pros and the cons of finding a settlement rather than engaging in a new legal contest.

Towards the end of the “Arguments for a Trial”, we find: “3. *The Respectability of the Witnesses* we have to adduce, the clearness of their testimony and their intelligence of the subject 4. [...] We know their [Hornblower and Maberley's] *Witnesses who are either ignorant, interested or malicious*. We can prove one or other upon all of them. *They will get no man of character to assist them*. 5. It may perhaps not be impossible to adduce proof of the combination by which Maberley is supported, particularly if he goes to Cornwall.”⁷³

Moreover, the role of testimony, and authoritative testimony in particular, could be amplified by the patent system's inability to provide a certain and stable legal grammar. In 1795 Chief Justice Eyre, who was sitting on the case of Boulton and Watt v. Bull, voiced this lack of a clear legal framework: “patent rights are nowhere that I can find accurately described in books.”⁷⁴ Similarly James Watt himself would lament: “the want of determinate laws, ascertaining the duties and rights of Patentees”. If these laws were amended: “the number of lawsuits on these subjects would be fewer, and Men of ingenuity wou'd be better employ'd in finding out new arts than in endeavouring to deprive their Neighbor of the benefit of his invention.”⁷⁵ Jurisprudence concerning patents, on the other hand, could not but grow proportional with the increasing number of letter patents which sprang up

72 Miller, 2006, p. 46.

73 Jennifer Tann (ed.), *The selected papers of Boulton & Watt, Volume 1: The engine partnership, 1775-1825*, MIT Press, Cambridge, 1981, pp. 136-138. My italics.

74 William S. Holdsworth, *A History of English law*, Little and Brown, Boston, 1922-72, p. 425.

75 James Watt, *Thoughts upon patents or exclusive privileges for new inventions*, British reference library MS 3147/2/30. The manuscript was printed in: Eric Robinson and Albert Musson (eds.), *James Watt and the Steam Revolution. A Documentary History*, Augustus M. Kelley, New York, 1969, p. 213-228, p. 226.

only between the end of the 18th and the first half of the 19th century.⁷⁶

Following Miller's achievements, is there still scope to study James Watt's rhetoric⁷⁷ concerning his rights as patentee?

Miller showed that the completeness of Watt's specification, which was a main pivot in his legal struggle at the Court of Common Pleas, could not be ascertained "naturalistically". As his specification was to be read by skilled mechanics, the question of whether the specification was sufficient or not had to be answered by those who were accredited as *skilful testimonies*.

Therefore, the recruitment of disinterested, authoritative witnesses played a key role in the resolution of this controversy. Insofar as the sociology behind Watt's success in court is concerned, Miller's conclusions seem persuasive. Nevertheless, Watt's defence of his rights, as well as the judgements concerning the validity of his patents, were also interwoven with a broader narrative.

As Miller himself states in his conclusion: "the willingness of judges and jury to accept the arguments on specification made by Boulton and Watt's counsel [...] was undoubtedly conditioned by a perception of how justice might be done".⁷⁸

Watt's discourse had some agency in the way his rights were perceived and reckoned as compatible with the public interest. As Boulton wrote: "We [he and Watt] have *truth, justice, honour, power and Law* of our side."⁷⁹ Indeed, all the resource in Boulton and Watt's hands were inevitably combined and blended, each being closely related or even embedded in the others. Therefore, power was never brute domination, but needed to convert itself into a persuasive discourse. And the

76 Christine McLeod and Alessandro Nuvolari, *Patents and industrialisation. An historical overview of the British case, 1624-1907*, A report to the strategic advisory board for intellectual property policy (SABIP), p. 10.

77 I refer here to Patricia Bizzell and Bruce Herzberg's definition of rhetoric:

"*Rhetoric* is synonymous with meaning, for meaning is in use and context, not words themselves. *Knowledge and belief are products of persuasion, which seeks to make the arguable seem to be natural, to turn positions into premises* – and it is rhetoric's responsibility to reveal these ideological operations." My italics.

Patricia Bizzell, Bruce Herzberg (eds), *The Rhetorical Tradition: Readings from Classical Times*, St. Martin's, Bedford, 1990, p. 15.

78 Miller, 2006, p. 70. My italics.

79 Tann, 1981, p. 81.

perception of justice to which Miller refers, must be grounded in some accepted assumptions. I intend here to address Watt's well-documented effort to convert his political and economic power into a meaningful discourse, drawing upon philosophical styles and contents which were available at the time and would survive throughout modernity as recurring modes of I.P. rights' legitimation.

James Watt was deeply engaged in refining his strategies to defend his patents, studying and collecting information about antecedent cases, finally arguing in favour of the patentee's right in general, thereby mobilizing some abstractions from his personal interests to the very philosophical principles underpinning property rights over inventions.

However, probably owing to the absence of a treatise or essay specifically dedicated to the origins of intellectual appropriation, contemporary historiography seems to have disregarded the philosophical contents and assumptions that lay behind Watt's defence of his rights.

But if Watt's rationalization of his rights as patentee mattered to some extent, as Miller acknowledges, there is scope for a study of Watt's discourse concerning patents, a study which is meant to complement and not replace a sociological approach.⁸⁰ Moreover, unlike Miller in his 2006 article, I will not engage here directly with the forensic rhetoric and strategy employed by Boulton and Watt's counsels. Rather, I will analyse a renowned first-hand sample of Watt's own rationalization and justification of his rights as patentee.

After a brief historical contextualization of the pivotal manuscript for my position, I will deal with some of the broader arguments which shaped Watt's rhetoric on intellectual property and will look into some examples of the success that some of his general positions enjoy in the contemporary debate.

⁸⁰ See Gross, 2006, Ch. 11, "Compatible insights between Sociology and Rhetoric: priority as a social norm", p. 165.

A lonely infant: staging an individualistic conception of inventive work

Following the introduction of the fustian tax during Pitt's administration in 1784, British manufacturing interests began to organize themselves on a more permanent basis.

Commercial committees were set up in several industrial towns such as Manchester, Sheffield, Norwich, and Glasgow, leading to the formation of the General Chamber of Manufactures. The main purpose of the Chamber was to oppose Pitt's proposal for a free-trade with Ireland. During the 1780s, British manufacturers reached a peak of organization, resulting in a growing capacity to exert political pressure on Parliament.⁸¹

In June 1785, a number of patentees from all over the country gathered in London with the aim of petitioning the Irish Commercial Treaty. They feared that Pitt's Bill would allow inventions patented before 1785 to be used and made in Ireland and freely imported to be sold in England.⁸²

James Watt and other patentees sternly opposed the Irish Bill, while a letter was sent out to many inventors urging the formation of a Patentees' Association.

On 20th July 1785 Watt wrote to Matthews saying that the Patentees' Association was meant to “unite in defence of their respective rights and to agree upon a mode of application to Parliament for the better security of their invention”, in fact: “a vast number of opulent manufacturers have agreed to use very beneficial patent inventions and have subscribed large sums to attack the same by writ of *Scire facias*.”⁸³

The patentees, including Watt, were also prompted by the threat posed to Richard Arkwright's patent by Manchester cotton industrialists who had gained the

81 John Gascoigne, *Science in the service of Empire. Joseph Banks, the British State and the uses of Science in the Age of Revolution*, Cambridge University Press, Cambridge, 1998, p. 75.

82 Dutton, 1984, p. 36; McLeod, 1988, p. 189, Ann Finer and George Savage (eds.), *The Selected Letters of Josiah Wedgwood*, Cory, Adams and McKay, London, 1965, pp. 279-306.

83 J. Watt to Matthews, 20 July 1785, in Dutton, 1988, p. 36.

endorsement of the government.

During this strife, Watt began working on his own proposals to reform the patent system. The most complete document reporting the guide-lines of these never-realized proposals is *Thoughts upon Patents or exclusive Privileges for new Inventions*. An earlier manuscript, entitled *Heads of a Bill to explain and amend the laws relative to Letters Patent and grants of privileges for new Inventions*, was read and annotated by Arkwright himself and elaborates the same proposals better formalized in *Thoughts upon Patents*.

The latter is a significant document for an investigation on Watt's rationalization of his own interests in patents. It also narrates more general philosophical thesis upon the nature of invention.

As we shall, at stake was a rather abstract and disembodied description of the inventive work and its inherent risks, but also a general analysis of the character of the “man of ingenuity”. This more discursive part is followed by a more overtly utilitarian justification of patents, and finally, a list of proposals to amend the patent system which are generally better known.

Thoughts upon Patents was conceived as a normative document, aimed at reforming the patent law in the sense of strengthening the protection of the patentees' interests. However, this manuscript is much more than a schematic memorandum of the technical aspects to amend in the regulation of patents. It is rather a narration on the social portrait of the inventors and on the very moral and philosophical grounds of their claims. The positive part, which gives form to Watt's proposals, is firmly rooted in a thick description of the inventive work and the inventor's role in the social world. These anthropological and philosophical axioms constitute the pillars of Watt's discourse over patents and still offer the theoretical reference system for the contemporary justification of I.P. rights within libertarianism.

The introductory section of *Thoughts upon patents* prepares the reader for the proposals which constitute Watt's plan to reform the patent system.

As stressed by Watt, the aim of the patent law is to: “stimulate ingenious men to

improve the mechanical and chemical arts”.⁸⁴

This incentive is a particular requirement because the “ingenious man” is said to be peculiarly exposed to the risk of impoverishment, alienation, and social exclusion: “*few men of ingenuity make fortunes*, or even can keep themselves on a footing with the *tradesman* who follows the common tracks, and who possesses no other merit than that of attending solely to his immediate interest without suffering himself to think seriously whether the article he manufactures might, or might not be Improved.”

“Men of good sense, and of limited fortunes” argues Watt, would not: “throw away their time and their money to bring an art of invention to perfection, unless they had a prospect of being amply repaid by making greater profits that they cou'd do in the common course of their business.”⁸⁵

In other words, patent protection is necessary to mobilize inventors from every social class, opening up a career and, as we shall see, a whole style of life, which would otherwise be risky at best.

In this sense, the patent law is here presented as a potential social elevator. These claims are not extraneous to contemporary literature. In 1988 Hughes would deploy a similar argument, stating that social justice provides a stronger moral justification for the enforcement of intangible property rights than for traditional notions of property.⁸⁶ In his view, if “inheritance and capital appreciation are only additional characteristics of traditional notions of property that tend to stabilize social stratification” and do not depend only upon merit: “intellectual property *is far more egalitarian*”.⁸⁷ Being a kind of property which always has a “built-in sunset”,⁸⁸ and being obtainable by anyone, it can: “be seen as a *reward*, an empowering instrument, for the talented upstarts”.⁸⁹

⁸⁴ *Thoughts upon Patents* is reported unabridged in Musson and Robinson, 1969, p. 214.

⁸⁵ *Ibid*, my italics.

⁸⁶ Justin Hughes, “The philosophy of intellectual property”, 77 *Georgetown Law Journal*, 287 (1988), 296-314, p. 298.

⁸⁷ *Ibid*, my italics.

⁸⁸ *Ibid*, p. 305.

⁸⁹ *Ibid*, p. 298.

Nevertheless, for James Watt there were also further moral arguments to support his demand for better protection of the inventor's work: "the man of ingenuity in order to succeed in the object he takes in hand, must seclude himself from Society, he must devote the whole powers of his mind to that one object". "By seclusion from the world", argues Watt, "he becomes ignorant of its manners, and unable to grapple with the more artful tradesman, who has applied the powers of his mind, not to the improvement of the commodity he deals in, but to the means of buying cheap and selling dear."⁹⁰

Both these "genres of men" have their own utility in a social system based on commerce, but one of them, the "ingenious man", needs public protection more than the other.

According to Watt, the inventor: "must be considered as an Infant, who cannot guard his own Rights, and he has purchased his inventions with his time, his money and his ingenuity, and often also at the expense of his health and peace of mind." "Is it not just", the inventor asks rhetorically: "that the exclusive privilege of using them shou'd be secured to him in such manner as either to enable him to dispose of his privilege, or to associate himself with others who are more hackneyed in the ways of the World?"⁹¹

The inventor is described here as anthropologically different from the merchant, but nevertheless he is an investor and if the state should encourage investment in research and innovation, then the inventor's property must be protected.

Describing the inventor as an "Infant", James Watt claims a sort of parental protection from the State, the kind of protection which, as Locke put it while distinguishing the paternal power from the political: "parents have over their children, to govern them for the children's good, till they come to the use of reason, or a state of knowledge, wherein they may be supposed capable to understand that rule, whether it be the law of nature, or the municipal law of their country, they are to govern themselves by: capable, I say, to know it, as well as

⁹⁰ Musson and Robinson, 1969, p. 215.

⁹¹ Ibid.

several others, who live as freemen under that law.”⁹² The analogy used by Watt is, therefore, useful to describe the inventor as a defenceless member of society who needs to be assisted in the protection of his rights because he is not sufficiently acquainted with the risks of commercial enterprise.

Although his historiography would focus amply upon his powerful connections and his social astuteness,⁹³ Watt contributes here to the myth of the socially isolated man of science. In fact, as amply shown by Bargar,⁹⁴ Robinson,⁹⁵ and Miller,⁹⁶ by the time of Watt's petition to obtain an extension of his patent in 1775, the partners from Birmingham could count on a solid network of patrons, relying on their “many friends of great interest”⁹⁷ and many acquaintances of their friends, notably the *lunarticks* Erasmus Darwin and John Whitehurst.⁹⁸

Provided that Watt himself was far from being socially isolated, we can nevertheless try to understand the strategic origins of this *rhetoric* of isolation.

My argument is that this initial moment of his narration is central both ideologically and as a rationalization of his contingent political strategy as patentee during those tense summer months of 1785.

As we shall see, isolation was one of the narrative features which Watt used to depict the inventive work. In fact, isolation as the mode of life of inventors was associated with Watt's conception of technological progress as the outcome of individual achievements. In other words, the rhetorical instance of isolation and *seclusion from the world* underpins his individualist metaphysics of the ingenious work.

But before narrowing the focus on Watt's discourse, I shall briefly describe the

92 John Locke, *Two Treatises on Government*, printed for Whitmore and Fenn, Charing Cross, p. 336.

93 Robinson, 1972, p. 135.

94 D. Bargar, “Matthew Boulton and the Birmingham petition of 1775”, *William and Mary Quarterly*, 1956, 26-39.

95 Robinson, 1964; 1972, p. 127.

96 Miller, 1999, p. 192.

97 J. Watt Jr. to J. Watt, 8 May 1775, reported in Robinson, 1964, p. 224.

98 See Robinson, 1964 p. 224 ,for a list of those who were solicited for support during the 1775 lobbying manoeuvre.

political context of Watt's proposal of an amendment to the patent law and the reasons why he considered it important to represent the inventors as isolated defenceless individuals.

As we have seen, throughout the early 1780s, Arkwright encountered persistent opposition to his patent. His opponents were the cotton manufacturers, led by Robert Peel, one of the leading British textile industrialists of the time.

In 1785 Peel set up a campaign to bring Arkwright's patent down, relying upon the support of the Committee for the Protection and Encouragement of Trade. As a result, many inventors felt the need to organize themselves and prevent the “invasion” of their patents.

As usual, Watt was peculiarly fretful: “I have no doubt”, he wrote to Matthews, “but we shall next be set up as a mark to be shot at and be ruined if possible.”⁹⁹

In the same letter, he argued that maybe: “A[arkwright]'s cause was determined before it came into court, and by the same kind of law and testimony any patent may be over-thrown. I had a suspicion at the time that A[arkwright] was given up as a sugar plum by the M[iniste]r to the men of M[a]n[cheste]r to slacken their opposition to the Irish proposition.” He would conclude disconsolately: “you see how much we are in the power of these rascals.”¹⁰⁰

Nevertheless, what is interesting here is the way Watt reacted to this frenzy of associationism and lobbying manoeuvres.

On the one hand, he took side with Wedgwood in the agitation, led by the Chamber of Manufacturers, against the Irish Bill proposal.

On that occasion, he struggled alongside several other manufacturers, some of them holding one or more patents, some less interested or even averse to the patent system.

Their concerted opposition proved fruitful and in August 1785 Wedgwood congratulated James Watt: “and every friend to the manufacturing interest of G[rea]t B[ritai]n upon the disposal of the intended treaty with Ireland. It is an

⁹⁹ Watt to Matthews, 20 July 1785, reported in Dutton, 1984, p. 37.

¹⁰⁰Ibid.

epoch in our commercial history, & a very flattering one to our infant institution of the Chamber of Manufacturers, & I trust will open the eyes of those who have hitherto kept them shut to the utility not to say necessity of such an establishment & now is certainly the time in which its members & friends should by every means in their power recommend it to the notice & protection of the public.”¹⁰¹

On the other hand, Watt seemingly had never been so positive about this new-born organization. Part of his disillusionment is manifest in the tone of his reply to Wedgwood: “I am favoured with yours of yesterday & being a good deal indisposed could not go out, nor do I know that anything I can say to my townsmen will have much effect. I shall however try if I can get one or two leading ones to call a meeting, which *if they had had any sense of public honour ought to have been done before now.*”¹⁰²

This is only one of the several letters in which Watt writes of his manufacturer colleagues in derogatory terms.

A month earlier, on 23 July, he had written to Wedgwood: “I received yours of the 21st, and have applied concerning the meeting and find that none can be called or rather that none will be called, and as every body here seems so quiescent in the measure I must follow their example and let them alone but I will write to our friends at Coalbrookdale and apply to some few others on the subject of finance but *I do not expect that this Town will collectively do any thing handsome fair or honest in that line*; but if they do not I hope *I shall never be foolish enough to be their delegate again nor attend their meeting here, but when my own Interest leads me, but this entre nous.*”¹⁰³

He would express similar feelings in other letters from July 1785, in particular when he wrote as a patentee:

“Any combination of patentees to support one another would be irregular and [...] however willing we may be to espouse the interest of any man of ingenuity we

101 J. Wedgwood to J. Watt, 23 August 1785, B. R. L. MSS 3219/4/128.

102 J. Watt to J. Wedgwood, 24 August 1785, B. R. L. MSS 3219/4/128. My italics.

103 J. Watt to J. Wedgwood, 23 July 1785, B. R. L. MSS 3219/4/128. My italics.

cannot think of making ourselves obnoxious to the public by supporting the patentees whether they are right or wrong.” On 25 June several patentees met at the Crown and Moll tavern in Chancery Lane. Although he was invited, Watt did not attend. His thoughts are clearly expressed in a letter to Matthews of 20 July 1785: “At the last meeting of patentees I saw much of a motley crew of projectors and madmen, some of which I thought it a disgrace to keep company [...] I would far less associate with them.” He also laments that they “managed matters so ill, that if they do no better”, he claims, “they will get nothing but disgrace.”¹⁰⁴ Hence, given the modest allies and the risk of public exposition, Watt concluded that silent lobbying by some influential individuals could achieve more than noisy protests. The *rhetoric of solitude*¹⁰⁵ of *Thoughts upon patents*, which Watt began to write precisely in July 1785, is perfectly consistent with the strategy he chose to pursue during the political contest between the government, some members of the industry, and the group represented by the patentees.

By deploying the metaphor of the “Infant”, Watt meant to emphasize the need of public protection, whereas depicting the inventive activity as one which entails the risk of alienation and isolation from the world, he prepares the ground for an individualistic theory of intellectual appropriation. The inventor's alleged seclusion sets up on a firm moral base the very logic of his claims over the fruits of his labour.

Hence, in granting a patent, argues Watt, “*the state gives nothing*; if the invention is not found an improvement, people will soon cease to use it, and the inventor will be punished for his presumption by the very means by which he hoped to acquire money; if on the other hand the inventor acquires a fortune by it, is not that a proof that the public have found their advantage for it? For otherwise they would not

104 J. Watt to Matthews, 20 July 1785, reported in Dutton, 1984, p. 37.

105 For insightful considerations of the topos of seclusion and the image of the man of science in the 17th century, see Steven Shapin, “The Mind in Its Own Place”, in *Never Pure. Historical Studies of Science as if it Was Produced by People with Bodies, Situated in Time, Space, Culture, and Society, and Struggling for Credibility and Authority*, The Johns Hopkins University Press, Baltimore, 2010, pp. 119-141.

have used it; and is not the person who has by his ingenuity and industry put the public in possession of such an advantage justly entitled to the money he may acquire by it?"¹⁰⁶

As it illuminates this passage, this position vis-à-vis intellectual property in general and the patent system in particular, would constitute an influential current within the libertarian tradition.

In his much-fêted work of 1974, Robert Nozick offers a brief but influential interpretation of the principle underlying the patent system against the background of the Lockian theory of appropriation. After offering his interpretation of Locke's proviso, he states that: "the theme of someone worsening another's situation by depriving him of something he otherwise would possess may also illuminate the example of patents. An inventor's patent does not deprive others of an object *which would not exist if not for the inventor.*" This reading echoes Watt's assumption that, in granting a letter patent, the state gives nothing. Nevertheless, for Nozick this kind of appropriation is compatible with Locke's proviso only as long as the attribution of the patent to the original inventor is rendered unquestionable. In fact, patents would represent a breach of the proviso with respect to independent inventors.¹⁰⁷

We can now isolate the very philosophical principles underpinning Watt's moral justification of his rights as inventor and patentee.

First of all it is clear that Watt considered inventions as essentially tied in with the work of *individuals*.

Property derives from *labour* and intellectual property rights need to be enforced because the inventive work is inherently risky, potentially marginalizing inventors. The public is never at a disadvantage when the State grants a patent, since what is protected would not exist if it was not for the inventor's labour and investment.

These fundamental tenets lay behind most libertarian legitimation of intellectual property rights which espouse the Lockean theory of appropriation.

¹⁰⁶Musson and Robinson, 1969, p. 215.

¹⁰⁷Robert Nozick, *Anarchy, State and Utopia*, Blackwell, 1974, p. 182.

One of the contemporary individualist thinkers *par excellence*, Ayn Rand, considered patents and copyrights as: “the legal implementation of the base of all property rights: a man's rights to the product of his mind.”¹⁰⁸ Her justification of property rights over intellectual products is grounded on Locke's theory of appropriation through labour. Every type of productive work, Rand argues: “involves a combination of mental and physical effort.”¹⁰⁹ On the one hand, the mental effort deployed to perform manual labour is “minimal”, on the other, intellectual effort is predominant if we consider: “the mind's contribution in its purest form: the origination of an idea.”¹¹⁰

This purely intellectual product is the object of copyrights and patent protection. Rand also makes clear that, although any idea has to be given a material form in order to be protected, the very object of protection is not its material embodiment, but the idea itself.

She goes on to explain why a discovery cannot be secured while an invention must be protected. In this regard, she argues that a discovery is not a creation of her discoverer, thus implying that an invention is a *creation*, a very effective piece of rhetoric with which to emphasize the role of individuals in the inventive activity.

Patents and copyright, claims Rand, pertain to: “the creation of a specific object which did not exist in nature – an object which, in the case of patents, *may* never have existed without its particular originator; and in the case of copyrights *would* never have existed.”¹¹¹

James Child offers a good example of this *creationist* view, which was a recurrent *topos* within the libertarian tradition throughout the 20th century. In his 1990 article he attempts to explain why intellectual property can be perfectly consistent with the Lockean theory of appropriation.

The author describes a man's idea as a “creation *ex nihilo*”. Intellectual property is

108Ayn Rand, *Capitalism: The Unknown Ideal*, A Signet book, 1967 [1964], p. 130.

109 Ibid.

110 Ibid.

111Rand, 1967, p. 131.

created, he argues, “out of *nothing* but mental labor.”¹¹²

Furthermore, the enforcement of natural rights over I.P. does not infringe Locke's proviso, as ideas are not affected by a zero-sum condition.¹¹³ Therefore, one might have a piece of property from which one can exclude everyone else, but as there will always be an unlimited amount of available property, there will be “enough and as good” properties for all others.¹¹⁴

Child claims that the total stock of ideas which can be appropriated is not affected by the condition we usually refer to as *rivalry of consumption*. In fact, human ingenuity “can multiply the effective quantity of a given resource many times”, through a reallocation of resource and bolstering efficiency in the production process. Thus when it comes to patents and copyright, fulfilling the condition of “exclusion” does not lead to the effect of worsening the lot of the excluded.¹¹⁵

Similarly, in *Thoughts upon Patents*, Watt argued that those who believed that patents cramped ingenuity by confining ingenious men to the use of those arts which belonged to the public, had in fact: “too narrow notions of the powers of human mind, and of the objects on which it can exert itself.”¹¹⁶

According to Watt, “the improvements which have been made within the last 50 years surpass all which ever have been done in an equal period of time, and we are far from finding that we approach to the ne plus ultra of invention”, on the contrary: “the field is surely wide enough.”¹¹⁷

If intellectual property is *created* by a man through *his* efforts, then we can understand why, in protecting the rights over this property, the state gives *nothing*. Rand would come to the same conclusions as Watt's, and from very similar

112 James W. Child, “The moral foundation of intangible property”, *The Monist*, 73:4 (1990), 568-600, pp. 588, 589.

For a criticism of this notion by other participants in the debate see, for example: Edwin C. Hettinger, “Justifying intellectual property”, *Philosophy and public affairs*, 18:1 (1989), 31-52, p. 38; Peter S. Menell, “Intellectual Property and the Property Rights Movement”, *Regulation* 30 (2007), 36-42, pp. 38-39. My italics.

113 *Ibid.*, p. 587.

114 *Ibid.*, p. 588.

115 Hughes, 1988, p. 7.

116 Musson and Robinson, 1969, p. 215.

117 *Ibid.*

assumptions. In *Capitalism: the Unknown Ideal*, she argued that the: “government does not 'grant' a patent or copyright, in the sense of a gift, privilege, or favor; the government merely secures it – i.e., the government certifies the origination of an idea and protects its owner's exclusive right of use and disposal.”¹¹⁸

From this point of view, there is no difference between properties in ideas and tangible properties. For Rand, patents and copyright are the formal equivalents of registering a title or a deed.¹¹⁹

Turning back to Watt, a clear statement of his natural law conception of intellectual property can be found in the opening of a document written to oppose Jonathan Hornblower's attempt to extend the duration of his own patent, which the Birmingham partners conceived as piracy: “There are two Points in which B & W hope for success in their Opposition to this Bill – Public Justice and Public Favour. To the first they urge that their natural Rights to their inventions in Steam Engines [...] were considered by them as a full Security for the quiet Enjoyment of those Rights during the Term granted them.” Pleading “Public Favour”, they state that their claim over their invention: “appears to be greatly strengthened when it is considered that they have actually succeeded in making very important Improvements and on those Engines & in the Application of them to various branches of the national Industry.”¹²⁰

This document offers an example of the interaction of a utilitarian framework, which implies a broader political perspective and defines patents as bargain-privileges to reward progress, and some fundamental natural law principles which provide the metaphysical background of this exchange. Since the atomic part of technological progress, the invention, is generated by individuals through their own labour, the latter has a natural right over their invention.

Hence the public, conforming to the most elementary principle of “Public Justice”,

118 Rand, 1964-1967, p. 131.

119 Ibid.

120 In *Opposition to Hornblower in the House of Commons*, B. R. L. MS 3782/12/109/29. There was no formal opposition to Jonathan Hornblower Jr (brother of Jabez), nor was he ever taken to court by Boulton and Watt.

has to enforce these rights and the protection of these rights corresponds with the national interest in encouraging technological and economic progress.

Individualism is a fundamental philosophical tenet in Watt's justification of property rights over ideas: it is mirrored in the idea that inventions are the fruits of somebody's labour, ingenuity, or economic investment. Secondly, since inventions can be singled out from the *continuum* of knowledge and referred to the work of *isolated men*, even from a social and moral point of view, a State which wants to promote technological progress needs to protect the major agents of progress, namely the *men of ingenuity*.

Converging goals: private interest and public justice

After restating that letter patents bring no losses for the State, “because it has only secured the patentee in the possession of a thing which in respect to the state was a *non entity*”, Watt argues that the enforcement of the inventor's natural rights is even beneficial to the public. In fact, he claims: “the public gains by having a new Art added to the stock, or an old one improved, human labour is abridg'd or the value of its productions encreased, and this without any expence to the public.”¹²¹ Hence Watt's perspective shifts now from the private point of view of the inventor, to the standpoint of public interest.

According to McLeod,¹²² during the 18th century a sort of “happy coincidence” between rewarding the inventor's toil and furthering the national interest was assumed rather than critically analysed. But how was this coincidence theorized and established? In Watt's age, advocates of the patent system would support the conciliation between private and public interests mainly through two arguments:

¹²¹ Musson and Robinson, 1969, p. 216.

¹²² McLeod, 1988, p. 183.

the monopoly-profit-incentive and the reward-by-monopoly thesis.¹²³

The latter claim was based upon the principle that inventors were to be rewarded for their contribution to the national wealth and that such a reward was a just compensation for their work. On the other hand, the first thesis explicitly concerned the public usefulness of patents as incentives to stimulate research and development. In other words, patents could be either justified according to some sort of “public favour”, in Watt's own terms, or they could be theorized as instruments of economic policy.

Of course, both of these arguments, as well as the natural-law thesis, may be deployed simultaneously as they do not emerge from contradictory assumptions.

On the contrary, they can considerably strengthen each other, and this is certainly the case with Watt. The Scottish inventor assumed a labour-based theory of intellectual appropriation and, as we read on the document bearing the reasons for his opposition to Hornblower, he explicitly refers to his prerogatives as patentee and to his *natural rights*. Meanwhile, he also argued that patents were the best *instruments to foster innovation* and, as we shall see, he claimed that they were also the *just rewards* for something as socially indispensable, however risky and expensive, as the inventors' work. In a 1988 article, Hughes seems to offer a perfect contemporary sample of this manifold flow of arguments, which ties together consequentialist utilitarian criteria with natural law principles. For Hughes, these two lines of argument can be seen to stem from different interpretations of Locke's theory of property: “One interpretation is that society rewards labor with property purely on the instrumental grounds that we *must* provide rewards to get labor. In contrast, a normative interpretation of this labor theory says that labor *should* be rewarded.”¹²⁴

Unlike Moore, who argues that deontic moral justifications and consequential justifications are not compatible within the same legal system,¹²⁵ Hughes affirms

123 Dutton, 1984, p. 20.

124 Hughes, 1988, p. 296.

125 Adam D. Moore “Intellectual property, innovation, and social progress: the case against incentive based arguments.” *Hamline Law Review* 26, no. 3 (2003): 602-630, p. 630.

that one of his article's: "fundamental propositions is that property can be justified on either the labor [in both his deontic and instrumental forms, see above] or personality theories and that it should be justified with both. *Properly elaborated, the labor and personality theories together exhaust the set of morally acceptable justifications of intellectual property.*"¹²⁶

Moreover, the author also acknowledges what is perhaps the most fundamental assumption which underpins a labour-based theory of ideal appropriation: "A society that believes ideas come to people as manna from heaven must look somewhere other than Locke to justify the establishment of intellectual property. *The labour-based theory of property does not work if one subscribes to a pure 'eureka' theory of ideas*".¹²⁷ Interestingly, the latter seems to be exactly Boldrin and Levine's assumption. In fact, while articulating their interpretation of Watt as intellectual monopolist, they write: "*New ideas accrue almost by chance to innovators while they are carrying out a routine activity aimed at a completely different end. The patent comes many years after that, and it results more from a mixture of legal acumen and abundant resources available to 'oil the gears of fortune' than anything else.*"¹²⁸

No surprise that authors such as Hughes, Boldrin and Levine come to radically divergent thesis on intellectual property. In fact, opposite metaphysics lay behind their notion of who or what deserves to be deemed as the main agent of progress. My argument is that Watt consistently deployed an instrumental justification of the inventor's rights which was firmly grounded on a set of "buried assumptions", namely a labour-based theory of appropriation, the individualistic conception of inventive activity, and an embryonic formulation of the principle of labour avoidance.¹²⁹

From another perspective, Ryan pointed out in 1987, that utilitarian theories are

126 Hughes, 1988, p. 231. My italics.

127 Ibid., p. 9. My italics.

128 Boldrin and Levine, 2008, p. 4.

129 Alan Ryan, *John Stuart Mill and Jeremy Bentham. Utilitarianism and Other Essays*, Penguin, 1987, p. 67

explicitly consequentialist while natural law theories usually bear “a buried utilitarian assumption”. These assumptions concern the realization of human nature.

These less formalized pillars of Watt's discourse consist in some occasional references to a natural law vocabulary (such as in *Opposition to Mr Hornblower's Bill*) and, in the case of the main object of our analysis, namely Watt's *Thoughts upon patents*, these fundamental principles are manifest in his *topos* of seclusion from society and in the description of the inventor's labour.

The typically utilitarian, consequentialist, calculation of the best means to provide the fullest satisfaction to the largest number of people rested firmly upon the deontic principle that labour must be rewarded, as it is source of property and that the condition of ingenious work is isolation. Hence, for example, the possibility of stressing the social origin of ideas was never at stake in Watt's *Thoughts upon patents*. Rather, technological progress would be depicted as the accumulation of individual contributions, which needs be secured.

The avoidance theory of labour is still present in contemporary debates. Commenting on the main theoretical problems concerning intellectual labour, Hughes points out that: “The wide acceptance of the instrumental argument suggests wide acceptance of the premise that idea-making is a *sufficiently unpleasant* activity to count as labor that requires the inducement of reward.”¹³⁰ Hughes' contemporary interpretation of the interaction of instrumental and labour-based justifications is not dissimilar from Watt's use of these arguments.

While switching to an utilitarian standpoint, Watt espoused an argumentative style which was more adequate to the public forum¹³¹ and argued that letter patents were surely harmless (as they do not cause any loss for the public) and could even be beneficial for the State, because they increase the public stock of knowledge by fostering innovation.

A key-thesis in *Thoughts upon patents* is that patents should not be imagined as

¹³⁰ Hughes, 1988, p. 231.

¹³¹ Dutton, 1984, pp. 17-18.

bargain-privileges, as they are according to a contractualist framework. Thus the specification, according to Watt, is not meant to secure disclosure of the invention's characteristics.

Watt's reward-by-monopoly thesis is clearly enunciated in *Some observations upon patents*.¹³² He argues that patents should be intended as an instance of public gratitude and as a means to reward inventive activity.

“To argue that a patent is granted to an inventor merely upon the consideration that his invention is a secret in his own breast which he may conceal or divulge at pleasure, and therefore a *Patent is granted him as the price of his secret*, is supposing [the] Government to act upon very narrow principles, & is not viewing the subject in its proper light. Would it not be though more noble and more becoming the dignity of such an opulent State as Britain is if Patents were granted not as the price of a secret but avowedly as *rewards to men of merit for their ingenuity*, as the price of their labour & expence in bringing their inventions to a patentable state, and also to *encourage them to persevere in making further improvements upon them*. [...] Such was certainly the original intention. The notion of their reverting to the public at the end of the term does not seem to have had much weight anciently. The Marquis of Worcester had an act of parliament for the sole use of his invention of the steam engine for 98 years. It seems that a patent was then considered principally as a *reward* to a man for the benefit the public might reap from the use or convenience of a new machine or manufacture which in many cases is very great though the property of the invention should never devolve on the public.”¹³³

Adam Smith shared this way of thinking about patents, describing them both as rewards and incentives. We find no evidence that Smith conceived specifications as the means of an exchange between the inventor and the state.

In his *Lectures on Jurisprudence*, the Scottish philosopher singled out patents and copyrights as the two privileges that: “as they can do no harm and may do some

132 B. R. L. MS3219/4/288.

133 Ibid.

good, are not to be altogether condemned”. The first and original inventor of a new contrivance: “has the exclusive privilege of making and vending that invention for the space of 14 years by the law of this country, as a *reward* for his ingenuity.” However, states Smith: “the law granted him [an author of a book, introduced as an example of those protected by the Statute of Monopolies, 1623] an exclusive privilege [...] as an *encouragement to the labours of learned men*.”¹³⁴

Both Watt and Smith, then, provide similar justifications of I.P. rights, grounded on both the monopoly-as-reward and the monopoly-profit-incentive thesis.

By successfully encouraging inventions, argues Watt, the public is always the first to gain: “as it must reap the principal part of the benefits which result from any invention that is carried on within the realm, for does not the patentee thereby become a Member of the State, if he was not so before? Do not he and all his workmen pay taxes to the state and also contribute by their consumption of provisions and manufactures to support other members of it?”¹³⁵

Moreover, according to Watt, inventors were limited by competition and, therefore, unable to raise the prices beyond the reasonable. He made this point clearly in *Heads of a Bill for explaining & amending the Laws relating to Patents for New Inventions*. In fact, whilst explaining why the State should be grateful to inventors, Watt argues that:

“Patentees are genera[l]ly so bound in by other inventions or arts that they cannot impose unreasonable terms. Can any man argue that in the instance of Sir Richard Arkwrights invention, that if it had never been laid open to the public that the nation would have received no benefit from it? They certainly would, & did while it was his undisputed property; for the price at which cotton yarn could be made by the spinning Jinnie, & by other means *prevented his charging exorbitant price for his goods, he produced the cotton twist of a superior quality for certain uses, enabled the manufacturers of Manchester to excell all others in Europe and*

¹³⁴ Adam Smith, *Lectures on Jurisprudence 1762-63*, Liberty Fund, Indianapolis, 1982, p. 83. My italics.

¹³⁵ Musson and Robinson, 1969, p. 218.

supplied them with quantities which could not have been produced by other means, a great and profitable trade was thus created. To the immense emolument of the Sate!"¹³⁶

Watt deals here with one of the strongest arguments against monopolies: the effect of granting such privileges, it was claimed, causes uncontrolled speculation. Not only, he claims, competition among inventors and innovators helps preventing this sort of problem, but the profits provided by new trades and new modes of productions accrue considerably the wealth of the State. Therefore, letters patents, unlikely other kinds of monopoly, were perfectly compatible with public interest.

These conditions which constitute Watt's narrative of the rights of inventors justifies his views concerning how far the specification should matter in the context of litigation over patents.

In fact, we should emphasize that, for Watt, the need of a detailed specification rests solely upon the necessity to distinguish inventions one from another: "If therefore as is apprehended there is no statute law enforcing such disclosure, the necessity rests solely on the proviso in the patent, which requires it, and in the opinion of the writer, which however he gives with due deference to the Gentlemen learned in the Law, it seems to have been originally intended not so much as to secure the public in the secret of the invention, as to discriminate one inventor's property from that of another."¹³⁷

Furthermore, Watt suggests that: "no patent to be set aside for want of a clear specification after the Commissioners shall have examin'd and approved of the specification."¹³⁸ This Commission should be summoned by the Attorney or Solicitor General and composed of two fellows of the Royal Society, recommended by the Council of that Society, and two "eminent Artists" in the branch of the arts to which the patent pertains.

The strong role attributed to the Royal Society gives support to Miller's arguments

¹³⁶ *Heads of a Bill for explaining & amending the Laws relating to Patents for New Inventions*, B. R. L. MS 3219/4/287/6/5. My italics.

¹³⁷ Musson and Robinson, 1969, p. 217.

¹³⁸ *Ibid.*, p. 223.

about one of the possible scopes of Watt's scientific accreditation. In the contest over the validity of his patents, which was mainly focused on the sufficiency of the related specification, being fellows of the Royal Society did not harm and could be beneficial.¹³⁹

Indeed, the Commissioners, according to Watt's proposal, should not: “be empowered to judge of the merits of the invention, the novelty or Utility thereof *but simply whether or not the patentee has specified the same clearly or intelligibly*”.¹⁴⁰

The role reserved to the Royal Society, as theorized in Watt's *Thoughts upon patents*, and in his *Heads of a Bill for explaining & amending the Laws relating to Patents for New Inventions*, is one of the most concrete and studied aspects of Watt's reform proposal.

However, all the points Watt touches upon in his reform proposal are based ultimately upon his preliminary observations of the inventive work and the human traits of the inventors.

Even his manifest utilitarian arguments would be void without the fundamental principles of labour-based property rights, individualism and avoidance.

Commenting on the intersection between natural-law and utilitarian contemporary justifications of I.P. rights, Palmer¹⁴¹ points out that: “utilitarian arguments of various sorts can either support or undercut claims for intellectual property rights. Contingent matters of fact form an especially important part of the utilitarian structure.” In other words, one of the problems of utilitarian justifications is that wealth maximization is not the ultimate aim of law, the goal is Justice and Justice demands giving each person their due.¹⁴² Boldrin and Levine's manifesto *Against*

139 David P. Miller, “‘Puffing Jamie’: the commercial and ideological importance of being a ‘philosopher’ in the case of the reputation of James Watt (1736-1819)”, *History of Science*, 38:1=119 (2000), 1-24, p. 6.

140 Musson and Robinson, 1969, p. 221. My italics.

141 Tom G. Palmer, “Are patents and copyrights morally justified? The philosophy of property rights and ideal objects”, *Harvard Journal of Law & Public Policy*, 13:3 (1990), 817-865, p.820.

142 Kinsella, 2001, p. 12.

Intellectual Property does not engage in a systematic critique of modern justifications of I.P. rights. Their book is rather focused upon the detrimental effects of intellectual properties for the economy. However, any economic model is clearly based upon some general assumptions about what can licitly constitute property and other philosophical issues are relevant to any considerations of I.P. For example, assumptions about the structure of techno-scientific progress and the origin of invention.

Rather than engaging with these points, Boldrin and Levine seem to implicitly overturn Watt's fundamental premise, that is, individuals do not create anything unique. Therefore, the most important agent of progress must be found elsewhere. This elementary assumption in their analysis is clear in this passage: "Insofar as inventors have unique ideas, it may make sense to reward them with monopolies to make sure that we get advantage of their unusual talents. For example, if, in the absence of James Watt, the steam condenser would not have been invented until long after his patent expired, there is some justification for having awarded him a monopoly"¹⁴³ The latter, as we have seen, is exactly Watt's assumption. If it was not for the inventor, the public would not enjoy his invention.

Moreover, as we have seen, that was not merely Watt's fundamental assumption, but it was shared by influential 20th century libertarians such as Rand, Nozick, and Child.

But Boldrin and Levine reverse this individualistic philosophy of technology: "Of course, if others were going to discover it in a few years anyway, then it scarcely made sense to give him a long-term monopoly. As it happens, *simultaneous discoveries tend to be the rule rather than the exception*, and, in the presence of a patent system, they almost always lead to some ugly story."¹⁴⁴ Invention is a collective, social effort, thus establishing priority and granting monopolies leads to endless disputes and unjustified privileges. Boldrin and Levine's shift in the attribution of intellectual property from heroic individuals to groups and society at

¹⁴³ Boldrin and Levine, 2010, p. 202.

¹⁴⁴ Ibid. My italics.

large seems suitable to the way philosophy and history of science has developed from its *whiggish* origins to the *sociology of scientific knowledge*. Yet their book does not deal with philosophy of science nor with theories of appropriation, reducing both issues to mere assertions which simply collide with Watt's own philosophical assumptions. On the contrary, Hettinger makes his point more explicitly, when he argues that: "Invention, writing, and thought in general do not operate in a vacuum: *intellectual activity is not a creation ex-nihilo*. Given this vital dependence of a person's thoughts on the ideas of those who came before her, *intellectual products are fundamentally social products*."¹⁴⁵ The author acknowledges that this problem in the libertarian tradition is usually related with more or less inclusive interpretations of the Lockean theory of appropriation. Having explained why intellectual property is not compatible with the Lockean theory of property,¹⁴⁶ he suggests that the issue over the enforcement of I.P. rights necessarily turns upon considerations of social utility.

Of course, once again, such a utilitarian analysis could not but lead to envisaged conclusions. If intellectual products are essentially social products and if the Lockean theory of appropriation cannot be applied to the field of intellectual work, then any utilitarian calculus would just conclude that, whenever the State grants a patent, it pursues the interests of an individual at the expense of depriving society of its share of merit for the invention. In such a matter as intellectual appropriation, the metaphysical conditions we set forth for the origin of ideas are

145 Hettinger, 1989, p. 38.

Hettinger's thesis reminds us of Polanyi's statement, according to which patents tend "to parcel up a stream of creative thought into a series of distinct claims, each of which is to constitute the basis of a separately owned monopoly. But the growth of human knowledge cannot be divided up into such sharply circumscribed phases", M. Polanyi, "Patent reform", *Review of Economic Studies*, vol. 11, no. 2, 1944, pp. 61-76. Polanyi's thoughts on patents have been analysed by A. Johns, "Intellectual property and the nature of Science", *Cultural Studies*, 20:2-3 (2006), 145-164.

146 *Ibid.*, p. 36. Hettinger claims that labour arguments in favour of I.P. run afoul of one of Locke's provisos, namely the prohibition against waste or despoliation.

A reassessment of the relationship between Locke's "waste proviso" and moral justifications of I.P. rights, as well as a brief outline of its contentious history is included in Gordon Hull "Clearing the Rubbish: Locke, the Waste Proviso, and the Moral Justification of Intellectual Property", *Public Affairs Quarterly*, 23:1 (2009), 67-93.

fundamental to any subsequent conceptions of justice, including those grounded upon an apparently *neutral* utilitarian calculus. The latter is usually an ex-post artefact which simply reinforces some clear assumption by construing an aseptic, peaceful convergence of interests between the private and the public spheres.

Since Locke is an evergreen *auctoritas* within Libertarianism, many authors who belong to this political and philosophical galaxy deal with the renowned fifth chapter of *The Second Treaty of Government*.

Thus Locke comes to be a trumpeted ally in many libertarian works on intellectual property.

This applies to many of the fiercest apologists of I.P. rights, such as Rand, Nozick, Child, Hughes, as well as many of their critics.

Amongst the latter, we should remember Palmer, Hettinger and, more recently, Kinsella who published the influential and articulate paper *Against Intellectual Property*.

After presenting the libertarian spectrum of positions about Intellectual Property, including an exposition of natural-law and utilitarian arguments, Kinsella offers his interpretation of the Locke's theory of property.

According to Kinsella, who follows Rothbard,¹⁴⁷ Palmer,¹⁴⁸ and Hoppe¹⁴⁹ the very basis of Lockean appropriation is not labour but scarcity.¹⁵⁰

“The function of property rights”, argues Kinsella: “is to prevent interpersonal

147 Murray N. Rothbard, “Justice and property rights”, in *The Logic of Action One. Method, Money and the Austrian School*, Edward Elgar publisher, 1997 p. 274.

148 Palmer, 1990, pp. 860-865.

149 Hans H. Hoppe, *A Theory of Socialism and Capitalism*, Kluwer Academic Publishers, Boston, 1989, p. 235.

150 Thomas Jefferson argued three centuries earlier that: “If nature has made any one thing less susceptible than all others of exclusive property, it is the action of the thinking power called an idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself into the possession of every one, and the receiver cannot dispossess himself of it. Its peculiar character, too, is that no one possesses the less, because every other possesses the whole of it. He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me.” Thomas Jefferson to Isaac McPherson, 13 August 1813, Albert Ellery Bergh (ed.), *The Writings of Thomas Jefferson*, The Thomas Jefferson Memorial Association of the United States, Washington D.C., vol. 13 pp. 333-35.

conflict over *scarce resources*, by allocating exclusive ownership of resources to specified individuals (owners)¹⁵¹ However, ideas are not naturally scarce. In fact, I can communicate my ideas, giving them to someone else without thereby lessening my own stock. Therefore, by recognizing property rights over ideas, the State creates scarcity where it did not exist before.

Patents and copyrights turn out to be unusual properties, as they: “don't arise out of scarcity of the objects which become appropriated. They are not a consequence of scarcity. They are the deliberate creation of statute law.”¹⁵² Furthermore, according to Kinsella, patents represent a violation of real property rights. In fact, a patent can limit my control over my own material resources which cannot be worked to conform to a patented contrivance.

Similarly, Tom W. Bell argues that: “By invoking state power, a copyright or patent owner can impose prior restraint, fines, imprisonment, and confiscation on those engaged in peaceful expression and the quiet enjoyment of tangible property. Because it thus gags our voices, ties our hands, and demolishes our presses, the law of copyrights and *patents violate the same rights that Locke defended.*”¹⁵³ It is clear, therefore, that the natural law tradition and especially Locke's theory of appropriation still represent a set of assumptions and arguments capable of exerting a significant influence upon the philosophical debate about I.P.. It does so on both fronts of the ongoing contest. Utilitarianism, similarly, has provided a set of still widespread arguments, and, perhaps more importantly, it also furnished an argumentative style, a reference system which can be deployed again by both positions.

151 Kinsella, 2001, p. 20. My emphasis.

152 Arnold Plant, “The Economic Theory Concerning Patents for Inventions”, *Economica*, 1:1 (1934), 30-51, p. 36.

153 Tom W. Bell, "Indelicate Imbalancing in Copyright and Patent Law," in Adam Thierer and Clyde Wayne Crews, Jr., (eds.), *Copy Fights: The Future of Intellectual Property in the Information Age*, Cato Institute, Washington D.C., 2002, p. 4. My italics.

Conclusions

This sort of philosophical *continuity*, which of course is not absolute, deserves further investigation, as it may tell us how much our present debate owes not only to economists, legal theorists, and philosophers, but also to inventors such as Watt, who engaged, more than occasionally, with the articulation of coherent and sophisticated discourses on I.P. rights in the attempt to rationalize a highly competitive and individualist scientific and entrepreneurial *ethos*.

In his *Patent reform*, the philosopher Michael Polanyi seeks to find some alternative to patents as a means of rewarding the inventors' toil. In his opinion, it was time for a radical reform which would lead to the abolition of patents and their replacement with public rewards paid by taxpayers. His proposed reform, which was never realized, would have broken the *long continuity* of the patent system, which, he argued, misrepresented the nature of the inventive activity. He believed that the very principles underpinning our conception of I.P. have not sustained significant changes from the modern age and that the Statute of Monopolies of 1627 “established the basis of all modern patent law”.¹⁵⁴

Although this position may seem outdated to the modern reader, much of the Anglo-Saxon debate on I.P. is still grounded upon two philosophical grammars, as provided by utilitarian and natural-right theories of property. The traces of these philosophies are retrievable in Watt's own observations towards patents, with striking similarities between the structure of his arguments and some contemporary contributions to the debate over I.P. rights.

¹⁵⁴ Polanyi, 1944, p. 62.

PART TWO

Securing originality outside the patent system: Wedgwood's protection of *design* before *design*

Etruria! Next beneath thy magic hands
Glides the quick wheel, the plastic clay
expands,
Nerved with fine touch, thy fingers (as
it turns)
Mark the nice bounds of vases, ewers,
and urns;
Round each fair form in lines immortal
trace
Uncopied Beauty, and ideal Grace.

Erasmus Darwin, *The Botanic Garden*,
p. 295.

Man is termed by Aristotle an imitative
animal; this propensity to imitation not
only appears in the actions of children
but in all the customs and fashions of
the world.

Erasmus Darwin, *Zoomia*, p. 201.

Ars Etruriae Resuscitantur: Josiah Wedgwood's life and achievements

“Mr Monkhouse our surgeon met to day with an insult from an Indian, the first that has been met with by any of us. He was pulling a flower from a tree which grew on a burying ground and consequently was I suppose sacred, when an Indian

came behind him and struck him; he seiz'd hold of him and attempted to beat him, but was prevented by two more who coming up seizd hold of his hair and rescued their companion after which they all ran away."¹⁵⁵ It was the 13th June 1769 when Joseph Banks, the botanist, one of the leading scientific figures of his age, wrote this entry on *The Endeavour Journal*. At the time, he was taking part in James Cook's first expedition across the South Pacific. The company appointed for this voyage included Daniel Solander, a Swedish botanist who had studied under Linnaeus, the natural history draughtsmen Sydney Parkinson and Alexander Buchan, a secretary, and four assistants.

In June this party made landfall in Tahiti, from whence they would decamp a month later, having as their destination New Zealand. Their task was to collect informations about the various flora, fauna and the geography of those far lands, bringing home detailed descriptions and drawings of many exotic wonders. Such Indian oddities had penetrated western imagery and were reproduced by the Baroque art, along with Oriental and Arab influences. Thus after Tenniers and Lacret, Goya still depicted monkeys, parrots, exotic mise-en-scène and accessories displaced in European scenarios. However, this rich and variegated artistic wave from the 17th century was inexorably beginning to wane.

On the 13 June, while Joseph Bank annotated his Tahitian meetings, in a small Staffordshire village, an artistic shift was being celebrated. It is a key-date for the dawn of a new aesthetics which opposed Baroque and Rococo and looked back with growing interest to the elegant simplicity of the classics. Josiah Wedgwood, a 38-year-old potter from Burslem, had already surpassed his fascination for the exotic patterns. He had dismissed his early *cauliflower teapots* and his pineapple-themed earthenware, and focused instead upon *re-creating* ancient marvels, according to the latest craze for 'Etruscan' vases. Roman and Greek beauties arrived to England through a network of merchants, collectors and amateurs who

155 *Endeavour Journal*, 13 June 1769 (Series 03.291)
http://www2.sl.nsw.gov.au/banks/series_03/03_291.cfm
Last accessed on 27.03.2015

called themselves *virtuosi*. This club was led by a learned diplomat, the British Ambassador to Naples Sir William Hamilton, who worked relentlessly to collect and catalogue the graceful patterns which were unveiled by the excavations at Pompeii and Herculaneum.

For Wedgwood, one of the protagonists of English Neo-classicism, the 13 June 1769 marked the beginning of a new entrepreneurial venture. He had carefully organized the inauguration of his factory, which he named 'Etruria'. The choice of the name was partly caused by the wrong belief that the finest surviving samples of Greek vases had been retrieved from Etruscan tombs. The new factory covered seven acres of land, traversed by a canal and marked by the new Etruria Hall where the Wedgwood family resided. A feast was had for Wedgwood's family, workmen and friends. At sunset Josiah sat at the wheel and threw six copies of a basalt Etruscan vase, before his admiring guests. These "First Day's Vases" were to be dispatched to London to be decorated and enamelled at Wedgwood's laboratory in Chelsea. They were copies of ceremonial bowls, with three classic figures on one side (the "Meidias Hydra") and a legendary inscription on the other: *Ars Etruria Renascuntur*, "Etruscan Arts are reborn".

Wedgwood belonged to that much-sung generation of artisans who grew up in the green hills of the agricultural Midlands and contributed to turn this region into the beating heart of early industrialization. He was born in Burslem in 1730, the youngest of a family of twelve, from a four-generations-long tradition in pottery. His early biographers would later adorn his infancy with a long record of unverified anecdotes, as it happened with the childhood biographies of many revolutionary players of their age.

The major teller of these premonitory tales is one of his early biographers, Eliza Meteyard, according to whom Josiah was a curious child, lively, good-humoured and witty, a young boy who played like many children did but who also turned his father's working shed "into a sort of museum, being decorated with fossil shells and other curiosities"¹⁵⁶. Samuel Smiles also remarks upon Josiah's early curiosity

156 Eliza Meteyard, *Life of Josiah Wedgwood from his private correspondence and family papers*,

and talent: “soon after he left school he distinguished himself by his readiness to imitate in clay whatever objects struck his fancy. He seems to have had a natural bent towards modelling.”¹⁵⁷

At fourteen this gifted boy began an apprenticeship to learn the *Art of Throwing and Handleing*, but did not finish it.

In 1754 Wedgwood entered into a partnership with Thomas Wieldon, a local manufacturer whose reputation was already well-established. He learnt much at Wieldon's workshop where he was frequently encouraged to test new improvements. However, in 1759, as soon as he had sufficient capital, Wedgwood decided to found his own pottery works. The local industry at that time was still at a rather primitive stage. To be precise, it would have been hard to guess that earthenware, and British earthenware in particular, could ever be conceived as luxury goods. Moreover, Burslem potteries were isolated by the condition of the roads, which prevented them from exploring new potential markets. Nevertheless such averse conditions were about to change, as steam-power, canals and turnpikes would project the village and its manufactures into an age of unforeseen growth. Polite society drank coffee and tea but porcelain was still too expensive to enjoy equal distribution. As he wrote in his *Experiment Book*, Wedgwood: “saw the field was spacious, and the soil so good as to promise ample recompense to any who should labour diligently in its cultivation.”¹⁵⁸ Innovation would grow more intense after Wedgwood's workshop moved the new premises at the 'Ivy house'. There, the potter began building his first great success, the 'creamware'. This was a resistant and versatile ceramic obtained by the mix of Cornish china clay, china stone, ground flint and Devon clay which was covered in hard lead glaze. In a very few years, Wedgwood's bright and solid pottery conquered most of the market previously held by the old Dutch Delft and by pewter plates. In 1762 he injured his leg and he had to spend several weeks in Liverpool to recover.

Hurst and Blackett, London, 1866, vol. I, p. 210.

¹⁵⁷ Samuel Smiles, *Josiah Wedgwood, F.R.S.*, John Murray, London, 1894, p. 20

¹⁵⁸ *Ibid.*, pp. 35-36.

This annoying circumstance offered Wedgwood the opportunity to meet Thomas Bentley, an eminent local merchant with whom he would establish a life-long friendship and a fruitful business partnership. By the time of his first meeting with Bentley, Wedgwood had already established a good reputation in the potteries. In 1762 he was appointed by his fellow potters to be their spokesman before Parliament and prepare a petition to prompt: “an Act for making a Turnpike Road, from the Liverpool and London Road at Lawton, to Stoke-upon-Trent; there to unite with the Newcastle and Uttoxeter Turnpike Road.”

The text of the petition testifies the growing political awareness of this branch of manufacture: “In Burslem, and its neighbourhood, are near one hundred and fifty separate Potteries, for making various kinds of stone and earthenware: which, together, find constant employment and support for near seven thousand people. The ware in these Potteries is exported in vast quantities from London, Bristol, Liverpool, Hull, and other seaports, to our several colonies in America and the West Indies, as well as to almost every port in Europe”.¹⁵⁹ As the most prominent articulation of the pottery's interests, Wedgwood's lobbying proved particularly successful in the promotion of the Grand Trunk Canal scheme, which would to connect the Potteries with Hull and Liverpool. Canalization was crucial to reduce the number of breakages during transportation, making it possible to lower the price and conquer wider shares of the market. Wedgwood and his colleagues' efforts to gather political support, raise money, and organize petitions and assemblies led to the passage of an Act of Parliament which gave authorization for the construction of a canal between the rivers Trent and Mersey. One of the key-patrons of the project was the Duke of Bridgewater, duly solicited by Wedgwood. After this political victory, Wedgwood was appointed treasurer of “The Proprietors of the Navigation between the Trent & the Mersey”, who included the Duke of

¹⁵⁹ John Ward, *The Borough of Stoke-upon-Trent in the commencement of the Reign of Her Most Gracious Majesty Queen Victoria comprising its History, Statistics, Civil Polity, & Traffic with Biographical and Genealogical Notices of Eminent Individuals and Families, also the Manorial History of Newcastle-under-Lyme and Incidental Notices of other Neighbouring Places and Objects*, W. Lewis & Son, London, 1843, p. 28

Bridgewater, Earl Gower, Thomas Anson, Mr Bagot and many other local merchants, landowners and industrialists. The year 1765 represents another landmark in Wedgwood's career, as an unexpected commission from Queen Charlotte gave him the opportunity to become "Potter to Her Majesty". From 1767 Wedgwood would use this title in the attempt to target the aristocratic audience, and his creamware were re-baptized *Queen's Ware*. Furthermore, in 1765 Josiah's adored first child, 'Sukey' (Susannah), was born after his marriage to Sarah.

As we shall see, Wedgwood's attempts to win the favour of the aristocratic class proved successful and that ensured a firm grip on a network of influential sponsors. In fact, as Berg puts it, "the court and the salon provided the first cultural context for luxury; the domestic interiors of the wealthy followed."¹⁶⁰

Commercial success was based upon marketing as well as research and development. From 1763 and 1767 Wedgwood introduced the 'dicing' lathe, which was used to incise chequered designs on ceramics and later the 'rose' lathe, which made it possible to decorate pots with parallel vertical stripes.¹⁶¹ Moreover, his constant innovation would be inspired and imitated the new classical design. As Michael Vickers observed in 1987, this new artistic vogue was in part crafted by means of a campaign aimed at sensitizing the learned and wealthy audience to the *valuable simplicity* of classical pottery. Among the pivotal agents of this reevaluation of Greek and Roman aesthetics were the virtuosi William Hamilton and the French art historian Pierre-François Hugues, Baron d'Hancarville. The latter had introduced Hamilton to the Porcinari family, from whom the British diplomat would buy a vast collection of antique vases.

Hamilton would later sell this collection to the British Museum for 8,000 guineas. This was the first major sale of classical pottery in modern times and the epilogue of a long marketing operation of which d'Hancarville was the astute *éminence grise*.

¹⁶⁰ Maxine Berg, *Luxury and Pleasure in Eighteenth-Century Britain*, Oxford University Press, Oxford, 2005, p. 40.

¹⁶¹ Robert Copeland, *Wedgwood Ware*, Shire, Princes Risborough, 2004, p. 10.

In the first volume of his *Hamilton Collection*, dated 1768, when it was still uncertain who could be the buyer of the vases, d'Hancarville states that the collection was “equally proper for the compleating of well understood Collections of Prints and designs, or to furnish in a manner not only agreeable but useful and instructive, the Cabinet of a Man of Taste and letters.”¹⁶² d'Hancarville puts great effort into showing how Romans conceived vases as high-value items. For example, he construes the myth of allegedly precious 'Murrhine vases' such as the famous Portland vase, later copied by Wedgwood.

In fact as Wedgwood himself was to discover in 1785, the Portland vase was made of glass. Nevertheless, d'Hancarville's strategy consisted in convincing the reader that Romans used to pay extraordinarily high prices for pottery vessels. Needless to say d'Hancarville's agenda was perfectly consistent with Wedgwood's interests: “Wedgwood did not know of d'Hancarville's text to Hamilton's plates, *but like him realized that if the public was made aware that the technique involved in the manufacture of black-on-red pottery was difficult, then the value of their own wares might be increased.*” Therefore: “it was in no one's interest to dispel the notion that Greek vases were valuable in antiquity.”¹⁶³ As we shall see, Wedgwood and Bentley's salesmanship was also rooted in the perception that their ceramics were priceless status symbols, very precious and proportionally difficult to make.¹⁶⁴ But if d'Hancarville was broadcasting a diligently crafted image of Roman art, consumption style and values, Wedgwood strove to reconcile the imitation of the classics with the definition of his own designs and authorship. The first was an historian, a skilled and authoritative narrator; the second was a

162 Michael Vickers, “Value and Simplicity: Eighteenth-Century Taste and the Study of Greek Vases”, *Past and Present* 116 (1987) 98-137, p. 104.

163 Vickers, 1987, p. 112.

164 On 7 December 1768 Bentley wrote to Cox, a dealer in rarities, in particular porcelain: “We have at length got some Etruscan Vases in great forwardness, & shall send you several sets by the next Carrier. If any of your Friends wonder why you have not got more & oftener, please to *give them to understand* that it is very difficult to make fine and perfect things of *any kind*. How often does our great Mistress Nature Fail, even in the finest Order of her Productions! The angelic Sex themselves are not all perfectly straight, delicate and beautiful, no more than our Vases, and you may contrive to edge in the *Natural Inference* that every good Thing deserves a *good Price*.” Eliza Meteyard, 1866, vol. II, pp. 98-99. Reported in Vickers, 1987, p. 124.

craftsman and innovative entrepreneur.

Wedgwood's innovative ingenuity would be highly praised by the Victorian cultural and political establishment. In 1862 Gladstone, the future Liberal Prime Minister then Lord Palmerston's Chancellor of the Exchequer delivered a speech in Burslem, on the occasion of the inauguration of the construction yard where the Wedgwood Institute would be erected. His address set forth as an encomium Wedgwood's liberal iconography, two years before the first biographies were published. According to Gladstone: "Wedgwood was not only an active, careful, clear-headed, liberal-minded, enterprising man of business – not only, that is to say, a great manufacturer – but also a great man. He had in him that turn and fashion of true genius which we may frequently recognize in our great engineers, but which the immediate heads of industry, whether in agriculture, manufacture, or commerce, have more rarely exhibited."¹⁶⁵

Earlier on in 1862, an eight-foot bronze statue of Wedgwood was erected in Wilton Square, Stoke-on-Trent.

The statue was designed by Edward Davis and depicted Wedgwood according to the portrait made of him by Joshua Reynolds. The potter from Burslem stood tall, holding the Portland vase in his hand. The antique vase evokes one of the major intellectual and material efforts in Wedgwood's life. Being the boldest copy of an original Roman vase ever attempted by the potter, the Portland vase came to be identified with the firm's brand itself, as we find in the 1878 mark and is still today impressed on Wedgwood bone china.¹⁶⁶ The choice of portraying Wedgwood with the Portland vase, however, opens up the question as to how much of his innovation, beyond the purely technical, was a product of his creativity and how much stemmed from diligent imitation. In other words, Davis' statue renders Wedgwood's suspension between creative ingenuity and deference to classic antiquity, as it was crafted and broadcasted through the filter of d'Hancarville's

¹⁶⁵ McLeod, 2007, pp. 306-309.

¹⁶⁶ For a chronology of Wedgwood marks see: Geoffrey Wills, *Wedgwood*, Chartwell, Secaucus, 1989, pp. 122-123.

books and Enlightenment literature on the Greek and Roman world. This is the theme I shall focus upon in subsequent chapters, from the point of view of Wedgwood's discursive construction and defence of authorship.

One of the sources of Wedgwood's inspiration was D'Hancarville's *Antiquities, Etrusques, Greques et Romains*, one of the undisputed bibles of 18th-century antiquarianism. The potter scrupulously copied the patterns contained therein, helping to spread that Neoclassical credo which was eloquently inscribed in Winckelmann's motto: "noble simplicity and quiet grandeur".¹⁶⁷

In due time, however, Wedgwood would also produce some contemporary souvenirs, which were also in classic style but portrayed the great protagonists of his age: Pitt, Keppel, James Cook, Wedgwood's good friend Joseph Priestley, Dr. Johnson and many others. Wedgwood relied upon a network of agents, sponsors and collaborators employed in the distribution of his products. Thanks to the assistance of envoys, connoisseurs and dealers his ceramics gained an entrée to many of the most important courts of the world, those of Russia, Poland, Spain, Portugal, Denmark, Sweden, Netherlands, Turkey, Naples and Turin. Around a thousand parcels were sent to the Continental nobility in the attempt to reproduce the domestic strategy of starting from the peers and hence conquer the favour of the bourgeoisie. In his London showrooms Wedgwood also held ticket-only exhibitions of new collections. He had begun renting a two-bedroom flat in Charles Street, close to Grovesnor Square. More than a warehouse, Charles street was a room filled with wares in storage and awaiting arrangement at the sale. However, Wedgwood soon began looking for a larger venue and found it on Great Newport Street, in Soho.

Finally, in 1772 Wedgwood and Bentley opened their showroom on Greek Street while two years later a brand new one was inaugurated in St. James Square, off Pall Mall, which Wedgwood had recognized as the best place to set up a shop in London: "Pall Mall is the best situat[io]n in London. It is convenient for the Whole

¹⁶⁷ Vickers, 1987, p. 131.

of this Great Town, the avenues to it open, & everybody comes there some time or other. [...] We must have an Elegant, extensive, & Conven[ien]t shew room, with store rooms, & some conveniencies for two servants at least.¹⁶⁸

St James Square appears to have been a very strategic location for trading in luxury goods. The following is a brief description of the square, as reported in a topographical description of London and Middlesex, from the early 19th century:

"Upon the north side and near the middle of Pall Mall is St James Square, having a circular bason inclosed within an octagonal railing, in its centre; the houses surrounding this square are chiefly inhabited by nobility. The town residence of the bishops of London a large inelegant pile of brick building occupies along with its neighbour Norfolk House in which our present sovereign was born, all that portion of the eastern side of the square, intercepted between Charles Street and Pall Mall. At the corner of York Street an avenue leading from this street to Jermyn Street is the large house and manufactory of Mr Wedgwood in whose exertions much of the late reformations of public taste is to be ascribed."¹⁶⁹ Business went on well until 1770-1772 when the young firm encountered a troublesome period. Bentley had difficulty supervising their clerks in London and the two partners had to deal with the dishonesty of some of their employees. Moreover, Josiah's father-in-law fell sick, which momentarily lost him his wife's collaboration. He began to suffer from eye-train and was habitually afraid to lose his sight for ever.

However, when his health improved, Wedgwood managed to provide fresh impulse to his depressed business. When trade was at a low-ebb, he was aggressive enough to keep prices up and wait patiently for better days.

New and challenging orders soon arrived. Lady Cathcart, Hamilton's sister, who was married to the British Ambassador to Russia, made the rich Russian market available to Wedgwood with some important commissions. Thanks to the

168 J. Wedgwood to T. Bentley, 23 May 1767. Katherine E. Farrer ed., *Correspondence of Josiah Wedgwood*, vol. 1, Cambridge University Press, Cambridge, 2010 [1903], p. 142.

169 George A. Cooke, *Topographical and Geographical Description of the County of Middlesex*, Brimmer & Co., London, 1810, p. 311.

mediation of Cathcart, in 1773-1774, Wedgwood accepted a challenging task, the production of the Green Frog Service, for Catherine the Great of Russia.

This was an outstanding service made of 952 pieces of table-ware and dessert-ware, each decorated with different views of Britain.

The enamelling of this service kept Wedgwood's works at Chelsea occupied for a whole year. Afterwards, this extraordinary set was moved to Greek Street showroom, where it was adorned with 1,244 different views of British landscapes, manor houses and gardens. When it was displayed to the public in Greek Street, the exhibition was attended by Queen Charlotte, the monarchs of Sweden and Prince Ernest Mecklenburg. While the financial gain was certainly not proportionate to the immense effort to realize such a service, the prestige and publicity were considerable.

In order to maintain his sales, Wedgwood tried a number of original materials, which eventually led him to manufacture a truly British 'stoneware'.

He would thus arrive at an invention which marked another key-moment in the history of British pottery - the *Jasper*.

The new material consisted in a kind of vitrified stoneware which could bear a slight translucency. It was meant to imitate the Roman cameo glass, like that used to re-make the Portland vase, but it was duller and less polished. The year 1780 was marred by the loss of Wedgwood's close friend and business partner Thomas Bentley and represents a turning point in Josiah's life. He became closer to his friend Erasmus Darwin, his family's physician. The business went on thanks to his nephew Thomas Byerley, while the 50-year-old potter engaged more and more with experimental philosophy. He was good friend with the chemist and member of the Lunar club Joseph Priestley and in 1783 obtained the fellowship of the Royal Society for the invention of a pyrometer.

Moreover, politics, national and local, remained another of Wedgwood's major activities throughout the 80s. In 1785 we find him leading the General Chamber of Manufacturers, an organization of industrialists which were intent upon opposing the Irish Trade Treaty. As we have seen, the combination proved successful,

although the new institution was short-lived. Nevertheless, two years later the foundation of the Society for the Abolition of the Slave Trade afforded Wedgwood another chance to voice his political sentiments. It is well known that he produced an anti-slavery cameo, modelled by William Hackwood, which became a fashionable item associated with the abolitionist movement. In 1789 he welcomed the early phase of the French Revolution but his son Tom, with James Watt Jr, would become more involved in it. He lived long enough to see the blossoming love between his daughter Susannah and Robert Darwin, the son of Erasmus, and died in 1795, after a short illness. His Jasper-ware were imitated at Sèvres and even at Meissen, where they were called *Wedgwoodarbeit*, 'Wedgwood's work'.

From Engines to Vases, a shift in the context of intellectual ownership

In the first section I argued that James Watt's exploitation of the patent system played a role in the shaping of his discourse on invention and inventive work. Watt still represents one of the clearest example of the modern inventor-entrepreneur, rationalizing his intellectual ownership largely within the grammar provided by the patent law and, accordingly, construes his narrative on invention and inventors. Watt was both one of the most important patentees and one of the most renowned ideologues of the patent system of his age, his intellectual property being a symbolic landmark for later advocates of patent law throughout the Anglo-Saxon world. This is evident from the papers delivered during the *Celebration of the Beginning of the Second Century of the American Patent Law* (1891). In his talk, Hon. Samuel Blatchford, Associate Justice of the Supreme Court of the United States, spoke extensively about Watt's patent for the separate condenser, summing up the history of the discovery and the legal contest to defend its validity. The author, who considers the judicial decisions at Watt's trial to be “of the highest value”, deems Watt as the man who: “substantially created the steam engine and

gave to it that usefulness and efficiency, the further development of which has revolutionized the trade and manufactures of the world.”¹⁷⁰ During the same congressional term, Robert H. Thurston, Professor of Mechanical Engineering at Cornell University, praised Watt as “the ideal great inventor and mechanic”¹⁷¹ and his partnership with Matthew Boulton represented a perfect model of “the combination of genius and capital”. According to Thurston: “[T]he good fortune – a providence, we may well say – brought together the genius and the capitalist to do their work, hand-in-hand, of providing the world with the steam engine. Hand-in-hand they worked, and all the world to-day, and the race throughout its future life, must testify gratitude for the inexpressible obligation under which these two men have placed them, doing the work of the world.”¹⁷² The Scottish inventor occupied a pivotal position in the history of patent law, as he came to embody that crucial transitory phase during which the formerly denigrated class of 'projectors' became the increasingly admired and celebrated class of 'inventors', and this social and epistemological shift was “at least as consequential as the far-better-known shift from 'natural philosophers' to 'scientist’”.¹⁷³ By the late 19th century those inventors who, combining inventive ingenuity with entrepreneurial flair, contributed to the foundation of the British industrial empire, were thrusting aside their reputation as 'mere' inventors.¹⁷⁴ Those, such as Watt, who could claim a triumphant entrepreneurial history, became a new kind of Whig heroes, particularly suitable to challenge the Tory traditionally militaristic and aristocratic hagiography, which had dominated the age of anti-Napoleonic warfare. In particular, Watt's representation as a self-made hero was instrumental to Scottish Victorian nationalism as well as to the agenda of British liberal reformers. As schemers and projectors were more often reputed as honourable men of science,

170 *Celebrations of the Beginning of the Second Century of the American Patent System at Washington City, D. April 8, 9, 10, 1891*, Forgotten Books, 2013 [1892], p. 113

171 *Ibid.*, p. 271.

172 *Ibid.*, p. 278.

173 Adrian Johns, *Piracy. The Intellectual Property Wars from Gutenberg to Gates*, Chicago University Press, Chicago, 2009, p. 258.

174 McLeod, 2007, p. 350.

ingenious patent-holders also became more distinguished and reputable.¹⁷⁵ This new tendency was celebrated in the 1905 biography of the Scottish inventor by Andrew Carnegie, himself an industrialist and a patentee: “In nothing has public opinion more completely changed than in its attitude towards patents. In Watt's day, the inventor who applied for a patent was a would-be monopolist. The courts shared the popular belief. Lord Brougham vehemently remonstrated against this, declaring that the inventor was entitled to remuneration. Every point was construed against the unfortunate benefactor, as if he were a public enemy attempting to rob his fellows. Today the inventor is hailed as the foremost of benefactors.”¹⁷⁶ Although much of Watt's narrative of invention was moulded by the institutional context in which he developed his distinctively forensic rhetoric, and the patent system has been one of the backgrounds against which Watt's work has been most studied by contemporary scholars, we should bear in mind that the exploitation of patent law was not the only possible strategy to defend intellectual property. On a more practical level, Watt and his business partner deployed a manifold social technology in the attempt to establish and enforce their property claims over the separate condenser, including espionage, marketing and political networking. Discourse over invention was always bent to different practices and the latter were adjusted to pursue contingent strategic interests. Nevertheless, the law worked as an institutionalized reference system to articulate a negotiation of the concept of inventions and inventive work and, in the case of Watt, it proved to be a camp for successful, albeit abiding and costly battles. At least when it came to defending his own patent, Watt's narrative of invention was shaped by the necessity to prove it original, useful to the public and clearly attributable to its *first and original* creator. Such an ideological and rhetorical grammar proved to be not as reliable in the case of Wedgwood. His principal intellectual ownership was

175 Ibid, pp. 27-39. By no means did inventors enjoy an homogeneous reputation as men of science. Samuel Smiles, Charles Babbage and William Whewell offer contrasting views of the distinction between a scientific theoretical elite and the lower ranks of empirical mechanics. See Ibid, p. 353; David P. Miller, *Discovering Water: James Watt, Henry Cavendish and the Nineteenth-Century 'Water Controversy'*, Ashgate, 2004, pp. 136-137.

176 Andrew Carnegie, *James Watt*, 1905, p. 117, EPUB digital edition.

encompassed in that facet of I.P. laws that we now think of as design. The first professional group in Britain to, consistently seek a legal protection of their designs were the the calico artists in 1787. Their petition to the House of Commons lamented that “the petitioners and others have, with great industry and expence, severally invented, designed or engraved, diverse sets of new and original patterns for printing Linens and Callicoes, and Muslins, in Hopes to have reaped the Benefit of such their own Labours, and the Credit thereof; but divers Callicoe Printers, and other Persons, to save themselves the Expence of original Designs, have of late too frequently taken the liberty of copying, printing and publishing of great Quantities of base and mean copies and imitations thereof, to the great Detriment of the Petitioners and other artists, and to the Discouragement of the said Arts and Manufactures.”¹⁷⁷ Thus the calico designers urged Parliament to secure “the properties of the Petitioners for a limited time in the same manner as the laws now being have preserved the properties of authors of books [...] and the inventors and engravers of historical and other prints.” In order to meet this political pressure, an Act was passed which gave to: “every person who shall invent design and print, or causes to be invented, deigned and printed, and become the proprietor of any new and original pattern or patterns for printing Linens, Cottons, Calicoes or Muslins” the “sole right and liberty of printing and reprinting” their own design for the risible term of two months from the first day of publication.¹⁷⁸ Lahore argues that the Act de facto created a new branch of industrial property, the notion of design being derived from other kinds of patentable contrivance but never assimilated to them. The parallel development of design, copyright, and patents as means to defend different intellectual properties would thus stem from a prejudicial division between art and industry.¹⁷⁹ The case of British designers is indicative of the lower consideration they enjoyed as a

177 Kathy Bowrey, “Art, Craft, Good Taste and Manufacturing: The development of Intellectual Property Laws”, *Law in Context*, 15:1 (1997), 78-104, p. 83.

178 J. C. Lahore, “Art and Function in the Law of Copyright and Design. The Need for a Reappraisal”, *The Adelaide Law Review*, 9 (1972), 182-209, pp. 182- 186.

179 *Ibid.*, p. 367.

social group, which conditioned the diminished degree of protection of their work. This is particularly noticeable if we compare it with French protection of designs, which were seen by many as the reason for the pre-eminence of Paris in every department of industrial art.¹⁸⁰ Hence, as McLeod points out in her study of the British patent system: “The lack of any clear definition of what constituted an ‘invention’ and of any mechanism for isolating the novel features in an extant instrument, machine or process were at the heart of many disputes. In industries like ceramics, where design was the chief variant, this problem was at its most acute. Most potters respected this and refrained from patenting.”¹⁸¹ In *An Address to the Artists and Manufacturers of Great Britain*, William Kenrick, a caustic political gadfly and irreverent observer of his times, describes the unevenness surrounding the legal protection of intellectual properties. While calling for equality in the safeguard of “the natural rights of Genius”¹⁸², the author comments: “As an *Author* and an *Artist* of a *certain class*, an exclusive right, to profit by his compositions and inventions, is secured to him by Statute for a considerable term of years; as an *Artificer* or *artist* of any *other class*, he is destitute of such security.”¹⁸³ Setting his position on a firmly natural-law basis, Kenrick argues, somewhat similarly to Watt, that the rights bestowed to authors and inventors over their creations are rooted in their respective toils and material investments. He also remarks that this type of appropriation allow them to balance the impossibility to subsist by mere possession. Hence, it is clear that labour-based theories of appropriation, applied here to intellectual property, could be rationalized as social elevators at the disposal of a class of projectors, inventors, and early industrialists who sought legitimation as the future driving force of the British economy. In fact, according to the author, British lawyers were restricted “by the narrow notions,

180 Ibid., pp. 186-187; Bowrey, 1997, p. 82.

181 McLeod, 1988, pp. 66-67.

182 William Kenrick, *An address to the artists and manufacturers of Great Britain; Respecting an Application to the Parliament for the farther Encouragement of New Discoveries and Inventions in the Useful Arts; to the facilitating future Improvements in the Produce, Manufactures and Commerce of these Kingdoms*, London, 1774, p. 2.

183 Ibid., p. 1.

which confine property to a corpus or body”, as they “have recurred no farther back for a right of possession than *prior occupancy*; setting discoveries and inventions in literature and science on the same footing with the use and improvement of corporeal possessions.” The reference to *prior occupancy*, which provided legitimation to the wealthy landed aristocracy is thus counteracted by a “still earlier and more general source” of property rights. Hence: “Every man whom Providence sends into the world hath a natural right to live in it; and, if to live in it, to the means of subsistence. In the present state of society, however, the man who is born to no estate real or personal, finds the means of subsistence by mere possession already engrossed by prior occupants; he is therefore of necessity reduced to the creation of new means of livelihood; a right to all *corporeal* property being already secured to others, he must have recourse for subsistence to the *incorporeal* property he is endowed with by Nature in the use of his personal talents, he must live by his wits or his labour.”¹⁸⁴ Should these natural rights be denied, the poor would be “the natural-born *Slaves* of the *Rich*, and the possession of corporeal property, however obtained” would offer: “a right to the possession of all other: an affirmation which, I presume, no free-born subject of this country will venture to make.”¹⁸⁵ Furthermore, Kenrick contends that any distinction between several kinds of labour-derived incorporeal property cannot be maintained, opposing Catherine Macaulay's claim that authors should not be demoted to the lower ranks of intellectual labourers: that is to say, as inventors in the *useful arts*. In fact, Macaulay, who published *A Modest Plea for the Property of Copy Right* (1774), espoused the party who called for perpetual protection of authors' rights over their works.¹⁸⁶ It is to her that Kenrick responds bitingly when he argues: “I

184 Ibid., pp. 4-5.

185 Ibid.

186 A recent reconstruction of this debate is offered by Ronan Deazley, *On the Origin of the Right to Copy: Charting the Movement of Copyright Law*, Hart, Portland, 2004, pp. 149-168. See also Brad Sherman and Lionel Bently, *The Making of Modern Intellectual Property Law: The British Experience, 1760-1911*, Cambridge University Press, Cambridge, 1999, p. 28; Mark Rose, *Authors and Owners. The Invention of Copyright*, Harvard University Press, London, 1993, pp. 105-107.

know not how this ingenious writer will make good this assertion; but I am persuaded that, if the *authors* of such *new inventions* and *discoveries* did stand upon the same footing, in regard to a legal security of a right of property in their respective productions, as *authors* of *books* do, they would not complain of injustice or contend for a *perpetuity* in such right. Every common capacity, says this writer, can soon find out the use of a machine, which is not the case with a book. I accede to the latter part of the assertion, because there are many books whose use cannot be found out at all, as they are totally *useless*, if not hurtful: the former part I deny, for as good a reason. Had this advocate for literary merit been familiar with the labours of our mathematical, philosophical and even mechanic artists, she would have known that there are many curious and useful machines, with whose use the very makers of them are totally unacquainted.”¹⁸⁷ Making his case for stronger protection of the long-neglected intellectual ownership of artists and artificers, Kenrick writes provocatively: “The genius of Newton was not of a literary cast, nor does he raise our admiration or command our respect much as an author, as he does in the capacity of an *inventor* or *artist*.” And yet: “the author thinks eight and twenty years too short a term, in which to reap the benefit of his labours, *while the artist or artificer is not entitled, by any law in being, to a property in the effects of his ingenuity for a single day.*”¹⁸⁸ Notwithstanding Kenrick's rather isolated concern for these lower-level intellectual labourers, which might be read as one of his polemical barb directed at the elite culture, this asymmetry in the legal framework of *incorporeal* properties was to last.¹⁸⁹ In spite of 'Hogart's Act' instituted in 1735 and the Copyright Act of 1787, which ensured a measure of protection for cotton textile printers, it was only in 1839 that design protection was extended to ceramics and a system for registering designs was

187 Kenrick, 1774, pp. 7-8.

188 *Ibid.*, p. 9. My italics.

189 On the relationship between artists and inventors in the 18th century see also: Dennis Diderot, *L'Histoire et le secret de la peinture en cire*, 1755; Liliane Hilaire-Perez, “Diderot's views on artists' and inventors' rights: invention, imitation and reputation”, *British Journal for the History of Science*, 35 (2002), 129-150.

established.¹⁹⁰ Hence, these early forms of protection were further improved in the period 1842-1883, when the British Patent Office issued diamond marks, with apposite registration numbers, which made it easy to identify registered designs. The mark indicated the *class*, that is, the type of material used, the number of items included, and the date of registration. The centre of the diamond also displayed the abbreviation “Rd”, standing for “Registered Design.” However, Wedgwood did not enjoy this system of protection and his understanding of intellectual property developed amid the growing awareness that his claims for authorship could not count upon legally enforced protection. By focusing upon Wedgwood's rhetoric, I intend to explore how his own discourse around invention and the inventive work was influenced by different practices, or by different outcomes of similar practices, which were aimed at securing his intellectual property and the originality of his contribution. I call them 'similar' practices because Wedgwood did attempt to find protection under the umbrella of patent law, but he was significantly less successful in this than his friends in Soho.. Thanks to restless innovation and efficient marketing policies, Wedgwood nevertheless managed to establish a highly distinctive brand. My claim is that Wedgwood's rhetoric indicates a blurred notion of originality, the dividing line between the original and imitation being nuanced and fluidly redrawn by the author himself and by all the actors of his network. Wedgwood's originality, his own intellectual ownership, had to be established by his aristocratic customers and preserved by his employees' loyalty and discretion. The first played a key role as wealthy commissioners and sponsors of the great potter. They adopted his wares as an essential item in the aristocratic manor, opening up to the broader middle-class market. Wedgwood's employees were expected to bend to the needs of a re-organized system of production which was vertical and centralized, both in its organization and *ideology*. Therefore, particularly in his ornamental works, moulders, enamellers, painters, designers and artisans were required to hand their

190 McLeod, 1988, p. 67.

authorship to the head of their community, who conceived of himself as a patriarch and deployed the material and literary technology of paternalism. Industrial paternalism here will be approached from an ideological perspective, but the social imagery which is transparent in Wedgwood's letters and pamphlets was intertwined with a powerful social technology in regard to his workmanship, which has been outlined in McKendrick's *Wedgwood and Factory discipline* (1961).¹⁹¹ Winning his employees' loyalty was the first requisite to extending and intensifying Wedgwood's control over them, an essential trait of any counter-espionage strategy, as the crude force solution of battling his copyists legally was not likely to be fruitful. But what was Wedgwood's relationship with the broken umbrella of the patent system? Like his other rhetoric regarding inventive work, his stance on patents seems to be rather fickle. In 1791 he expressed to Lord Dundonald a seemingly trenchant opinion: "I am not surprised at your lordship's aversion to patents. They are bad, and deficient for the purpose intended in many respects, and as many foreigners may learn the discoveries for which the patents have been granted at the expense of a few shillings and practice them immediately in other countries whilst the hands of all British artists and manufacturers are bound during the term of the patent. Considered in this light, patents are highly pernicious to the community *amongst whom the invention originated* and a remedy is much wanted in the patent office for this evil."¹⁹² Such a declaration might prompt us to infer that Wedgwood, like many others at the time, was a fierce critic of the patent system. On the contrary, his opinion seems to have changed over time, according to contingent situations. In 1767 Wedgwood had tried to take advantage of the patent records as he asked a friend to get a copy of Count de Lacuaquais's specification for the making of porcelain, "letting the cost be what it will".¹⁹³ He attempted to take advantage of the same opportunities provided by the patent rolls, which he would later denounce to Dundonald as a dangerous bug of the patent system. As

191 Neil McKendrick, "Josiah Wedgwood and Factory Discipline", *The Historical Journal*, 4:1 (1961), 30-55.

192 Dutton, 1984, p. 26-27. My italics.

193 Bottomley, 2004, p. 186.

Harris points out in his study of 18th century industrial espionage, it seems that Wedgwood, along with many other industrialists of his age: “was not committed to any purist, high moral ground view about industrial espionage: if there were foreign processes and technicians that would be valuable to us, it was commonsense for us to procure them by means fair or foul.”¹⁹⁴ In fact, as we shall see, Wedgwood took out a patent for the encaustic colours of his antique vases, but his 1769 patent crucially proved to be too weak a tool to enforce and give strength to his intellectual ownership.

Who has the secret of porcelain? Wedgwood's opposition to Cookworthy's patent

On one occasion on which Wedgwood clearly managed to exploit the patent system to his own advantage, skilfully arguing the case for the Staffordshire potters against a partner of the Bristol china manufactory, Richard Champion. This contest dates back to 1775, the year of Boulton and Watt's fundamental success in lobbying Parliament for an extension of their 1769 patent. By this time, Wedgwood had grown interested in West of England clay trade. His main contact there was Thomas Hyde of Poole, with whom Wedgwood planned to establish a trade in white clay, to be dispatched along the Trent and Mersey Canal and brought to his factory to be worked by his artisans, via Gainsborough. However, the use of Cornish clay was restricted by a patent, William Cookworthy's exclusive rights over a method of making porcelain from native English materials. In 1774 this patent was sold to Richard Champion, a dealer and ceramicist who would later become a protégé of Richard Burke. Little concern was manifested from the part of the earthenware manufacture of Staffordshire, until Champion applied to Parliament to obtain an extension of his privileges. Champion managed to have his

¹⁹⁴ Harris, 2000, p. 478.

patent Bill passed by the Commons, without opposition, but the Staffordshire potters, captained by Wedgwood, were able to jeopardize his progress in the Lords. On the 5 March 1774, Wedgwood invited Bentley to mobilize their good connection: “Several Gentlemen you know I should have waited up[o]n if time would have permitted respecting our opposition to Mr Champions Bill. In particular our County Members, & all the Members from the several Borroughs in Staffordshire, & I am afraid they will be offended with the omission of this *Personal* application. Sir Wm Bagot is in Town- pray see him. Likewise our good Frd Ld Stamford – Ld. Guernsey - & some others you may find in the Court Calender. - Do now my Dear Frd. Get into your Chariot & visit these good Gentlemen & solicit their assistance on our great day. It will do you some good & your Country a great deal.”¹⁹⁵ There ensued a paper war fought by means of pamphlets and petitions, each party attempting to exert the utmost influence on Parliament. Thanks to the influence of one of Wedgwood's patron, Lord Gower, Richard Champion's Bill was substantially amended, according to the requests made by the earthenware manufacturers. In particular, Champion was requested to submit a specification including the exact formula of his porcelain mixture.¹⁹⁶ Nevertheless, in order to avoid patent protection, it was sufficient to use the same ingredients in different proportions. Therefore, as Burton points out: “at the end of the day Champion was left with his porcelain, and the Staffordshire potters were free to invade Cornwall.”¹⁹⁷ As we have seen, the contest between Champion and the Staffordshire manufacturers had a public interface. Therefore, it underwent a conceptualization which translated private interests into a discourse over legitimacy, property, invention and the public good. Wedgwood played an important role in this quarrel, as he effectively formulated the case against Champion's patent. Writing on behalf of himself and the Staffordshire potters,

195 J. Wedgwood to T. Bentley, 5 March 1774, Katherine E. Farrer, *Correspondence of Josiah Wedgwood*, Cambridge University Press, Cambridge, 2010 [1903], 3 vols., p. 64.

196 See Anthony Burton, *Josiah Wedgwood*, Andre Deutsch, New York, 1976, p. 145; Brian Dolan, *Wedgwood: the first tycoon*, Penguin books, London, 2004, p. 239.

197 Burton, 1976, p. 146.

Wedgwood presented a *Memorial* to the House of Commons. He argued that pottery had been a flourishing market and a growing branch of British manufacturing. However: “the further Improvement of the Manufactory must depend upon the Application and free Use of the various Raw Materials that are the Natural Products of this Country.” Thus, from the very beginning, Wedgwood claimed that the public interest could not but be against Champion's extension of his monopoly. In fact: “That the Raw Materials now secured for a limited Time to the Petitioner, may at the Expiration of the Patent assigned to him, be of great Use to enable the Potters, throughout Great Britain, to improve their Manufactures into the finest Porcelain; and thereby produce a Branch of Commerce of more national Importance than any of this Kind hitherto established.”¹⁹⁸ Hence, Wedgwood points out the major difference between James Watt and Richard Champion's application for an extension of their respective patents: “The Case of the ingenious Mr. *Watt*, and the Extension of his Patent, having been urged in Favour of Mr. *Champion's* Application for the like Indulgence, it may be proper to observe that the Cases are far from being similar, - Mr- *Watt* being the *original Inventor* of the Machine for which his Patent was granted, and Mr. *Champion* the *purchaser only* of the unexpired Term of a Patent granted to another Man, who does not appear to have any Interest in this Application.”¹⁹⁹ Hence it is interesting to note that intellectual ownership is clearly distinguished from the patent as a document and as regards its related rights. In fact, being only the purchaser of Cookworthy's patent, Champion owned the patent, with its terms and conditions (at the moment of the transaction) but not the moral right to ask for its extension. After all, argues Wedgwood, the patent was a perishable good and Champion bought: “the remaining Term of the Patent at a *proportionate Price*.” The patent holder would answer this objection in his *A Reply to Mr. Wedgwood's Memorial relative to Mr.*

198 Llewellynn Jewitt, Frederick William, *The Wedgwoods: Being a Life of Josiah Wedgwood; with Notices of His Works and Their Productions, Memoirs of the Wedgwood and Other Families, and a History of the Early Potteries of Staffordshire*, Virtue Brothers and Co., London, 1865, p. 238.

199 *Ibid.*, p. 238.

*Champion's Application for a Bill to prolong his Patent for making Porcelain.*²⁰⁰ Champion would restate his claim by pointing to public utility and the justice of compensation: “His hopes of success were based 'on two circumstances: the first, the apparent utility resulting from such a manufacture carried to a perfection equal to that of the Dresden and Asiatic. The second circumstance on which he grounded his expectation was the sense which he hoped the House would entertain of the *justice of compensating, by some reasonable privilege, the great labour, expence, and risque* which had been incurred, not only in the invention of the material and composition, but in the improvement of this important manufacture.”²⁰¹ Therefore, as should now be clear, the context of this quarrel imposes upon its actors the kind of arguments which have to be made, as Watt did in his own texts, Champion here demanded acknowledgment of his labour and individual merits. Hence, while answering Wedgwood's accusation that he lacked the necessary skills to exploit the potential of his patent, Champion would declare: “Nor is Mr Wedgwood more excusable for his implication that a want of skill prevented the wok being brought earlier to perfection. Undoubtedly the difficulty arose from a want of skill in working these new materials. This is a profound as well as civil remark of Mr. Wedgwood's; but that skill was to be acquired only by care and expense, and that care and expense are Mr. Champion's merits.”²⁰² The petitioner also reassures his competitors. His patent is not *sic et simpliciter* for raw materials; rather the patent covers the mixture which he works to produce porcelain: “It is contended that Mr. Wedgwood, and every manufacturer, should *reap the fruit of their labour*; all he asks is, such a protection for his own as the legislature in its wisdom shall think it merits.” The remark that Champion was not the original inventor of the patented improvement: “is unjust, because he has been many years concerned in this undertaking: nearly from the time the patent was granted to Mr. Cookworthy, in whose name it continued till assigned over to Mr. Champion. To deny the

200 Ibid.

201 Ibid., p. 240. My italics.

202 Ibid., p. 241.

advantage of any part of Mr. Cookworthy's merits to this assignee is to deny that advantage to Mr. Cookworthy himself."²⁰³ While replying to Wedgwood, Champions defended his property claims by remarking his merits in terms of labour and material investment: "Mr. Champion can assert with truth that his hazard and expence was many times greater than his hazard and expence was many times greater than those of the original inventor. Mr. Champion mentions this without the least disparagement to the worthy gentleman, who is his particular friend; he gives him all the merit which was due to so great discovery; he deserves it, for finding out the means of a manufacture which will, in all probability, be a very great advantage to this country; but yet Mr. Champion claims the merit of supporting the work, and, when the inventor declined the undertaking himself, with his time, his labour, and his fortune, improved it from a very imperfect to an almost perfect manufacture; and he hopes soon, with proper encouragement, to one altogether perfect."²⁰⁴ However, in spite of his rare engagement in such contests and notwithstanding his sensitivity to the legal battles and debates which involved his Birmingham friends, Josiah Wedgwood was very soon disillusioned with any possibility of successfully defending his creations within the patent system. Maxine Berg points out that patents could be useful in many respects. They could represent a form of advertising, they conveyed a social status and a gloss of technical expertise and modernity. Nevertheless: "competition was so fierce *in fast-moving fashion markets* that expensive *patenting processes* formed no *protection for intellectual property rights*."²⁰⁵ Josiah learnt this at his expense.

203 Ibid. My italics.

204 Ibid., p. 241.

205 Berg, 2005, p. 179.

Imitators of imitations: Wedgwood's competitors and copyists

Like Watt, he registered a letter patent in 1769 in order to protect the process of obtaining the encaustic paint he used to give a new look to his wares. In January Wedgwood visited London to acquaint himself with the most fashionable goods in the market. He would report that Etruscan vases were still at the peak of their success, while marbling and gold were growing popular and in general there was an “epidemical madness” for vases. Such a demand would last and Wedgwood was hoping to meet it with his new encaustic colours. The figures on his wares were painted by means of an antique-looking matte finish rather than the usual enamel. Josiah's secret pigment was a mixture of several chemicals with bronze powder, vitriol of iron and crude antimony.²⁰⁶ By the autumn of 1769, we find Wedgwood characteristically torn between his strong entrepreneurial instinct to keep his secret and the need to make and sell as much as possible, in an attempt to contrast imitation by means of superior timing:

“I want to talk very seriously to my Dear Friend about *Encaustic Vases*, pray sit down, take a pipe, & compose yourself. If our potters once make the black body they will mimick the painting as soon as they see it, this shews the necessity of doing a quantity in as little time as possible. I will engage to supply you with Vases enough for all the *good* painters in England. You say you can sell a Waggon load a week, if you sell that quantity in the Season, you must have ten Waggon loads of painters to finish them.”²⁰⁷ Timing was everything, because he knew imitation could not be eluded for long. Hence, ten days later Wedgwood would write again to Thomas Bentley, recommending discretion. Advertising was important, but also necessitated caution. Thus Wedgwood advised his partner: “The Encaustic will be imitated as soon as seen, let us therefore when once we begin, push it with all our force [...] I think you should make a point of shewing, & selling these yourself

²⁰⁶ Dolan, 2004, p. 227.

²⁰⁷ J. Wedgwood to T. Bentley, 17 September, 1769. In Farrer, 2010, p. 273.

only, lock them up, do not let Parker see them, *remember Voyez is in Town*, & the Warehousemen should not have it in their power to shew a pair of these Vases for sale.”²⁰⁸

On 1 October 1769 he stated that: “Customers should not be distracted with too great a profusion of variety, I shall nevertheless be bringing other things in forwardness to succeed the encaustic which I look upon as our principal article for the ensuing season.” With respect to “Rivalship”, he would optimistically reassure his friend: “we will cast all dread of that behind our backs, treat it as a base, & vanquish'd enemy, & not bestow another serious thought upon it.”²⁰⁹ References to competitors, industrial espionage, and forgery are not infrequent in Josiah's letters and John Voyez definitely features there as one of his most resolute imitators. Voyez was a Frenchman who had been working in England for the most of his life. We know that his work grew more important when he started his collaboration with Wedgwood in 1768. According to Moore, who dedicated a chapter of his book to this “man of mystery”,²¹⁰ Voyez's first work was a glass cameo portraying King George, produced in about 1766. His admirers claim that this cameo was the forerunner of the material which Wedgwood would later call jasper. However, it is certain that the relationship between the Frenchman and his former employer deteriorated quite rapidly. In fact, this talented enameller worked for Wedgwood for only one year, as a prominent artist at Etruria. At some point, seemingly out of the blue: “his besetting sin overcame him, and he was riotous, disorderly and drunken on the premises of the Wedgwood works, for which he was sentenced to be flogged and imprisoned three months.” During these months, he is said to have carved a large panel of ivory which he entitled: “Prometheus Ale-bound!”²¹¹

Voyez was not yet out of prison, when Wedgwood was faced with a dilemma over

208 J. Wedgwood to T. Bentley, 27 September 1769. Ivi, p. 288.

209 J. Wedgwood to T. Bentley, 1 October 1769. In Farrer, 2010, p. 297.

210 N. Hudson Moore, *Wedgwood and his Imitators*, Frederick A. Stones Company, New York, 1909, p. 96.

211 Ibid.

the best way to deal with his former employee, and attempt to preserve his industrial secrets. His solution would reflect his usual inclination to compromise. However “lazy” and unreliable Voyez could be, he argues: “to live in this world, *as matters & things are constituted, it is sometimes necessary to make a truce with these sensations*, whilst we manage a Rascal, our evil stars have thrown in our way, *to prevent repeated injuries which he might otherwise do us.*”²¹²

However, more problems with Voyez were to come.

As soon as the riotous artist regained his liberty, Wedgwood came to know that he had associated himself with another potter, a certain Palmer of Hanley.

The latter could neither make jasper nor fire it properly. Therefore, as Wedgwood had foreseen, the Frenchman's skills became a danger to his past firm.

Besides himself being a valuable modeller, Voyez could also sell the knowledge he had acquired while working in Burslem under Josiah's eye. Burton suggests that Wedgwood even attempted to purchase Voyez's silence by paying his full salary, provided that he just kept doing nothing.²¹³ Apparently, this agreement did not work, as we have evidence of Voyez still working in 1780 and counterfeiting Wedgwood's seals as late as the 1770s. We will find him mentioned again in some of Josiah's letters from 1774. Now let us go back briefly to Wedgwood's patent, which was registered in 1769, the same year as Watt's most important patent on the separate condenser.

For one year, Josiah repeatedly advised his partner to be as discreet as possible, in order to prevent any unnecessary leak of relevant information about their encaustic vases. It was not long, however, before the bad news he had always expected finally arrived from London. Hence, the founder of Etruria was informed of a potter, H. Palmer, who was producing antique-style vases, painted with encaustic colours. The latter was a fine potter who had established himself at Hanley in about 1780 to manage his enterprise with the help of his wife, the daughter of an

212 J. Wedgwood to T. Bentley, 9 April 1769. My italics. In Farrer, 2010, p. 260.

213 Burton, 1976, p. 96.

older potter, and his brother-in-law John Neale, who took care of the marketing in London.

Owing to some financial hardship, the firm was taken over by Neale in 1776 and, following a new partnership with Robert Wilson in 1778, it commenced working under the name of *Neale and Co.* In 1787 it became *Neale and Wilson* and from 1800 Wilson's son turned it into *C. Wilson*.

Josiah had been alerted about Palmer from as early as 1768, when he first knew that a London china merchant was sending all the new patterns to Palmer, who worked near Burslem, as soon as they arrived at Wedgwood's showrooms. He had therefore warned William Cox, who acted as his trusted agent in London, to be particularly vigilant with visitors.²¹⁴ The early 20th century historian, N. Hudson Moore cites Palmer as one of the most effective copyist of Wedgwood's pottery.²¹⁵ His story is indicative of the kind of commercial espionage affecting Wedgwood's wares and design. Apparently, Palmer used to send his wife disguised to buy some samples of the new patterns which regularly arrived in London from the potteries at Burslem and Etruria. He also employed Voyez as his modeller in order to reproduce the reliefs on Wedgwood's vases.

In 1770 Palmer and Neale appeared to have violated Wedgwood's patent on the encaustic finish: "I expected no less than what you have wrote me respecting the invasion of our Patent & I apprehend they will persist in it to the utmost so that a trial seems inevitable, & if so, the sooner, the better."²¹⁶ Notwithstanding Wedgwood's early firmness, the patent system would turn out to be a very slippery ground when it came to defending his design, the very essence of his invention being questioned by this determined and sly competitors: "Another of his intended pleas is, that *our Patent is not founded upon a new invention, but upon an improvement only*, & they do not fear, if this should fail them, of proving that our

214 Dolan, 2004, p. 181.

215 Moore, 1909, p. 99.

216 J. Wedgwood to T. Bentley, 13 Oct. 1770. In Farrer, 2010, p. 377.

Patent will be *a detriment to trade*.”²¹⁷ The struggle must have been bitter, Wedgwood’s antagonist “moving *Heaven & Earth*”,²¹⁸ and it grew so expensive that the two parts, after showing signs of détente,²¹⁹ would reach the conclusion that “Mr P[almer] should be admitted a sharer in the P[aten]t & that it should be left to reference what he should pay for his share of the P[aten]t.”²²⁰ This bitter experience of the uncertainty of the patent law would be followed by several other cases of unfair competition.

In 1774 the name of John Voyez re-appears again in Wedgwood's epistolary exchange. His Majesty's Potter had to deal with the unfair imitation of his seals by Voyez who put “our names in full length in his seals.”²²¹ The contest would again be very uncertain, Wedgwood relying for informations on the testimony of one of Voyez’s former servants,²²² and Voyez showing his usual shamelessness: “When he is ask’d by any Gentleman whilst he is selling his Seals, why he puts Wedgwood & Bentley upon them. 'I borrow & lend with them', he says, 'when I am out of any particular sorts, or they want any that I have, we borrow & lend with each other'. So you see we are upon very friendly terms, & it might be a pity to interrupt this mutual exchange of good offices by an Action of trespass. What do you think of it? *I do not know how far this kind of Forgery is punishable by Law* but it is not very pleasing, & should be in some way or other be contradicted’.²²³ Nevertheless, time would once again mitigate his determination to fight his unfair competitors: “The Lad [Voyez's former assistant] told me they had not put our Names upon their Seals of some time; so it may perhaps be as well to let the Thief alone. *I hate any sort of contest, if it can decently be avoided, with a dirty Fellow; it being almost impossible to keep ones self un-mired*.”²²⁴ It was the laws' ineffectiveness when it

217 J. Wedgwood to T. Bentley, 21 Jan. 1771, *Ibid.*, p. 392.

218 J. Wedgwood to T. Bentley, 23 Feb. 1771, *Ibid.*, p. 403.

219 J. Wedgwood to T. Bentley, 17 Apr. 1771, *Ibid.*, p. 410.

220 J. Wedgwood to T. Bentley, 13 Jun. 1771, *Ibid.*, p. 420.

221 J. Wedgwood to T. Bentley, 4 Dec 1774, *Ibid.*, vol. 2, p. 96.

222 *Ibid.*

223 J. Wedgwood to T. Bentley, 13 Feb. 1776, *Ibid.*, p. 154. My italics.

224 J. Wedgwood to T. Bentley, 3 Mar. 1776, *Ibid.*, pp. 163-164. My italics.

came to protecting what really mattered for Wedgwood, which prompted the potter to defend his own creations, avoiding the expense of lengthy legal battles over the legitimacy of patents. This is transparent in the way *Etruria* worked as a powerful device for the creation, maintenance and defence of his intellectual property.

The factory embodies all the following features. On the one hand it was, along with the showrooms, the aristocratic salons, the embassies, and the courts, a place where the process of authorship attribution and promotion occurred. It was a 'showcase' factory which welcomed a select elite and offered an immediate impression on how Wedgwood's products were created and how the vertical, highly specialized, productive system was orchestrated by the head of the community, the great organizer behind the toil of hundreds of men.

But Etruria was also the place where loyalty was instilled, artists were forced to abandon any pretensions to the fruits of their creativity, and the flow of information was fragmented, department by department, each physically separated from each other. Finally, Etruria was meant to appear ideally as an inexpugnable fortress impregnable to potential spies, although its imperviousness was often tested.

Suborned workmanship and the problem of limiting the circulation of knowledge

Maintaining secrecy regarding Wedgwood's own industrial processes was crucial in order to gain the lead over his competitors and to produce something new to put before the market so as to replace obsolete and widely imitated goods.

But as the case of Voyez taught him, industrial counter-espionage could work with the cooperation of his employees.

On the other hand, keeping his workers loyal grew increasingly difficult, as in

1779 a violent protest arose across the manufacturing provinces, leading to lasting unrest. This general state of lawlessness and depredation was partially due to the ongoing war in the American colonies, which effected the supply of young workers at home.

On an October morning in 1779, a mob gathered outside Richard Arkwright's cotton mill in Lancashire. According to a witness who reported the deeds in Parliament, the rioters were "armed in a warlike Manner". They broke into the mill and destroyed the spinning machine before setting the building on fire. On the same day, Josiah happened to be in Lancashire. He had to rush back to Etruria, from whence, on the 9 October he wrote to Bentley: "We met the mob on Saturday, but I apprehend what we saw were not the main body, for on the same day in the afternoon a capital engine, or mill, in the manner of Arcrites, & in which he is a partner, near Chorley was attacked, but the owner with the assistance of a few neighbours repulsed the enemy. Two of the mob were shot dead upon the spot, one drown'd, & several wounded. The mob had no firearms & did not expect so warm a reception. They were greatly exasperated & vowed revenge: accordingly they spent all Sunday, & Monday in collecting fire arms, & ammunition, & melting their pewter dishes into bullets."²²⁵ According to Wedgwood, the riotous crowd had already smashed several engines and "meant to serve them all so through the country."²²⁶ Their fury was rooted in the economic crises caused by the war with the American revolutionaries and by their fear of being made unemployed because of the new technology. When the agitation was over, the government nominated a committee to scrutinize the arguments of the workers and the industrialists.

The contests was won by the manufacturers who managed to convince the ad-hoc committee that new machinery would benefit the trade, thereby accruing the wealth of the country, including the workers.²²⁷

225 J. Wedgwood to T. Bentley, 9 Oct. 1779. Ivi, p. 421.

226 J. Wedgwood to T. Bentley, 29 Sept, 1779. Ivi, p. 420.

227 Dolan, 2004, p, 298.

In other words, machines were replacing workmanship but also created new jobs for those who operated them and kept them working. In the case of Wedgwood's own workmen, however, the prospect of mechanization was not so bright. On the contrary, Wedgwood's employees felt they were losing their contractual leverage, as their unskilled job was much easier to replace.

Moreover, a generation of artists and artisans was quickly converted into industrial workforce, trained to deal with single parts or aspects of the final artefact. As a consequence of this, workers were not let into the secrets of the entire process of production and could hardly sell complete information. Many of them believed there was a conspiracy against them, as the General Chamber of Commerce called for legislation to prevent the emigration of skilled workmanship abroad.²²⁸

In 1783 new riots involved Etruria more directly than ever. This time Wedgwood was away from home but his sons gave him a full description of the events. According to Joss Wedgwood, one of their boat loaded with grain had left Manchester and a riotous mob followed it, aiming to capsize it:

“I think they had notice of it from our works, there were several hundreds of men, women and children who followed it to Long Port & there a man jumping into the boat the boatman cut the rope & with the knife struck at the man, immediately half the mob cried *put him into the canal* which they would certainly have done if some gentleman had not interfered & got into another boat. Then they brought the boat in triumph to this place & lodged the contents in the crate shop: this was between 3 & 5 o'clock this evening. About half past seven four men came up to the house & asked for something to eat & drink as they were to sit up to guard the corn flour &c. John went to them & told them a great deal my mother followed and said some more & then they went off.”²²⁹ Once the riot was over, some of the leaders were captured and one of them was sentenced to death. Later, Wedgwood printed an address directed not at the rioters, but at their children, asking them to disavow

228 Ibid., p. 300.

229 Reported in Burton, 1976, p. 186.

the actions of their parents. According to Burton he intended to “lecture the poor on their behaviour”, thus showing another example of his inability, to be sympathetic to the sentiments of the poor.²³⁰ Notwithstanding the seemingly friendly incipit of his *Address to the young inhabitants of the Pottery*, the content of the pamphlet is anything but appeasing. As in his later pamphlet on suborned workers, Josiah wrote like a patriarch, setting forth from the very beginning a totally uneven interlocution with his ideal readers:

“My Young Friends! The very serious events which have just now taken place amongst us, must alarm every one who has any regard for the welfare of his country or good wished towards the deluded people themselves, who were concerned in the late Riots: but young minds like yours receive stronger impressions, and are more affected with such uncommon appearances than older people; at the same time for want of that experience which should accompany riper years, you are more likely to be misled in judging of the part you ought to take when such violent measures are in agitation [...] I therefore, address myself particularly to you, because when you are placed in these unhappy circumstances, seeing those who have fed and protected you from your infancy very forward in promoting such disorders, it is not to be wondered at that you should approve their actions, and be prepared yourselves to follow their example upon any future occasion.”²³¹

Wedgwood goes on to explain why the exence of provisions, which was said to be due to the poor harvest, could not legitimate any uprising aimed at expropriating the providers of the fruits of their labour. Violence and theft will not induce the farmers to supply the poor neighbours in better degree. In fact: “[T]hese certainly are not the proper means to redress the grievances complained of, and as the corn grown in our own neighbourhood is not at all sufficient for our wants, we should at least permit those, who supply us with this and other necessaries of life

²³⁰ Ibid., p. 187.

²³¹ Josiah Wedgwood, *Address to the young inhabitants of the Pottery*, 1783, p. 3. A copy of this pamphlet is held at the University Library, Cambridge, (9474.d.1144).

from distant parts, to do it with safety to their persons and properties.”²³² Leaning on a definition of 'property' as the fruit of one's labour, Wedgwood claims that no contingency of the market could provide valid grounds for violence against persons and properties: “I say the laws Must *protect us both*, for if it was not so, there would be an end of all government, an end of the state. - No man could be secure in the enjoyment of the fruits of his labour for a single day. - No man therefore would labour, but the stronger would rob and murder the weaker, till the kingdom was filled with rapine and violence, and every man afraid to meet his neighbour. The land would be untilled, for who would plough or sow without the hopes of reaping for himself, and being protected in his property: famine, and its companion pestilence, must follow, and sweep the miserable remains of the people who had not murdered one another, into an untimely grave, the kingdom itself falling a prey some foreign invader.”²³³

The sword of justice exists precisely to prevent arbitrary violence against both people and their belongings. Wedgwood, therefore almost threatens that: “you may be convinced of the folly, as well with respect to yourselves as the public, of resisting that power [of Laws] in the first instance, which must in the end prevail. If any one doubts of this, I call upon him to name a time or place, in this or any other civilized nation, where a tumultuous rising of the people. Obstinate refusing to disperse, has not been quelled either by the civil or military powers of the state. It is indeed impossible, from the nature of things, that it should be otherwise; for if order and obedience to the laws could not be restored, there must be an end of that community.”²³⁴

In the same period and in the context of the protection of less tangible sorts of property, Wedgwood authored another pamphlet, tackling the problem of suborned workmanship: *Address to the Workers in the Pottery on the Subject of Entering into the Service of Foreign Manufacturers*.

232 Ibid., p. 7.

233 Ibid.

234 Ibid, p. 10.

In spite of their declared different purposes, Wedgwood's two *Addresses* show some rhetorical similarities. Both pamphlets are generally concerned with the issue of property and illicit expropriation. Both feature a patriotic rhetoric, resting upon the assumption of a perfect coincidence of private interests (either the manufacturers' or those of the poor and the workers) with the public good. Finally, the author shows a paternalistic attitude with respect to his ideal interlocutors. Thus, in the first instance he addresses the rioters' children, almost as if he meant to replace their parents' fallen moral authority, in the second pamphlet he relates to the “seduced” workmen of the pottery, meaning to persuade them to give up any temptation for quick profit and to remain loyal to their employers and their country. The text reads as if the author wanted to arouse the workmen's critical acumen, saving them from their ignorance and naïveté. However, should these arguments prove insufficient, Wedgwood sponsors the brute force of law and describes the risks run by those who transgress.

The message is crystal-clear: British workmen should consider carefully the consequences of dealing with enemies of the Nation.

According to Harris, industrial espionage was intended as a kind of warfare in which “patriotism was as much an essential element as in the overtly military kind, and it behoved all who had national interest at heart, ministers, magistrates, merchants, industrialists, even workers, to join in frustrating the knavish tricks of technologically acquisitive foreigners.”²³⁵ But like a wise head of the family with his children, Wedgwood also writes with the apparent intention to preserving them from the sly seduction of his international competitors and from the bitter disappointment which may ensue.

Again, there is no discrepancy between what is good for the Nation and what is good for manufacture, including the workmen:

“As some attempts have lately been made to seduce you into the service of foreign manufacturers”, claims Wedgwood, “and I am so fully persuaded it would be

²³⁵ Harris, 2000, p. 478.

contrary to your own interest, as well as that of your country, to accept such offers, however tempting they may, by false colouring, be made to appear.”²³⁶

Expatriates were pushed into the arms of foreign employers by the illusion of a brighter destiny away from home. On the contrary, argues Wedgwood: “It may with great truth be asserted, that higher wages are given to manufacturers, particularly to potters, and that greater care is taken of the poor when sick or past labour, in England, than in any other part of the world; notwithstanding which, many of our people have, at different times, been enticed into foreign service by flattering promises held forth to them having got the better of their discretion.”²³⁷ The victims of this swindle have generally been: “of the *looser kind*, such as no advantages could satisfy at home; but so far have they been from bettering their circumstances by yielding to a *rambling disposition*, that in the end they have found themselves miserably deceived by promises too extravagant ever to be fulfilled.”²³⁸

Therefore, the author continues with a suggestive narrative on the risks of emigrating under such false expectations and his story-telling assumes the style of an adventurous romance, starring shipwrecks, harsh treatment, struggles for survival, everything magnified by distance from the homeland. He addresses particularly cases of emigration to the American colonies and France, apparently two of the most recurrent destinations for suborned British workers.²³⁹ The first case mentioned is that of Mr. Bartlem, a skilled potter who went to South Carolina and, once there, attempted to recruit some workmen and persuade them to join his new venture. He managed to conquer some of them, so that: “They took shipping at Bristol, and after more than a quarter of a year spent in storms and tempests upon the sea, with many narrow escapes from shipwreck, they at last arrived safe,

236 Josiah Wedgwood, *An Address to the Workmen in the Pottery, on the Subject of entering into the Service of foreign Manufacturers*, 1783, p. 3. Available at the University Library of Cambridge, (item no. 9 in volume Ddd.25.133).

237 Ibid.

238 Ibid. My italics.

239 Harris, 2000, p. 479.

and begun a work near Charlestown. This adventure being encouraged by the government of that province, *the men puffed up with expectations of becoming gentlemen soon*, wrote to their friends here what a fine way they were in, and this encouraged others to follow them. But change of climate and manner of living, accompanied perhaps with a certain disorder of mind to be mentioned hereafter, (which have always made great havock among the people who have left this country to settle in remote parts) carried them off so fast, that recruits could not be raised from England sufficient to supply the places of the dead men. In Mr. Godwin's own words to me, whose son was one of them, they fell sick as they came, and all died quickly, his son amongst the rest.”²⁴⁰

Also the tragic fate of the Lymers is described as illustrative of what emigrants could encounter far from home. It is another emphatic tale with an unhappy ending: “Lymer, at the solicitation of his brother-in-law, not only went over himself, but took with him his wife and two children, and all his effects. They met with very stormy weather, and were at last shipwrecked near an island of which I cannot learn the name. The ship was entirely lost, with all the effects of these passengers, but they themselves happily, and very wonderfully, got on shore, though most of the sailors were drowned.”²⁴¹ But disaster was only slightly deferred: “After the first flood of joy was over for their deliverance from immediate death, they soon found themselves in a most comfortless situation, thrown by the waves upon an unknown island (unknown to them at least, both the place and the people) and destitute of every necessary but the clothes that covered them. In addition to their distress, Mrs. Lymer, who was near downlying when she left England, brought them forth another little sufferer, for whom they had not the least provision, but were left entirely dependant for all things upon the humanity of utter strangers: who, nevertheless, being a kind-hearted people, supplied them with clothes for their helpless infant, and meat and drink for themselves; otherwise, they had escaped death at sea, only to meet him in a more terrible form by land.

²⁴⁰ Wedgwood, *An address to the workers...*, 1783, pp. 4-5.

²⁴¹ Ibid.

Young Allen, one of this unfortunate company, too impatient to wait for Mrs. Lymer's being in a condition to put to sea again, shipped himself in a vessel, which he found there, bound for Carolina. The rest followed as soon as they were able, but all the enquiries they could make after young Allen were in vain; neither he nor the ship have been ever heard of from that day to this, so that he was certainly cast away; and they were themselves, alas! Reserved only for a more lingering death. Mr. Lymer, his wife, and the two children they took with them, all fell sick and followed the rest of their countrymen”.

Wedgwood's pamphlet goes on to focus upon France, that other great seducer of British skilled workers. The author argues that the French did not pay more than the British, rather French manufacturers attracted skilled workers only to cast them aside as soon as their knowledge was transferred to local workmanship.²⁴² Wedgwood rehearses the case of George Shaw, one of his competitors who established himself in France and eventually went back to England as an agent to recruit some skilled workers.

According to the author: “This man boasted much, as every one who expects to succeed in such a business must do, of his masters, of his own good circumstances, of the wages he receives, &c. - and offered to any men who would go with him double the wages they can get here.”²⁴³

As the French potteries lagged behind the British, argues Wedgwood, it is not possible that French employers could pay higher wages than him. Therefore, after these scaremongering tales of death, swindles, and bankruptcies, Wedgwood seems to have eliminated any motivation to seek wealth and success abroad:

“I might here call upon you to reflect on the fate of those, who could not content themselves with the good things of their own land, a land truly *flowing with milk and honey*; and exhort you to beware of falling into the like errors as you would

242 Ibid., p. 11.

243 Ibid., p. 10.

wish to escape the like fatal consequences.”²⁴⁴

Nevertheless, however persuasive and rhetorically skilled Wedgwood might have been as a pamphleteer, the image of international spies as seducers of ignorant and naïve workers does not correspond entirely to reality.

On the contrary, there is some evidence that sometimes workmen took the initiative themselves. The following letter was addressed to George Bris of Douai, in Belgium: “I understand you want some workman in the Different Branches of the potting and I have it in my power to serve you if we can agree upon terms. I can bring a turner, a presser and handler, a modeller and a man that can make as good a China glaze and Enamel colours as any man in the country and both he and me are painters either in blue or enamel, likewise his wife...If you chuse [sic] I will come my self first and settle for one of us and come back a gain to England for them. All the rest of us are married except my self and I will run the risk of any thing happening from the masters in this country. You must excuse my not dating my letter...for I do fear it should be broken open...”²⁴⁵ As far as we know, this missive was opened and presumably filed together with the intercepted letters on illegal emigration. However, addressing workmen as if they were defenceless and targeted by astute and predatory foreign agents, was a rhetorical feature of that paternalistic ethos which was so evident from Wedgwood's first 1783 address to the sons of the rioters.

For Wedgwood, one of the harbingers of welfare capitalism, industrial paternalism was much more than mere discourse. It was a set of practices which embodied his progressive Enlightenment values and, on the other hand, contributed to win the loyalty of his subordinates. As Dolan puts it, his authority was “underwritten by an *individual paternalism*, wherein his role was to teach obedience, humility, sobriety, and right conduct.”²⁴⁶

244 Ibid., p. 9.

245 Richard Tames, *Josiah Wedgwood. An illustrated life of Josiah Wedgwood, 1730-1795*, Shire Publications, Princes Risborough, 1995, p. 34.

246 Dolan, 2004, p. 266.

Wedgwood was the patriarch of a close community of workers. To those who remained loyal to him, he offered a neat house in Etruria Village, adjacent to the factory, but he also provided their children with adequate schooling and even set up a collective plan of health insurance to assist his employees and their families in case of disease or death.²⁴⁷ Dolan sees all these measures as stemming from Wedgwood's genuine moral and political views. Social housing, education and welfare were important pieces of that great Enlightenment mosaic which, thanks to rational organization, sought to realize concrete improvements in standards of living. This interpretation is suitable to Dolan's typically culturalist portrait of Wedgwood as the 'entrepreneur to the Enlightenment'.

Nevertheless, as brilliantly shown by Patrick Joyce in his study of Victorian industrial society, paternalism was also a pivotal cultural component of class domination and would play a key-role in the preservation of social stability throughout the 19th century. According to Joyce, even the most individualist laissez-faire ideology was perfectly compatible with industrial paternalism, as shown during the first half of the century. Notwithstanding the apparent contradiction between laissez-faire economy and paternalist ethics, "viewed in other terms, employer paternalism was the outcome of laissez-faire ideology and not its logical opposite."²⁴⁸ Joyce focuses mostly upon later Victorian England and any consideration of 18th century labour relations is beyond his scope.

However this influential research reaches some insightful conclusions with regard to the complex relationship between seemingly divergent rhetoric, and world-views: "That employer paternalism in practice often overstepped the limits of independence is clear. That this was very often done with immunity is testimony to the extent to which the bulwark of independence erected before mid-century was breached in the following decades, as a fully developed factory industry consolidated its social effects. Just as often, employer paternalism overstepped the

²⁴⁷ Ibid., p. 269.

²⁴⁸ Patrick Joyce, *Work, Society and Politics. The Culture of the Factory in later Victorian England*, Methuen, Bristol, 1982, p. 138.

strict limits of *laissez-faire*. Among all these various considerations [...] *the constant divergence between the principle of the ideologue and the practice of the employer is perhaps the most striking.*"²⁴⁹

It should now be clear, that what we may consider as the evidence with which we can reconstruct Wedgwood's as well as Watt's ideologies, are instead, mostly rhetoric deployed contingently and answering specific strategic needs. Thus Wedgwood's reoccurring strife against piracy, coexists with occasional tension between opposed values, for example, secrecy as opposed to fame and public good, or as we have seen, radically conflicting views on the patent law.

But what do we know about Wedgwood's political views? How did he reconcile his political beliefs with the practice and the rhetoric of paternalism? Burton claims that: "He was aligned, roughly, with the radical, dissenting group of which Bentley was a member and Priestley a more extreme leader. Wedgwood was in favour of the generalized *libertarian* sentiment found in Thomson. In practice this *libertarianism* stopped short at the pot works gate. In his own factory, Wedgwood was absolute ruler."²⁵⁰

Wedgwood's progressivism was apparent in the circumstance of the political mobilization against slavery. The abolitionist party brought together Wedgwood, Bentley, and their Lunar friends, particularly Day and Priestley. Anti-slavery had been ignited by Day's *Dying Negro* (1773), and pushed forward by Wesley's pamphlet *Thoughts on Slavery* (1774), as well as raising indignation following the *Zong* massacre in 1781, when 131 enslaved Africans were deliberately thrown into the sea by the owners of a slave-ship, who later claimed compensation from the insurance company.

Uglow also mentions Adam Smith among those who shared these enlightened feelings.²⁵¹ However, as shown in the course of the recent scholarly quarrel

249 Ibid., p. 137.

250 Burton, 1976, p. 40.

251 Jenny Uglow, *The Lunar Men. The Friends who made the Future, 1730-1810*, Faber and Faber, London, 2002, p. 410.

between Brown, Wells and Elmslie, the relationship between slavery and the Smithian economics is contentious to say the least.²⁵²

If Smith's sentiments on the relationship between the employer and his workforce were obscure up to this point, Wedgwood's own *libertarianism*, to use Burton's term and perspective, seems plausibly consistent with his despotism and patriarchalism. Therefore, as brilliantly suggested by Davis, just as Bentham shows a “striking discrepancy” between the ideal of individual self-interest and his “obsessive concern for social discipline”, this peculiar syncretism belongs also to the early industrialists: “whose ideal of free market conditions gave no justification for attempts to control the behavior and leisure time of their workers. In theory, after all, an employer of free workers, unlike a slave owner, should be interested only in purchasing equal units of labor at the cheapest possible price. Yet entrepreneurs like Richard Arkwright and Josiah Wedgwood had already made practical application of a principle recommended by Bentham: 'To be incessantly under the eyes of the inspector is to lose in effect the power to do evil and almost the thought of wanting to do it.'”²⁵³

Workers could be treated like assets in the knowledge capitalism, their jobs segmented and mechanized, and, as we shall see, they could also be asked to give up their authorship and be fatally alienated from the product of their toil. But if this implied their *relative happiness*, everything was *ipso facto* morally justified.²⁵⁴ Elsewhere Davis maintains that anti-slavery was “an extension of the noble philanthropic tradition” which was adopted by: “the new merchant elite who, though lacking inherited status, could at least prove their moral worth by

252 See Marvin Brown, “Free enterprise and the economics of slavery”, *Real-World Economics Review*, 52 (2010), 28-39, Bruce Elmslie, “Did Smithian Economics Promote Slavery?”, *Real-World Economics Review*, 53 (2010), 150-155; Thomas Wells, “Adam Smith’s real views on slavery: a reply to Marvin Brown”, *Real-World Economics Review*, 53 (2010), pp. 156-160, and Marvin T. Brown, “Adam Smith’s view of slaves as property: A response to Thomas Wells and Bruce Elmslie”, *Real-World Economics Review*, 55 (2010), pp. 124-125.

253 David B. Davis, *The Problem of Slavery in the Age of Revolution, 1770-1823*, Oxford University Press, Oxford, 1999, p. 458.

254 Ibid. With respect to this, Davis quotes from Letter XXI of Bentham's *Panopticon*: “Call them soldiers, call them monks, call them machines, so they were but happy ones, I should not care”.

increasing the security of the less fortunate”.²⁵⁵

Indeed, paternalism was part of the *forma mentis* of the dominant class, which helping to legitimate and maintain the balance between social groups. Therefore, when travelling through the French countryside, Arthur Young pointed out that: “At an English nobleman's there would have been three or four farmers asked to meet me, who would have dined with the family amongst the ladies of the first rank. I do not exaggerate when I say that I have had this at least one hundred times in the first houses of our islands. It is however a thing that in the present manners in France would never be met with from Calais to Bayonne.” Similarly, describing the kind of dinner organized by Horace Walpole, Lord Hervey relates: “We used to sit down to dinner a little snug party of about thirty odd, up to the chin in beef, venison, geese, turkeys, etc.; and generally over the chin in claret, strong beer, and punch. We have Lords Spiritual and Temporal, besides commoners, parson, and freeholders innumerable.” In his *English Social History*, G. M. Trevelyan, considers this common attitude of British aristocracy towards the lower ranks as one of the cushions which softened the edges of British inequalities: “if the French noblesse had been capable of playing cricket with their peasants, their chateaux had never been burnt.” Nevertheless, after assembling these sources, Porter rhetorically asks how real was this “paternalism”, and, quoting Burke, remarks upon his inner contradiction. Although the great magnates of the country enjoyed representing themselves, in Burke's words, as “the oaks that shade the country”, their patriarchalism was nevertheless counterbalanced by their brutal exploitation and segregation of the poors from the political arena.²⁵⁶

Early industrialists offer another example of this attitude with respect to their workmen, a rhetoric which was probably borrowed from the Georgian aristocracy. Therefore, although early industrialists strove to impose a new impersonal discipline in their factories, they actually: “looked backwards sporadically to make

²⁵⁵ David B. Davis, *The Problem of Slavery in Western Culture*, Cornell University Press, Cornell, 1966, p. 33.

²⁵⁶ Roy Porter, *English Society in the 18th century*, Penguin, London, 1982, p. 64.

use of feasts and holidays, typical of the old order in cementing personal relationships.”²⁵⁷ In 1776 the Arkwrights and the Struttts had a feast in Cromford which was attended by 500 workers and their children; Boulton organized a feast for 700 on the occasion of his son's birthday, whereas Wedgwood inaugurated Etruria with an event attended by 120. In 1797, when Boulton inaugurated Soho Foundry, he organized a dinner with his workers and addressed them with a cheerful speech. Once again the Master and their Workmen are depicted as having harmonious interests,²⁵⁸ consisting in each doing each his duty according to his position in the perfect machine of social order. According to this world-view equality was inevitably based on loyalty and discipline:

“I could not deny my self the satisfaction of wishing you a happy & joyous day & of expressing my regard for all good honest & *Faithfull* Workmen who I have always... I now come as the *Father of Soho* to Consecrate this place as one of its Branches, I also come to give it a Name & my benediction. I will therefore proceed to purify the walls of it by the sprinkling of Wine and in the name of Vulcan & all the Gods & Goddesses of Fire & Water, I pronounce the name of it Soho Foundry – May that name endure for ever & ever & let all the people say amen amen. This Temple now having a name I will propose that every Man shall fill his pitcher & drunk success to it. I will now call your serious Attention whilst I give my Benediction to Soho Foundry. May this Establishment be ever prosperous, ma it five Birth to many usefull Arts & Inventions, May it prove beneficial to Mankind & yield comfort & happiness to all who may be employd [in] it. *As the Smith cannot do without his striker so neither can the Master do without his Workmen. Let each perform his part well & do their Duty in that state to which it has pleased God to call them & this they will find to be the true ground of Equality.* One serious word more & then I have done. I cannot let pass this Day of Festivity without observing that these piles of Building have been erected in a

²⁵⁷ Sidney Pollard, “Factory Discipline in the Industrial Revolution”, *The Economic History Review*, Vol 16:2 (1963), 254-271, p. 257.

²⁵⁸ Davis, 1999, p. 458.

short time without the Loss of one Life or any Material Accident. Therefore let us offer up our gratefull thanks to the divine preserver of all things without whose permission not a Sparrow falls to the Ground. Let us chaunt [sic] in our Hearts Hallelujas for these divine Blessings and with our Voices let us like Loyal Subjects sing God Save ye King.”²⁵⁹

When Boulton or Wedgwood refer to themselves as to “Fathers” of their huge toiling families, what is at stake is not a mere figure of rhetoric, but a fragment of that truth, that meaningful discourse which stems from and rationalizes a solid social technology. Some of the many visitors to Boulton's factory perceived the manifest concreteness of these relations between the tycoon and his workforce.

In around 1775 Jabez Fisher, a young Quaker from Philadelphia, would write apropos of Soho that “the Front of this house is like the stately Palace of some Duke”, and: “within it is divided into hundreds of little apartments, all of which like Bee hives are crowded with the Sons of Industry. The whole Scene is a Theatre of Business, all conducted like one piece of Mechanism, men, Women and Children full of employment according to their Strength and Docility.”²⁶⁰

The employment of children could not but reinforce the image of the early industrialist as a great patriarch. In fact, as Davis puts it, to many young apprentices and workers, the factory manager represented the man who replaced their parents' authority.²⁶¹ Smiles points out that Boulton was frequently asked to take gentlemen apprentices into his works, but was not inclined to employ them. Instead, he preferred boys from the humble ranks: “I have built and furnished a house for the reception of one kind of apprentices – fatherless children, parish apprentices, and hospital boys; and gentlemen's sons would probably find themselves out of place in such companionship.”²⁶²

259 B. R. L. MS 3782/13/37/19.

260 Reported in Peter Jones, *The Industrial Enlightenment*, Manchester University Press, Manchester, 2009, p. 50.

261 Davis, 1999, p. 460.

262 Smiles, 2007, p. 159.

In the case of Wedgwood the employment of children was related to the need to meet the shortage of highly specialized workmanship. McKendrick argues that “Out of the 278 men, women and children that Wedgwood employed in 1790, only five had not specified post. These five were listed simply as 'Odd men', the lowest in the hierarchy and the first to go in bad times. The rest were specialist.” Thus it is erroneous to believe that the division of labour and the segmentation of production necessarily led to diminished skills. In the case of Wedgwood's ornamental works, this reorganization of labour certainly entailed a “limitation of the field of expression to particular tasks”, which was nevertheless counterbalanced by finer skills in single aspects of production.²⁶³

Wedgwood's correspondence from the early 1770s shows how the potter was determined to meet the shortage of skilled workmanship, and in particular, the lack of *artists*, particularly painters, draughtsmen, and modellers.

He was aware that: “few hands can be got to paint flowers in the style *we want* them. I may add, nor any other work we do. *We must make them*. There is no other way. We have stepped forw[ar]d beyond the other Manufacturers & we must be content to train up hands to suit our purpose. Where amongst our Potters could I get a complete Vase maker? Nay I could not get a hand in the whole Pottery to make a Table plate without training them up for that purpose & you must be content to train up such Painters as offer to you & not turn them adrift because if you consider what they have been doing all their life, we ought not to expect from them.”²⁶⁴ Old hands would be used to train new hands, not just as artists but to be skilled interpreters of Wedgwood's own style. What Etruria needed was therefore a school: “I have a waking notion haunts me very much of late which is the beginning *a regular drawing & modeling school to train up artists for ourselves*. I w[oul]d pick up some likely Boys of about 12 years old & take them apprentice 'till they are twenty or twenty one & set them to drawing & when they had made

²⁶³ McKendrick, 1961, p. 34.

²⁶⁴ J. Wedgwood to T. Bentley, 19 May 1770. Farrer, 2010, vol. 1, p. 347.

some tolerable proficiency they sho[ul]d practice with outlines of figures upon Vases".²⁶⁵ By 1790 the number of apprentices employed at Etruria would amount to nearly 25% of the workers. There is some evidence that Wedgwood, like Boulton, did not disdain employing young boys with difficult backgrounds. In a letter dated 27 August 1771, he introduced two young orphans to Bentley, the sons of a late neighbour of his, asking whether they could find employment as assistants, "Colour-grinders" or apprentices. They were two brothers of 16, and 14 years old respectively, and one was said to be "*Devilish ingenious*". Wedgwood was willing to help: "But the whole is left to your discretion when you see the Lads & if you cannot employ them or recommend them to any place I sho[ul]d be willing to bestow a few shillings upon them as you see occasion."²⁶⁶

On the contrary, like Boulton, young highbrow candidates might raise concern. The reason consisted in the risk of allowing a breach in the fortress which protected industrial (and commercial) secrets. On 7 September 1771, Wedgwood replies to Bentley about the opportunity of employing a boy who boasted the powerful recommendation of the royal family, no less. In spite of his fine sense of politics, Wedgwood seems to hesitate: "His Majesty does us great honour in recommending the Boy he has brought up to our service & we certainly cannot refuse anything from his Majesty's hands, otherwise I do not think it very desirable to have a Boy *with such connections* in our work-shop to know the prices of our work &c &c- you will by this hint know my train of ideas upon the subject but I suppose you cannot avoid takeing [sic] him in & if so we must make the best we can of him."²⁶⁷ Young apprentices were supposed to fit in easily the strict hierarchy of Etruria, both when it came to discipline in the work environment and with respect to their loyalty and discretion.

Wedgwood's patriarchalism was thus one of the modes into which he translated his charismatic leadership. Paternalism was an available cultural resource which

265 J. Wedgwood to T. Bentley, 23 May 1770. *Ibid.*, p. 348

266 J. Wedgwood to T. Bentley, 27 August 1771. *Ibid.*, p. 424.

267 J. Wedgwood to T. Bentley, 7 September 1771, *Ibid.*, p. 426.

constituted a way of thinking and voicing the relationship between classes. This imagery and vocabulary also contributed to a discourse aimed at justifying some limitation in the sharing of knowledge on the one side, while centralizing the attribution of intellectual ownership on the other. If industrial secrets, therefore, could not be sold, from a moral point of view, this was mainly because they belonged to the head of the family with respect to whom family members could not have but convergent interests.

From this perspective, the aforementioned syncretism of Wedgwood's rhetoric seems eloquent, torn between the value of individual responsibility and a paternalistic attitude. Hence his speech at the General Chamber of Manufacturers on the problem of suborned workmen: “we are sensible of the *inestimable value of civil liberty, and that no restriction would be put upon it without an obvious and sufficient cause, such as the welfare of the State* [...] it is not without some regret that we feel ourselves compelled to point out to the legislature the necessity of some effective regulation to prevent the emigration of our artificers. Their unrivalled skill has excited the envy of foreign nations.”²⁶⁸

Patriotism and paternalism are two of the ideological discourses with which Wedgwood's rhetoric is woven. In particular, industrial paternalism constitutes one of the threads of his discursive cloth apropos of factory organization. Thus Wedgwood's patriarchalism offers one of the cultural translations of his reiterated attempts to extend and optimize his control over his workers' lives, not least when it came to preventing the leakage of industrial secrets and his retention of intellectual ownership.

I shall now discuss the fluid idea of intellectual property as it emerges from Wedgwood's correspondence with Bentley. I will argue that as Wedgwood acted like a paternalistic leader in Etruria, he sought patronage among those who represented the traditional elite of his age, that is: monarchs, high-ranking aristocrats and the gentry. Being the pivot of this web of personal relationships,

²⁶⁸ Reported in McKendrick, 1961, p. 50.

which were essential to the acknowledgement of his work's *originality* and *uniqueness*, he was concerned to ensure the survival of the intangible sediment of his toil - Wedgwood's unmistakable style.

Patronage, branding and a blurred distinction between invention and imitation

Lacking an efficient institutional umbrella for the protection of fashion goods, the process of the attribution of novelty and originality with regard to patterns and designs relied chiefly upon what customers believed was new and original.

Hence in the case of Wedgwood, something was perceived to be *à la mode*, as long as it won the favour of those who led fashion and could act as influential sponsors.

Fine marketing techniques, involving a political familiarity with the elite was especially important to delineate a distinctive identity and build up a solid brand. That Wedgwood was an outstanding courtier and that he was particularly successful in winning the benevolence of the leading class is evident throughout his letters and acknowledged by his historiography. McKendrick writes on the importance of patronage in Wedgwood's commercial strategy, while Richard Tames points out, in the conclusions of his short outline of Wedgwood's life, that the secret of Wedgwood's success did not lie in a mere technical supremacy over his competitors, who were always very quick to imitate any improvement Wedgwood came up with, or in his managerial efficiency. "The plain fact", argues Tames: "is that Josiah Wedgwood regularly sold his goods at double the normal price, frequently at treble. He knew the value of quality wedded to fashion and he charged the nobility what he knew they would pay."²⁶⁹

According to McKendrick, even William Adams, arguably the only British potter

²⁶⁹ Tames, 1995, p. 39.

who could rival Wedgwood in terms of quality of wares, was forced to lower his prices by 20% in order to remain competitive. Wedgwood was very sensitive to the evolving taste of the aristocracy and he knew how to maintain a certain grip on the nobles, so as to stimulate the middle class' instinct to follow. In the 1760s he got closer to Sir William Meredith, a MP for Liverpool, who both procured him patterns to copy and put him in connection with potential highbrow clients. Shortly after its foundation, Etruria became a renowned showcase factory,²⁷⁰ receiving regular visitors such as Lord Gower, Lord Spencer and the duke of Marlborough.

Wedgwood's reputation among the British aristocracy was further boosted when, in 1765, he became "His Majesty's Potter". The potter made the most of this title, displaying it in large letters on his bill heads, advertisements, and on the signboard of his London showroom.

Two years later, in 1767, Wedgwood would cheerfully stated: "the demand for this sd. Creamcolour, alias, *Queen's Ware*, Alias, *Ivory*, still increases. It is really amazing how rapidly the use of it has spread over the whole Globe, & how universally it is liked. How much of this general use, & estimation, is owing to the mode of its introduction - & how much to its real utility & beauty? are questions in which we may be a good deal interested for the governm[en]t of our future Conduct. The reasons are too obvious to be longer dwelt upon. For instance, if a Royal, or Noble introduction be as necessary to the sale of an Article of *Luxury*, as real Elegance & beauty, then the Manufacturer, if he consults his own inter[es]t will bestow as much pains, & expence too, if necessary, in gaining the former of

270 This was also an important feature of Matthew Boulton's Soho factory, which received foreign dignitaries from all over the world regularly.

Hence, already in 1768 Boulton trumpeted this remarkable success with the *beau monde*. In 1767, he wrote: "I had lords and ladies to wait on yesterday, I have French and Spaniards today; and tomorrow I shall have Germans, Russians and Norwegians...Last week we had Prince Poniatowski, nephew of the King of Poland, and the French, Danish, Sardinian and Dutch ambassadors; this week we have had Count Orloff and the five celebrated brothers who are such favorites with the Empress of Russia; and only yesterday I had the Viceroy of Ireland who dined with me. Scarcely a day passes without a visit from some distinguished personage." Berg, 2005, p. 175.

these advantages, as he would, in bestowing the latter.”²⁷¹

Many of Wedgwood's letters to Bentley bristle with references to the commercial importance of the right sponsorship.

On the 9th February 1778 he wrote to Thomas Bentley on the most convenient marketing for his new green hooped flower pots: “I think they will have a great run if not put too high - But they want a name - A name has a wonderfull effect I assure you - Suppose you present the Duchess of Devonshire with a set & beg to call them Devonshire flowerpots. You smile - Well then call them Mecklenberg - or - or - what you please so you will but let them have [a fine name].”²⁷² Apparently the new flowerpots would anyway find their way in the market, but Wedgwood had further occasions to insist on the importance of labelling them with a great name: “Mr. Ward orders Devonshire flowerpots by dozens of a size & what is more extraordinary they sell these without the advantage of the Duchess’s patronage or name. What will they do when Mr. Ward is instructed to call the Devonshire flowerpots!”

In June 1779 Wedgwood would write to his business partner about the role of fashion which “is infinitely superior to merit in many respects; & it is plain from a thousand instances that if you have a favorite child you wish the public to fondle & take notice of, you have only to make choice of proper sponsors. If you are lucky in them no matter what the brat is, black, brown, or fair, its fortune is made”.²⁷³ All these sources make it clear that Wedgwood recognized the market value of snobbery and the social importance of his wares among the middle class, targeting his audience via a network of upper class patrons.²⁷⁴ Nonetheless, seeking the aristocratic support implied a certain sensitivity for hierarchies and aristocratic manners and was not always so simple as naming a new ware after a high rank

271 J. Wedgwood to T. Bentley, 17 September 1767. Farrer, 2010, p. 127.

272 J. Wedgwood to T. Bentley, 9 February 1778. Ibid., p. 291.

273 J. Wedgwood to T. Bentley, 19 June 1779. Ibid., p. 382.

274 Lee Blaszczyk, *Imagining Consumers: Design and Innovation from Wedgwood to Corning*, Johns Hopkins University Press, 2000, p. 6.

noble.

Wedgwood's work of fulfilling the "very superb commission"²⁷⁵ from the Empress of Russia reflects the degree of diplomatic skill involved in the improvement and maintenance of his political network. The Green Frog service would become a majestic artefact, including a total 1244 views of real British landscapes, gardens and antiquities, each for each piece. Given the importance of the service and of its commissioner, this massive dinner ware bore an intrinsic marketing importance, but we might also consider it as a true diplomatic device. Since each piece had to be matched with the view of a land or building often belonging to an aristocratic family, one of the issue was to reflect the hierarchies in the material hierarchies of between the piece: the larger was the dish dedicated to a view of England, the larger was the visibility guaranteed to its aristocratic owners in one of the most marvellous court of the world:

"It is a Pity but we had more large Dishes in the service, as it is, it will seem, & be in reality, too great a partiality for a Country Esqr. though he does happen to be ones Neighbour, & a good man, to occupy so capital a situation as a large Dish when there is but 2 or 3 in the whole service. If we can afford [it] one of them to Ld. Gower will be as much as the bargain, for we have in my opinion been guilty of a capital omission in not waiting upon His Majesty to acquaint him with the Commds., we have recd. From the Empress & to know his Maj-s pleasure if he would permit us to take any views from the R-I Palaces or Gardens – but it is better late than never & I am firmly of opinion it ought to be done."²⁷⁶

Marketing and commercial strategy apart, the creation of new luxury products was also accompanied by a rationalization of the concepts of originality and invention. But in the case of Wedgwood, these terms appear to remain relatively fluid, lacking the support of a more institutional code such as the patent law.

If on the one hand Wedgwood always admitted his debts to ancient classic pottery,

²⁷⁵ J. Wedgwood to T. Bentley, 23 March 1773. Farrer, 2010, p. 23.

²⁷⁶ J. Wedgwood to T. Bentley, 1 December 1773. Ibid., p. 55.

on the other hand his imitations were by no means assimilated to those of his competitors. He only pretended to “have attempted to copy the fine antique forms, but not without absolute servility”, he “endeavoured to preserve the stile and spirit or if you please the elegant simplicity of the antique forms, and so doing to introduce all the variety” he was able; ‘that is the true copying the antique, improve rather than copy.’²⁷⁷ Thus Wedgwood distinguished himself from his competitors and in 1769, following his refusal to provide Boulton and Fothergill’s Soho factory with plain vases to be mounted, and Boulton’s consequent decision to start producing them himself in Birmingham, the potter demonstrated great respect and appreciation of his new rival. He encouraged Bentley to “stand firm” and: “support this threatened attack like Veterans prepar’d for every shock [...] If Etruria cannot stand its ground, but must give way to Soho, & fall before her, let us not sell the victorie too cheap, but maintain our ground like Men, & endeavour, even in our defeat, to share the Laurels with our Conquerors.” Boulton could have been a competitor to be feared and yet Wedgwood acknowledged that he would not be: “a mere sniveling copyist like the antagonists I have hitherto had but will venture to step out of the lines upon occasion, & afford us some diversion in the combat.”²⁷⁸ Along with these statements of Wedgwood’s, a brief passage from one of Matthew Boulton’s draft letters to Elizabeth Montague kept at the archives of the Reference Library in Birmingham, seems to reveal how the very idea of originality and creative activity in the production of luxury goods was much more blurred than in other branches of industrial competition. After thanking his good friend and customer for helping him refine his taste, Boulton complains about how much of his business prevents him from fully dedicating himself to elegance and fashion. In fact: “it is not necessary to attend to elegance in such articles of my manufacture as are destine’d for Siberia or America, or even some parts of Germany, but rather to attend to the bad taste of these countrys and to adapt my

277 J. Wedgwood to E. Darwin, 28 June 1789. Farrer, 2010, p. 86.

278 J. Wedgwood to T. Bentley, 27 September 1769. *Ibid.*, pp. 285-286.

self to every clime.”²⁷⁹ Adapting to the “clime” of every country was required to sell fashionable goods just as it was necessary to keep up with the taste of the time: “*Fashion [...] of the present age distinguishes it self by adopting the most elegant ornaments of the most refined Grecian artists; I am satisfy’d in conforming thereto, and humbly copying their style, and makeing new combinations of old ornaments without presuming to invent new ones.*”²⁸⁰

Nevertheless, we do not have here any explicit reference to 'Neo-classicism', a word which suggests more recent terminology. In fact, when copying the antique style, Wedgwood meant to imitate the “true” or “correct” style. This did not leave room for radical innovation, but it also justified to some extent a considerable degree of emulative effort. In other words, imitation was inherent to innovation, in an age when the political and aesthetic agenda reacted to Rococo through a re-evaluation of its opposite values: simplicity and plain elegance.

We have seen how this cult of simplicity was induced and ultimately constructed by contemporary literature, as testified by d'Hancarville's work. Wedgwood, as a prominent creator of ornamental ware, assimilated and contributed to diffusing the new trend. He perceived this shift as a general move towards aesthetic purity, for which he was ready to give his own personal contribution. Classical theme were thus the idiom spoken by Wedgwood's original art, a language which was instantly recognisable to all but the illiterate.²⁸¹ It is not surprising that one of his most celebrated works was a copy, in six exemplars, of the famous Portland vase.

For Wedgwood this technical and artistic challenge bore special significance. If he made it, he could finally claim to have reached the same degree of perfection of what he considered to be the quintessence of antique ornamental vases.

The Portland vase has been displayed at the British Museum since 1810. It is named after the Duke of Portland, who was its possessor from the late 18th century

279 B.R.L., MS 3782/12/23/237.

280 Ibid.

281 Robin Reilly, *Josiah Wedgwood*, McMillan, London, 1992, p. 297.

until 1945. This dark-blue glass vessel was supposedly found in the tomb of Emperor Alexander Severus, near Rome, in the late 16th century. It was owned by the Barberinis, then sold to a Scottish merchant and sold again in 1778 to William Hamilton, who included it in his prestigious collection.²⁸² In 1784 the vase was bought by the Duchess of Portland and later inherited by her son, William Cavendish Bentinck, 3rd Duke of Portland. In March 1784, Hamilton had shown the vase to the Society of Antiquaries, exciting the curiosity of British connoisseurs. This fashionable glassy vase was to increase its fame as it appeared in *L'Antiquité expliquée* by Bernard de Montfaucon.

A relatively small vase – about 30 cm of height – it is nevertheless filled with mystery, as its precise date of production it is still uncertain as is the meaning of the white glossy bass-reliefs which decorate its surface.²⁸³

Given the cultural and commercial potential of the venture, it seems quite obvious that Wedgwood showed interest in this outstanding artefact. By 1786 the potter had resolved to embark upon a long and expensive series of experiments to imitate the “exquisite vase”. As he had managed to borrow it from the Duke of Portland for a year, in June he wrote an inspired letter to Hamilton: “I cannot but feel myself flattered by the approbation of so exquisite a judge, who has himself introduced among us that pure taste, these elegant forms, which my humble studies have been in propagating and rendering permanent. You will be pleased, I am sure, to hear what a treasure is just now put into my hands, I mean the exquisite Vase with which you enriched these islands, and which, now that we may call it the Portland Vase, I hope will never depart from it.”²⁸⁴

Wedgwood's study of the pattern of this most renowned vase persuaded him that

282 Laurence Machet, “The Portland Vase and the Wedgwood copies: the story of a scientific and aesthetic challenge”, *Miranda: Revue pluridisciplinaire du monde anglophone*, 7 (2012), 1-31, p. 2.

283 Ibid., pp. 9-11. See also Lucy Rogers, “Why can't scientists date the Portland Vase?”, *The Guardian*, 28 August, 2003.

<http://www.guardian.co.uk/science/2003/aug/28/thisweekssciencequestions1>

284 J. Wedgwood to W. Hamilton, 24 June 1786, Farrer, 2010, p. 42.

he could copy its design. However, when he first had the item in his hands, he realized the real extent of the enterprise. The Portland vase was made of glass, while Wedgwood's copies would be of Jasper. Such a dull material did not allow Wedgwood and his collaborators to reproduce the peculiar semi-transparency which distinguished the original vase. In order to tackle the many problems arising from the reproduction of the vase, Wedgwood summoned his best artists and craftsman: Flaxman, Hackwood, and the head of the ornamental department Henry Webber. By June 1787 the figures for the bas-reliefs were completed, but the body of the vase turned out to be particularly hard to reproduce. After nearly a year, the loan was about to expire and Wedgwood still struggled with infinite details. Many copies cracked, many others did not meet his high standards. This extraordinary imitative effort turned into a sort of obsession. Thus in 1790 he wrote to his son Josiah Junior: "The cracks are exceedingly minute, nor visible when dry, even with a magnifying glass, but when the piece is wetted, they become distinguishable just before it is quite dry [...] I wish you to look at the left leg of Pluto between the calf and the ankle the latter of which is not seen, & compare it with a cast out of the mould taken from the vase itself [...] this part is said to be too broad."²⁸⁵

Given the purpose of this study, that is, to follow the path of two different rhetorical approaches to ideas of invention and inventive work, it is puzzling to realize that an innovator like Wedgwood put such great energy and capital into copying in detail a mysterious antique vase which happened to become, partially thanks to his own toil, an icon of classical art. Nevertheless the overall technical success of this amazing venture marked the full maturity of Wedgwood's own style, as his productions had finally reached the utmost perfection.

But the problems at stake with regard to Wedgwood's intellectual property are not limited to the issue of imitation versus invention.²⁸⁶ In fact, not only is the dividing

²⁸⁵ J. Wedgwood Senior to J. Wedgwood Junior, 9 May 1790, Farrer, 2010, p. 118.

²⁸⁶ The relationship between invention and imitation in 18th century British luxury goods has been discussed by Maxine Berg, "From imitation to invention: creating commodities in 18th century Britain", *Economic History Review*, 55:1 (2002), 1-30, and Helen Clifford, "Concepts of Invention, Identity and Imitation in the London and Provincial Metal-working Trades, 1750-

line between new and old, imitation and invention, original and traditional seems to be peculiarly nuanced in Wedgwood, but the attribution of authorship for what was produced in Etruria seems peculiarly problematic.

As Uglow points out: “For Wedgwood and Boulton, art was the stuff of their manufacture: the appeal of their goods lay in the combination of the artist's imagination, the craftsman's skill and the latest techniques of reproduction. But here – as in the coterie poetry of Lichfield, or the collective work on inventions or experiments – the issue of originality and 'ownership' often arose.”²⁸⁷

Not only could Wedgwood not rely upon an official document, which might confer upon him the title of “first and original inventor” of his own pottery, but the realization of his ware also required the skills and *creativity* of a large number of artists. This large network of *authors* had to be somehow hidden so that his name and his authorship could emerge as the only one to be celebrated: “You will see by looking under the shoulder of each that these heads are modeled by W^m Hackwood, but I shall prevent his exposing himself again now that I found it out. I am not certain that he will be offended if he is refus'd the liberty of putting his name to the models which he makes quite new, & I Shall be glad to have your opinion upon the subject. *Mine is against any name being upon our articles besides W & B, & if you concur with me I will manage the matter with him as well as I can.*”²⁸⁸ According to Uglow, the important commissions given to Hackwood and his high wage were terms of a negotiation oriented at slackening his claims for authorship.²⁸⁹ In spite of the large web of collaborators involved in the production of Wedgwood's goods, the constitution of a solid trademark implied that many artists and skilled artisans with much the same background as his were denied any attribution of intellectual ownership. In fact Wedgwood's branding strategies implied a strict and centralized idea of authorship. Meteyard²⁹⁰ wrote that “the

1800”, *Journal of Design History*, 12:3 (1999), 241-255.

287 Uglow, 2002, p. 324.

288 J. Wedgwood to T. Bentley, 22 Dec. 1777. Farrer, 2010, p. 288. My italics.

289 Uglow, 2002, p. 327.

290 Meteyard, 1866, p. xx.

artists who contributed to the perfection and beauty of the ornamental ware are far more numerous than is generally supposed.” Besides Hackwood, and long before Flaxman and Webber joined his staff, Wedgwood could rely upon a number of reputed free-lance artists, including John Bacon, Pingo, Theodore Parker, Mrs Landre, Coward, Hoskins and Tassie. These individuals constituted the invisible part of Wedgwood's network.

His promotional strategies rested upon the combination of two “complementary metaphors”.²⁹¹

On the one hand, Wedgwood was aware of his position as a wealthy manufacturer who acted as the coordinator of the work of many skilled artists and and raised new ones, at Etruria, according to the factory's artistic needs. On the other hand, he was closely identified with their works thanks to his control of production and his marketing skills. Hence, as Wedgwood's products were marketed as art: “then by extension of the metaphor the maker is an artist.”²⁹²

Although his own language might seem torn by these “metaphors”, for Wedgwood, after all, those who finessed the art of pottery should be considered to be inventors²⁹³ but their true invention was rather a *style*, or a brand, more than one single creation. In other words, we have here what we may consider a shift in the idea of intellectual property from the uncertain field of single creations, which were always imitable and to some extent always imitations themselves, to the immaterial *fil rouge* which tied together all his creations to his own name: “I have often wish'd I had saved a single specimen of all the new articles I have made to be left as a sacred deposit for the use of Children & Children's Children which with some account of what *has* been done & what may be done, some *hints* & *seeds* for future discoveries, might perhaps be the most valuable treasure we could have. For ten years past I have omitted doing this, because I did not begin it ten

291 Morris Eaves, *The Counter-arts Conspiracy. Art and Industry in the Age of Blake*, Cornell University Press, New York, 1992, p. 40.

292 Ibid..

293 J. Wedgwood to T. Bentley, 17 Jul. 1777, Farrer, 2010, p. 255.

years sooner. I am now resolv'd to *make a beginning*.”²⁹⁴ This “sacred deposit” would be the material substratum of Etruria’s triumphant history. Its tradition and reputation would be the only elements of continuity able to stand the test of time in a market, that of fashion products, which was largely ruled by the incessant rhythm of obsolescence. Wedgwood could not rest on the profits deriving from one letter patent. He saw himself as a patriarch who sustained his concern thanks to his capacity to gain the endorsement of the most prominent aristocrats of the time through a network of personal relationships with agents, *virtuosi*, artists, and skilled artisans. Wedgwood’s main aim was to ensure the survival of his brand and to preserve the success initiated by that fundamental chain of sponsors who helped him build his reputation and elect him the luxury potter *par excellence*. What is expressed here is the dream of an enterprise which would stand the test of time and outlive the focus and keeper of this powerful network of allies so as to evolve into a lasting family business. The “sacred deposit” is precisely what would outlive the patriarch. We might argue that Wedgwood’s strength was Watt’s weakness, and vice versa. Like Wedgwood and Boulton, Watt was a sensitive and skilled politician. He was very often successful in getting the best out of his social capital, but he did so mostly in order to defend his rights as patentee. His privileges derived from the formal acknowledgement that he was the first and original inventor of one of the most iconic devices of his age, the separate condenser, together with further minor improvements on the steam engine. His letter patent could be shared, commercialized, donated. It was a concrete, tangible substratum of his social prestige and his status as “ingenious man”. Given the agitated waters in which his patent rested, his main concern was to hold tight to the rock of his rights as patentee. The range of problems emerging from the defense of these privileges required defending the social importance of the inventor in general, whatever the extent of his political support. If the patent system was to work, it had to provide protection of the rights of any inventor and to forestall the risk of

294 J. Wedgwood to T. Bentley, 3 September 1774, Ivi, p. 82.

possible social isolation. The inventor is thus described as an infant, not only as a result of Watt's ideology and agenda, and surely not because Watt was himself politically isolated, but because the institutional context of his discourse required the promotion of the inventor's rights considered as an *abstract* legal entity, *potentially* isolated, defenceless and consequently in need of public protection. Hence the exigence, as argued in *Thoughts upon the Patents*, of the Royal Society's disinterested arbitrage, a sort of authoritative veil covering the complex social technology underlying the attribution and conservation of Watt's invention in the hands of his proprietor. After all, as we have seen, one of the recurring accusations deployed by critics of Watt's monopolies was that his letter patent was successfully defended not through solid arguments but by "the mere Power and Opulence" of the Birmingham partners.²⁹⁵ These political connections, therefore, could not be further trumpeted. On the other hand, Wedgwood's unsuccessful attempt to protect his intellectual property within the framework of the patent law would force him to develop diverse strategies of promotion and *protection* of his design and trademark, but also freed him from the rhetoric deployed by the patent holders. His alliances and his system of patronage could be paraded, engraved, typified in the clay of his creations, and yet his reputation as innovator of British pottery maintained a contingent, personal character deriving entirely from the diplomatic skills of his persona and his prestige as an artist, man of science, and entrepreneur. Different strategies in regard to the protection of their intellectual properties moulded various rhetorics by which the idea of invention and originality were sketched out.

²⁹⁵ Robinson, Musson, 1969, doc. n. 35, p. 159.

Historiographical Appendix

Selfish entrepreneur or modern 'scientist'? Twentieth-century historians of science look at Josiah Wedgwood

“the scientist's claim to 'his' intellectual 'property' is limited to that of recognition and esteem..”

Robert K. Merton, *The Normative Structure of Science*, 1942, p. 273.

Introduction

In the first two parts of this work I attempted to enucleate the literary technologies, or the rhetoric, which moulded James Watt and Josiah Wedgwood's ideas of invention and inventive work. We have seen that their respective rationalizations of such important concepts stemmed from contingent strategic contexts. Thus Watt's discourse on intellectual property, appears fundamentally influenced by the philosophical and argumentative grammar provided by the patent system. Watt's justification of his rights as patentee has been analysed in order to shed light upon its natural-law assumptions and proto-utilitarian argumentative style. Natural-law and utilitarianism still offer the theoretical backgrounds against which critiques of I.P. rights, and justifications thereof, have been construed by contemporary parties engaged in this broader debate within Libertarianism. As Watt has recently become

the target of opponents of intellectual monopoly, the controversy between libertarian economists which ensued became the occasion of instrumental parallels between Watt's exploitation of the patent law and the issues at stake in I.P. rights in our time. On the one hand, the meaning and destiny of Watt's ideas concerning the nature of invention seem to be encrusted with his fierce defence of the patentees' rights. On the other, Wedgwood's conception of invention and originality mirrors the lack of institutional codification of industrial design and the unresolved tension between the inventive and imitative efforts which distinguishes the production of luxury goods in 18th century Britain. Hence, Wedgwood's attempts to establish and defend his own claims on intellectual property leaned mostly upon alternative arguments and cultural resources. Owing to his failure to secure intellectual property by means of patents, Wedgwood's discursive attitude towards invention, authorship and originality relied upon his relationship with his customers, workers and competitors.

The vertical organization of Etruria, reflected a centralized attribution of authorship, while loyalty was reinforced by means of the social and literary technology of industrial paternalism.

Industrial paternalism, nationalism, and many of the themes which recurred in Wedgwood's rhetoric about inventions, should by no means be considered as radical ideological alternatives to Watt's own exploitation of the patent system. On the contrary, what made their discursive practices differ, I have argued, were the different incidental goals and contexts from which they stemmed.

Therefore, Watt's *Thoughts upon patents*, certainly the most articulated and complete available manuscript giving an insight into Watt's discourse on patents, rationalizes the inventor's strategy to strengthen his rights and social position by means of a never realized reform of the patent law. Watt's characterization of the archetypal inventor as a lonely infant matches his claim for public protection, but also represents his individualistic and cumulative idea of technological progress. Finally, this rhetorical device mirrors his coeval resolution to pursue individual lobbying in Parliament rather than joining with other patentees to exert their

political power. On the other hand, when Wedgwood employs the rhetoric of paternalism, his discourse reflects his attempts to keep his workmen loyal, thereby preventing the leakage of industrial secrets. Moreover, depicting himself as the father of a large family, Wedgwood morally unifies the coordinated work of many specialists and skilled employees, isolated from each other and yet kept together by his ultimate design. If not an artist himself, Wedgwood was nevertheless the author of his pottery, just as he was the sole agent in the factory who had the whole process of production under control. His authorship, materially substantiated by his under-protected mark, was a constant object of concern. The ethical portrait which derives from Watt and Wedgwood's jealous relationship with the fruits of their experimental and innovative research, as we shall see, made it contentious to accept them into the pantheon of the great scientists of their age.

Could scientists jealously conceal their discoveries and behave secretly and competitively like artisans? Was this behaviour consistent with Robert K. Merton's outline of scientific deontology, as described by the principles of communism, universalism, disinterestedness, and organized scepticism?²⁹⁶

Moreover, the dilemma over Wedgwood's scientific stature entails broader epistemological and sociological issues, such as the relationship between science and technology, basic and applied research, and the social intercourse between men of science and technicians.

Here I shall focus upon Wedgwood's scientific reputation in his 20th century historiography. In particular, I will consider contributions by three authors: Robert Schofield and John Chaldecott, who defended the scientific dimension of Wedgwood's research; and Rupert Hall, who attempted to draw a neat line between technological and scientific knowledge, thereby downplaying the role of the latter in the technical innovations of the Industrial Revolution, and severing the

²⁹⁶ See Robert K. Merton, "The Normative Structure of Science", in Merton, Robert K., *The Sociology of Science: Theoretical and Empirical Investigations*, University of Chicago Press, Chicago, 1973 [1942]; and Bruce Macfarlane and Ming Cheng, "Communism, Universalism and Disinterestedness: Re-examining Contemporary Support among Academics for Merton's Scientific Norms", *Journal of Academic Ethics*, 6 (2008), 67–78.

connection between technicians, craftsmen, engineers, and their coeval scientific world.

I shall not deal here neither with the problem of reconstructing Wedgwood's reputation as natural philosopher in life, nor support any judgemental stance on the epistemic status of his contributions to natural philosophy.

Therefore, the aim of this appendix is not to provide an answer to the question of Wedgwood's right to the title of 'scientist', but to focus more narrowly upon the way his research was considered by historians of science in the 20th century and how this historiographical case was interwoven with contemporary epistemological and political debates.

The juxtaposition of prominent protagonists of British 18th century culture, such as Wedgwood, with the word 'science', might seem unjustified to contemporary readers.

Although the authors we are concerned with actually did pose this question and tried to give an answer, recent historians have found it useful to approach this issue with more sensitivity to the way science was defined in history. Notably, while addressing the problem of whether we should consider Matthew Boulton one of the 'scientists' of his age or not, Miller explains why this seems like an awkward research question to contemporary historians.

In fact, Miller points out, Sidney Ross' 1962 article *Scientist: the Story of a Word* showed that the word 'scientist' did not exist before the 1830s, and that, therefore, it was anachronistic to refer to 18th century natural philosophers as to 'scientists'. According to Ross, this was not merely nominalistic quibbling. On the contrary, the transition from natural philosopher to scientist designates the social transition from a group of amateurs and 'gentlemen of science' to a highly specialized and professionalized social body.

In the same year as Ross' article appeared, a landmark book for the history of science was published. Thomas Kuhn's work on *The Structure of Scientific Revolution* inspired a generation of historians of science, challenging the Whiggish approach in the discipline, as typified by Koyré's research.

Whiggish historiography was prone to characterizing the history of science as a long and triumphant march towards truth and progress. Kuhn showed that it was possible to understand the inherent logic of a past scientific theory only if we contextualize it within her own paradigm, that is the set of beliefs which supported it. Thus there was nothing like an eternal and universal scientific method, but only historically contingent theoretical backgrounds which are incommensurable with each other.

Whilst Kuhn's work proved very influential, it did not provide a methodological framework for the epistemological re-evaluation of practical men such as Boulton.

Since Kuhnian paradigms were interpreted as essentially theoretical, the notion of 'paradigm' contributed to consolidate a theory-laden conception of science.

As a result, men like Boulton: “could no more be scientist within Kuhnian historiography than within Koyréan because they were men of practice and not of theory.”²⁹⁷

As we shall see, Wedgwood should be included among these “men of practice” whose status as men of science would be discussed in the 20th century. The voices directly involved in this debate were anything but unanimous, differing on political, methodological, and theoretical grounds.

Their diverging positions are situated in the context of a renegotiation of what sort of ethical and intellectual activity ought to be reckoned as 'science', and consequently, a redefinition of the field of research of history of science as a discipline.

²⁹⁷ David P. Miller, “Was Matthew Boulton a Scientist? Operating between the Abstract and the Entrepreneurial”, in Kenneth Quickenden, Sally Baggott and Malcolm Dick (eds.), *Matthew Boulton. Enterprising Industrialist of the Enlightenment*, Ashgate, Farnham, 2013, pp. 88-89, Epub edition.

The first reaction to a “scholarly attack”

In an article published in 1973, Neil McKendrick summed up the *status quaestionis* on Josiah Wedgwood’s contributions to science: “One school of historians seeks to apply (in one formulation or another) the word scientific either to the process of technical change in the eighteenth century or at least to the mental habits of those who effected these changes; others, the realists, search without success for precise examples of a technical innovation being derived consciously from pre-existent theoretical knowledge of a non-trivial character. The nominalists might claim Wedgwood’s “public experimental work” as clear evidence of one of the leading entrepreneurs of the Industrial Revolution thinking like a scientifically-oriented industrialist, and they would be right to do so, but the realists would continue to search in vain for any sign of the successful application of scientific theory or a technical problem.”²⁹⁸

At the time when McKendrick was writing these pages the historiographical quarrel over Wedgwood’s *scientific* identity had become a relevant case-study, bearing a historical meaning which transcended the interest in his life and work and provided the field of debate of opposing approaches to the concept of science in general and to the intellectual dynamics which had contributed to the Industrial Revolution in particular.

During the 19th century, biographers of Wedgwood did not significantly question the scientific stature of the potter, taking for granted his established credibility within the scientific community of his age.

Hence, Llewellynn Jewitt and Frederick William underline Wedgwood's “perfect knowledge of the effect of heat in its various degrees, and his almost boundless

298 N. McKendrick, “The Role of Science in the Industrial Revolution: A study of Josiah Wedgwood as a scientist and industrial chemist”, in Mikulas Teich, and Robert Young eds., *Changing perspectives in the history of science: essays in honour of Joseph Needham*, Heinemann, London, 1973, p. 292.

knowledge of everything relating to his art, and to science generally”, indicating his expertise, both practical and theoretical, as the basis of his success.²⁹⁹

In the same year the more complete biography by Eliza Meteyard provided an encomiastic description of Wedgwood's original contribution to pottery as of one which was unrivalled in his time, from both the *artistic* and *scientific* points of view. Art and science are thus presented as the combined driving forces of Wedgwood's slow progress towards perfection: “the artists transferring his fine visions to clay, whilst *the man of severe science steadied and watched the hand that wrought.*”³⁰⁰

Almost thirty years after the publication of these first two biographies of Wedgwood, Samuel Smiles highlighted Wedgwood's excellent scientific reputation, which the potter enjoyed both at home and abroad, as illustrated by his contributions to the *Philosophical Transactions*, and his *Chemical Collections*, kept at the Royal Academy of Sciences in Uppsala, Sweden.³⁰¹ Together with his *Lives of Engineers*, Smiles's study contributed to the reconstruction of the biographical and intellectual profiles of key figures of the Industrial Revolution, who were also depicted as some of the main characters in the modern construction of British commerce. These “heroes of invention”,³⁰² who tied technological research to entrepreneurial zeal, were to mould a new kind of scientific knowledge. Their topics, methods, and practices became increasingly accredited in the traditional centres of production and diffusion of natural philosophy, mirroring the social upgrading of men who were often described as “of humble station” and “self-educated”.

“One of the most remarkable things about Engineering in England”, argues Smiles: “is that its principal achievements have been accomplished, not by natural philosophers nor by mathematicians, but by men of humble station, for the most

299 Jewitt and William, 1865, p.198.

300 Meteyard, 1865-1866, vol. 2, p. 330. My italics.

301 Smiles, 1895, pp. 270-271.

302 See McLeod, 2007.

part self-educated. The educated classes of the last century [the eighteenth century] regarded with contempt mechanical men and mechanical subjects [...] At a time when the Court, the Camp, and the Church formed the principal occupations of the higher classes, engineering was thought unscientific and ungentle [...] Nor did any of the great mechanics, who have since invented tools, engines, and machines, at all belong to the educated classes. They received no college education. Some of them could scarcely write their own names. These men gathered their practical knowledge in the workshop, or acquired it in manual labour. They rose to celebrity, mostly by their habits of observation, their powers of discrimination, their constant self-improvement, and their patient industry.”³⁰³

Wedgwood’s life bears several similarities with the typical 18th century engineer portrayed by Smiles. He came from a family of humble provincial craftsmen. His schooling, at the school of Newcastle-under-Lyme, was to be rather short and basic, and he would never enjoy any academic education.³⁰⁴ Whilst these conditions placed him in an apparently peripheral position with respect to the cultural élites of his time, he was to engage with many influential artists and natural philosophers, such as Joseph Banks, Joseph Priestley, James Keir, and Alexander Chisholm.

Wedgwood's obituary in the *Gentleman's Magazine* in 1795 was the eulogy of a “mind enlightened by science”, for which he enjoyed “the esteem of scientific men at home and throughout Europe”.³⁰⁵ He would eventually become one of the most acknowledged icons of the Industrial Revolution, and a natural candidate to represent the bourgeois dream of social mobility and self-procured success.³⁰⁶ Nevertheless, according to Schofield, contemporary historiography seemed to deny his scientific merits. This shift, he claims, occurred around the beginning of

303 Samuel Smiles, *Lives of the Engineers, Vermuyden, Myddelton, Perry, James Brindley. Early Engineering*, J. Murray, London, 1904, pp. xvi-xvii.

304 Dolan, 2004, pp. 19-30.

305 Reported in Robert E. Schofield, “Josiah Wedgwood, industrial chemist”, *Chymia*, v (1959), 180-192, p. 180.

306 McLeod, 2007, p. 306-309.

the 20th century.

Hence in 1935 Robert C. Binkley had broken the Victorian historiographical framework which tied science, technology, and economic revolution, dating the beginning of the application of science to industry only after the mid-19th century. Almost thirty years later, while criticizing this historiographical trend, Robert E. Schofield deplored the “scholarly attack, aimed primarily at the general picture of the Industrial Revolution”, which ended up denying Wedgwood’s “right to the title of scientist”.³⁰⁷

McLeod focuses upon this shift in the estimation of the Industrial Revolution, tracking it back to 1882, when Toynbee coined this term in English. MacLeod after Toynbee's influential work: “to study British industrialization was normally to study the evils of capitalism and the degradation of the working people.”³⁰⁸ The profit-oriented rationality which underpinned the British rush to industrialization was counterbalance by a definition of 'Culture' as a form of knowledge which represented the humane alternative, a bulwark which resisted the rise of capitalist cynicism.³⁰⁹

Similarly, at the time when Schofield wrote his article, he felt that one school of historians downplayed the contribution of science to the Industrial Revolution and their claims were based upon undoing the logical and epistemological connections between scientific thought and technological research. Consequently, men such Wedgwood or Watt lost their scientific eminence and their inventions ceased to be considered applied science. Their contrivances became empirical results, while their experiments, “however cleverly conducted”, were: “not science unless they are guided by some sort of theoretical structure”.³¹⁰ While sticking to a theory-laden conception of science, Schofield attempted to reinstate Wedgwood among

307 Ibid., p. 180.

308 McLeod, 2007, p. 11.

309 Ibid. See also Stefan Collini, “The literary critic and the village labourer: 'culture' in twentieth-century Britain.”, *Transactions of the Royal Historical Society*, 6:14 (2004), 93-116.

310 Ibid.

the great scientists of his time by inquiring after the theoretical structure underlying his experiments. In his opinion, Wedgwood's experimental activity had a precise theoretical background, which is plentifully in evidence in his *Commonplace Books*. The conceptual framework of his experiments was the phlogiston theory, a complex theoretical architecture which would soon be abandoned by chemists, but at this stage remained a plausible explanation of the phenomena of combustion and oxidation.³¹¹ This passage effectively sums up Schofield's position: "If we are to accept the theory of phlogiston as being genuinely scientific, then we must accept the industrial use of it as being the application of science to industry; indeed the fact that the theory could be used industrially is a good test of its value as a scientific theory."³¹²

In this respect, Schofield's historiographical approach adheres entirely to what McKendrick would later define as a realist historiographical perspective. Wedgwood's intense exchanges with some of the most eminent scientific personalities in Britain, as well as his activities within important scientific societies, such as the Royal Society of London, his patronage of scientists Joseph Priestley and John Leslie, and his five contributions to the *Philosophical Transactions*, were insufficient proofs of his real stature as a man of science. What made a potter become a 'scientist' was Wedgwood's mastering the main theories of chemical research of his age.

The same claim would later be supported by John A. Chaldecott, who argued in 1975 that Wedgwood's research method might "justly be regarded as scientific, using the term in its modern connotation."³¹³ In his presidential address, read at a summer meeting of the British Society of History of Science at Leeds on 3 July 1974, Chaldecott shed light upon Wedgwood's research in that field of physics we call pyrometry, which is concerned with the measurement of high temperatures.

311 Ibid., pp. 188-189.

312 Ibid.

313 John A. Chaldecott, "Josiah Wedgwood (1730-1795): scientist", *British journal for the history of science*, 8:1, (1975), 1-16.

Chaldecott shows with literary evidence that Wedgwood's failure to calibrate his pyrometers, translating his scale into fahrenheit does not invalidate the epistemological consistency of his method. According to Chaldecott, the imprecision of the pyrometer was due to some incorrect assumptions which Wedgwood had simply inherited from the cultural resources of his age, such as the belief that the boiling temperature of quicksilver was to be fixed at 600° F rather than at 675° F, and that there was a linear relationship between his clay's shrinkage and the increase of temperature from 600° C to 1000° C.³¹⁴ Wedgwood failed to turn his pyrometer into a precise and reliable instrument, but Chaldecott highlights that he did, in fact, do so only by applying the scientific notions available to him at the time, and not because of his unscientific method.

What is interesting about Chaldecott's argumentation is that, whereas scientific notions and assumptions should be contextualized and placed against their historical background, scientific method is situated beyond these resources and works as a standard historiographical parameter which is useful to evaluate what is scientific in the modern connotation of the term.

What did science owe to ethics? Josiah Wedgwood the craftsman

During the 1970s, the relationship between science and technology was dissolved by Hall. His approach might be recognized as an example of realist historiography, which nevertheless reached opposite conclusions with respect to Schofield and Chaldecott. In 1974 Hall published *What did the industrial revolution owe to science?*,³¹⁵ one of a number of articles in which he expressed his opinion of the

314 Ibid., p. 8.

315 Arthur R. Hall, "What did the industrial revolution owe to science?", in N. McKendrick (ed.), *Historical perspectives, studies in English thought and society in honour of J. H. Plumb*, Europa Publications, London, 1974, pp. 129-151.

relationship between 18th-century science and technology. I argue that, whilst dismantling Wedgwood's pretensions to the role of scientist from a logical point of view,³¹⁶ Hall actually confronts the great potter with the alleged ethical profile of the 'man of science'. His arguments have much to do with an abstract concept of the scientific ethos, perhaps more than with internal logical distinctions between scientific and technological research.

The dividing line between technical know-how and scientific knowledge might be described more as a difference between *modi operandi*, rather than as different *formae mentis*. One essential demarcation is the aim of the two kinds of research. On the one hand, in Hall's view, scientists' deontology implies a rate of disinterest compared with technological research. Scientists are supposed to be open to the circulation of knowledge, whereas technicians are often: "anxious to keep novel processes as secret as possible, and to prevent their dissemination by patent protection". Whilst "James Watt, for example, *thought* like a scientist, he *behaved* as secretively as any traditional craftsman".³¹⁷ Being disinterested and neutral, the true man of science does not interfere with the publicizing of scientific knowledge, sharing a new theory with a community of peers. On the other hand, the technician does not recognize his colleagues as his principal interlocutors and he tends to seek his feedback elsewhere. For him being successful means obtaining "popular acclaim"³¹⁸ for his discoveries. In his case, the market is a perfect referee. The engineers and inventors of the Industrial Revolution were not driven by the "force of scientific truth", but by the "desire to derive quickly a sound and economical answer to a design problem".³¹⁹ From these ethical and deontological portraits, Hall derives one of his fundamental methodological principles. He claims that: "in considering the history of technical development", he claims, "it is no more necessary to enquire after rationality than, in similarly considering the history of

316 Ibid., p. 131.

317 "What did the Industrial Revolution owe to science? ", Ibid., p. 131. My italics.

318 Ibid., p. 132.

319 Ibid., p. 151.

science, to enquire after utility.”³²⁰ But the interests that motivate technological research are inconsistent with the making of pure science, whilst science itself tries to solve problems which are too abstract to be interesting to practical men.

This means that science and technology are divided and that they constitute two separate working areas, both in their intellectual interests and practical inclinations: “If it is neither profitable nor realistic, then, to pursue through the seventeenth and eighteenth centuries the gradual emergence of a single species of dual parentage, *Homo scientificus*, pursuing sometimes the purity of science, sometimes its application to mundane affairs, one is left with a quite traditional conception that science was concerned with one class of problems and technology with another, and it remains to establish the relations between them.”³²¹

After drawing a dividing line between 18th century science and technology, Hall enters into the core of his argumentation, showing that the two radically different kinds of knowledge were also impervious to each other. He deals with some of the major icons of the Industrial Revolution, arguing that the best educated and sophisticated engineers might have mastered the language of science “while always actually working with particular facts and ideas. Any scientific theory may envelop his actual immersion in particulars, right or wrong.”³²² Wedgwood’s work does not provide any evidence of a real logical exploitation of the phlogistic theory in the technological research undertaken at Etruria. Wedgwood, writes Hall: “did not – as quoted by Schofield – measure phlogiston in order to distinguish the clays, he distinguished them by firing specimens and observing that one was consistently darker than the other. His phlogiston language was *no more than a way of rationalizing what was physically observable* [...] Being familiar with chemists’ terminology, he used it, but *it had no technological (or logical) significance*”.³²³

From today’s standpoint, and taking into account the influence of Thomas Kuhn’s

320 Ibid.

321 Ibid., p. 135.

322 Ibid., p. 140.

323 Ibid., p. 141. Italics are mine.

and Paul Feyerabend's epistemological thought, it would be interesting to ask ourselves whether a scientific theory is not necessarily a way of rationalizing what is physically observable. But leaving aside this enigmatic passage, we may focus once more upon what is more relevant in Hall's point of view, that is: the practical, we might say behavioural, opposition between the ideal man of science and the technician. The true 18th-century scientist looks like the custodian of a kind of knowledge which is cut off from the world of material interests. He is disinterested enough to appreciate the typical abstraction of scientific problems and to share his ideas publicly, fending off the kind of anxiety which arises from commercial competition.

Hall was one of the undisputed fathers of British history of science. He was the first curator of the Whipple Museum of History of Science at Cambridge, where he also lectured. He was the first academic taking up a position as professor of history of science at Imperial College, London, and the President of the British Society for the History of Science for two years, from 1966-1968. Hall was, therefore, an important character in the days when this young field of studies was gradually become academically established. Delimiting the field of the history of science implied a certain definition of that specific kind of knowledge we call science, which was depicted as a highly distinctive intellectual enterprise. A liberal humanist, and a protégé of Herbert Butterfield, Hall's work was aimed at shaping science as a type of knowledge which transcended every other. By doing this, he contributed to the Cold War Western historiographical reaction to deterministic readings of science as a complex product, such as those provided by Marxist historians of science of the previous generation.³²⁴ At Cambridge the group of historians who were more influenced by soviet externalism was represented by Joseph Needham, from whom Hall always distanced himself. In his PhD thesis,

³²⁴ For an insight into the reception of Marxist history of science in Britain see: J. Needham's foreword and P. G. Werskey's Introduction to Nikolai I. Bukharin et al., *Science at the Cross Roads. Papers presented to the International Congress of History of Science and Technology held in London from June 29th to July 3rd, 1931 by the delegates of the U.S.S.R.*, Frank Cass & Co., London, 1971.

Hall cites Needham as one of the historians who were influenced by Boris Hessen's "crude" historiography.³²⁵ As "perhaps the most interesting convert to the Marxist viewpoint", Needham argued for an externalist approach to history of science and technology which tied together scientific knowledge and technical and economic processes.³²⁶

But Hall's reaction did not have a sole interlocutor. His depiction of science is situated within the broader resistance to Merton's conception of the moral equivalence of the man of science as articulated in his 1942 essay. In this essay Merton delineated the proper disciplinary space of his *Sociology of Scientific Knowledge* (SSK), arguing that there was "no satisfactory evidence" to support the thesis that scientists were "recruited from the ranks of those who exhibit an unusual degree of moral integrity".³²⁷ Establishing this moral parallel between scientific communities and the social world, Merton explains ascribed to the deviation of individuals all those behaviours which could not find justification within the norms of CUDOS, that is, those norms which regulate the deontology of the scientific community as a whole.

Therefore, the research field of SSK is defined by the discrepancy between the expected adherence to these abstract moral principles, which normally produces a truly disinterested and objective kind of knowledge, and the moral ordinariness of the single social actors involved in scientific research.

As a result of this a sociological approach to science made sense only as long as a 'vulgar error' was at stake, such as those errors – which lead, for example to false theories - could be seen as 'deviations' from the normative structure of science, which gave rise to interestedness, competition and concealment. This point of view is rejected by Hall, who, rather than accepting the ideal of the moral equivalence

325 Anna-K. Mayer, "Setting up a discipline, II: British history of science and the "end of ideology", 1931-48", *Stud. Hist. Phil. Sci.*, 35 (2004), 41-72, p. 50, footnote 17.

326 Bukharin, 1971, p. xxii.

327 Merton, 1973, p. 276. For a history of the concept of moral equivalence of the man of science see also: Steven Shapin, *The Scientific Life. A Moral History of a late modern Vocation*, Chicago University Press, Chicago, 2008, chapt 2-3.

of the man of science, considers characters such as Watt and Wedgwood like deviants with respect to a standard scientific deontology.

Moreover, if the history of science should look for literary evidence,³²⁸ as Hall argues in *On Knowing, and knowing how to..*,³²⁹ historical attention will focus upon literate men and the scientist constructed by this historiography will inevitably have a flair for writing. Another piece is added to the puzzle of the scientific ethos. Nevertheless, it is perhaps beyond writing, among mechanical schemes and in the hardware which embodied a silent language, that we discover the world inhabited by Wedgwood, Smeaton, Watt, Trevithick, Rennie, and by all those 'obscure individuals who were the first inventors'.³³⁰ If pure science must be separated from technology, it is also because the history of science, focusing only upon literary sources, cannot be confused with the history of technology, which is mostly based upon conjecture and analogy. In fact, for Hall, the history of science is a history of thought, and scientific thought lives in the words of scientists, not in the material world of instruments and laboratories.³³¹

"It is a mere self-deception to suppose that one can recreate thought from things, as for example those who have sought to fabricate a palaeolithic religion based upon the evidence of cave paintings or, perhaps, an iron age astronomy on the evidence of stone circles."³³²

The realist approach to Wedgwood scientific stature presents three major

328 Hall, 1974, pp. 92-93.

329 Arthur R. Hall, "On Knowing, and Knowing how to..", *History of Technology*, 3 (1978), pp. 91-103, reprinted in Arthur R. Hall, *Science and Society: Historical Essays on the Relations of Science, Technology and Medicine*, Ashgate, 1994, ch. iv.

330 Hall, 1974, p. 132.

331 Hall, 1978, p. 93. This problem was addressed by Derek J de Solla Price: "A point which tells particularly heavily for me, as a historian of technology, is this opposite polarity of science and technology in their attitudes to literature, which is precisely what makes it terribly difficult to write the history of technology [...] The content of science is already embodied in papers, whereas that of technology first has to force itself into written form [...]." According to de Solla Price, if on the one hand technology is "*papyrophobic*", on the other hand science is "*papyrocentric*". Derek J de S. Price, "The parallel structures of science and technology", in Barry Barnes and David Edge (eds.), *Science in Context. Reading in the Sociology of Science*, Open University Press, Stony Stratford, 1982, pp. 164-176.

332 Ibid., p. 96.

problems. First of all, as we observed in the case of Hall, Schofield and Chaldecott, a realist interpretation of Wedgwood as a man of science has provoked radically opposed replies. Furthermore, with respect particularly to Hall's interpretation, the line he drew between science and technology is largely contestable.³³³

In 1980 Joseph Agassi defined the classic demarcation between scientific and technological research as "a problem of distributing medals"³³⁴ and he saw to the interpretation of the relation between science and technology as a continuum. What he calls "basic or fundamental research" is exactly "in between science and technology, in the sense that it operates not only with explanations and refutations, it also must operate with corroborations".³³⁵

The nominalist camp: reconnecting technical and scientific matters

The nominalist school mentioned by McKendrick in the incipit of this appendix is perhaps exemplified by Musson and Robinson's book *Science and Technology in the Industrial Revolution* (1969).³³⁶ Nevertheless, these scholars did something more than apply the adjective 'scientific' to the mental habits of the most acclaimed technicians of 18th century England. They wrote a detailed account of the scientific and social networks which included practitioners and inventors such as Wedgwood and Watt. The third chapter, which may be considered the core of their research, begins with some considerations of British scientific associationism,

333 An interesting summary of the debate on the relationship between science and technology in historiography is provided in: Peter Dear and Sheila Jasanoff, "Dismantling boundaries in Science and Technology Studies", *Isis*, 101:4 (2010), 759-774.

334 Joseph Agassi, "Between Science and Technology", *Philosophy of Science*, 47:1 (1980), p. 96.

335 Ibid.

336 Albert Musson, Eric Robinson, *Science and technology on the industrial revolution*, Manchester University Press, Manchester, 1969.

on the Warrington Academy, and on the role of itinerant lecturers in the promotion of scientific culture in the English provinces. Personal connections and epistolary exchanges show a broad circulation of theoretical knowledge and technical expertise. Associationism is interpreted as evidence of affiliation to a scientific community. This community leads an open dialogue with society at large and occasionally widens its horizons to include new figures who are able to master scientific language and bring new kinds of knowledge, encrusted with the practical problems emerging from progressing industrialization. For Musson and Robinson, this network of epistolary relationships, friendships, and professional collaborations, the flourishing societies and dissident academies, do not merely inflate the 'scientific' label. Rather, they describe the shaping of a wider social basis involved in the creation and propagation of scientific knowledge. Such social phenomena are essentially related to the practical and bourgeois character of science during the Industrial Revolution.³³⁷

In this perspective, we no longer need any justification for Wedgwood's right to the title of 'scientist', since the scientific community of his time entertained an intensive scientific exchange with him, discussed his publications, and used its instruments. Musson and Robinson's attention to scientific associationism was criticized by some as an arbitrary and misleading juxtaposition of scientific research and technological progress.³³⁸ In their research, it is neither an abstract concept of scientific knowledge, nor even an ethical portrait of the 'man of science', which provides a frame of reference to measure Wedgwood's intellectual stature. It is, rather, that men like Wedgwood or Watt radically altered science, transforming its priorities and reshaping its ethos. This profound commitment to social history reminds us of the social dimension of scientific knowledge, and of how science grows in close relation to the sphere of political and economic phenomena and to extra academic networks of scientific associationism.

³³⁷ Ibid., p. 142.

³³⁸ 'Science and Technology in the Industrial Revolution', by E. Robinson; A. Musson. Review by: Morris Berman, *Journal of social history*, vol. 5, no. 4 (1972), pp. 521-527.

A few years after the publication of Robinson's and Musson's book, British historiography focused upon new debates around the relationship between science and society. The new trends within SSK in general and, more particularly, the School of Edinburgh opposed a contemplative conception of knowledge, studying science from a new and more ambitious perspective. The empirical validity of Merton's norms was questioned, and this led to a new manifesto, a *Strong Programme*³³⁹, according to which sociology could not be limited within the bounds of error and false theories. On the contrary, scientific knowledge, whether it proved true or false, was nothing more than a social product and imbibed many conventions related to its social and historical situation. The bulwark of 'matters of fact' was being corroded by this new form of social constructivism, and by the idea that science was produced by morally and materially isolated men. From a material point of view, authors such as Steven Shapin, Margaret Jacobs and Larry Stewart³⁴⁰ focused upon bringing to light the *invisible technicians* who substantially contributed to the making of natural knowledge in the modern history of science. They investigated the place of the production of modern natural knowledge and found it in laboratories and workshops, doing away with any purely epistemological, theoretical distinction between abstract and applied knowledge.³⁴¹ In other words they reconstructed the complex network of actors who were directly involved in the making of scientific knowledge, reinstating the intellectual property of a number of tacit workers, who had been neglected by previous historians.

From a moral point of view, social studies of science contributed to erode the myth

339 See David Bloor, *Knowledge and Social Imagery*, Chicago University Press, Chicago, 1991 [1976], p. 3.

340 Steven Shapin, "The Invisible Technician", *American Scientist* 77:6 (1989): 554-563, Margaret Jacobs and Larry Stewart, *Practical Matter: Newton's Science in the Service of Industry and Empire, 1687-1851*, Harvard University Press, Boston, 2004, Larry Stewart, "Assistants to Enlightenment: William Lewis, Alexander Chisholm and Invisible Technicians in the Industrial Revolution", *Notes and Records of the Royal Society*, 62 (2008), 17-29.

341 See also Simon Schaffer, "Glass works: Newton's prisms and the uses of experiment", in David Gooding, Trevor Pinch, Simon Schaffer (eds.), *The Uses of Experiment. Studies in the Natural sciences*, Cambridge University Press, Cambridge, 1989.

of scientific disinterestedness.

Hence in *Interests and the Growth of Knowledge* (1977), Barry Barnes wrote specifically on the interconnections between science and material interests.³⁴² In Barnes' book, knowledge, including scientific knowledge, was described as essentially motivated by the interest in prediction and control. Science was anything but disinterested and neutral.³⁴³ The new historical research inspired by the *Strong Programme* shed light upon the scientific contributions of invisible technicians, understanding the reasons for their historiographical oblivion, and, broadly speaking, it focused on that "social technology that incorporated the conventions experimental philosophers should use in dealing with each other and considering knowledge-claims".³⁴⁴ The SSK would also inspire new perspectives on James Watt and, less directly on his friends of the Lunar Society, including Wedgwood. Their long-debated scientific work was now approached from a naturalistic point of view. It was no longer necessary to understand whether Watt, or Wedgwood could be considered scientists according to abstract ethical or epistemological criteria. What mattered was the understanding of their accreditation in life and what practical effects their scientific reputation had, for example, in regard to their various commercial successes. Rather than setting Wedgwood's scientific work against a realist epistemology, this research interest implied a new consideration of scientific community using the methods of sociological research. In an article published in 2000, David Philip Miller considered the problem of Watt's reputation, claiming that, however we evaluate Watt's scientific stature, his scientific accreditation might have been "of considerable commercial importance to Watt and Matthew Boulton".³⁴⁵ What interested Miller was, first of all, Boulton's and Watt's skills at constructing their

342 Barry Barnes, *Interests and the Growth of Knowledge*, Routledge, London, 1977.

343 Ibid., p. 86.

344 Shapin and Schaffer, 1985, p. 25.

345 David P. Miller, "'Puffing Jamie': The commercial and ideological importance of being a 'philosopher' in the case of the reputation of James Watt (1736-1819)", *History of Science*, 38:1=119 (2000), 1-24, p. 3.

reputations and their images as philosophers, and secondarily the practical effects of this very peculiar kind of authority. His fascinating research reached the conclusion that Watt's scientific respectability might have loomed large as an instrument to defend his invention in the context of his legal struggles against those who were considered to be the pirates of his patent. The scientific community was a complex social group and being part of it had much to do with peculiar mechanisms of integration and with the individual's construction of his own credibility as a scientist. Being a 'philosopher' basically meant having successfully constructed oneself as such, contributing to a social portrait which could be painted, renovated, or totally undone by subsequent historiography. Miller's monograph on the "chemical Watt"³⁴⁶ provided new grist for thought along this historiographical perspective. The author tracks Watt's reputation and work as a chemist back in time, showing how and why his successive historiography ended up privileging Watt's images as mechanical engineer and as philosophical engineer. The construction of Watt's scientific reputation had much to do with his self-fashioning, his friends' testimonies, and his son's and successors' contributions to the memory of the inventor from Greenock. If some practical men strove hard to construct their reputation as disinterested philosophers, this was also because the Royal Society of London, particularly during the Banksian regime, imposed upon them the ethical code of disinterest.³⁴⁷ Conducting disinterested research was essential to gaining scientific credibility within one of the most influential scientific societies in the world. On the other hand, owing to its significant authority in scientific matters, this prestigious society might be used as a powerful means of accreditation and the relationships between its members would turn out to be very useful. Miller suggests that: "a more conspicuous presence among the philosophers might also be useful in gaining access to those who might testify in court. Indeed, when Boulton and Watt finally despaired of other measures to deal with pirates of their engines and took the

346 Miller, 2009.

347 Miller, 1999, p. 187.

matter to court in 1794-95 (*Boulton & Watt v. Bull*), half of the ten witnesses whom they called to testify in their favour were F.R.Ss who had no particular experience of erecting engines but also had no financial interest in the outcome of the case. There are signs that this "independent" testimony by the FRSs carried some weight."³⁴⁸

By the end of 1785, all the members of the Lunar Society had become fellows of the Royal Society. Miller claims that their election might have been the result of a joint venture "connected with real and anticipated battles concerning patents and patent law reform".³⁴⁹ Nevertheless, it is still not clear whether Wedgwood was moved by the very same reasons as were some of his lunar friends. Although he was a vigilant observer of the legal battles and the political debate concerning the patent system, he often preferred compromising with his many imitators rather than facing long and uncertain legal disputes.

The real reasons for Wedgwood's accreditation in the scientific community and the social technology which sustained his reputation as a man of science are still largely shrouded in mystery. What seems clear from a brief outline of Wedgwood's historiographical fortune in across the 20th century, however, is that what McKendrick defined as the nominalist perspective is now perhaps the dominant approach. The nominalist school has been reinforced by the development of the social studies of science, the crumbling of the barrier erected between technology and science and the gradual and constantly challenged affirmation of the idea of the moral ordinariness of the man of science.

348 Ibid, p. 195.

349 Ibid., p. 193.

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