

# Prosser The Engineer: A Forgotten Birmingham Genius



Richard Prosser 1804 -1854  
The Discovery of his Life of Invention and Contention

## The Second Story

The Dust-Pressed Process:  
The Button Wars & The Tile Revolution

Susan Darby

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The purpose of the free publication of this work is to gain some belated, but much deserved, recognition for its subject Richard Prosser, an inventor who was also one of the main proponents of the first major legislative reform of the patent law system in 1852. He was fiercely protective of intellectual property rights. Any concerns as to possible copyright infringement in this narrative or any images within it should be addressed to the author in the first instance please at contact@prossertheengineer.co.uk and they will be given due and proper consideration; if any infringement is established the offending material will be removed, if required by the owner, with an apology - as Prosser himself would have demanded .

The narrative of The Third Story is largely confined to the relevant events in Richard's life that occurred during the period 1840 to 1854. His silhouette on the title page probably dates to about 1843 (Darby collection)

The typeface used on the "cover" of this narrative and chapter headings is "Baskerville" in deference to Richard's admiration of another Birmingham genius:  
John Baskerville (1706-1775).

## The Richard Prosser Stories

### The First Story

Rescuing Richard: The Brothers' Feud & The "Chunk" Conundrum  
Chapters 1 to 5

### The Second Story

The Dust-Pressed Process: The Button Wars & The Tile Revolution  
Chapters 6 to 9

(including An Early Addendum)

(NB. Readers of The Second Story who do not wish to read The First are recommended to read its Introduction, Chapter 1 & Chapter 5 pp.148 to 162)

### The Third Story

Tubes: A Wealth of Trouble

Part 1

A Litigious Nightmare

Chapters 10 to 16

Part 2

The Weldless Tube & Second "Marriage"

Chapters 17 to 21

### The Fourth Story

The Emancipation of Inventors

Chapters 22 to 38

### The Fifth/Final Story

Finally: Gunnery, Death, Aftermath

Chapters 39 to 47

The stories remain works in progress and will be subject to revision as, hopefully, further information and corrections come to light.

## Acknowledgements

Throughout my narratives I try to acknowledge all my contributors and sources as they appear and, where appropriate, provide a link to any relevant website. In the case of "The Dust Pressed Process" especial thanks are due to the following:

My American email-friend Jody Behrbaum, a self confessed "avid collector of Prosser (or "china") buttons", who has provided much of the source material from across the Atlantic for "The Button Wars";

The tile historian and author Hans van Lemmen for his many contributions to the content of Chapter 7 of Part Two of this narrative, his patience in helping me to understand the difficult technical aspects of his subject and for his invaluable encouragement of my excursion into a specialist field where I often feared to tread.

My thanks also extend to:

Professor Christine MacLeod, the author of Richard Prosser's new entry in the Oxford Dictionary of National Biography, for her continued encouragement, guidance and historical insight;

The British Newspaper Archive, my main source of contemporary accounts, without which the Richard Prosser Stories would not have been discovered;

Finally, but above all, Richard Prosser's great great grandson, Richard John Darby, my husband, for his support and toleration of my obsessive pursuit of his ancestor. Known as "John" since birth, my husband was named Richard after his maternal Prosser grandfathers: the mining engineer Richard Ellis Prosser, the historian of invention Richard Bissell Prosser and Richard himself.

All errors, omissions and misconceived speculations in my narratives are entirely my responsibility. It is my hope that publication will lead to feedback, which will enable corrections to be made and will resolve some, at least, of the many questions that remain unanswered about Richard's life and inventions.

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# The Dust-Pressed Process

## Part One: The Button Wars

	Page
<b>Chapter 6</b>	
The Opening Scene: Family Life 1840	6
The Dust-Pressed Process	10
The Invention of the Process?	12
The "Agate" Button: Thomas v. Richard?	21
Thomas and his U.S. Patent	27
U.S. National Archives: Thomas's Application	34
Richard's English Patent: No. 8548	42
Inferences	45
Thomas's 1844 U.S. court case	47
Thomas's 1847 U.S. court case	53
England: Richard & Minton on the offensive; Richard v. Royal Worcester	56
The Agate Button: England v. France	72
"Divers articles": other applications of the dust-pressed process	88
 Part Two: The Tile Revolution	90
<b>Chapter 7</b> Paving the Nation: The Victorian Tile Revolution - The Beginning: From Mosaic to Geometrical Pavements	91
 <b>Chapter 8</b> The Toy & Brick Ventures of Mr Cole & Mr Prosser: Foresight Unrewarded	162
 <b>Chapter 9</b> Minton Tiles 1840-54 Richard's Role: The Knowns & Known Unknowns	194
 An Early Addendum	239
 Appendix	258

# Chapter 6

## The Button Wars

or

### **Tom, Dick and Herbert and the "Agate" Button (1840 to 1854)**



The distinctly separate stories that constitute the rest of Richard's business career (following his "nail" period) each occur over the whole, or a major portion, of the remaining fourteen years of his life. One of these, the comparatively short story of the Chunk and Vesta stoves, has already been told in the preceding chapter. It would be hopelessly confusing if all the known events in his life during the years from 1840 to 1854 were recounted strictly chronologically. Instead, each of the remaining stories will be told separately, with events in his personal life interwoven when appropriate; his personal life is still largely unknown except for facts officially recorded in census returns and the registers of births, deaths and marriages.

This and the next three chapters concern Richard's seventh patent, which revolutionised two, seemingly prosaic, industries - button-making and decorative tiling.

### **The Opening Scene: Family Life 1840**

At sometime between 2nd October 1838 and 19th May 1840 Richard and his family moved from the Chunk Engine Works to live at a house a short distance away: 9 Camp Hill Bordesley. The dates are the baptism date of his second child, Richard Bissell and the birth date of his third, George Rippon; the former's baptism record confirmed that the family were still living at the Works, the latter's birth certificate confirmed his place of birth. The move probably took place sooner rather than later after Richard Bissell's baptism, for the reasons explained in the previous chapter.

Earlier on in my genealogical research I had difficulty finding Richard in the 1841 census, the reason being that the enumerator had spelt "Prosser" with the long "s", an "f" without the crossbar. This was an archaic form of the letter "s" which was falling out of use by 1841 but was still found in the handwriting of those educated before the 1820s. In addition, the enumerator had missed out the second "s" with the result that the name appears to be "Profer", which the *Ancestry* transcriber had interpreted as "Proper", an understandable mistake. These transcription errors are quite common and I soon learnt to apply a certain amount of lateral thinking in my name searches on *Ancestry*. I was nearly defeated by one spelling, "Bossa" in the 1871 census, when looking for Richard Bissell Prosser; perhaps the transcriber was a Brazilian.

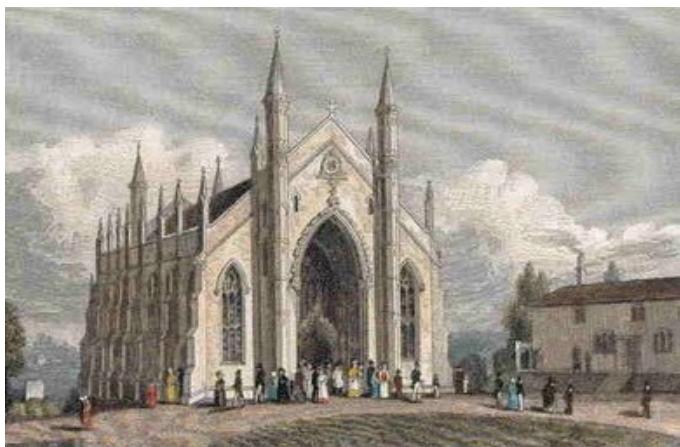
An analysis of the 1841 census revealed that the house at 9 Camp Hill was located on the west side of this road, the right-hand side leaving Birmingham. Richard, 35, an engineer, was residing there with his wife, Sarah, 25, and three young children: Eleanor, Richard, and George, aged 4, 3 and 1. A "Hannah Proper" (sic), 23, of independent means was living with the family but this must surely be Sarah's sister, Hannah Potter; such mistakes by the census enumerators were not uncommon. Richard was also now able to afford a live-in servant, a 15 year old girl, Ann Lees.

The return also confirmed that the houses on the west side of Camp Hill were, on the whole, lived in by "middle class" occupants, including an accountant, a school teacher, a merchant, an importer, as well as some residents of independent means. Several of the households had a servant; the merchant had three. The same return also includes another familiar name: William Church, engineer, who gave his age as 50 (in fact he was about 63), now living (slightly closer to Birmingham town centre than Richard) in High Street Bordesley with his wife, Ann, 45; they also had one servant. But did this move from Heywood House in the rural hamlet of Bordesley Green indicate a downturn in his fortunes? Camp Hill was a continuation of the High Street; the two engineers and inventors were living on the same side of this road about fifteen doors away from each other - were they on cordial terms after all that had happened during the previous ten years?

The Camp Hill road continued south out of Birmingham, becoming the Stratford Road shortly after the Holy Trinity chapel, and then passed through the hamlets of Sparkbrook and Sparkhill. The latter, situated at the junction of the lane to Showell Green, was where Thomas Morton Jones was living in the 1841 census, less than two miles away from Richard's family. Mr Jones then had six surviving children; another two had previously died in infancy. He had

married in 1829 and his wife, the fecund Julia, had borne him at least eight children in the eleven subsequent years; there appear to have been no twins. No wonder they needed five female servants in what would have been a substantial residence, but his bankruptcy later in 1841 must have impacted on the family's lifestyle. The early 1840s was also a period of deep recession; a factor that would have exacerbated Mr Jones's financial woes (*MacLeod*).

Richard's house was located on the opposite side of Camp Hill to the Holy Trinity chapel, which had been built in the new Gothic revival style and consecrated in 1823.



*Beilby, Knott & Beilby 1830 An Historical and Descriptive Sketch of Birmingham.*



*Phyllis Nicklin Collection 1954  
Courtesy University of Birmingham*

The above two images of the church depict it in 1830 and 1954. Both are of interest in that they show housing on the opposite side of Camp Hill: the watercolour, on the left, a Georgian style villa; the photograph, on the right, an ugly terrace. Richard lived further down the hill from the chapel, close to where Camp Hill commenced at the junction of Bordesley High Street with the Coventry Road which branched off to the left, the Chunk Engine Works were only a hundred yards down this main highway. On the right of this junction was Warners Lane (now Warner Street) which crossed Bradford Street to the west. Number 9 Camp Hill was probably just up from Warners Lane and, in the census, was followed by a house known as Rose Cottage, with Cumberland Terrace/Row next but one.

Much of the land on Camp Hill was not developed until after 1830. Houses, dated to 1831, were built near the chapel. The land lower down on the chapel

side of the road was still vacant on the 1839 map pictured next but was fully developed on a map dated 1849.



*1839 Map (Darby collection) Cumberland Row bottom centre right; Chunk Engine Works were located to the NE between Henns Screw Manufrs. and the canal with the Watery Lane workshops to the east.*

Not all the new Camp Hill houses were terraces, photographs taken in the 1960s show that there was also a mixture of detached and semi-detached, all red brick but of a uniformly unattractive post-Georgian style. Number 9 appears to have been located in an area at the bottom of the hill that was already built up when the ribbon development took place on the opposite side. In the 1851 census Rose Cottage is occupied by an accountant, his wife and eight children; the previous property is unnumbered and described as a school, where there were seven occupants: the headmaster, his wife, two children, a female servant and two scholars. Logically this private school should be number 9. These details are meagre clues, but nevertheless some indication that Richard's family was now living in relative comfort.

The Camp Hill house was within easy walking distance of Richard's Watery Lane workshops; his Cherry Street office was only a mile distant from both. In

1841 his mother, Eleanor, and sister, Hester, were living in Watery Lane, presumably in the house on the workshop site, with Sarah's younger sister Emma Jane, the "imbecile since infancy" of the later census. William, Richard's younger brother, who was living at Watery Lane in 1839 when his daughter Elizabeth was baptised, had moved his family to the All Saints district on the other side of Birmingham, close to Hockley and Soho; he was probably living on the housing estate recently built by Sir Thomas Gooch to accommodate the workers in industries that had been attracted to the vicinity of the late Boulton and Watt's great factory. In 1841 William was working as a pattern maker; Richard's elder brother Thomas had taken his family somewhat further away and was living in Paterson New Jersey in the United States of America.

The house on Camp Hill was clearly a preferable environment for Richard's family than that of their previous home at the Chunk Engine Works, but its location would still have been on the edge of one of Birmingham's busiest industrial districts (Bordesley had become part of the newly incorporated municipal borough in 1838). Little was said to have changed in the town's environment since 1824 when, on a visit, Thomas Carlyle, the Scottish essayist, in a letter to his brother described Birmingham as "pitiful enough" with "streets ill-built and ill-paved...often poor and sometimes miserable. Not above one or two of them are paved with flagstones...torrents of thick smoke issuing from a thousand funnels". However, the population of the town would have increased significantly in the period since Carlyle's visit, by about 75% according to one estimate, to c170,000; the vast majority still the "sooty artisans" described by the essayist.

The roads and streets mentioned above still exist, but all the houses on Camp Hill between Warner Street and the chapel have gone, their sites having disappeared under major roads and modern factories. Holy Trinity itself remains, it still stands imperiously at the top of Camp Hill but is now virtually enisled by city ring roads; it was deconsecrated in about 1970 and for a while it was used as a night shelter for the homeless, but has since stood empty.

## The Dust-Pressed Process

*In 1840, Mr. Prosser, of Birmingham, discovered that if the material of porcelain (a mixture of flint and fine clay) be reduced to a dry powder, and in that state be subjected to strong pressure between*

*steel dies, the powder is compressed into about one fourth of its bulk, and is converted into a compact solid substance, of extraordinary hardness and density: much less porous, and much harder than the common porcelain, uncompressed and baked in the furnace.*

*This curious and as it has since proved very important discovery ...*

The above quotation is taken from an essay by *F.O.Ward* in the book attributed to Owen Jones that is referred to below and again, in more detail, in the following chapter. The essay was written only two years after Richard took out his patent in 1840, the year quoted above, which was not, in fact, the date the idea for such a process was first “discovered”. Richard had probably learnt of the ‘idea’ in the latter half of 1836 and his experiments over the next four years were to successfully realise its industrial potential. (*SD 2022 rev.*)

*Ward* specifically referred to porcelain, as opposed to the cheaper and less refined ceramics known as earthenware. Richard had, probably, initially developed dust-pressing with porcelain manufacture, in particular, in mind, although his patent also encompassed products made from materials used in the manufacture of earthenware.

The quotation succinctly describes the process, but gives no impression of the amount of time that must have been spent in researching this very specialised craft, which then used the wet (plastic) clay method, and transforming this into the dry process. This must have involved studying and experimenting with the composition of the dry powder, formed of kaolin, the white clay used in porcelain manufacture, and other constituents (such as feldspar and silica), and in the drying, grinding, sieving, compressing and firing processes. The drying process was critical, as sufficient moisture content had to be retained for the powder to cohere when pressed. Where this research was undertaken is unknown, but must surely have involved an existing pottery, probably one of the many potteries in the towns in Staffordshire named the Five Towns by the author Arnold Bennett. The potters were very secretive about their individual methods and it is unlikely that such access would have been given without some agreement as to the future exploitation of the new invention.

The process had a number of advantages over the plastic clay method including: durability as pointed out by *Ward*; speed, as the time spent hand moulding the end-product and its drying time before firing were both eliminated; and, probably most important of all, virtual eradication of the

defects which were the plague of the potters under the plastic clay method - shrinkage, distortion, and cracking.

## The Invention of the Process?

On Thursday 11th June 1840 Richard and Sarah's third child, a second son born on 19th May, was baptised at St Martin in the Bullring and named George Rippon Prosser. The following Wednesday, 17th June 1840, was a day for further celebration in the Prosser family; not only had Richard and John Rippon been granted a patent for the Vesta stove that day, Richard was also granted his patent for the dust-pressed process. The grants, each for a fourteen year term, were conditional on the filing of full specifications within six months; each was duly enrolled on the last qualifying day, 17th December. Both patents covered England and Wales, but not Ireland and Scotland, which had their own systems until October 1852, although the disputed town of Berwick upon Tweed was specifically included; the patents also extended to the British "Colonies and Plantations". Well before the enrolment of its specification Richard had already sold an interest in his dust-pressed patent to Herbert Minton, the Staffordshire potter.

I have not even tried to ascertain the date that Richard commenced the complicated and expensive procedure that led to the initial provisional grant of his patent. There was, then, no centralised government body responsible for overseeing the grant of patents, the application would have passed through many hands and I cannot imagine that any useful record has survived\*. Almost certainly the date would have been no later than the beginning of May 1840, as the excessively bureaucratic process would have taken at least several weeks and maybe many months. The fees payable to the various officials and the stamp duties levied would have totalled well in excess of £100. If, as seems likely, Richard had employed the services of the patent agent and editor of the *Mechanics' Magazine* Joseph Clinton Robertson the cost would have been much greater.

\*["Something probably did, but it may not add anything significant to what you already know. If you have the patience, you can trawl Home Office papers at the National Archives. For pre-1852 materials see esp. HO43, also HO42, HO44 and SO7." - MacLeod. I have not yet taken up this challenge and would be very happy if someone else feels inclined to do so.]

However, we do know that over in the U.S., Britain's former colony, Richard's elder brother Thomas commenced his own application to patent the same invention on 8th August 1840. That was the date he sent his petition to the Patent Office in Washington, supported by his affidavit together with his specification and the fee of \$30; Thomas had no patent agent, he acted for himself. In 1844, in a court case instigated by him in the U.S., Thomas referred in his evidence to the acknowledgement, dated 10th August, that he had received from the U.S. Patent Office. The date of his application was significant to his claim in the litigation.

I owe this information to my email correspondent, Jody Behrbaum, who had contacted me through *Ancestry* in June 2013. Jody is American and a self-confessed "avid collector of Prosser (or "china") buttons" who, while carrying out research into the Prosser brothers, had come across them in our *Ancestry* tree. Jody has been an invaluable help to me in my own researches, including sending me a scan of the original manuscript of Thomas's 1844 testimony.

In his petition for a patent each brother had to swear to the effect that he believed his invention was new and never used before; that he was the true and only inventor of the dust-pressed process.

All the earlier British authorities and press reports I have read credit Richard with the invention; there is occasional mention of the American patent held by his brother, but it is inferred that Thomas was acting as Richard's representative or agent in America. We know from later parliamentary reports that Richard claimed to have taken out foreign patents in the name of a third party. There is an authoritative contemporary account that Richard had also taken out a French patent for the process, which he had allowed to lapse (a decision which he, probably, later regretted).

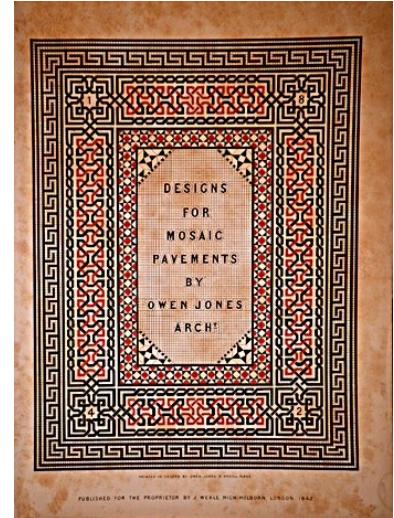
In the U.S. the picture is more confused. There were contemporary U.S. press reports which referred to the important new invention of an Englishman, Richard Prosser. Some modern American "button" web sites give the credit to Richard alone, others credit the brothers jointly.

However, one person was adamant that the idea had been Thomas's - and that was Thomas himself. In a letter dated 18th December 1850 to the editor of *The Merchants Magazine* in New York, Thomas, writing from that city, stated: "This invention originated with me in the year 1832, and the first button that was ever made by that process was made by me in 1837." The "process" referred to was the dust-pressed process and Thomas was writing

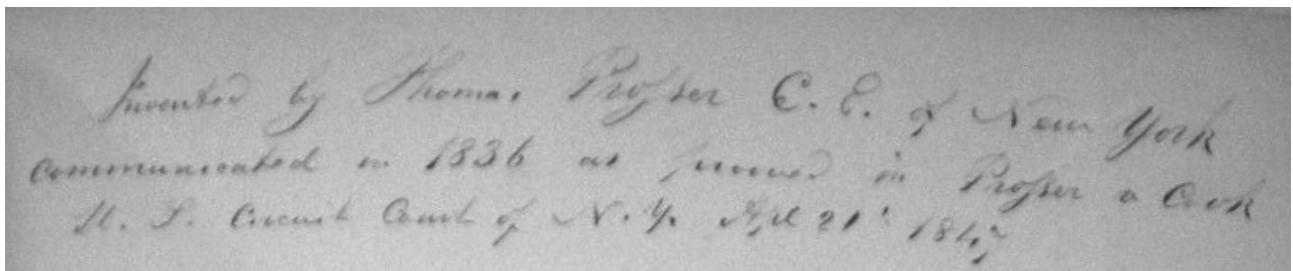
specifically about its application to the manufacture of porcelain buttons. This letter expands on similar claims that he had made in the 1844 case mentioned above, and in his testimony in another U.S. case that he instigated in 1847, where he referred to experimenting on the process at Watery Lane Birmingham in 1837 and 1838.

More intriguingly, Jody had sent me scans taken of pages from an antiquarian book, first printed in 1842, entitled "*Designs for Mosaic and Tessellated Pavements*". The author was stated to be Owen Jones, an architect, and "a major figure in Victorian design" (*MacLeod*).

*All images on this page courtesy of Kent State University, Ohio, U.S.*



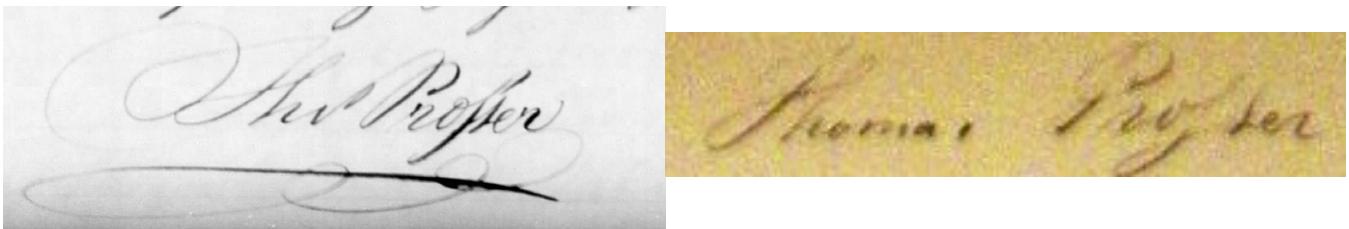
The mosaics of the title were in fact the tesserae manufactured by Minton under Richard's patent and at the end of the scanned book there is an appendix which contains an "account" of the process. The scans were taken from a volume of "*Designs etc.*" in the collection of a U.S. library. On the first page of the appendix, above the heading, someone has written: "Invented by Thomas Prosser C.E. of New York communicated in 1836 as proved in Prosser v Cook U.S. Circuit Court of N.Y. 21st April 1847."



"Prosser" is written with a long "s", the writing of someone educated before this archaic form fell out of use in the first quarter of the 19th century. Jody has also sent me links to a letter written by Thomas dated 13th April 1861, which she had found online.

A comparison of his 1861 signature with his name as written in the above note, confirms that the note was almost certainly written by Thomas. Who else would bother to do so? In his signature in the 1861 letter he has shortened "Thomas" to "Thos." (and added an extra flourish to the "T") but

this was common practice in signatures then. The writing of the "Prosser" name is virtually identical.



Jody found a further volume of the book in the Brooklyn Museum; it contains a similar manuscript note in the appendix. Thomas and his family subsequently lived in this district of New York. Curiously, 86 copies of "*Designs etc.*" were included in the auction sale of Richard's own library in 1855 following his death the year before.

The book, though very short, would have been expensive; *Ward's* introductory essay, only runs to 6 pages, but there are 10 coloured plates of beautiful mosaic designs by Owen Jones. It is available as an eBook, but none I have found include the appendix.

The description of the process in the 8 page appendix is dated 15th March 1843 from an address in Holland Street, Blackfriars, London; the author was not identified. The appendix did not appear in the 1842 first edition of the book, it was included in an 1843 reprint, the date ascribed to one of the volumes in the U.S. found by Jody. I suspect that the 86 copies acquired by Richard were the 1843 version, which he wanted to take out of circulation because the appendix contained a detailed description of the patented process and a coloured drawing of the "ordinary screw press" with the adaptations to it that he had designed to compress the dry powder, in a mould, to form small articles such as the tesserae. The description of the actual process is in fact more detailed and revealing than in his patent. I do not believe that the account was written for publication, it was intended for the eyes of only one person, who had expressed a great interest in the invention: the husband and Consort of Queen Victoria, Prince Albert, to whom the account was presented on 15th March 1843.

Richard's acquisition of the 86 copies of "*Designs etc.*" was more likely to have been motivated by a desire to preserve the secrecy of the process, than any concerns for Thomas's reaction to the attribution of the invention to his younger brother.

Throughout the 1840s Richard, also, vigorously defended his patent against infringement, asserting his claim to be the true inventor of the process. In 1845 Richard, too, had been involved in litigation, in England, and gave written evidence in support of his claim to the invention in his sworn testimony in the case. Shortly before his death in 1854 a notice had been inserted in *Aris's Birmingham Gazette* of a proposed application by Richard and Minton to the Privy Council for a seven year extension of the term of the patent.

So which brother do we believe? After much consideration, I tend to the view that there was an element of truth in Thomas's claim, but that he was being somewhat economical with it.

Thomas stated in the 1850 letter that he "originated" the invention in 1832. At that date he was living and working in Worcester, the home of the famous porcelain factory, now known as Royal Worcester. It would not be surprising if Thomas, a practising architect, had taken an interest in the pottery's manufacturing process; particularly in relation to items that might be sold by the builders merchants' business carried on by John Rowlands and himself e.g. door furniture such as door knobs.

The notes endorsed in the volumes of "*Designs etc.*" that Jody had found alleged that the invention was "communicated in 1836". By whom? - presumably Thomas. To whom? - presumably Richard, the possible author of the appendix. The date is significant, 1836 was the year that Richard was tried, in March, for fraud on Thomas's evidence; the year that Richard later, in August, sued Thomas for slander and John Reynolds for malicious prosecution. Was the "communication" some form of recompense/peace offering by Thomas to Richard?

In his 1850 letter Thomas claimed the invention of the process itself, but credited Richard with the "invention" of the "whole of the machinery" for the different end products that were eventually made with it. These products, according to Thomas, extended to: "Bricks and tiles, tesserae and jambs for fireplaces, keys for pianoforte, and, in short, all kinds of flat articles have been, and continue to be made, in almost endless variety". Now, there must be some doubt as to the "endless variety" of machines that Richard had the resources and time to develop for all these products, but he certainly made machines for making bricks, tiles, tesserae and, of course, buttons. Whether these machines, the presses, were new inventions is another issue; the presses themselves were not but Richard would have "invented" the

adaptations and augmentations necessary to make each desired end product, in particular the dies and moulds.

I had come across the 1850 letter very early on in my research when trawling through the numerous results thrown up by my web search against "Prosser buttons". It was my very first introduction to Thomas, of whose existence I was previously unaware. The letter has been hugely important to my investigations and analysis of the events described in this chapter.

The letter was written by Thomas in response to a short article in a previous issue of *The Merchants Magazine* in November 1850 headed "The Manufacture of Porcelain Buttons". The article was in fact a quote from *The Staffordshire Advertiser* which had reported on an alleged improvement to the process of manufacturing porcelain buttons that had recently been implemented in the Potteries. The supposedly new process involved wetting dry clay powder, rolling the resultant paste into a sheet which was then placed in a machine fitted with a "large number of top and bottom dies". The stamping out of a large number of buttons in one operation was said to materially reduce the cost of production.

The article only took up 8 lines but it obviously caused great annoyance to Thomas, who quickly wrote in to the *Magazine* pronouncing it to be "altogether erroneous". His lengthy letter was published in full in the January 1851 issue. Somewhat ironically and possibly to Thomas's even greater annoyance, in his preamble, the editor inferred that he was prepared to give some credence to the contents of Thomas's missive because he was Richard's brother. The editor knew of Richard by reputation (as the inventor of "the machinery for the manufacture of certain articles of Porcelain"), but apparently did not know of Thomas, his fellow New Yorker, who by 1850 was probably a reasonably successful man of business in the city. If the editor did know of Thomas, the inference was, of course, insulting.

Thomas's main "bone" of contention with the Potteries news report was the allegation that the multi-died porcelain button press using the "improved" paste process (my description) was more cost effective than a single die press using the dry process. The latter he pointed out, could produce an "incredible" 25 buttons per minute in the hands of a skilled worker (n.b. actually, he said "a woman") and on average at least 12 to 18 per minute. The preparation of the paste sheet for the multi-died press would, presumably, have taken up much more time than the pouring of pre-prepared powder into

a single die. Thomas also maintained that most of the buttons made by the paste process would crack in the subsequent firing.

Having quickly dismissed the earlier article as rubbish, Thomas made it clear that he no longer had any commercial interest in porcelain buttons, having "long ceased to enjoy any emolument from the invention". He blamed the then U.S. patent laws for this (describing them as "a fraud, a delusion and a snare" to the "poor inventor") together with the eventual outcome of his law suit against Cook in 1847.

The letter contained a number of comments on the history of the manufacture of porcelain buttons which indicate that Thomas had studied the subject in some depth. In particular, he referred to the description in the Potteries news report to the existing method of manufacture, using dry and powdered clay, that "in late years" had been such a success in England both for home consumption and for the export market. This must refer to the dust-pressed process. Thomas referred to this description as "the old way" immediately followed in parenthesis with "(for a very old way it really is)", the italics are his. His comment is not unambiguous, but he appears to be suggesting that the dust-pressed process was known about in antiquity. An art or skill, like many others, known to ancient craftsmen but lost over the passage of time.

I have found another 19th century authority suggesting an ancient origin for the process. On the website of *Hammond Turner & Sons*, Birmingham Button Makers, there is a transcription of an article by *John Pemberton Turner* (a partner in the firm) entitled *The Birmingham Button Trade*. Written in 1866 it covered the history of the trade from Elizabethan times. Towards the end of the article, commenting on the then current state of the trade *Turner* wrote:

*Porcelain buttons are not made in England at all, but were first invented by a Birmingham man, Mr. R. Prosser,\* who patented the idea some twenty to twenty-five years since, and in connection with the celebrated North Staffordshire house of Minton and Co. made and sold them...*

\* *I find it stated in a well-known French periodical, Les Grand Usines, in an article on the manufactory of these very buttons, at Briare, that the invention is really very ancient, and that before 1706 the master button makers in porcelain formed a community; ...*

In 1845 Richard commenced an action against the owners of the Royal Porcelain Works in Worcester for infringing his patent by making china buttons using the dust-pressed process. His reported purpose was to uphold

his patent, but that he did not seek damages. One of the defences relied on by the defendants was that Richard was not the true and first inventor of the process; although it has to be said that this was a quite usual, almost automatic, counter attack in patent infringement cases (*MacLeod*). After one day in court the action was settled before detailed disclosure of the defence; Richard retained his patent and granted the defendants a licence to use the process.

I have also been told by *Hans van Lemmen*, the tile historian and author:

*I don't know about earlier antecedents for Prosser's method, but I do know that a German manufacturer Ernst March in Charlottenburg near Berlin made small mosaic floor tiles using single coloured dust clay, although it did not take off like Prosser's patent. It seems that the idea for dust pressing clay was 'in the air' at the time.*

All this led me to conclude that Thomas probably did not invent the process ab initio and nor did Richard. I believe that Thomas, while in Worcester, had heard about an otherwise unknown "dry" method, ancient or otherwise, of making porcelain which had dropped out of use or "did not take off". He realised its potential but did not take it any further until sometime in 1836 (possibly around the time of the August court hearing of Richard's slander claim), when he "communicated" the idea to Richard to assuage his wrath. Richard recognised its potential himself and agreed to provide facilities for Thomas (and probably a home) in Birmingham, where Thomas experimented on the process until his departure with his wife and young son to the U.S. in 1838. Richard would still have been very busy at the nail manufactory in 1837 and 1838 but no doubt he had some input into Thomas's project, to what extent we will probably never know. However, the bankrupt Thomas, presumably, would have had to rely on Richard for funding. Perhaps, as suggested on some American websites, the brothers should be considered co-inventors in the absence of any proof to the contrary. Under the then British patent laws their process would have been patentable as a new invention if they had, in fact, re-created an ancient "lost" one.

An idea in itself is not an invention, it is the means of implementing the idea that an inventor can seek to patent. If the means is created but not recorded and is subsequently forgotten, the desired outcome can only continue to exist as an idea - until a means of implementation is re-invented. A "lost" invention that was resurrected would be patentable by the re-creator - no third party would be able to prove that the new method or process was the same as the old lost one. (Even if Herr March (1798-1847), a terracotta manufacturer, had

substantiated a claim to have been the first inventor of the process, it could still have been patented by someone else in Britain if not already in use here - SD 2022 rev.)

Both brothers had envisaged that dust-pressing could be used to manufacture a variety of articles. Unlikely as it may seem to us now, each chose the button as the end-product most suited to exploit the mass production potential of the process. In fact, the button-making industry would have been a very obvious target.

"Birmingham made buttons: Buttons made Birmingham" was once a well known aphorism. It was particularly true in the latter half of the 18th century and continued to be so into the first half of the 19th, although gradually declining in importance from about 1825. Many fortunes had been made in the button industry and it would still have been a major employer in the town in the late 1830s. In the early 19th century the top of the range buttons were fashion accessories and the larger and more expensive were ostentatious displays of wealth, often mere decoration rather than a functioning fastener - think of the Regency dandy in his gorgeous frock coat. The Birmingham Museum and Art Gallery has a wonderful button collection including some beautiful examples, each individually hand-made from mother of pearl, jewels, gold or other precious metals. Less costly buttons were made from an enormous variety of materials: fabrics (from silk to coarse linen), base metals (particularly for uniforms), metal covered by fabric, even tropical nuts, and at the lower end of the market, hoof, horn, wood and bone. Before 1840 porcelain buttons were an expensive rarity, individually hand-made they were very desirable but only affordable by the wealthy.

An enormous number of patents have been taken out worldwide for a multitude of innovations to this humble item which has been in use as a fastener, apparently little changed, since medieval times; an item which is still an essential part of our daily lives and whose original inventor is unrecorded.

There are numerous web-sites on the worldwide history of the button. The above introduction is just a taste to set the scene for the introduction of dust-pressed buttons by the Prosser brothers. Those manufactured in England under Richard's patent quickly acquired a brand name, "Prosser's Patent Agate Buttons". "Agate" is defined in the *OED* as "An ornamental stone consisting of a hard variety of chalcedony (quartz), typically banded in appearance". This brand name may actually have been given in acknowledgment of the fact that, although commonly identified as "porcelain"

buttons, the "Agates" were, in fact, probably made of a variant of the usual compound for porcelain wares.



*"Prosser" type buttons - Darby collection: a gift from Jody Behrbaum, probably French.*

The "Agate" buttons were cheap to manufacture in a variety of shapes, sizes and colours, they were also extremely hard and therefore durable. What is more they were much prettier than the other inexpensive alternatives such as hoof or bone. The buttons, today known as "Prosser buttons", were enormously successful, but the brothers only reaped a profit from their eponymous buttons for less than ten years.

Richard had already spent some years involved, in a supporting role, in a battle for supremacy in one mass production venture and for the next ten years he was to be involved in two more. That over the "Agate" button was an inter-national battle - the contenders were Richard (with Herbert) in England, Thomas in the U.S. and Jean-Félix in France.

### **The "Agate" Button : Thomas v. Richard?**

*The principle of forming Mosaic tesserae by the pressure of dry powder, has been applied to the manufacture of various kinds of buttons. They are called agate buttons, and are made of Kaolin, or China clay, brought from the neighbourhood of St. Austell, in Cornwall. This kaolin is the same as the celebrated pottery-clay of the Chinese, which is obtained from disintegrated granite. The buttons are pretty and clear in appearance, and very hard. They are manufactured in all shapes and sizes, plain and ornamented and as compared with the cost of mother-of-pearl, are said to be about one-third the price.*

*Hereford Journal 3rd July 1844*

(The above report appeared in several newspapers nationally in 1844, it gives the impression that the use of the process for the manufacture of tesserae

pre-dated its use for button manufacture in England, whilst the opposite was the case.)

If we assume (for the sake of argument) that the brothers were, in fact, the co-inventors of the dust-pressed button, what was the intention of each brother when he sought to patent the process in his own name, each swearing that he was the first and sole inventor? Were they collaborating or rivals on opposite sides of the Atlantic ocean? This is a question which remains unresolved and still puzzles Prosser button collectors. It still puzzles me, but it may be possible to draw some inferences from the following account of the known facts that make up the story of the brothers and their button.

First, to recap: sometime after August 1836 the bankrupt Thomas moved back to Birmingham where he experimented on the dust-pressed process in 1837 and 1838 at Watery Lane (according to his testimony in the 1847 court case); in his 1850 letter to *The Merchants Magazine* he stated he made his first button in 1837; his reputation still in tatters, he sailed to America in 1838 with his wife and 9 year old son, probably following Ingleby's determination of the Prosser/Rowlands nail partnership dispute; Richard from August 1836 to December 1838 was still employed at the Britannia/Chunk Nail Manufactory, probably as the chief engineer, and also at Chunk Engine Works trying to keep up with the Manufactory's demand for new nail machines.

Thomas actually sailed for America at the end of April/beginning of May 1838; Jody found the family on the immigration records available on *Ancestry's U.S.* site. They had sailed from Liverpool on the "Scotland" and had arrived in New York on 15th June. Thomas, the previously successful architect and builder, described himself as a carpenter, his original trade, for which there was much demand in the U.S.; he also stated he was 35, when he was actually 38. His wife Elizabeth, apparently, confirmed her age was 34, when she was actually 44. Only their son 9 year old Thomas junior gave his correct age. In fact, the elder Thomas and, certainly, Elizabeth were both, for the time, middle aged and quite old to be commencing a new life in a very foreign land.

So Thomas would only have had about 18 months in which to experiment on the process in England, maybe less than this as I have only allowed a couple of months for removals from Worcester and preparations for emigration. This would have been a comparatively short time in which to develop and refine the difficult technical process described by Richard in the appendix to

"*Designs etc.*"; a process which Richard himself stated "required a long series of careful experiments" to perfect.

Thomas and his family had settled in the town of Paterson in Passaic County, New Jersey by June 1841, the eventual date his button patent was actually granted (the reason for the delay will be explained later). He had probably been living and working in Paterson for a couple of years when he first submitted his petition in August 1840, having arrived there shortly after disembarking from the Scotland.

Only about 21 miles north-west of the city of New York (all the following references to NY are to the city, not the state), Paterson is situated on the Passaic River and is famous for its 77 foot high Great Falls, which were a source of power for the many mills that were to be built in the town on a system of water raceways:

*In 1791, Alexander Hamilton helped found the Society for the Establishment of Useful Manufactures (SUM), which helped encourage the harnessing of energy from the Great Falls of the Passaic River, to secure economic independence from British manufacturers. Paterson, which was founded by the society, became the cradle of the industrial revolution in America.(Wikipedia)*

The town attracted large numbers of the early European immigrants to the U.S., although on the date of the 1840 U.S. census, the population was still only 7,596 of whom 3 would have been Thomas, his wife and son. In the revised affidavit in support of his button patent application sworn in June 1841, Thomas had confirmed that he lived in Paterson and he had upgraded his occupation to that of an architect and civil engineer; there would have been plenty of work for him in these professions in the rapidly expanding industrial town.

Before describing the background to Thomas's patent application, I will return to England and describe the events there, in 1840, relating to Richard's patent.

By the end of 1838, eight months after Thomas's emigration, Richard appears to have been freed of his ties to Mr Jones and Joshua Scholefield. Over the next eighteen months he took out five patents, an extraordinary number bearing in mind the expense and, also, that, at this time, the total number of patents granted in the UK per annum averaged less than 500. It is also difficult to understand how he managed to achieve this output, particularly as they involved four very different inventions - two stoves, a nail machine, a tube-making machine and the dust-pressed process. He must surely have

been developing these ideas over a number of years previously and, now that he was in a position to afford the cost, he must have employed the services of a patent agent to take out the patents. He must also have had his own skilled workforce, perhaps inherited from the defunct steam carriage company, as suggested in the 1837 sale particulars for the Bordesley Park Works.

Richard's initial provisional patent for the dust-pressed process was titled:

*"for certain improvements in manufacturing buttons from certain materials which improvements in manufacturing are applicable in whole or in part to the production of knobs rings and other articles from the same materials".*

This description was all that was required for the provisional grant on 17th June 1840. It is deliberately secretive as to the material used in the manufacture. Under the UK patent system Richard was not required to enrol the full specification immediately, he had been given a period of six months in which to do so.

However, the process must have already been fully developed because, within ten weeks, in August 1840, manufacture of the buttons commenced at Minton's pottery in Stoke. Richard had sold a substantial interest in the patent to Minton, who quickly put his engineer, John Turley, in charge of two work rooms which were put aside for the installation of six button presses and one large tile press. Production commenced immediately and there was much demand for the buttons, both at home and abroad; as with the cut nail, the market for them in the U.S. was particularly great.

By January 1842 Minton was producing 720,000 buttons per week and still could not keep up with the demand (*Hereford Journal*, 26th January 1842, quoting from a report by Richard mainly concerning the application of the process to brick-making). In the first 6 months of 1844 Minton received orders for nearly 47 million buttons, more than 1.8 million a week, and needed more machines than he could get to meet the calls of his customers (Turley).

We are fortunate to have a contemporary account of the events from Turley himself, it was given to *Llewellynn Jewitt FSA*(1816-1886) and quoted by him in his 1878 two volume publication comprehensively entitled: "*The ceramic art of Great Britain from pre-historic times down to the present day : being a history of the ancient and modern pottery and porcelain works of the Kingdom, and of their productions of every class*". This mammoth narrative is available as a fully searchable eBook, at very modest cost: free, but (unsearchable), digitised copies are also available.

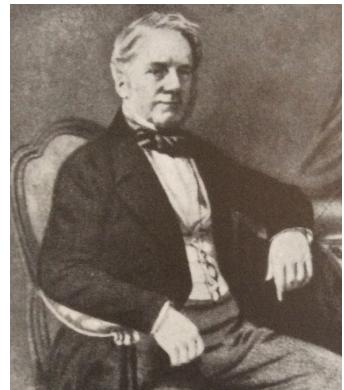
Turley stated that "The English patent was very early introduced to the firm of Minton and Boyle of Stoke on Trent" and went on to say that Minton was very taken with it, but that his then partner Boyle was unimpressed. Minton alone bought an interest in the patent, a half share according to Turley, but on what terms I have not been able to discover, there may be details in the Minton Archive.

The Minton name, as manufacturers of 19th century fine china, is world famous and really needs no introduction. The firm was founded by Thomas Minton (1765-1836), the father of Herbert. Thomas Minton had moved to Stoke in 1793 and by 1796 had built his new pottery. In 1836:

*Herbert Minton, 1793–1858, succeeded his father as head of the firm, and to him was due its development and reputation. He enlisted the services of artists and skilled artisans.*

*Herbert Minton, one of the outstanding entrepreneurs of the 19th century, introduced new techniques and methods of production and established Minton's reputation for both industrial enterprise and artistic excellence. A. W. N. Pugin, Sir Henry Cole, and Prince Albert were close associates whose designs were used by Minton.*

(Website [thepotteries.org](http://thepotteries.org) ) *Portrait - Barnard: Victorian Ceramic Tiles (attributed to V&A).*



After his father's death, Herbert went into partnership with John Boyle, but this firm was dissolved in 1841; Richard's arrival on the scene may have been a factor as Boyle did not share Minton's enthusiasm (verging on mania supposedly) for tiles, in particular the inlaid encaustic tile - the tiles (and tesserae) are another story, told in the next three chapters.

However, even before Boyle's departure a new factory, fronting Church Street, had been built at the Stoke pottery dedicated to button manufacture (its location was identified in *White's 1851 Staffordshire Directory*). Boyle kept a diary and Hans van Lemmen very kindly sent me a scan of transcripts that he had made of entries dated in April and May 1841. The entry for April 25th revealed that Minton and Boyle had had an "unpleasant" conversation about their partnership; on 7th May Boyle received a notice of dissolution from Minton. On May 22nd Boyle wrote a longer entry; a valuation of the partnership assets was underway and reference was made to "the new buildings put up for the Button manufacture". Boyle mentioned that he had had to remind Minton of his undertaking that the buildings' cost would be

financed by Minton's brother "at 7 1/2 % interest"; an undertaking that was given in "a declaration received thro Mr. Prosser in Aug. last".

This is the only reference to Richard that *Hans* had found in the diary, but it is some indication of the extent of the collaboration between Minton and Richard and, also, the demand that Minton anticipated there would be for the new button as early as August 1840. Boyle also revealed that Minton had told him that he had "been acting as to new partners with a view to our separation for a long time". Boyle's diary is held in the Minton Archive.

To the frustration of the many Minton collectors and enthusiasts, and myself, the Minton Archive remained inaccessible at the time of writing this chapter (October 2014). The Archive mainly comprises thousands of design drawings of Minton china, but does contain some records relating to the history of the Minton firm as well. A catalogue of the Archive was compiled in 1971-73 and a copy is held in the Stoke on Trent Archives, it includes references to documents referring to dealings with Richard. The American owners had acquired the Archive in 2009 when it bought parts of the business from the receivers of Waterford Wedgwood plc. In September 2014 a public appeal raised sufficient funds to acquire the Wedgwood Museum collection in Stoke on Trent, but, to my disappointment, this did not include the Minton Archive.

To return to 1840: I have previously speculated that the invention of the process would have required the co-operation of a pottery and, in particular, a porcelain manufacturer. If this speculation is correct, and the potter was Minton, it would explain the unfeasibly short interval from the grant of the patent on 17th June to the commencement of manufacture by Minton sometime in August. An interval during which Richard would, otherwise, have had to: visit the Potteries with a view to inviting interest in the process and arrange demonstrations; then, having "hooked" Minton, conclude negotiations and have the terms legally recorded (both were business men and would have surely required this); then, make and supply the seven presses, including the large tile press, ordered by Minton. The application of the process to tiles was said to be Minton's idea not Richard's, yet Richard was able to supply the larger press very quickly. To achieve all this in a timescale of not more than ten and, possibly, as few as six weeks would have been difficult even if Richard had been able to devote all his time and energy to the project, but he had many other irons in various fires at this time (and not just his stoves).

(My theory, that Minton had been working with Richard before the grant of the patent, begs the question as to why it was not taken out in their joint names (as in the case of Richard and Rippon's Vesta stove)? If Minton knew that the dust-pressed 'idea' had, perhaps, emanated from another eminent pottery, might this have deterred him from putting his name on the patent?)

Whether or not Minton and Richard were collaborating before the grant of the provisional patent is possibly an immaterial detail, except that, if Minton's expertise as a potter was required by Richard to bring the invention to fruition in England, Thomas's claim to have achieved the same result in the U.S., by himself and within the same time-scale, must be questionable.

### **Thomas and his U.S. Patent**

Thomas made this claim in his application for the American patent and also in his sworn testimony filed in the 1844 court case referred to previously. In fact, part of Thomas's 1844 testimony contradicts his later testimony in the 1847 court case and his statements in the 1850 letter, both to the effect that he had experimented on the process in England before emigrating.

In his 1844 testimony Thomas stated that "his study and attention were first directed" to the idea for the invention in the latter part of 1838, i.e. after his arrival in the U.S., when he "first commenced" on his experiments "to test the practicality and utility" of his idea. He maintained that he continued his testing "from time to time" throughout 1839 and 1840, until August of the latter year, when he felt sufficiently confident to submit his "matured" idea to the U.S. Patent Office. Now, as to the originating date for "his" idea, either Thomas was lying in 1844 or he was lying in 1847 and 1850. Of the two versions, the earlier is the least plausible - namely, that Thomas, just arrived in the U.S., should come up with a new idea for manufacturing porcelain; what is more, by a remarkable coincidence, at the same time as his brother was developing the same idea in England.

His motive for lying as to the date of his "Eureka" moment is unclear, but one of the reasons for him doing so may have been the compliance requirements of the U.S. Patent Act of 1836. However, I believe there is a more fundamental reason to believe that his 1844 testimony as to his experiments in 1838 through to August 1840 may have been entirely concocted or, at best, stretching the truth - namely, the then state of the porcelain industry in the U.S.: it was virtually non-existent.

Porcelain, as opposed to everyday earthenware (which has been made worldwide since time immemorial), was first made, as its popular name infers, in China over a thousand years ago. Manufacture in England did not commence in earnest until the mid-eighteenth century, when deposits of fine quality kaolin were found in Cornwall, and production then took off, as is well known; by 1838 the major English porcelain manufacturers were well established.

In the U.S. the position was very different, as I discovered when I read the informative short eBook *American Porcelain, 1770-1920* by Alice Cooney Frelinghuysen, published in 1989 in conjunction with an exhibition at the Metropolitan Museum of Art in New York. The author (a curator at the Museum) makes it clear that porcelain manufacture in the U.S. had a very hesitant start, there were intermittent attempts at setting up factories but none appear to have met with success. In addition to competition from cheap imports, there seems to have been problems sourcing the right clay: kaolin. Deposits of kaolin, of course, existed in the U.S. but not in large quantities near Paterson; huge (possibly then unknown) deposits did exist in South Carolina and Georgia, a vast distance away. In the 1820s there were only two porcelain factories in the U.S.: one in New York, which traded for about two years, from 1826 to 1828, and another in Philadelphia which lasted only a little longer. The latter concern recorded that it had great difficulty finding adequate supplies of kaolin from the known relatively local sources in Pennsylvania, Delaware NJ and New York.

*Frelinghuysen's* views were reinforced when I came across a more contemporary account published in New York in 1878: *The Ceramic Art: A Compendium of the History and Manufacture of Pottery and Porcelain* by Jennie J. Young. This 500 page odyssey through the history of ceramics from its earliest beginnings is available as a free eBook. The author was presumably an American and she devoted the final chapter of her history to her own country, the United States. There was not much to tell: early settlers made their own coarse pottery; subsequent progress was slow and the ceramics were largely good quality earthenware or stoneware, but the country relied on imports for finer wares until the early 19th century. As to porcelain, *Young* commenced this section with the statement that: "The history of American porcelain is necessarily brief". She had earlier in the chapter confirmed that there was considerable difficulty in sourcing kaolin and describes the quality of the deposits found in technical detail. Those allegedly found in the New Jersey area were not "entitled to the distinctive name of kaolin". She recounted much the same history as *Frelinghuysen* for the

various attempts to manufacture porcelain in Philadelphia and elsewhere in the U.S., finishing with New York:

*Several attempts to produce porcelain were made at Greenpoint, Long Island. In 1848, Mr. Charles Cartalege (sic) met with some success in the manufacture of knobs and buttons, but in no table ware. Altogether it is probable that about a dozen different establishments were founded for the purpose of inaugurating the manufacture of a native porcelain. They generally succeeded in making a few pieces, and then stopped for lack of patronage. The honor of first establishing the industry upon a successful basis, and of turning out a commercial ware, is to be ascribed to Mr. Thomas C. Smith, of the Union Porcelain Works, Greenpoint.*

*Mr. Smith is an American, whose ancestors arrived in the Eastern States about one hundred and fifty years ago. He was brought up as a mechanic, and first went into the porcelain manufacture in 1857, under a company composed of a number of Germans who had started the business about three years previously. At this time several small kilns existed in Greenpoint, like that of Cartalege (sic), for the purpose of making door-knobs and other hardware trimmings.*

Mr Smith employed German potters, who proved unskilled and dishonest. The outbreak of the American Civil War did not help his trade, either, and the business was wound up. Smith resurrected it in about 1863, but it took him many years to perfect the craft using a mixture of kaolin clays, from various parts of the U.S. and imported from Cornwall, mixed with feldspar and quartz. Young ends her epoch embracing narrative with a discourse on Greenpoint porcelain, inferring it to have been preeminent in the U.S. by the time her book was published. Mr Smith was, of course, using the plastic/wet clay process.

If Thomas had emigrated to the U.S. in 1838 with hopes of setting up as a manufacturer of porcelain or, indeed, any other type of ceramics, he was to be sorely disappointed.

True, many emigrant potters would have found their way to New York and, no doubt, Paterson before then, with skills gained in Europe's porcelain works. One such potter could have been employed by Thomas to help him with his experiments, but it seems most unlikely that he could have been successful so quickly in such a specialised process. He would also have had to source

suitable clays and other ingredients and purchase a machine for grinding the powder, as well as a press; a kiln for firing would have had to be built and the moulds for the buttons would have had to be made. None of this is impossible, but Thomas would have had to finance the operation and, unless he had done unexpectedly well out of the nail dispute settlement, he would not have arrived in the U.S. in a position to do so. He was surely fully occupied making a living as an architect and civil engineer for the first few years after he settled in Paterson.

Thomas's further testimony in 1844, that he was by then employing fifty workers, mainly women, in New York making buttons, seems equally unlikely. Where? He alleged that he had incurred much expense in constructing machinery, but there is no mention of a factory and the expense of setting one up. He would have needed at least a workshop for the press operators and the ancillary processes: the preparation of the dry powder and the firing of the buttons. Jody has found no evidence of such a factory/works, but she has sent me a copy of an advert in 1843 for Thomas's "Agate Button Depot" in Paterson.



*New York Herald 23rd August 1843*

A depot is a warehouse for storage and distribution, this use is consistent with Thomas operating as an importer of the English "Agate" porcelain buttons but not as a manufacturer. In his 1850 letter Thomas claimed that the dust-pressed process was his invention and that he made the first button using the process in 1837, but, although he referred to their mass manufacture in England and, later, in France, he never used the description "Agate" and omitted any mention of his manufacturing them in the U.S.. After he had won his 1847 case, a retrial was ordered on the grounds that Thomas was only importing "Agate" buttons and not making them; the result of the retrial is not known, perhaps it never got to court and Thomas admitted the defeat inferred in his 1850 letter.

So, why did Thomas perjure himself, possibly, in his patent application and, almost certainly, in his 1844 testimony by alleging that he "first commenced" on his invention after his arrival in the U.S.?

In 1840 the U.S. patent system was well in advance of that subsisting in the UK in terms of its organisation and administration and the U.S. Patent Act of 1836 is a very clear and succinct piece of legislation. However, the sophistication of the U.S. system and law presented a number of problems for Thomas when he applied for his patent. This is apparent in his 1844 testimony which stated that he had evidence from the U.S. Patent Office that his initial application was received on 10th August 1840, but that his patent was not granted until 29th July 1841 (although it is endorsed with a statement that it was ante-dated to 29th January 1841 i.e. six months, the maximum permitted by the Act). Clearly, Thomas had run into some problems with his application.

The first difficulty that Thomas encountered was that his application for the patent had to be submitted with a full specification for the invention, whereas, for his provisional patent granted on 17th June 1840 in England, Richard had only to provide a three or four line "broad-brush" title. The next difficulty for Thomas was that the 1836 U.S. Act had introduced a requirement that all patent applications had to be submitted to the head of the Patent Office, the Commissioner of Patents, for scrutiny, a process that he delegated to an examiner, of which initially there were only two, Keller and Donovan, to deal with a rising tide of applications (*Dobyns: The Patent Office Pony*). The examiners were supposed to be suitably qualified and capable of assessing the originality of the proffered invention. In fact, they began by being over zealous, perhaps inflated by self importance - the position was a sought after appointment, particularly by the scientific elite and they became quite well known personalities (*Swanson: The Surprisingly Engrossing History of Patent Examiners*).

Until later in the 1850s the examiners rejected more than half of the applications; they were often criticised in the U.S. press for stifling innovation and enterprise. Thomas admitted in his 1844 testimony that he had to amend his original specification at "the suggestion of the Commissioner of Patents"; it clearly took him some time to get it right. In 1844 he maintained that in substance his patented specification had remained the same as the original version, except that he had to restrict his invention to the manufacture of buttons, whereas he had wanted it to "embrace other things" to which he thought the dust-pressed process was applicable.

In fact, Thomas's patented specification is remarkably short and simple, the following is a full transcript:

*UNITED STATES PATENT OFFICE.  
THOMAS PROSSER, OF PATERSON, NEW JERSEY.  
IMPROVEMENT IN THE MANUFACTURE OF BUTTONS.*

*Specification forming part of Letters Patent No. 2,199, dated July 29, 1841; antedated January 29, 1841.*

*To all whom it may concern:*

*Be it known that I, THOMAS PROSSER, of the town of Paterson, in the county of Passaic and State of New Jersey, civil engineer and architect, have invented a new and useful Improvement in the Manufacture of Buttons; and I do hereby declare that the following is a full and exact description thereof.*

*My improvement in the manufacture of buttons consists, first, in making them of materials not heretofore used for or applied to that purpose-to wit, such clayearths or other earthy materials and metallic oxides as are now commonly used by potters in the manufacture of domestic earthenware; and, secondly, in making them in metallic molds (sic) in which the materials are compressed with considerable force by means of a common fly screw-press, or any other suitable mechanical contrivance, after being reduced to a fine powder.*

*The pressure given must be sufficient to cause the powdered clay to cohere and retain the form of the button which is impressed upon it in the mold (sic), after which it is to be fired and glazed in the potters kiln in the usual manner, and also painted or printed similar to ordinary porcelain, if required. Such buttons as have holes in them for the purpose of sewing them on the clothing are then complete; but those requiring shanks of metal have them stuck into a recess made in the button for that purpose by means of shellac or other cement; or they are attached to a shell which covers the whole of the back of the button and turns a little over the front, the front of the button only appearing set in a metallic frame or shell, and at the back of which is the shank.*

*What I claim as my invention, and desire to secure by Letters Patent is -*

*The manufacture above mentioned, consisting of buttons formed of compressed clay or other earthy materials, as set forth.*

*Witness my hand this 30th day of June 1841*

*THOMAS PROSSER.*

*Witnesses:*

*GEORGE BRADLEY, JAMES BRADLEY*

This description is also remarkable in that the, allegedly demanding, examiners deemed it sufficient to fulfil the requirements of section 6 of the 1836 Act which specified (inter alia) that:

*before any inventor shall receive a patent for any such new invention or discovery, he shall deliver a written description of his invention or discovery, and of the manner and process of making, constructing, using, and compounding the same, in such full, clear, and exact terms, avoiding unnecessary prolixity, as to enable any person skilled in the art or science to which it appertains, or with which it is most nearly connected, to make, construct, compound, and use the same;*

The section continues with requirements to the effect that: the workings of any requisite machine had to be fully explained including the submission of drawings and a conveniently sized model; the composition of any ingredients had to be detailed and a sample supplied in sufficient quantity to carry out experiments; and that the applicant "shall particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery".

Thomas's specification was certainly not prolix, it was extremely brief. There was no mention of a drawing or model of the press, he got away with this by stating that a simple fly screw-press or suitable contrivance was all that was required, but there were no drawings or models of the button "molds". Most importantly the composition of the powder clay was not described at all except in the context of that commonly used for "domestic earthenware"; there was no reference to porcelain other than as a comparison for methods of decoration. Nor was there any description of the grinding and drying processes required to produce the "fine powder". Where were the "exact terms" which would enable even a skilled worker to implement the process? In the case of other inventions, drawings and models were regularly supplied to the U.S. Patent Office by the inventor, there is even a museum dedicated to some of the models, as Jody pointed out to me, see the website <http://www.patentmodel.org/about/>.

Thomas also had to swear in his application that he was "the original and first inventor" of the invention and that he did "not know or believe that the same was ever before known or used" - anywhere, not just in the U.S., including by himself as well as others. Which was why in the later court cases he could only allege that he had "disclosed" the process in 1838; to whom remains unknown.

The 1836 Act also provided that if the Commissioner of Patents, as a result of the examination of the application, discovered (*inter alia*) that the purported new invention "had been patented or described in any printed publication in this or any foreign country", then the Commissioner had to notify the applicant and give him the opportunity to withdraw his application.

The retrospective threat to his patent, implied by these statutory provisions, must have placed Thomas in a quandary and probably explains why, in 1844, he omitted to mention his previous experiments in England. Instead he claimed to have commenced his experiments in the U.S. in Paterson.

Overall, one has to wonder how the examiner dealing with Thomas's patent was persuaded to sanction it, particularly if he had done his job properly and carried out research into recent foreign patents; this information crossed the Atlantic remarkably quickly. Had Thomas oiled his palm?

### **U.S. National Archives: Thomas's Application**

Having learnt of the comparatively sophisticated state of the U.S. patent system in 1840, I decided I had better try to investigate whether any records survived relating to Thomas's patent application. I emailed the U.S. Patent Office, who immediately replied that they could send me a copy of the patent. I responded explaining that I already had this and repeated that I was actually enquiring about the original 1840/1841 records. This time the reply took a trice longer and referred me to the website of the U.S. National Archives.

Having had problems finding my way round the UK National Archives website, I was pleasantly surprised by the U.S. site, which seems to be more intuitive. Quite quickly, I found what appeared to be the correct archive reference: 241.3 RECORDS OF THE PATENT OFFICE RELATING TO NUMBERED PATENTS 1836-1973 24,863 lin. ft.

The archive was not searchable online so I emailed in my enquiry using the website's enquiry form and immediately received a reply to the effect that I would receive a response within seven days. The following afternoon, less than 24 hours later, Christopher Magee emailed me from Kansas City:

*"Today I received your request for Patent Case File 2199 granted to Thomas Prosser. In total, there are 27 pages in the case file. The files can either be viewed in person or (sic) Kansas City or ordered for a reproductions request. We can provide electronic scans."*

A trip to Kansas would have been interesting, but I decided to take up the offer of the scans at the quoted cost of about £13. An email and quick telephone call followed. Later that evening I received the scans. My admiration of the U.S. archives' services, after the previous successes with my enquiries for Mr Jones, was now unbounded.

Nevertheless, I have to admit I would not have been too disappointed if I had been told that the records had not survived, as I was slightly worried that my previous theorising might be overturned by their contents. My initial quick perusal of the scans was therefore not entirely free of concern.

The case file consists of incoming documents only; on these there are a few brief annotations made by the Patent Office's examiner. The file is incomplete, many incoming letters are missing. Further enquiries of the U.S. National Archives have not uncovered any surviving copies of other documents or of any outgoing correspondence relating to Thomas's application.

Thomas's original application dated 8th August 1840, which included his specification, was, indeed, far more prolix than the later patented version. In parts it is repetitive and there are inconsistencies, overall it gives the impression of having been drafted in a hurry. In contrast to its content, the application was neatly transcribed in, what appears to be, Thomas's own elegant handwriting with its old-fashioned flourishes and the archaic long "s".

The application fills four foolscap pages. On the fourth page Thomas ended his specification with an extravagant signature attested by two witnesses on 8th August 1840. The page ends with an oath, written in a different hand, and sworn by Thomas, on the same day, before "the Clerk of the Marine Court of the City of New York". Above the oath, inserted in faint pencil presumably by a Patent Office officer, there are the words "Oath defective". There are further pencil annotations: one querying the authority of the Marine Court clerk; another pointing out that the word "first" should have been inserted before

Thomas's claim to be the "true and original inventor"; finally, an insertion of requisite wording in Thomas's declaration as to his residency in the U.S..

Before the defective oath and at the end of the specification, there is written in pencil in the margin "1200 words". Was Thomas's specification considered to be too prolix? Much of it has been underlined in red ink but, apart from one inconsequential grammatical correction, there are no comments or amendments by the examiner to indicate his views on the claimed invention itself.

Thomas's first specification fell broadly into two claims: first for the objects that could be manufactured by the dust-pressed process and secondly for the process itself.

The objects listed were numerous but commenced with earthenware buttons. The list continued with: stops, steps and collars for mule and throstle spindles, other steps of every kind for all types of machinery "to revolve upon", rings for eccentrics, packings for steam, piston and pump engines, type for casting or printing, toothed wheels for e.g. clocks, bobbins and spools, and "Artificial Hones and Whetstones". Thomas also described the materials that the listed items were then "usually" made of e.g. in the case of buttons: metal, pearl, ivory, bone, horn, wood and paper. Later in the specification, he listed other objects: "Chimney, flower & other horticultural pots, Jowls (sic), Pans, Dishes, Plates, Cups and Saucers, Pestles and Mortars, Crucibles, Seggars and Casting Pots and all other articles of a like kind". He later repeated much of the earlier list.

Stops, steps, collars, eccentrics and packings will all be familiar technical terms to engineers; they are all types of flat rings used in machines, in shape similar to a washer. Thomas clearly had the textile industries in mind amongst others. The everyday items, added towards the end of the application are self explanatory with the exception of "Jowls", which remain a mystery, unless he meant "Bowls". These items, which appear to have been added as an afterthought, are all suitable for manufacture out of earthenware. The items listed at the beginning of the application, in the main machinery parts, would have needed to have been made of porcelain, as earthenware would not be sufficiently durable, although it might do for inferior ceramic buttons.

Thomas's original description of the process itself was slightly more detailed than the final patented version. He first described it as "My improvement in the Art of making Articles of Pottery or Earthenware, and out of which

principally arises the value of the new Manufactures above enumerated". He then referred to the need to dry and grind the clay and other ingredients, as appropriate for the desired product, into a granular or powdered state, which then had to be compressed into metal moulds or dies before being "burnt in the common manner". He confirmed that the same clay and other ingredients could be used as in the already existing wet or plastic method of forming "Porcelain or other kinds of Pottery" - this is his only reference to porcelain.

The specification continued with a list of the "Advantages" produced by the process: "great uniformity" i.e. no distortion during firing, "density and hardness", "economy and beauty" and, finally, its "other advantages (*which*) are too obvious to need mentioning".

When he referred to the "density and hardness" of the end product, Thomas significantly stated that it nearly equalled that of "Agate" as used for "bearings" but without agate's "immense" expense. This reference to "Agate" would have been before the brand name "Prosser's Patent Agate Buttons" had become well known. Thomas also maintained that the cost of manufacturing the "common Brass steps now used" was greater and that these wore away rapidly, whilst those made by his new process "will scarcely wear away at all".

The specification contained no reference at all to the type of press that would have to be used in the manufacture of the various products.

The case file includes a paper wallet printed with headings against which the progress of the application was to be recorded at the U.S. Patent Office. The receipt date was confirmed as 10th August 1840. Against the heading "Specification" is written "filed for Examiner 26th January 1841". Thomas's application was, in fact, not caught up in a Patent Office backlog for the entire five and a half months: it had not been submitted for examination earlier as it was deemed incomplete by another officer on initial inspection.

The case file contains a long and rambling letter from Thomas dated 1st February 1841 in which he referred to other earlier letters and activity in pursuit of his application. The letter was addressed to "The Hon'ble H.L.Ellsworth, Commissioner of Patents, Washington City", although whether Ellsworth was handling the case personally has to be in doubt:

*Henry Leavitt Ellsworth (November 10, 1791 – December 27, 1858) was a Yale-educated attorney who became the first Commissioner of the U.S. Patent Office, where he encouraged innovation by inventors Samuel F.B.*

*Morse and Samuel Colt. Ellsworth also served as the second president of the Aetna Insurance Company, and was a major donor to Yale College, a commissioner to Indian tribes on the western frontier, and the founder of what became the United States Department of Agriculture.* (Wikipedia).

With the letter Thomas had enclosed some samples of "earthenware buttons" made from powdered clay as an example of both one of the newly invented products and the improvement in the "Art of Pottery". He hopefully presumed that his application was "now complete". Whether the Patent Office had requested the samples was not made clear, but this was almost certainly the case. Thomas, later in the letter, referred to drawings that he had submitted and, in addition, a model, numbered 210, of a machine which he had had made by a third party and which he was concerned had not reached the Patent Office. He expressed more than once his concern that the Patent Office would not require any alterations to his application and that it was very important that the patent should date from 8th August 1840.

That he had received some comments from the Patent Office is also suggested by the following surprising statement earlier in the letter: "I confess too that I have some scruples about the insertion of my being a subject of the Queen of anywhere having sworn to renounce all such idolatry nearly 3 years ago". The Office must have suggested this insertion to his oath. Was Thomas really so embittered against the country of his birth or just keen to show himself a committed citizen of the new republic?

He also made reference to two earlier letters written on 22nd and 26th January 1841, the latter he said had been written "hastily" and he appears to have regretted some of its contents. His anxiety levels were clearly increasing. Other concerns were also expressed and he offered to pay for a duplicate copy of his application to be made as he had only submitted one.

He concluded the letter with a curious post script: "P.S. The specimens herewith are merely to complete my application for a Patent & not for the purpose of placing in the Great Hall - Mr Ellsworth requested me to furnish specimens for the great (sic) Hall which I will take the earliest opportunity of doing as handsomely as the little experience that I have had of the application of the Invention will enable me to do. TP"

After a disastrous fire in 1836 which had destroyed its original office, construction of the new U.S. Patent Office immediately commenced in the U.S. capital Washington DC. It took over thirty years to complete and is one

of the magnificent Greek Revival buildings of the Smithsonian Institute. It is now known as the Donald W. Reynolds Center for American Art and Portraiture, housing the Smithsonian's National Portrait Gallery and Smithsonian American Art Museum. The following quote is taken from a Smithsonian American Art Museum web page:

*"On July 4, 1836, President Andrew Jackson authorized the construction of a patent office on this site. The building was designed to celebrate American invention, technical ingenuity, and the scientific advancements that the patent process represents. The building was always intended for public display of patent models that were submitted by inventors. By the 1850s, more than 100,000 people each year visited the building, which became known as the "temple of invention," to see the designs that filled display cabinets in the exhibition galleries. In addition to patent models, the government's historical, scientific, and art collections were housed on the third floor. The Patent Office occupied parts of the building from 1840 to 1932."*



U.S. Patent Office 1846.

*Images - Wikipedia*



The Great Hall 1861

Ellsworth (or more likely one of his minions) must have found Thomas's postscript puzzling. He had offered Thomas an opportunity to put his buttons on display in the prestigious Great Hall of Washington's nascent "temple of invention" but Thomas apparently could only produce a few samples having had "little experience" of the application of the process. Thomas, later, maintained that he had commenced his experiments two or three years earlier, depending on which, if any, version of his subsequent accounts is believed. Was Thomas really unable to supply more buttons and/or was he

reluctant to expose them to a public which might include visitors from England already familiar with Minton's "Agate" button? Thomas's postscript is suspiciously disingenuous.

The content of his first application shows that he had clearly studied the requirements of the 1836 Act prior to its submission but he was not to provide the stipulated samples and model for another five and a half months. As in the nail dispute, Thomas's actions and statements are full of contradictions.

Despite all his efforts and entreaties, Thomas's first application was rejected by the examiner. It was returned to him on some unidentifiable date in February 1841 according to a note endorsed on the case file wallet. Notes on later documents indicate that the examiner in question was Thomas W. Donovan.

Thomas quickly responded by submitting a second application before the end of February. This was a much briefer version limited to an improvement in the manufacture of buttons using clay, wet/plastic or dry powdered, compressed into metal moulds by an ordinary fly screw press or other "mechanical contrivance". The clay could be that commonly used by potters in the manufacture of "earthenware, porcelain etc." He signed the application in the presence of two witnesses and backdated it to 8th August 1840. However, his accompanying oath made before a justice of the peace is dated 26th February 1841. The Patent Office was obviously having none of this chicanery; according to a note on its wallet this application was returned on 1st March.

Thomas must then have returned his first application, there is a separate signed note from him requesting that "this application be placed in the secret archives of the Patent Office".

On the reverse of this note Thomas had also written the date 8th August 1840 followed by "1st application for Patent Earthenware Button and Imp. In Art of Pottery". In another hand was written a note which implies that Thomas had returned his original application to the Patent Office on 25th March 1841 for filing. Thomas was clearly concerned that this application, although rejected, should remain on the record.

The next note on the case file wallet was to the effect that the application had been postponed and referred to a letter dated 2nd April. This was a letter to Thomas from (supposedly) Ellsworth which Thomas acknowledged in a reply dated 16th April, the only other letter in the case file. He referred to his earlier

letter of 24th March and Ellsworth's reply of 2nd April. According to Thomas's reply of 16th April Ellsworth had indicated that the dry powder process of making buttons would be patentable except for the patent of a Richard Waters mentioned in the 22nd volume of the *Repertory of Arts (and Manufactures)*. This was a reference to the English publication of this monthly magazine, which reported on inventions and patents. Volume 22 was published in 1813 and Waters' patent had been granted in June 1811. The rest of Thomas's letter was, in the main, devoted to explaining to Ellsworth the difference between Waters' process and his own; the principal difference being that Waters' used wet/plastic clay.

Thomas also referred to a sample of the powdered clay that he had sent Ellsworth with his letter together with four creel steps. A creel is part of a loom. Thomas said he did not expect two of the steps to arrive at the Patent Office unbroken as they were unfired i.e. straight from the press. The other two steps "in biscuit", he said, had been fired "but not sufficiently". Both statements are indications that the steps were made of earthenware and as such would not have been suitable for use as machinery parts. Thomas then continued with the following statement: "The buttons you have are sufficient specimens of glazed goods". Thomas seems to be saying that only the buttons he previously sent are the finished product. The unfinished creel steps presumably did not convince Ellsworth that Thomas's patent should have a wider application.

Ellsworth responded to this letter on 29th April according to notes on both the letter and the case file wallet. The notes on the letter also indicate that the examiner, Donovan, was in fact conducting the correspondence on behalf of the Commissioner.

What further correspondence was entered into is unknown but on 30th June 1841 Thomas was sworn to his third and final application, which was returned to him on 7th July. He made some slight corrections to it and was re-sworn to it on 13th July. The notes on the wallet confirm that the application, now reduced to 379 words, was examined by Donovan on 21st July, issued by a Mr Hand on 22nd July and patented on 29th July but ante-dated to 29th January 1841.

In the previous September in Volume 2, No. 2 of the American version of the *Repertory*, on page 159, in a list of English patents, Richard's initial short provisional patent is quoted in full. It had previously appeared in the July 1840 issue of the *English Repertory*. The full specification enrolled in December

1840 does not appear to have been reported in either *Repertory*. Were English patent specifications routinely copied to the U.S. Patent Office after enrolment? Bearing in mind the efficiency and thoroughness of the U.S. system, it would be surprising if they were not. Even if Richard's specification was not yet available to Donovan, why was he not alerted by the description of Richard's provisional patent and the surname of the patentee which had been publicised in the *American Repertory* less than a year previously?

Dobyns in his history of the U.S. Patent Office, *The Patent Office Pony*, reveals that:

*Toward the end of 1841, Commissioner Ellsworth wrote a private letter to Secretary of State Daniel Webster, pointing out that the two examiners, Keller and Donovan, disliked each other so much that they would communicate with each other only in writing. Mr. Ellsworth said that this was extremely embarrassing to the Patent Office, that the only alternative was a change of examiners, and that he could make this statement with no political motive. Soon afterwards, Thomas W. Donovan left the Patent Office on April 1, 1842, or shortly before and was replaced by Charles G. Page. There were by this time also two assistant examiners, Henry Stone and William P.N. Fitzgerald.*

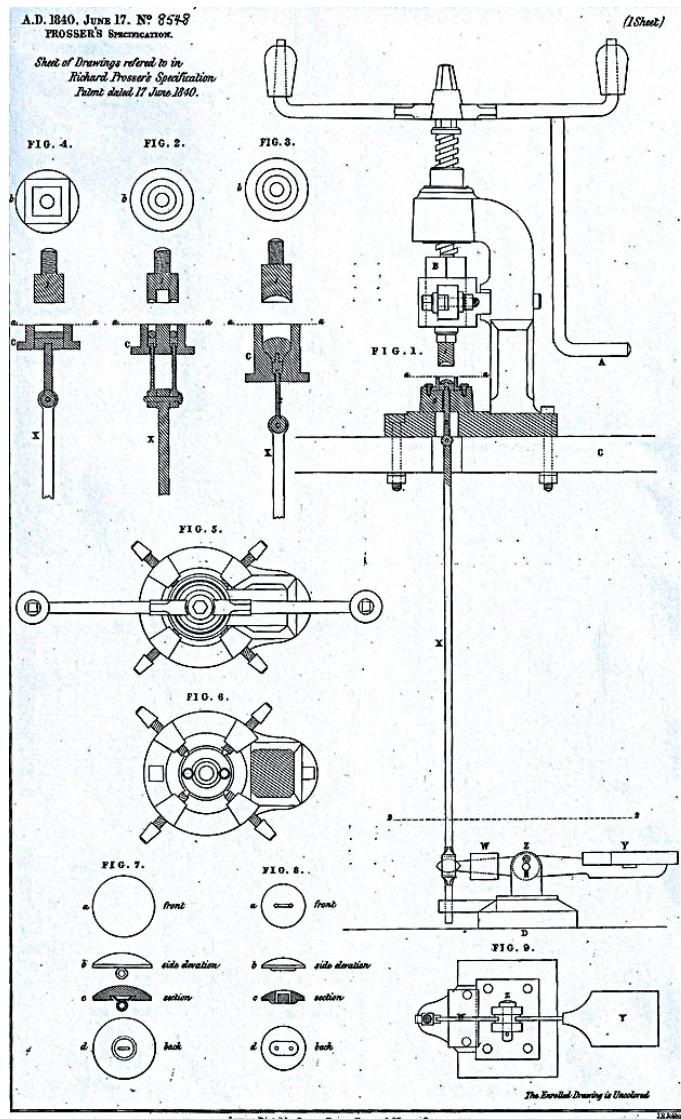
My concerns that the case file would undermine my earlier theorising had not materialised. What happened to Thomas's model and drawings is unknown.

### **Richard's English Patent: No. 8548**

Richard's specification, filed in London on 17th December 1840, over six months before the eventual grant of the American patent, was certainly more prolix than that finally patented by Thomas. Richard did not have to have his specification scrutinised by an examiner, because the English patent system in 1840 did not require this or any other form of examination of the originality of an invention.

The printed transcription of the patent published in 1852 takes up ten pages including a sheet of drawings. The stages of the process are simply but fully described, although the precise formulae for the dry powder required for the different grades of ceramic were not disclosed as these were "the same materials as are made use of by the potter in the various branches of his manufacture" i.e. using the wet/plastic clay method.

In addition, Richard explained that the powdered clay could be coloured by adding "the same metallic oxides" as were already in use by potters to produce coloured ware such "as white, black or blue"; which, after firing, could also be decorated using the normal methods then adopted: "printing, gilding, enamelling or otherwise".



1840 Button Patent No 8548 p14 Drawing

Richard included a drawing of a press (above), which he described as "a fly press" (an already common form of screw press), but only as an example of the type of machine he would use to compress the dry powder "into buttons and other similar articles" and described how this machine was to be operated to achieve the best result.

He also included drawings of moulds for buttons, knobs and rings. However, he claimed his invention of his dry process could be applied in the manufacture of "generally all or most of the other articles" which had or could be made by potters in "earthenware and porcelain" using the plastic method. Buttons were to the fore in the specification, but, in addition to the knobs and rings of his provisional patent, he also mentioned tiles and even bricks and included a drawing of a brick mould.

Richard described the moulds in some detail, that shown in one drawing is for a plain convex button with a shank, but he also described the mould that would be required to produce a button with holes. He pointed out that moulds could not only be produced of any configuration to make a variety of other articles, but also could be engraved to produce individual surface designs. The manufacture of these metal moulds and the adaptation of the fly or other press to cater for them, would have required precision engineering. It is not clear from the specification whether the moulds were interchangeable, but this may well be the case.

Richard also added an improvement to buttons as a separate invention. A two, rather than four, hole version with the holes indented in a groove to avoid wear on the thread. Was this labour-saving adaptation suggested to him by one of the women in his life? (Richard subsequently filed a disclaimer and alteration to this part of the patent so as to make it applicable to ceramic buttons only; the original wording of his specification applied it to all buttons however manufactured. What induced Richard to make this amendment has not been identified - *but see "An Early Addendum" for a possible explanation.*)

Only two days after enrolment, the *Mechanics' Magazine* published a comprehensive précis of the patent in its issue dated 19th December. The editor rather fulsomely ended the report with the following comment: "and certainly it is a process not only of entire novelty, and founded on philosophical considerations of a much profounder character than any developed by the specification, but one which must *produce quite a revolution in this important branch of our arts and manufactures*". The philosophising editor was, of course, probably Richard's patent agent ("Rescuing Richard": Chapter 5 p.179)

When he enrolled his specification Richard had to swear to the originality of his invention, but not worldwide as Thomas was required to do in the U.S.. Richard's oath was limited to the geographical limits of the patent i.e. that it was entirely new and never before used in England, including Berwick upon

Tweed, Wales and Queen Victoria's Colonies and Plantations. He probably felt he could do this with a fairly clear conscience; there would have been no point involving his bankrupt brother in Paterson NJ with whom he must have had a very ambivalent relationship after the nail dispute.

## Inferences

So what inferences can be drawn from the history of the grant of the two patents?

In the light of their recent bitter dispute in England, I do not believe that Richard would have trusted Thomas to make an application in the U.S. on his behalf. If he had done so, the specification originally submitted by Thomas would surely have been closer in content to that enrolled four months later by Richard. In one respect they are very similar: as previously mentioned Thomas, too, did not describe the ingredients of the powder in detail, referring to them as the materials commonly used by potters in the manufacture of "domestic earthenware", but, importantly, omitting, in contrast to Richard's specification, any reference to the manufacture of porcelain using the dry process.

If Richard had wanted to take out a patent in the U.S. he would probably have used a patent agent rather than rely on Thomas. The cost alone may have put him off, as the U.S. Patent Office fee to a British inventor was \$500; Thomas, having sworn that he had applied for U.S. nationality, only had to pay \$30. The fee for other foreign inventors was \$300, evidence of the continuing resentment felt in the former colony against Britain.

In addition, why did Richard need to take out an American patent? Richard probably knew that, under U.S. law, the patent granted to him in England and brought into use by Minton in August 1840 should have prevented any competitor being granted a similar patent in the U.S., not just Thomas. Although Richard's English patent would have been unenforceable in the U.S., in reality there was little likelihood of porcelain manufacture materialising over there in the imminent future. Any porcelain pottery in England attempting to manufacture the "Agate" buttons, potentially for export, quickly found themselves threatened with proceedings by Richard and Minton. (However, were Richard and Minton being unwisely complacent in ignoring any potential threat from elsewhere in Europe?)

The advert for the Agate Button Depot indicates that by 1843 Thomas was selling porcelain buttons in large quantities in the U.S.. Possibly he had been doing so since 1841, as evidenced by a prize he won in October of that year at the New York Annual Fair.

I believe it is most unlikely that Thomas manufactured buttons on a commercial scale in the U.S. or, if he did, it was only for a short time and they were of a much inferior quality to the English "Agate" version; in any event, they were certainly not porcelain.

Yet, on 22nd October 1841, Thomas Prosser of Paterson NJ was awarded a prize, a "Diploma", by the American Institute of New York for his porcelain buttons, which he had exhibited at the 14th Annual Fair held at Niblo's Garden. The Fair was, in fact, an agricultural show held over a week and was clearly a prestigious event in the New York calendar. The Institute's reports, which have been published on the web, disclose that Thomas was awarded its diploma at shows in following years for his "beautiful agate" and "superior porcelain" buttons. In 1843 he also won a diploma prize for "good welded iron tubes" and, what appears to be a first prize, "the premium, The United States Farmer", for his exhibit nominated the best twelve carrots for the table! The tubes were probably Richard's lap-welded tubes, but Thomas could, presumably, take the full credit for his carrots.

The latest mention I have found for Thomas and 'his' buttons was for the September 1844 show; Thomas was of New York, he had moved to the city in the preceding 12 months. Was he really brazen enough to pass off imported "Agate" buttons as his own? If he took after his father, Walter, he probably was. There are no references to Thomas or his buttons in the annual reports of the show for subsequent years. The date of his last prize-winning entry is significant.

Thomas was probably passing off the "Agates" as of his own manufacture, maybe even with the sample buttons submitted to the Patent Office, but he made the mistake of suing a rival importer in 1844; a dispute which ended in Thomas apparently ceding the origin, if not the ownership, of the American patent to Richard or so it seemed to the likes of Turley. An impression no doubt perpetuated by the owners of the English patent. It is likely that Richard would have been made aware of Thomas's American patent and perhaps he and Minton decided not to object to it; instead hoping to use it to their advantage when an opportunity arose.

I am, therefore, confident that Thomas was acting independently of Richard when he applied for his patent in August 1840. This view is reinforced by the contents of his patent case file. He must have done so hurriedly after learning that Richard had obtained his provisional patent. No doubt, Thomas felt somewhat aggrieved that 'his' claimed invention had been poached. Whether any such sense of grievance was justified is another, unresolved, matter.

However, this interpretation must still remain speculative - the Minton Archive may one day substantiate whether or not it is correct.

### **Thomas's 1844 U.S. court case**

Thomas's patent granted to him the full and exclusive right of "making, using, and vending to others to be used" the buttons described in the patented specification for a period of fourteen years. No territorial limit is expressly imposed under the 1836 Act, but a U.S. patent could have no standing outside the jurisdiction of the U.S., in any event.

Thomas's 1844 testimony, dated 10th December, was given in proceedings that he had commenced on 2nd August 1844 in one of the New York Circuit Courts. His claim was against an "Importing Agent", based in New York, who Thomas alleged had been infringing his American button patent since sometime in 1842 by selling dust-pressed porcelain buttons manufactured in and imported from England. The surname of the defendant in the action has previously been mentioned in connection with the Birmingham venture capitalists involved in the Britannia Nail Manufactory story, none other than a member of the Van Wart family.

The defendant was Irving Van Wart (1808-1896), the second of six children of Henry Van Wart (1784-1873) and Sarah Sanders Van Wart nee Irving. Irving was an American by birth, as was his father, but Henry had been made a British citizen by naturalisation in 1825 by a private Act of Parliament. Irving was in charge of the New York branch of this family firm of merchants and import agents, which traded in New York as Irving, Van Wart & Co. This name may have misled Thomas, as Irving was probably not the sole owner of the business, which was a successor firm to that of his uncle William Irving. The Irving firm had declined, if not founded, earlier in the century, possibly, because of over-trading after the trade embargo between the U.S. and the UK was lifted in 1814.

Henry Van Wart had been employed by his future brother-in-law and, after his marriage to Sarah in 1804, he was sent to Liverpool to set up the English branch of the Irving firm. He returned to the U.S. in 1806 but, after the birth of Irving in 1808, he took his young family back to England to start in business on his own account in Birmingham. However, he did not sever his ties with the Irvings and, when the Liverpool firm finally failed in 1818, Henry, along with three of his other Irving brothers-in-law, was bankrupted. He was able to keep working but had learnt his lesson and instead of buying UK goods to export to the U.S., as he and the Irvings had previously done, he acted as an agent to UK manufacturers selling their goods on commission. He paid a final dividend to his creditors in 1830 and by 1844 he was a very successful and respected Birmingham business man trading as Henry Van Wart & Son from 23, Summer Row. He was one of the founders of the Birmingham Stock Exchange and was elected to the town council as one of its first Aldermen. However, he has been largely forgotten for these achievements; although his name does appear in Birmingham tourism websites and literature, but as the brother-in-law of the American author Washington Irving (1783-1859), who lodged with the Van Warts on the several, sometimes prolonged, occasions that he visited the town. Henry's reminiscences are said to have inspired his fellow bankrupt, Washington, to write the best known of his short stories in the volume that was published in 1820: Rip Van Winkle and The Legend of Sleepy Hollow. Henry was born and brought up in the village of Tarrytown; the neighbouring village, called North Tarrytown until 1996, is Sleepy Hollow, a village about 30 miles north of New York that now actually exists.

The above short account of the Van Warts is sufficient for the purpose of the "Agate" button story, but both Henry and Irving have significant roles in events that occur just a few years later in Richard's life.

Thomas had filed his 1844 testimony in support of his request to the Court to bring forward the final hearing, which Irving Van Wart had sought to delay whilst he obtained evidence from England in support of his defence that Thomas was not the inventor of the buttons. Thomas had revealed Van Wart's delaying tactics in his testimony. He also referred to Van Wart's contention that the true inventor was Richard, who had obtained a patent for the invention, brought it into use in England and had even "sent it", i.e. exported the buttons, to the U.S. before Thomas's American patent had been granted. Thomas did not dispute the existence of Richard's patent, he even gave the dates of the provisional patent and the date of enrolment of Richard's specification, but he contended that his application made in August 1840, before Richard's specification was enrolled, gave him priority.

The following is a brief précis of the main points in Thomas's fifteen page testimony:

Thomas first quoted his patent in full and gave his "1844" version of the events from the latter half of 1838 leading up to his patent application in August 1840. He explained that the grant of his patent was delayed by the requirements of a Commissioner at the U.S. Patent Office. He also alleged to the Court that in reliance on his patent he had invested everything he had "at great expense" in making the buttons and that his current stock, worth about \$10,000 (relative price CPI \$327,000/£230,000 in 2014 - *measuringworth.com*), represented all his wealth. As previously mentioned he claimed to have 50 employees relying on him and to have spent large sums in constructing button presses during the two to three years he had devoted to the enterprise. He estimated his potential claim for loss to his business at several thousand dollars, which had been caused by Van Wart's extensive but illegitimate trade in the buttons, both retail and wholesale, in the U.S. for more than two years; losses that would be exacerbated if Van Wart was allowed to continue selling to retailers preparing for the approaching spring trade. Thomas's woes were compounded by the fact, disclosed in his testimony, that Van Wart's store was located on the same street in New York and only a few doors away from Thomas's shop; when Thomas visited his competitor's store, Van Wart was not intimidated by Thomas's threat of proceedings and challenged Thomas "to do his worst".

How much of the testimony can be believed is questionable, probably it is a mixture of truth and lies. The fifty workers could have been employed sewing buttons onto cards, the usual way they are sold even today; \$10,000 would have bought a huge number of buttons, even Agates. Yet, these were bold assertions to make if they were false and unprovable.

Thomas had delayed taking the proceedings for at least two years. He had probably recognised the risks of doing so, but by 1844 was in desperate straits and driven to take some action to stop the Van Warts selling the "Agates", which were presumably supplied to them by Minton. So, who was supplying Thomas? Minton would be the obvious source, but there was one other English pottery, which had been engaged in the illicit manufacture of "Agates" for export to the U.S. for some considerable time according to evidence given by Richard in 1845; this manufacturer was probably an old business acquaintance, if not friend, of Thomas's.

From his testimony it is clear that Thomas was very anxious to get the case heard before the evidence from England arrived. Evidence which would have confirmed that Minton had actually commenced making the buttons in August 1840 i.e. that the invention was already in use in England around the time of Thomas's patent application and well before his patent was granted, even taking into account its ante-dating. Thomas would have known that not only was his claim against Van Wart in jeopardy, he was also likely to lose his patent, as well. Whether the Court would have granted Thomas's request for an early hearing date is not known. The proceedings were settled out of court.

On 3rd February 1845 an "arrangement" was entered into between Minton, Richard and Henry Van Wart to "close the American Suit" (Turley quoted by *Jewitt*). The terms of the arrangement were not disclosed by Turley, but he described the litigation as costly.

Jody had obtained a copy of the consent to discontinuance filed in the NY Court on 24th April 1845 by Thomas's solicitor, in which Thomas confirmed his claim had been settled and his costs paid. The following short report of the outcome of the litigation was included in the issue of the *Mechanics' Magazine* dated 17th May 1845 by its editor, who, it must be remembered, was also probably Richard's patent agent in England:

*PROTECTION OF ENGLISH PATENT RIGHTS IN AMERICA.*

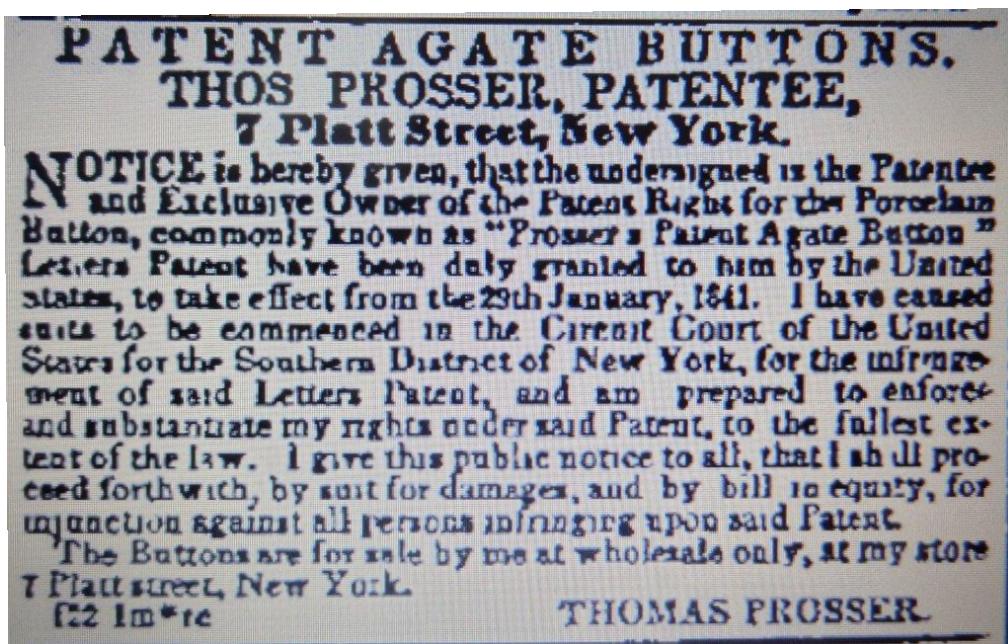
*We are happy to perceive, from a notice in the New York Journal of Commerce, that the proprietor of the American patent for Mr. Richard Prosser's well-known agate buttons (manufactured from clay by what is called the dry process) has recovered a verdict and judgment in the Circuit Court of the Southern District of New York, before Judges Nelson and Retts, for One Thousand Dollars, besides costs of suit. It appears from the proceedings that these buttons are now coming in the United States, as in this country, into very general use*

Turley was under the impression that Henry Van Wart was the defendant in the case, which is an understandable mistake as his Birmingham firm was no doubt the main contact with Minton. *Jewitt* and Turley both referred to the "American Patent" in contexts which clearly inferred, as in the *MM* report above, that it related to the invention patented by Richard in England.

The Van Wart's, who probably had a good defence to Thomas's claim, had effectively agreed to concede defeat to Thomas on expensive terms; they not

only paid his costs but damages, too, equivalent in value to about £26,000 in 2014. Jody located the court record; the precise damages agreed were \$1091.63. Minton and Richard, but probably primarily the former, must have been able to exert considerable leverage on the influential Henry Van Wart in order to achieve this result. Thomas had faced being ruined for the second time, he had had a narrow escape, but he stopped exhibiting "his" buttons at New York's Annual Fair.

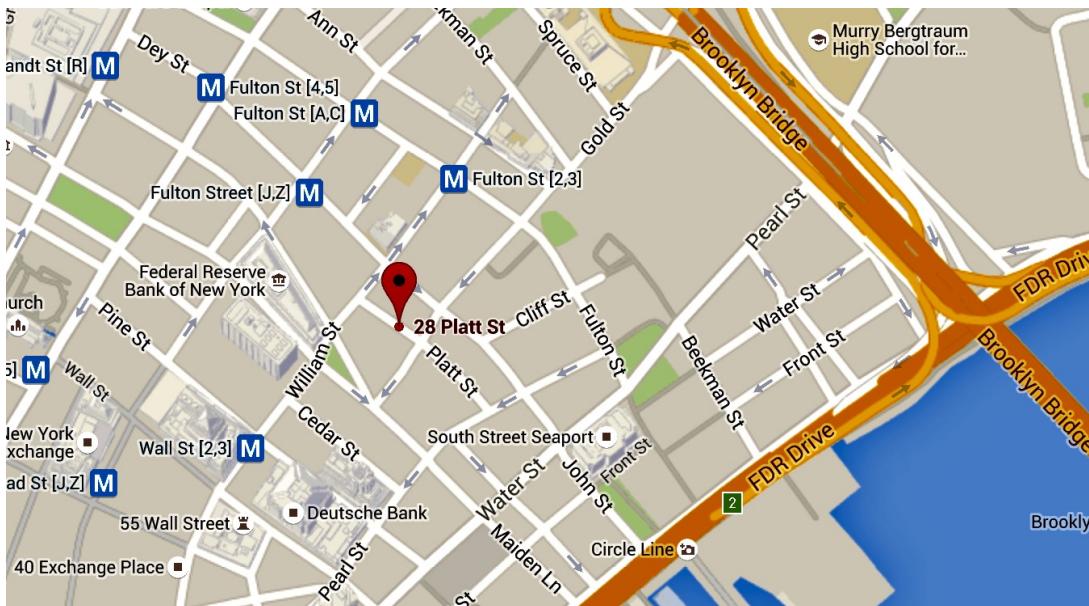
The following notice appeared in the issue of the New York Herald dated 9th March 1845:



The notice was carefully worded: Thomas declared that he owned the patent, but not that he was the inventor. The reference to the button commonly known as "Prosser's Patent Agate Button" was clearly a reference to the button made by Minton pursuant to the patent granted in England, where the "Prosser's Patent" brand name was first used. However, no legal precedent was created by the out of court settlement in the Van Wart suit; Thomas's declaration to the effect that his American patent was valid and applied to the "Agate" button had yet to be upheld by the U.S. courts.

Thomas continued to sell buttons in the U.S.; collectors of ephemera (and buttons, including Jody) have original letters from U.S. retailers addressed to Thomas Prosser in New York. Jody sent me scans of several letters, the customers nearly all specify that they require the "Agate" buttons. One interestingly, after ordering "fancy agate buttons", adds a note that he had not "been able to sell any of your Buttons here" as shirt buttons were being sold

elsewhere more cheaply than he could afford to sell them; this, admittedly flimsy, evidence supports my theory that, if any buttons were manufactured by Thomas, they were no match for Minton's "Prosser's Patent Agates". (Other business letters addressed to Thomas sometimes appear on eBay. The existence of these letters begs the question as to how they have survived and whether they form part of a larger archive of Thomas's business that still exists somewhere).

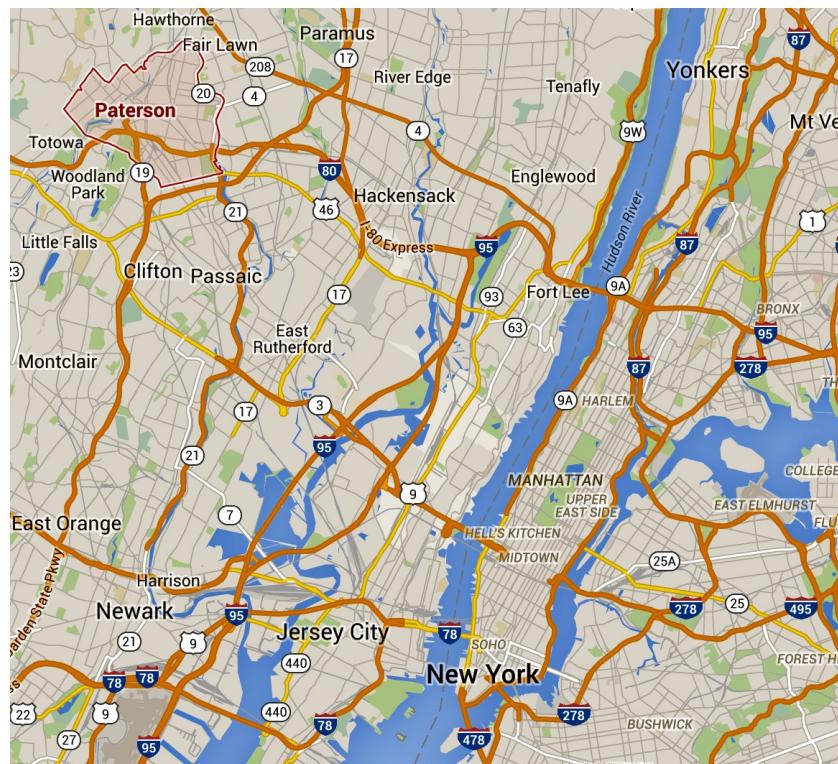


*Google Maps -Screenshot*

Thomas's business was based in Platt Street in New York from about 1844 until about 1851, originally at number 7 and by 1848 at number 28. I was surprised to discover that this street was located in the lower part of what is now known as Downtown Manhattan and still exists. It is close to the district's famous Wall Street, in the heart of the city's financial sector (and also Ground Zero, the site of the World Trade Centre). The building at 28 Platt Street adjoined the rear of 15 Gold Street, which was to become the headquarters of Thomas Prosser & Son from about 1851 until 1937. It seems likely that the business continued to occupy both properties. Situated on the corner of Gold and Platt Streets the buildings were not demolished until the 1990s; the multi-storey Gild Hall Hotel now occupies the sites (*2022 still does.*)

The screenshot of the Google Map on the following page shows the location (top left) of Thomas's first home in the U.S., Paterson NJ to the NW of New York, where he had his "Agate" Button Depot in 1843. His move in the following twelve months to the heart, then and now, of the business centre of New York was the first step in the creation of a firm which was to become

hugely successful in future years and was to finance the acquisition of a large parcel of land in Brooklyn on the other side of the East River. Situated just to the SW of "Bushwick" in the bottom right of the map the American Prossers were to build their family mansions on this land on what became Stuyvesant Avenue.



But I am getting well ahead of myself and must return to the 1840s and the story of the "Agate" buttons.

### Thomas's 1847 U.S. court case

In 1847 Thomas instigated proceedings for infringement of the American patent against the defendants Levi and Moses Cook for importing "Prosser's Agate" buttons from England. The action came to trial on 19th April 1847 and was heard over three days. It is briefly reported in the *New York Evening Express* dated 22nd April; Jody sent me a copy. According to the press report, Thomas's counsel had stated in his opening speech that his client was not seeking vindictive damages: "the object of the suit was to establish the right of the patentee and the originality of his discovery". If this sounds familiar, it is because I have previously referred to the proceedings Richard instituted in 1845, reportedly on the same point of principle.

The *Express* report continued: Thomas claimed to be the true inventor of the "Agate" button; on his behalf "it was shown" to the court that he had experimented on the dust-pressed process in 1837 and 1838 in Birmingham and "it was proved" that he first produced this beautiful "new style" of button before May 1839. What the actual evidence was for these assertions is not reported, but the Cooks' counsel challenged it on the grounds that it was "insufficient and unvalid (*sic*) by law"; the court overruled this objection. The Cooks' counsel, in turn, produced evidence of the earlier manufacture of the button in England "having sent a commission " to that country to examine witnesses. However, the court held that the Cooks had failed to produce any evidence "that the button was known until after it had been made and exhibited" by Thomas. The result was that the jury found for Thomas.

It was to this judgement that Thomas was referring when he wrote his note in at least two volumes of *Designs etc.*, the book attributed to Owen Jones containing Ward's essay and the coloured plates of mosaic designs.

However, the Cooks did not give in:

*New York Evening Express*

*December 6, 1847*

*Front Page*

*United States Circuit Court – Before Judges Nelson and Betts –  
Thomas Prosser vs. Levi Cook, et al – Mr. P. recovered a verdict in a  
suit for alleged infringement of patent for the manufacture of  
porcelain buttons. A patent was taken out for the same article in  
England by his brother. It was for importing and selling these buttons  
the action is founded. It appears plaintiff himself brought some of the  
same kind of buttons from England for sale. A person cannot have a  
patent here and go abroad to manufacture his goods, but that is not  
the case, it is simply for selling a(n) imported article already in the  
market, and hence the plaintiff, the Court thinks, cannot be protected  
in his patent. New trial was granted.*

Jody sent me the above transcript. The journalist appears to have transcribed his shorthand notes almost verbatim and not to have really understood the legal issues. However, it is clear that the Cooks' request for a retrial was granted on production of evidence that the "Agate" buttons Thomas had been selling had been manufactured in and imported from England and, in the judge's view, were therefore not covered by the American patent.

Jody has searched for the original records of the Prosser v Cook case through the U.S. courts archive service, but without the success she had with Thomas's earlier action against Irving van Wart. She has found no press report of the retrial and, as previously speculated, Thomas may have conceded defeat and settled out of court.

Thomas may have lost to the Cooks, but by 1847 there was, in fact, another competitor manufacturing beautiful porcelain buttons, very similar to the "Agate", who was later credited with bringing about the decline and, in early 1848, the cessation of "Agate" button-making by Minton. This competitor would already have been making substantial in-roads into the American market, so why was Thomas troubling himself, at presumably great expense, with the Cooks? Raising the question, probably provides the answer. The real target was probably not the Cooks. By establishing a legal precedent that his American patent applied to the "Prosser's Patent Agate Button" as patented in England, Thomas would have had a weapon with which to challenge the importation and sale in America of the competitor's buttons and, more importantly, with which to intimidate its customers in the U.S.. It would not be surprising if Minton and Richard were backing Thomas against the Cooks in the light of their energetic and much publicised continued opposition to any infringement of the "Agate" patent in England, even after Minton had stopped making the buttons.

Thomas probably stopped selling the "Agate" buttons in 1848, the year that supplies from England would have ceased. Disillusioned with the U.S. patent system, he stated in his 1850 letter that he abandoned any thoughts of using the dust-pressed process to manufacture the truly three dimensional objects that he had originally included in his 1840 patent application. Objects such as "cups, saucers, knobs" and all other articles commonly made in the English Potteries using plastic/wet clay and many that could not be made by that method. Thomas even claimed to have been the only person to have made such objects using the dust-pressed process, but Richard's own patent suggested otherwise.

However, the real reasons Thomas abandoned the development of the process in the U.S. can be found in the last chapter of *Young's Compendium*. Apart from the problem of sourcing clays of suitable quality in the U.S. (almost impossible in the case of kaolin), Thomas would have had to overcome the American public's overriding predilection for fine ceramic wares bearing the stamp of one of the prestigious European firms, such as Minton.

## England: Richard & Minton on the offensive; Richard v. Royal Worcester

In England Minton's production of the "Agate" buttons had increased apace in an attempt to keep up with the public's demand for this beautiful innovation which so complemented the attire of all Victorians, not just the wealthy. The new buttons had quickly become of great interest even in the highest echelons of society:

*Staffordshire Gazette and County Standard - Thursday 09 December 1841*

*Visitors to the Potteries. On Thursday last, the extensive and celebrated porcelain establishment of Messrs. Minton and Co., was visited by a distinguished party from Trentham Hall, guests of his Grace the Duke of Sutherland. The party included the Duchess of Sutherland, Lady Evelyn Gower, Viscount Melbourne, Viscount and Lady Palmerston, Hon. Colonel Dawson Darner and lady, the Russian Count L. Zamoyski, Hon. Mr. Cowper, and Ralph Sneyd, Esq., Keele Hall. They were highly gratified with the very superior specimens of finished china with which the splendid show-rooms of Messrs. Minton and Co., are so tastefully adorned. The easy and expeditious process of the patent china button manufactory, recently added to this establishment, excited the greatest interest, both on account of the skill of the enterprising patentee, and the chaste and elegant appearance of the white and painted specimens submitted for inspection of those articles.*

By December 1841 Minton had twenty five presses in operation; sixty two presses by September 1842; and, by March 1844, ninety presses with ninety women employed in the work assisted by one hundred and eighty girls. The latter worked half days, the other half of each day was meant to be spent at school (Turley quoted by Jewitt) - an indication, perhaps, that for the time Minton was an enlightened employer.

Turley also stated that by 1844 "Infringements were now rife in various directions", most of which "were stopped, on receipt of notice". The "notice" was no doubt a threat of court proceedings. No further details were given and what Turley meant by "various directions" is not clear. Nor did he clarify whether the infringers were invited to enter into licences with the owner (or owners) of the patent, permitting them to use the process on payment of a royalty/licence fee.

Turley did identify three other culprits, each of whom had dared to ignore the threat of proceedings resulting in "costly" suits. The first suit in 1844 has

already been described: that by Thomas, "who held the American Patent", against Irving van Wart. The other suit, in July 1845, by Richard against Walter Chamberlain and John Lilley, the owners of the business carried on at the Royal Porcelain Works in Worcester, has only been briefly mentioned previously (Turley had, in fact, told *Jewitt* that Minton was a joint claimant with Richard, but this was incorrect). I believe that it is possible that the two cases may be linked. If, in fact, Thomas had been selling "Agates" made in Worcester prior to the outcome of the van Wart proceedings, this would explain how Richard, at around the same time, came to learn of a very well concealed campaign of patent infringement. If I am correct, Thomas must have abandoned Chamberlain and Lilley and sold out to Richard (and Minton), with whom he presumably came to some agreement concerning the American patent and future sales by him of Minton "Agates".

I had hoped to visit the Royal Worcester archives to see if I could unearth anything which might verify this speculation. Unfortunately, on enquiring in 2014 I was informed that the archives had not then been sufficiently catalogued to make them suitable for research purposes. The project was ongoing but, at the time, this source of potential enlightenment remained out of reach. However, I was told that, unsurprisingly, there were none of the modest mass-manufactured porcelain buttons in the magnificent collection of fine china at the Museum of Royal Worcester.

The story of the 1845 proceedings illustrates that one commonly held belief is completely false, namely that the Victorian legal system was invariably extraordinarily slow; the speed with which the legal process was brought to a conclusion against the Worcester pottery would flatter a modern lawyer in his/her high-tech office.

I had first come across the Court case against Chamberlain and Lilley when carrying out initial searches for Richard in the British Newspaper Archive. This was at the time of my investigations into the earlier "nail" suits. My then searches on The National Archives website had not only revealed the "nail" pleadings, I had also noticed Richard's Bill of Complaint in the 1845 suit. Prior to our visit to TNA at Kew I had ordered production of this along with the other pleadings in the suits involving John Reynolds jun. and Thomas, and Mr Jones and Mrs Winkfield. By the time we had photographed these our enthusiasm was waning, but we persevered and located the 1845 Bill amongst all the other dusty parchments making up the large roll in the fifth box. I was rather dismayed to find that the Bill comprised fifteen large sheets of which thirteen were closely written in rather faint ink. I was, also, doubtful

that our photographs, taken with our relatively inexpensive digital camera, would be legible.

Fortunately they were and, even more fortunately for me, I did not have to transcribe them. I had put them to one side whilst I worked on the other pleadings, but had sent copies to Jody via a web album; she, heroically, transcribed the pleadings in full.

Walter Chamberlain (c1795-1868) and John Lilley, trading as Chamberlain & Co, had been in partnership since 1828. I owe this information to *Richard William Binns* (1819-1900), a fellow Irishman and partner of William Kerr, who acquired the Worcester business on the retirement of Walter Chamberlain in 1851. *Binns* was the author of *A century of potting in the city of Worcester: being the history of the Royal Porcelain Works, from 1751 to 1851*, which was published in 1865 and is now yet another of the valuable, but free, eBooks available on the web.

*Binns* would have had access to the business records of the firm and would, no doubt, have listened to the recollections of employees and others closely associated with its earlier history. His account should therefore be reasonably accurate.

Walter Chamberlain was a grandson of Robert Chamberlain, the founding head of one of the pottery firms that eventually became Royal Worcester. Robert had been apprenticed to Dr John Wall, who is generally acknowledged to be the original founder of the Worcester porcelain industry. Chamberlain and Co gained a reputation for producing porcelain of the finest quality and decoration; in 1807 they were granted a Royal warrant by the Prince Regent. A new factory was built on the banks of the canal and Walter was effectively in charge here from about 1828 following the retirement of his father Humphrey.

*Binns* stated that Lilley was a wealthy Somerset man, who had married one of Walter's sisters in 1827 (actually in 1825, his bride was Ann Margaret Chamberlain - *Ancestry*; his surname is sometimes spelt "Lilly", but I have adopted the spelling in the marriage register). Lilley may soon have regretted his investment in the business as the 1830s saw a considerable downturn for all the Worcester manufacturers due to the increasing success of their Staffordshire rivals in producing affordable good quality wares. Most of the Worcester firms, perhaps too proud of their reputations, were slow to adapt, the exception being Chamberlain's.



*Image Museum of Royal Worcester website*

*Binns* described Walter as "an ingenious man", who, after a merger with one of the other leading Worcester firms, Barrs, in 1840, actually expanded the Chamberlain works to accommodate the enlarged business. The new firm investigated other markets and, unwisely in *Binns* view, decided to cater for the great demand at home and in the U.S. for china door furniture and buttons. *Binns* considered the former articles entirely unsuited for the Worcester manufactory and "after some time" it resulted in a great loss. As for buttons, *Binns* was clear that, "The next introduction was scarcely more worthy the attention of the Royal Porcelain Works" due, in particular, to the difficulties encountered in their manufacture which "absorbed more time than was profitable" and distracted the firm from "more legitimate works of the manufactory".

*Binns* followed the above comments with the following statement, having referred again to the ingenuity of Walter Chamberlain: "One of his inventions was to make articles in dry clay, by means of pressure".

*Binns* continued with a reference to Richard's 1840 patent and stated that, when Richard "opposed" Chamberlain's use of the process, Chamberlain had contended that he had "priority of invention, without having secured a patent". *Binns* went on to refer to the subsequent "tedious and costly lawsuit", which ended in "the withdrawal of both parties, paying their own costs" but with Chamberlain's consenting to pay a royalty "for the future".

Chamberlain's contention that he invented the dust-pressed process before Richard begs three questions. First - why did he not take out a patent himself? Secondly - why was his alleged prior invention not an immediate commercial success; if Minton later achieved this, then surely the great Royal Porcelain Works could have done so, patent or no patent? Thirdly - why did Chamberlain fail to issue a writ of scire facias against Richard (the writ was the legal remedy then available to anyone who wanted to object to the validity of a patent on the ground of "priority of invention")?

Certainly Chamberlain's claim supports my speculation that Thomas may have gained "his" idea from one of the Worcester porcelain manufacturers. However, was it anything more than an idea? *Binns* himself provided a clue when he described the problems Chamberlain had met with in the manufacture of buttons. Had Chamberlain actually developed the means of successfully implementing his idea, if he ever had one, before the date of the grant of Richard's patent? An analysis of Jody's transcription of Richard's sworn testimony in his claim against Chamberlain and Lilley and the outcome of the trial may provide further clues.

Richard began his testimony by quoting his 1840 patent, including the enrolled specification, in full. The following is a précis of the rest of his evidence:

After enrolment of the specification Richard quickly completed "construction of divers machines and presses for the manufacture of divers articles and particularly buttons" and commenced their manufacture, all at a cost of several thousand pounds. Large quantities of the articles, but "especially" buttons, were made and sold for Richard's "own benefit and to his great profit" to satisfy the, still continuing, "great demand" in the home market and abroad, in particular in the U.S.. The invention was of "great and increasing" value and its benefits had been enjoyed by Richard without dispute "until the infringement and piracy hereinafter complained of".

In June 1845 Richard discovered, as a result of communications from his "correspondent" in New York, that Chamberlain and Lilley (the Defendants) had been making and exporting large quantities of dust-pressed porcelain buttons to the U.S.; on learning of this he caused enquiries to be made and ascertained that this infringement of his patent had been going on for some time - he considered that the Defendants should account to him for the "large profits" they had made.

Richard then made "divers applications" requesting that the infringement cease and that the Defendants pay him their profits which they had refused to do; instead they maintained that Richard was not the inventor of the process.

However, the Defendants had previously acknowledged both to Richard and others in writing and otherwise that he was the first and true inventor. These admissions occurred at a time when the Defendants were already fully acquainted with his invention as a result of publication of his patent and specification and the descriptions that had appeared in various scientific and other journals. Chamberlain had actually made an approach to Richard in April 1842, on behalf of himself and Lilley, for a licence to use the process to manufacture buttons and other articles, but, when Chamberlain informed him he only wanted to licence one press, Richard refused on the ground, which he explained to Chamberlain, that this would permit only limited manufacture and would likely be more prejudicial than advantageous to Richard. (*Presumably Richard suspected they intended to copy his press*).

The Defendants had also claimed that their buttons were not made by Richard's process, but Richard had obtained samples of their buttons which he stated were clearly made by using his invention or by so similar a process that it constituted an infringement of his patent.

Richard referred again to the huge demand in the U.S. for the buttons and other dust-pressed articles and claimed that the Defendants had exported large consignments manufactured by themselves to the U.S. "in a secret and concealed manner" by not using "the Agency of the Merchants usually engaged in the American Trade" and further that the goods were then sold in the U.S. as made under his patent (*i.e. under the "Prosser Patent" brand name*). In addition the Defendants had deliberately "prevented" any of their goods being sold in England and had actually declined orders if they believed they were destined for the home market. Richard claimed that this subterfuge had successfully concealed the Defendant's infringement of his patent from him for a considerable time.

Richard claimed that he had "lately" discovered that the Defendants had also covertly acquired a large number of presses and tools made "in imitation" of those described in his patented specification.

On discovery of the infringement (as a result of the information received from his unidentified contact in New York - *Thomas?*) Richard instructed his solicitors to institute proceedings against the Defendants. The solicitors were Messrs Wills and Oliver of Birmingham (*not William Wills - whose role in the downfall of Mr Jones, Richard's former patron and employer, may have turned Richard against him - but his brother Frederick Wills*). The following letter before action was sent to the Defendants on 9th June 1845:

*"Gentlemen \_ Mr. Rd.Prosser of this Town Patentee of the process by which the buttons and other articles called Adamantine and Agate are manufactured by Mr. Herbert Minton of Stoke upon Trent having received information that you have exported to Mr. Swords of America (per Gt. Western) Buttons and other Articles made by you according to his process have (sic) requested us to institute legal proceedings against you for the infringement of his Patent.*

*Before doing so we have to request that you will at once desist from any further piracy of his patent and deliver to us within three days from the date hereof an account in writing of the quantities of buttons and other articles you have so made and exported.*

*Mr. Prosser having also received information that you have employed Mr. William Morton of this Town in the mounting and carding of buttons and other articles also made by you in piracy of the patent we are requested to enquire if those Articles or any of them are the same Articles which you have so exported to America. As the goods exported by you were accompanied by certain Affidavits purporting to claim the right of making such articles upon the ground of pre-use but which do not state by what process they were made we have to request that you will inform us whether the articles to which those Affidavits refer were made by pressure from clay in a powdered state or by moulding from Clay in a plastic state.*

*We have also to inform you that the exportation by you of such articles into America is an infringement of an American Patent granted to Mr. Prosser's Brother which has already been judiciously established in the Central Court of New York and damages awarded and enforced against Merchants in England for similar offences and that he will proceed against you for violation of his rights by such exportation.*

*We have to request your immediate reply and are Gentln.*

*Your Obedt. Servts.*

*Wills & Oliver Birmingham*

*9th June 1845.*

*Messrs. Walter Chamberlain & Co., China Manufacturers Worcester*

Lilley, in the absence of his partner, replied from the Worcester Royal Porcelain Works by return on 10th June to the effect that the above letter would receive immediate attention on the expected arrival of Chamberlain in a few days. The Defendants instructed a London solicitor who replied on their behalf on 16th June requesting to know to what "alleged" patent Wills & Oliver were referring; to which the Birmingham solicitors replied with equal brevity on 18th June referring to the patent that the Defendants had tried to licence in April 1842.

Richard in reaction to this "evasion" and the continuing infringement of his patent placed the following advert in various papers (including one I found in *The Times* dated 23rd June) in, he later asserted, the belief that legal proceedings had already been started:

*"Prossers Patent Agate Buttons: Sole Manufacturers Minton & Company  
Notice is hereby given that a suit in Chancery has been instituted against  
Messrs. Chamberlain & Company of Worcester, for an Infringement of  
the above Patent; And Notice is hereby given that proceedings will be  
instituted by Action for damages and by Bill in Equity for an Injunction  
against all Persons infringing the said Patent by making the said Buttons  
or by selling the same; And whereas information has been received that  
other parties are or have been infringing the said Patent - We hereby  
offer a Reward of Fifty pounds to any Person or Persons who shall give  
evidence of such Infringement. Wills and Oliver Solicitors for the  
Patentee Temple Row June 18th 1845"*

Richard stated that he had intended the notice as a warning to the public not to deal in the "pirated articles" (*he appears to have acted somewhat impetuously, using his solicitors' name without their consent*).

On 21st June the Defendants' solicitor wrote to Wills and Oliver rebutting the claimed infringement on the ground that the Defendants had been using the dry powder process "long before" the grant of Richard's patent and confirmed he was instructed to accept service of proceedings. The solicitor wrote again on 25th June and referred to the above advert requesting confirmation by return as to who had authorised it.

The Defendants in the meantime placed the following advert dated 26th June in other newspapers (including the *Birmingham Journal* dated 28th June)

*"Prossers Patent Agate Buttons" An Advertisement having appeared in  
the Times Newspaper of the 23rd and 26th instant and in the Midland*

*Counties Herald Newspaper of the 19th instant and headed as above and stating that a suit in Chancery had been instituted against Messrs. Chamberlain & Company of Worcester for an infringement of the above Patent Messrs Chamberlain & Co. of the Porcelain Works beg to inform the Public that no suit in Chancery has been instituted against them as intimated in such Advertisement and that they have directed legal proceedings to be taken for its unwarrantable insertion. Messrs. Chamberlain & Co further inform the Public that they continue to manufacture their Feldspar Buttons according to the process in use by them for upwards of twenty years past. Porcelain Works Worcester twenty sixth June One thousand eight hundred and forty five*

The Defendants' solicitor wrote again on 27th June threatening to commence proceedings against Wills and Oliver, the purported authors of Richard's advert, presumably for libel. The Birmingham solicitors replied on 28th June that proceedings had been commenced but not yet filed and that they believed the adverts had been placed by Richard.

Further letters dated 30th June and 2nd July were exchanged on the issue of whether or not any proceedings had actually been commenced against the Defendants as alleged in the advert placed by Richard, who authorised his solicitors to admit his responsibility for the insertion.

Richard placed another undated advert in the *Midland Counties Herald* and other newspapers (including the *Birmingham Gazette* dated Monday 30th June):

*"Prossers Patent Agate Buttons: With reference to Messrs Chamberlains advertisement in the Journal of Saturday last in which they state that "no suit in Chancery has been instituted against them" I beg to inform them that so far back as the sixth June I consulted my legal advisers and gave them instructions to institute proceedings forthwith against Messrs Chamberlain for an infringement of the above Patent I am sorry that owing to "the Laws delays" the Bill has not yet reached them but I have no doubt that they will be in possession of the same before their threatened "legal proceedings be taken" whether the antiquity of their process will be a sufficient answer to the Bill time only can determine - Richard Prosser"*

The delay in filing Richard's claim was attributed to the repeated failure of the Defendants to give a definitive reply to the allegations contained in the letter before action dated 9th June and the difficulty Richard had

encountered in finding evidence of the infringement due to the Defendants' subterfuge.

The Defendants had commenced proceedings themselves in connection with Richard's first advert. These were three separate actions: against Richard, against the firm of Wills and Oliver and against Wills personally.

Finally, the Defendants had refused to produce their business records which would prove the truth (or otherwise) of Richard's allegations.

Richard's Bill (claim) is undated but at the top of each sheet the date 23rd July 1845 has been added which I take to be the date of filing with the court. It may have amended a previous version as there is also a partially illegible note on the first sheet which may refer to a claim which was filed earlier.

Richard, not put off by the Defendants' libel action, continued his advertising campaign. In the *Birmingham Gazette* both of his adverts appeared adjacent to each other in each weekly issue from 30th June to 28th July inclusive.

The initial hearing of Richard's claim for an injunction took place in London on 30th July before the Vice-Chancellor, only seven weeks after the date of the initial letter before action sent by Wills and Oliver to the Worcester Royal Porcelain Works; Richard's complaints as to the "laws delays" seem unjustified to modern ears. The speed with which the correspondence was exchanged is astonishing and brings to mind images of the Victorian mail coaches with their horses struggling to gallop on the poor roads and the frequent hurried stops to change the teams. In fact, by 1845 trains had replaced the mail coach for postal deliveries between the major cities served by the new railways, including Birmingham and London. However, the Birmingham to Worcester line was not opened until 1852, so the mail coach may have been used to deliver that first letter to Chamberlain & Co.; unless Richard had it sent by a private carrier, which would not be surprising given the impatience he exhibited in his testimony.

Richard's sense of frustration with the law must have increased when the Vice-Chancellor, "after some discussion", quickly decided to remit the case for trial to the next Bristol Assizes once the Defendants had indicated they intended to defend the claim. He ordered that in the interim the parties were each to allow access to their respective works at reasonable times and by respectable persons. The Vice-Chancellor also directed that the judgement at

the Bristol hearing must not be executed without his leave. (*Birmingham Gazette* dated 4th August 1845.)

The Bristol Assize hearings did not commence for another three weeks and Richard continued inserting his initial advert in the press, offering the large £50 reward to anyone providing evidence of the Defendant's infringement.

The hearing at the Bristol Assizes commenced on Friday 22nd August 1845. The *Bristol Mercury* dated Saturday 23 August 1845 contained a report of the first day of the hearing:

**BRISTOL ASSIZES.**

**FRIDAY**

*Prosser v. Chamberlain and Another (Special Jury)*

*This was an action for the infringement of a patent right, brought by Mr. Richard Prosser against Walter Chamberlain and John Lilly.*

*The declarations stated that the plaintiff was the true and first inventor of a new mode of manufacturing buttons, which invention was also applicable to the manufacture of porcelain knobs, rings, etc; that he had truly and properly described the same in his specification; that on 17th June 1840 the Queen had granted him letters patent for the same; and that the defendants had since made and sold divers buttons in imitation of those invented by the plaintiff, and in infringement of his patent.*

*The defendants pleaded, that 1st they were not guilty; 2nd that the Queen had not granted the plaintiff's letters patent; 3rd, that the plaintiff was not the true and first inventor; 4th, that the invention had been wholly or in part publicly practised and used in England before 1840; and, 5th, that the nature of the invention and the mode of using it had not been properly described in the specification.*

*From counsel's opening speech it appeared that the plaintiff was a civil engineer of high attainments at Birmingham, who had obtained various patents for improvements in manufactures and machinery. The defendants were manufacturers of china and porcelain, at Worcester. The plaintiff's invention consisted in grinding the "slip" used by china manufacturers into a powder, and then, by means of lever power, compressing it between two hardened and polished surfaces into the form of buttons, &c. The advantage of this mode was, that a greater proportion of silex could be mixed with the alumina (plasticity not being required as in manipular moulding), and a finer article produced without loss by shrinkage. The action was brought not so much with a view to obtaining damages for the past invasion of the plaintiff's rights, as to*

*establish his claim to an invention which was extensively patronised, not only in this country but throughout the world.*

*The trial, after proceeding through yesterday, was adjourned until this Saturday morning, when it will be resumed. The evidence is wholly devoid of public interest.*

"Little did the reporter know!" was Jody's reaction to the final sentence when I emailed her this report. The Bristol reporter may have wanted his Saturday off, as the following day of the hearing does not appear to have been reported in the *Bristol Mercury*. I have found short reports in the *Birmingham Gazette* and the *Worcester Journal*. Both papers reported that, after a consultation between each of the parties' counsel, the judge suggested "that they had better arrange the matter". The action was then settled and a verdict was given in favour of Richard, his patent was recognised and he was awarded nominal damages of 40 shillings. This settlement was "subject to an arrangement", the terms of which were not reported at the time, but which must have substantially dented the Worcester firms' profit margin. In addition the *Worcester Journal* speculated that the legal costs incurred must have been at least £2,000 (relative cost £178,000 RPI in 2015 - [measuringworth.com](http://measuringworth.com)). It was later revealed that a royalty of one shilling per gross of buttons was exacted, equal to seventeen per cent of the selling price (*The Worcestershire Chronicle and Provincial Railway Gazette* dated May 28th 1851).

This verdict was referred back to the Vice-Chancellor who granted Richard his much sought injunction. The following notice was placed in at least one issue of *The Times* (24th September) and appeared in the *Birmingham Gazette* throughout both September and October 1845:

*IN CHANCERY. Between RICHARD PROSSER, Plaintiff, and WALTER CHAMBERLAIN and JOHN LILLY, Defendants. NOTICE is hereby given, that his Honour the Vice-Chancellor of England has this day granted an INJUNCTION in this Cause, restraining the above named Defendants, their Workmen, Servants, and Agents, from MANUFACTURING and SELLING any BUTTONS or other Articles according to or in imitation of the Invention mentioned in the Letters Patent dated the 17th day of June, 1840, in the Plaintiff's Bill mentioned either in whole or in part, and from using, exercising, or vending the said Invention, or any part thereof.— Dated this 4th day of September 1845. WILLS and OLIVER, Solicitors for the above-named Plaintiff. Temple-row, Birmingham.*

Turley and *Binns* both confirmed that Richard subsequently granted Chamberlain and Lilley a licence to manufacture buttons using his process. However, although successful for a while, by 1850, according to Thomas's letter to *The Merchants' Magazine*, the Worcester factory were only making a comparatively small quantity "of inferior quality". Walter Chamberlain died in Huyton, Lancashire in 1868, his assets admitted to probate were less than £600. His father Humphrey had retired a wealthy man in 1828 (*Binns*). An example of "rags to riches to rags" in three generations?

*Binns* also believed that each party paid its own costs of the suit and, as there is no reference to costs being awarded in the press reports, this is probably correct. Richard's defence of his patent must have cost him a small fortune and, yet, he apparently did not exact the full financial penalty from his opponents. At the beginning of his testimony he had stated that the Defendants should account to him for the large profits they had made (the usual measure of damages in infringement cases) but by the actual trial, notwithstanding the alleged deceitful behaviour of Chamberlain and Lilley, Richard then contended that he had brought the action on a point of principle "to establish his claim to an invention which was extensively patronised, not only in this country but throughout the world" (*Bristol Mercury*). Richard had, of course, demanded a high price for the grant of the licence as some recompense.

The facts as recounted by Richard in his testimony, including the evidence he allegedly had of the 1842 discussions between himself and Chamberlain, point to the Defendants' guilt; as does their failure to file a writ of scire facias against Richard, instead they sued Richard and his legal advisers for his supposedly libellous advert dated 18th June, a claim which had no merit and cannot have been pursued.

One reason for Richard not seeking damages may have been the difficulty he had encountered in obtaining evidence of the infringement, which clearly had taken place despite the Defendants' denials; that they submitted to the verdict and the injunction is an admission in itself. However, without such evidence, it would have been difficult to establish quantum i.e. the amount of the damages properly payable. It would not be surprising if the Defendants had destroyed or hidden their records and machinery before any inspection of their works pursuant to the Vice-Chancellor's order on 30th July. Nor would it be surprising if Richard had found it difficult to obtain corroborating evidence from third parties; not only might they open themselves to an infringement

claim, they had their continuing relationship with the esteemed Royal Porcelain Works to consider.

Another reason for Richard not seeking full financial redress may lie with Minton, a part owner, possibly, of the patent, who did not join in the action as a plaintiff with Richard (contrary to Turley's statement to *Jewitt*). Had Minton refused to do so? Minton and Chamberlain, although their potteries were in competition, had a close business relationship; they had co-operated with each other in 1844, just a year previously, in connection with the renewal of an important encaustic plastic clay tile patent (*van Lemmen*) - proceedings in which Richard also played a part, as recounted in chapter 9.

The very fact that Richard, who was still relatively unknown, had been prepared to take on and tenaciously pursue his cause against the renowned Royal Porcelain Works, still a favourite of the establishment, speaks volumes for his strength of character. His testimony also paints a picture of a man in a hurry, who would brook no delay, who sometimes acted impetuously, even recklessly. His wealth at this time was probably not enormous and much of it was no doubt tied up in his business; the legal bills incurred in the course of the action would have deterred many but the most determined litigant. Would it have had much of a financial impact on Richard if he had ignored the infringement? Possibly not, so why take such a financial risk? Unless, of course, Minton was secretly backing him. This, perhaps, is the most likely explanation. Chamberlain's duplicity must surely have outraged Minton as much as it had Richard, if not more so. Minton, however, may not have wanted his name to be associated with proceedings against a rival manufacturer, especially the holder of a royal warrant.

Although tiles were his obsession, Minton was very attached to his "Agate" button as will be evidenced by later events. In 1845 he had manufactured nearly fifty nine million of them; production increased to over eighty seven million in 1846 (Turley).

At some unidentified earlier date or dates Minton had entered into partnership with two brothers, sons of a wealthy Manchester merchant, who had possibly been attracted by the potential of the button branch of Minton's business. The brothers were also the nephews of Minton's wife, Ann, the daughter of another Staffordshire potter: Samuel Hollins of the New Hall Pottery (*Joan Jones: Minton - The First 200 Years*), who had died in 1820.

The importance of the "Agate" button to Minton's firm in the early 1840s appears to have been overlooked. Yet, in 1846 it was this branch that was used to describe the firm's business in a formal notice of dissolution of the then partnership. On 22nd September 1846, a notice dated 19th September, appeared in the *London Gazette* to the effect that the partnership, known as Minton & Co "Manufacturers of Prosser's Patent Agate buttons", between Minton and the two brothers had been dissolved as regards one brother, Samuel Hollins on 15th August 1846. The other, younger, brother, Michael Daintry Hollins, (c1816-1898) will be well known to antique tile collectors as the eventual owner of the Minton tile business after Minton's death. In later adverts Hollins maintained that the tile firm had been established by Minton and himself in 1840, but Minton was actually still in partnership with Boyle until 11th November 1841, trading as Minton and Boyle. Were Hollins and his brother actually brought into the firm in 1841 to manage the button side of the business or, perhaps, as investors to provide working capital? Presumably, the two brothers were, in fact, the proposed "new partners" that Minton had disclosed to Boyle in May 1841 according to his diary. Samuel Hollins, aged about forty, was living comfortably in Bowden, Lancashire in 1851; he was described as a "Fundholder" in this and later census returns, had the "Agates" helped to "fund" this life of leisure?

It was Jake Ellis of *Tile Heaven* ( [www.tileheaven.co.uk](http://www.tileheaven.co.uk) ) who told me that Michael Daintry Hollins claimed to have gone into the tile business with Minton as early as 1840. We bought our first "Prosser Patent" tile from Jake.

The role of Michael's older brother, Samuel, appears to have been previously unrecorded in the Minton and Hollins history. On 16th January 1841 he had resigned from the partnership of Thomas Hollins and Sons in Manchester (*London Gazette*). He and another brother, William, had been trading as "Commission Merchants" with their father. Thomas, the father, and William continued in the business, which would have included acting as agents for manufacturers, particularly those exporting goods abroad. Had Samuel left the family firm to join Minton before the latter had managed to extricate himself from his partnership with Boyle? Samuel married in 1844 (*Ancestry*) and in the register he was described as a "Manufacturer" from Stoke on Trent; further, admittedly inconclusive, evidence that it was he who was the retiring partner in 1846 and not one of the other "Samuels" within the extensive Hollins' family that then existed in the Potteries.

On the night of the 1841 census on 6th June, Thomas Hollins and his younger son, Michael Daintry Hollins, were staying with Mrs Sarah Mare and

her family in a substantial house in Hatherton Staffordshire, near to Stoke. Thomas had been in partnership twenty seven years previously with Matthew and John Mare, trading as Matthew Mare and Company, Earthenware Manufacturers. Michael described himself as a "Surgeon" in the census return, confirming *Jewitt's* statement that he had been "educated in the medical profession" before he joined Minton. Another visitor staying with Mrs Mare that census night was a "Solicitor"; was he advising the Hollins brothers on their negotiations with Minton? In addition, was Thomas Hollins and Sons acting as Minton's export agents to the U.S.? All of these are speculative questions, the answers to which may lie buried in the Minton Archive.

(My above conjectures as to the reasons for Mrs Mare entertaining visitors on the night of the 1841 census were, in fact, totally wrong. A later unrelated search in the *BNA* happened to reveal announcements of Mrs Mare's death on 7th December 1841 "at the house of her brother-in-law, Herbert Minton, Esq, Longfield Cottage, Stoke-on-Trent". She must therefore have been a Hollins: the sister both of Herbert's wife, Anne, who had also died at the Cottage only a few days previously on 2nd December, and of Thomas, the father of Samuel and Michael Dainty Hollins. I investigated the Mare family further. One of Mrs Mare's daughters, Anne, had also been given the second christian name "Dainty" (*Ancestry*). The death of her sister Anne, Herbert's wife, although after a "protracted illness", may have been the final blow that precipitated Mrs Mare's demise. In May 1841, shortly before her brother's visit on the night of the census, Mrs Mare had already suffered a triple tragedy; two of her daughters, Catherine and Elizabeth, had died aged 22 and 17, quickly followed by her husband, Matthew, from "excessive grief", all three were buried together in one grave. Mrs Mare's household would have been in deep mourning when the census enumerator called. Her brother and the solicitor were, no doubt, supporting and advising her on her late husband's affairs, with her nephew Michael Dainty Hollins, perhaps, also providing medical care. Whether these bereavements were a factor in Michael deciding to abandon medicine to join his uncle Herbert Minton's pottery remains an unresolved speculation. Later that year, in November, Minton dissolved his partnership with Boyle, at a time when his wife, Anne, was presumably already seriously ill.)

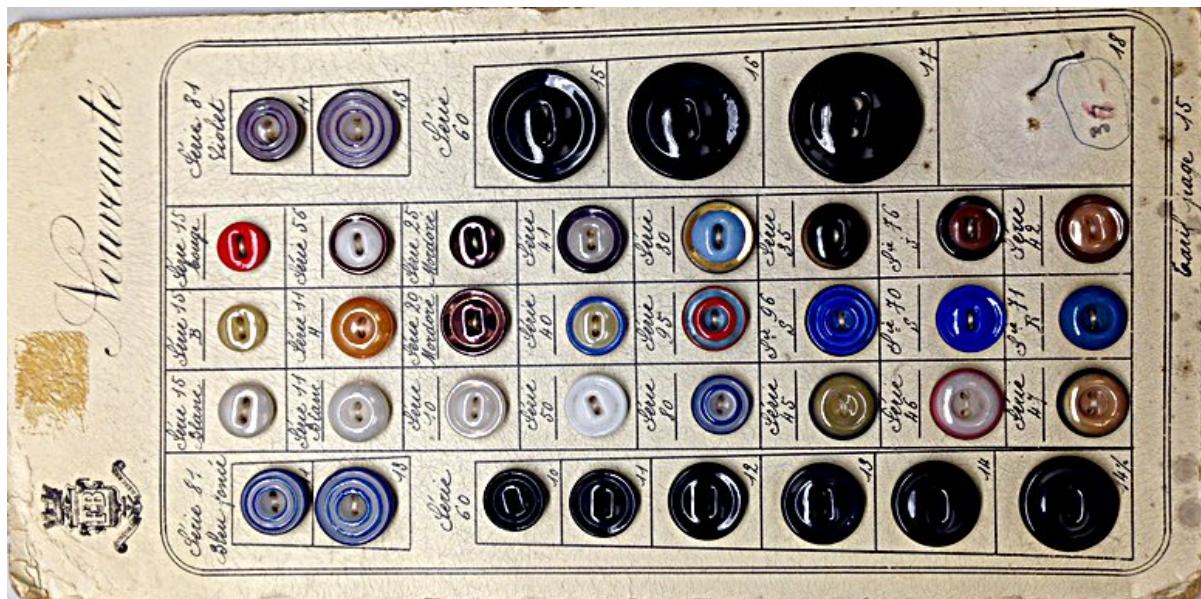
Samuel Hollins may have retired from the Minton and Co. partnership in 1846 because he saw that trouble was brewing for the porcelain button branch of the business; trouble in the form of competition emanating from across the English Channel.

After reaching its zenith in 1846, when more than 87.25 million were made, Minton's "Agate" button production virtually halved in 1847 and in 1848, after 2,227,392 (1,289 great gross) had been pressed, Minton abruptly stopped making them (*Turley*).

Turley, rather enigmatically, attributed this cessation to "unfavourable surroundings" and the "inability of the patentees", i.e. Richard and Minton, to agree "as to future manufacture".

Modern authorities, in general, ascribe Minton's decision to the success of a newcomer, a rival manufacturer in France, Jean-Félix Bapterosses; but I believe the reason may be more complex.

### The Agate Button: England v. France



*FB Sample Card - Jody Behrbaum Collection*

Jewitt in his magnum opus, *The Ceramic Arts etc.*, maintained that Richard had taken out a French patent for the process in addition to the English patent and, as he mistakenly thought, the American patent. (I have not been able to identify Richard's patent on the website of the *Institut National de la Propriété Industrielle (INPI)*, the national intellectual property office of France, may be because it does not include lapsed patents.)

According to Jewitt, Richard allowed the French patent to lapse by not bringing it into use in France within the six month period stipulated under the

French law (the stipulated period was actually one year - *MacLeod*). *Jewitt* attributed Richard's decision to his opinion that "the political condition of France at that time... (*was not*) safe for the investment of capital". If so, Richard's concerns were soon proved to be misplaced by M. Bapterosses.

Jean-Félix Bapterosses (1813–1885) was an inventive mechanical engineer and also an astute businessman. Born in the village of Bièvres, about ten miles southwest of Paris, his father was also a skilled mechanic and head of the printmaking workshop in a local factory. From an early age, the son had shown great inventive promise and, aged only twenty four, took out his first French patent in 1837 for a lamp. In 1842 he invented a type of steam engine, supposedly a "high speed locomotive", and built a miniature working model but could not find the finance to develop it.

*Image from website <http://www.hopital-saint-jean.fr/Historique.php#.VolhndUbiK1>*



F. BAPTEROSSES,  
Manufacturer of F. D. Agate Buttons.

My sources for these brief details of Bapterosses's early career are various French webpages, including one for eminent Bièvrais on his birth village's site. I already knew that Bapterosses was said to have visited England in 1843 and had spent some time studying the "Agate" button process at Minton's factory in Stoke on Trent and also at Chamberlain's works in Worcester (further evidence of the latter's early infringement of Richard's patent). Bapterosses was apparently struck by the fact that the buttons were being made just one at a time on the small fly screw presses of Richard's patent. However, I was not aware, as alleged on [www.bièvres.fr](http://www.bièvres.fr), that, when he returned to France, Bapterosses had invented his porcelain button press specifically with the intention of selling it to Minton in order to finance the development of his steam engine. Bapterosses's first button press is said to have incorporated a die with moulds for 500 buttons, an assertion that has achieved general acceptance.

According to the Bièvres' site, Minton refused to pay the price demanded by Bapterosses for his new machine. His French *Wikipedia* entry supports this story with an untraced contemporary attribution. I have found two Ebooks containing mid-nineteenth century accounts of the early history of Bapterosses's button business; both are only available in French, which I

struggled with at school and have now largely forgotten. Google will translate foreign websites but this remarkable technology is not (yet - 2014) available for eBooks. However, one of these accounts contained a reference to Richard which attributed him with "Reprit une ancienne idée de Potter", which even I recognised as further evidence of the probable antiquity of the dust-pressed process (*Recueil des travaux scientifiques, Volume 1 by Jacques-Joseph Ebelmen and Louis Alphonse Salvetat*). (SD 2022 - a correct assumption but not a correct translation - "Potter" was, as should have been immediately evident, a reference to a surname not the craft.)

In 1844 Bapterosses took out two French patents, in March for his steam engine and in November for his first button press (INPI website). The drawing of the machine included in the latter patent shows a large screw press with a separate drawing of the die. The die is square with twelve lines of button moulds, horizontally and vertically i.e. for 144 buttons, a gross, not 500, as commonly stated. It would seem probable that Bapterosses would have taken the precaution of registering the French patent before trying to sell his invention.

My very limited grasp of French (assisted by [translate.google.com](https://translate.google.com)) enabled me to effect a hesitant translation of some of the patent.

Bapterosses had, in fact, commenced his specification with a declaration disclosing the English process and the fact that the English porcelain buttons (in all colours, not just white) had been imported to France for a period of three years before his application. He gave details of the ingredients, explaining that they were those commonly used for making porcelain, the main one being kaolin. He tellingly admitted that the actual process was the same as the English one, but that he had had the idea for a press that would speed up the manufacture at less cost than "our neighbour's". He specifically mentioned the English method of making the buttons "one by one". Having briefly described the steps for producing the dry clay powder, he explained that this was put into the 144 holes of the lower die of the press using a little copper or tin shovel, which was then used to scrape away any excess powder before the 144 punches of the upper die were depressed to form the buttons. From beginning to end this part of the specification is less than two pages long.

In the remaining two pages Bapterosses first mentioned the usual enamelling process adopted by porcelain manufacturers, which, he explained, was too costly for his buttons and clogged up their holes. He then went on to describe

the operation of the press in more detail, again confirming the clay powder was dry.

If Bapterosses did, indeed, try to sell his new press to Minton, the price may not have been the only factor in Minton's rejection. Richard, in his 1840 specification, had emphasised that the fly press must not be depressed too quickly as this could cause the powder to be blown out of the mould. The practicality of Bapterosses's press may have been in doubt.

This speculation is supported by Bapterosses's later adaptations of the process. French web-sites suggest that he subsequently studied the art of the ceramicist, the name of Sevres is mentioned on one page. He adapted the formula for the powder at some unidentified, but presumably early, date in a surprising way: by the addition of a small quantity of milk. This innovation increased the plasticity of the dry process; the clay mixture was more paste-like and must have been easier to use in the multi-button press than a fine powder. Bapterosses was later to buy land adjoining his factory in Briare on which he kept a herd of dairy cows.

Bapterosses's improvements are remarkably similar to the new process reported from the Staffordshire Potteries that Thomas was so dismissive of in his 1850 letter. However, if any competitor had tried to introduce Bapterosses's process in England before 1850 this would have been quickly quashed by Minton and Richard, as evidenced by later events.

Bapterosses's steam engine has not left any further trace, but not so his buttons. If true, Minton's rejection of his press must have acted as a spur to Bapterosses, who had set up his own button factory in Belleville, then an independent village but now a neighbourhood of Paris, by July 1845. In early 1846 he moved the business to Rue de la Muette in Paris where it remained until 1851. In 1846 and 1847 he took out three further French patents, two for button making machines and one for a type of kiln. The following quote is from the website *baublesandbuttons.com*:

*It was Jean-Felix Bapterosses who aggressively dominated the industry. In 1844 he substantially increased production with a patent for a machine to strike 500 (sic) buttons at once. With a formula based on ground feldspar, unique to his area, the first shipment of what he termed "agate buttons," took place in September of 1845. In March of 1847 he had added lustered (sic) buttons to his production line and in the same year patented a kiln making it possible to fire buttons in 15 minutes. He continued to be innovative with the introduction of colored buttons and by*

1849 was producing a full range of styles and colors at the rate of 1,400,000 buttons per day. He employed 150 people in the factory and 400 women outside the factory to put the buttons on cards. By 1850 he succeeded in manufacturing, firing and shipping his buttons to be carded, in less than 25 minutes.

The American button collector responsible for this very comprehensive overview of her hobby is *Janet White*. Janet attributes the source of these facts to *Guidelines for Collecting China Buttons*, published by the U.S. National Button Society in 1970: "THE reference for china (*button*) collectors but... regrettably out of print." Janet's website contains numerous photos and drawings of a bewildering variety of china buttons, including many photos of sample cards from the Bapterosses factory. The early cards include the brand name "FB" which Bapterosses quickly adopted; the cards also described the samples as "Agate Buttons" in direct competition with Minton's buttons.

Minton's greatest annual production of his "Prosser Patent Agate Buttons", over eighty seven million in 1846, pales into insignificance when compared with that allegedly achieved by Bapterosses.

Somewhat puzzlingly, Minton very quickly decided not to compete with the French opposition. Jewitt attributed this capitulation to "the unfavourable surroundings and the inability of the patentees to agree as to the future manufacture".

The "unfavourable surroundings" are generally attributed to the lower labour costs in France, which enabled Bapterosses to sell his buttons at less than the cost to Minton of putting them on cards in Stoke (*Richard Bissell Prosser* in his *BI&I*). However, Jewitt's statement that Minton and Richard had been unable to reach agreement on the future manufacture of the buttons inferred that there were other reasons that contributed to Minton's decision. Minton does appear to have acted precipitately. There is no doubt that Richard would have been capable of developing a multi-button press, if, contrary to Thomas's assertions, this would have speeded up the process.

This view is supported by the newspaper article previously referred to in connection with Richard's dispute with Chamberlain and Lilley, which had appeared in the issue of the *Worcestershire Chronicle and Provincial Railway Gazette* dated 28th May 1851. The author was an opinionated supporter of the free trade measures that had been brought about by the repeal of the Corn Laws in 1846. Having commented on the recent revival of carpet

making in Kidderminster, which he attributed to these measures, he continued with a report of a "Manufactures and Protectionist Banquet" at which two local manufacturers had given speeches opposing free trade. The reporter was dismissive of both speakers' contentions. He accused Mr Alfred Talbot, a Kidderminster carpet manufacturer, of totally misrepresenting the state of the trade in the town:

*Yet in the face of these patent and concurring evidences of the revival of Kidderminster under free trade, we are treated, by one deeply concerned in its prosperity, to a lugubrious denunciation of the workings of the system. Mr. Talbot is apparently willing to be immolated on the altar of protection, but he should confine the sacrifice to himself;...*

The other protectionist manufacturer, who spoke at the Banquet, was Walter Chamberlain and I quote this section of the article in full for its interest and relevance:

*We proceed to the porcelain manufacture, for which Mr. Walter Chamberlain was spokesman. His peculiar grievance lies in small wares: he is not able to compete with French ingenuity in the article of buttons. We should have thought this gentleman had had too much experience to be seduced by Protectionist chaff into believing that the landlord party, when once they have got back protection upon corn, will trouble their heads about the protection of buttons. If Lord Stanley has indicated an intention of levying a moderate import duty upon corn as a source of revenue, he has unequivocally signified his general adhesion to the commercial policy of Sir Robert Peel, and he is very unlikely to pitch upon buttons as an instrument for "making the foreigner pay his quota of taxation," as it is called in Protectionist slang. We have been at some pains to sift this button grievance, and we have come to the conclusion that it has about as much to do with free trade as Tenterden Steeple with the Goodwin Sands. We make this assertion without an idea of throwing the least imputation on the statements of our worthy fellow-citizen, and believe it will be confirmed by any of the dealers in this article in Birmingham or in London who are aware of the whole facts of the case, and of the position in which the firm, of which Mr. Chamberlain is head, stands in regard to this manufacture.*

*Some years ago a person named Prosser took out a patent for the manufacture of this species of button, and, in conjunction with an eminent porcelain manufacturer of Stoke upon Trent, the invention was successfully worked, and the "agate buttons," as they were called, found ready sale. Messrs. Chamberlain and Co. subsequently*

*engaged in the manufacture of similar articles. An action was instituted against them for infringement of the patent. A compromise was the result, by which it was agreed that they should be permitted to continue the manufacture upon payment of 1s per gross to the patentee. This was acted upon for some time, until an ingenious Frenchman, by the multiplication of the machinery, accelerated the rate of production as to turn out 12 dozen of buttons as quickly as a single button was made in this country. For sufficient reasons probably, no steps were taken to protect the patent right against the importation of the French buttons, and Mr. Prosser, or his representative, discontinued the manufacture. Such is the brief history of the case. It will be observed that Messrs. Chamberlain and Company were exposed from an early stage to the drawback of having to pay 1s. (or 17 per cent, of the selling price) to the patentee for every gross they made, and consequently it was impossible for them to compete with parties who had no such charge to provide for. This will be sufficient, I think, to show that the falling off in this branch of the china trade is not to be ascribed to free trade From explanations which have been kindly afforded to us by an eminent manufacturer we are convinced, if the superior machinery used in France were applied to the process in this country, which might be readily done, that these buttons could be made as well and cheaply and would bear as good a profit as those of our Gallic neighbours, provided—and upon this hangs the whole question—that no shilling had to be paid for each gross for permission to work the patent. It is this which broke the neck of the trade here and not French competition. One thing is clear by Mr. Chamberlain's admission, that the French are not getting rich out of their buttons or other imports, for he tells us they send a large quantity of wheat and flour into this country because they can't afford to eat it themselves. Our condition, then, is much better than that of our neighbours, for people don't send their produce except to customers who can afford to pay for it.*

The above article confirms that Bapterosses's first press made 144 buttons and it is not clear when he introduced the larger 500 button version; it seems unlikely that the full impact of these improvements was being felt in England by 1847, the year that Minton halved his output. Minton wasted no time in closing down his button manufactory completely early in 1848. There were, no doubt, a number of factors that contributed to this decision.

If the royalty exacted by Richard from Chamberlain was the cause of the later failure of the Worcester button business, Minton's decision may have been due to a disagreement with Richard over the royalty he had agreed to pay him before the emergence of the French competition. They may also have disagreed over the development of an English version of the multi-button press.

The author of the article has clearly done his homework on the button industry. One of the points he made was that no steps were taken by the English patentee, Richard, to protect his patent from French imports for unexplained, but "sufficient reasons probably". *Binns* made a similar comment in his *A Century of Potting etc.* when discussing the aftermath of Richard's infringement suit against Chamberlain and Lilley. *Binns*, however, ascribed a reason for Richard's alleged inaction, namely that he was "disgusted" by the court case and "no longer cared to protect his licensees from the competition of the French manufacturers".

Richard (and Minton) may well have deplored Chamberlain's deceitful behaviour, but he and Minton certainly continued to care about the Prosser's Patent Agate Buttons even though they were no longer being made in Stoke. The author of the May 1851 *Worcestershire Chronicle* article should, and Chamberlain must, have known of the series of notices that had appeared in March 1851 in the *Birmingham Gazette* and *The Times*:

**PROSSER'S PATENT AGATE BUTTONS.**

*UNDERSTANDING that persons are importing Agate Buttons, and thereby infringing the Patent granted to Richard Prosser, of Birmingham (one of the undersigned), in which we are jointly interested, we hereby give notice of our determination to proceed in Equity and Law against any person in any way infringing the said Patent.*

*RICHARD PROSSER, Birmingham.*

*HERBERT MINTON, Stoke-Upon-Trent, Staffordshire.*

This notice was not an empty threat. Early in 1852 Richard obtained an injunction against the London firm of Morrison, Dillon & Co. preventing them from importing the French buttons. Evidence had been given on Richard's behalf that Bapterosses's buttons were made by the process patented by Richard. The defendants in submitting to the judgement had acknowledged Richard's patent, but a few months later Richard took them to court successfully again. This time the defendants claimed in their defence that they had imported the French buttons for onward export to Jamaica only, in the belief that this was not a violation of the injunction; Jamaica, then a British

colony, was, of course, covered by the English patent. The Morrison proceedings were reported in both *The Times* and the *Birmingham Gazette*.

The extent to which Bapterosses's buttons were being imported to England before 1851 must be in doubt. The 1845 Chamberlain case had gained extensive publicity and, as suggested in the *Worcestershire Chronicle* article, the facts would have been well known to importers and retailers, who would not have wanted to find themselves in court or the subject of one of Richard and Minton's advertising campaigns. In one obituary Minton is said to have expended large sums of money opposing the import of the French buttons (*Birmingham Daily Post* 5th April 1858). The status of Minton, not only within the ceramics industry but as a national business figure, would also have been a deterrent.

There may be some truth in *Binns'* suggestion that Richard had lost interest in his buttons during the latter part of the 1840s and his sense of "disgust" over Chamberlain's conduct may have been a contributing factor, but not the only one. Minton, who may have shared Richard's disillusion, had many other, more celebrated, wares in production and, in particular, may simply have wanted to concentrate his attentions on his tiles, his passion. Richard, for whom the dust-pressed process may have been very successful and remunerative, was probably predominantly absorbed by other matters, including his lap-welded tube machinery invention and the ensuing complex litigation, which came to a head in 1849. The previous year he had suffered the tragedy of the death of his young wife, his "beloved" Sarah and their seventh child. By 1849/1850 he was heavily involved with the patent law reform issue and was working on his most ambitious invention, the anti-weld tube. So, what revived the interest of the patent-holders in their English agate button in 1851? Particularly, as it seems unlikely that Bapterosses had been able to gain significant entry to the button market protected by Richard's patent (England, Wales and the British colonies) before that year.

In 1847 Thomas's attempt to establish his U.S. patent through the courts had failed (if this was not supported by them, was Thomas's conduct also a contributing factor to, at least, Richard's "disgust", if not Minton's?). When Minton stopped production the rest of the world, and in particular the U.S., would have been an open and greedy market for Bapterosses's "F.B." agate buttons. They were an enormous success and deservedly so. Bapterosses had continued to improve not only his production methods but also the quality and variety of his buttons and there was little competition. By 1851 his business had outgrown the Paris premises and he acquired the large canal-

side premises of a failed pottery in Briare, a town approximately ninety miles due south of Paris with a railway connection to the French capital.

The same year, 1851, Bapterosses dared to exhibit his "Agate" buttons at the first of the world trade fairs which were to become so popular in the 19th century. The Great Exhibition, or Crystal Palace Exhibition as it is now often called, took place in Hyde Park, London between 1st May and 11th October 1851. Richard's association with this hugely important event will be described later in his story. Minton's association can be briefly described here.

Minton, through his firm, H. Minton & Co., also exhibited wares at the Exhibition, not the "Agate" buttons of course, but a substantial collection of ceramics of various types and utility. The firm was the "foremost" British ceramics exhibitor and won the Exhibition's Council Medal, its highest award, for some of its porcelain exhibits, including a much praised great dessert service (subsequently acquired by the Austrian Emperor). The world famous firm of Sevres was the only other ceramics exhibitor to be awarded the Council Medal. Minton was closely connected with those organising The Exhibition through his membership of the Society of Arts and in particular his friendship with a fellow member Henry Cole; he of the first Christmas card, who held Richard in such high regard. Cole had been one of the main proponents of the Exhibition with, none other than, Prince Albert. Minton lent his support by standing as one of its guarantors (*Joan Jones*).

Minton took great exception to Bapterosses's buttons being not only awarded one of the Exhibition's Prize Medals but also selected for "special approbation". He considered that the Frenchman had appropriated the dust-pressed process and that The Exhibition's ceramics jury had done an injustice to Richard (*Birmingham Daily Post* obituary). His indignation is understandable in the light of his previous association with Bapterosses with whom he had, presumably, been on good terms when he allowed the Frenchman to study the process in 1843. Indignation, which must have been aroused when he became aware that the French buttons were to be exhibited at the Exhibition, and to which he and Richard gave vent in their March 1851 advertising campaign.

The Great Exhibition's jury system was complicated; there were separate juries composed of different nationalities for the different classes of exhibit. The Council Medal was only awarded, on a jury's recommendation, for exhibits which were deemed to qualify by virtue of remarkable "novelty of invention" or "beauty and originality of design".

Exhibits by "Ceramics Manufacturers" formed one of the thirty classes and its eight man jury was chaired by the Duke of Argyll. Four of the jurors were foreign nationals from France, Russia, Portugal and "Wiesbaden" (no country was ascribed to the representative from this spa town which was previously the capital of the Duchy of Nassau, presumably in deference to some reluctance on his part to be connected to the German Confederation (of 39 states) that had been founded in 1815 by the Congress of Vienna to replace the Holy Roman Empire).

Each of the juries were required to report on the decision-making process; the reports were published in 1852 and are available as an eBook. The report for the Ceramics Manufacturers' class begins with a declaration to the effect that "novelty of invention" was difficult to identify in the case of ceramics as new wares usually evolved out of an existing clay formula. It was also difficult to decide between the rival manufacturers, who often each contended for priority of the same "invention". Parian was given as an example of a new ware which failed on both these scores to qualify for the Council Medal. The report then continued on only the second page with the following further example:

*There is one other claim to novelty of invention in our class which, perhaps, goes nearer to fulfil the necessary conditions: we allude to the process of M. BAPTEROSSES for the manufacture of buttons by pressure applied to a dry body in the state of powder; but here also we consider the merit to be to a great extent divided. The original idea of this process is due to Mr. R. Prosser; and, under a patent obtained by him, it was carried on for some time by Messrs. Minton. The improvements, however, effected on the process by J. F. Bapterosses, have been so great and so important, that the invention has, in a great measure, become his own, and has enabled him to beat the English manufacturers entirely out of the market. The principle, however, is identical. Under these circumstances, we have been unable to recommend M. Bapterosses to an award of the Council Medal for novelty of invention; although his merit is undoubtedly so high that we deem him well entitled, not merely to the award of the Prize Medal, but to a Very Special and Honourable mention, on account of the inventive talent displayed in his process.*

Having decided that no Council Medal could be recommended for "novelty of invention", the ceramics jury had considered whether any of the exhibits qualified by virtue of remarkable "beauty and originality of design". Minton's firm was given pride of place, leading the list of manufacturers mentioned in

the report and the length of the description of its exhibits even exceeded that of the great Sevres firm.

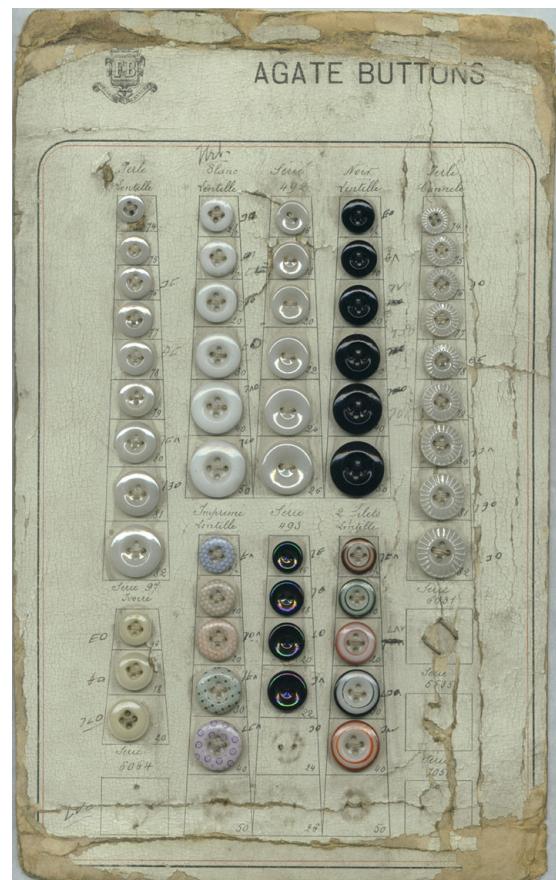
In addition to the Austrian Emperor's dessert service, two other Minton exhibits were deemed to contribute to the recommended award of the Council Medal. The third of these exhibits were crucibles and capsules of "hard porcelain" for use for chemical purposes in a laboratory. Previously only made in Germany, the Minton firm had recently developed the manufacture and its products, after testing at the request of the jury, were found to be equal in quality to the German version but had "the additional merit of being considerably cheaper". There is no mention of the dust-pressed process being utilised, but the product falls within those envisioned by Thomas in his initial U.S. patent application. (In fact, I later discovered that a different process was applied to this manufacture, which in the longer term was not successful)

Clearly the jury had been tempted to recommend Bapterosses for a Council Medal for his improvements to the "Agate" button manufacturing process; had Minton, through his influential contacts, exerted pressure on the jury to dissuade them from doing so? Probably this was unnecessary, the jury had already decided that improvements to existing processes did not fulfil "the novelty of invention" criteria and it would, presumably, be difficult for a button to qualify by virtue of its remarkable "beauty and originality of design".

Bapterosses's buttons went on to win many more medals at subsequent world fairs. His global domination of the porcelain button market was such that it would have been difficult for Minton and Richard to continue their opposition to English imports for long. In any event the English patent was due to expire in June 1854 and for reasons which remain unexplained it was not renewed, although an application could have been made by Richard and/or Minton for a seven year extension.

Richard's 1852 proceedings against Morrison are the only evidence I have found of his or Minton's continued opposition to Bapterosses. By 1865, *Julian Turgen*, in his *Large Factories of France* published in Paris, after referring to Minton's buttons and the English patent, was able to state that "M. Bapterosses is one of the few people in France who can pride himself on supplying England with one of the items which appear to belong exclusively to her" (quoted with thanks to *Matthew Brown* for the translation). One other contemporary French authority suggests that English licensees of Richard's patent were buying the French buttons by 1860.

*Turgen* described the manufacturing process at the Briare factory in great detail. He referred to an output of five million buttons a day produced on the five hundred-button presses which Bapterosses must have developed shortly after his original patent. The pulverised clay powders, having had their "milk bath", were compressed into a paste and were stored, cheese-like, in bags for two months. An "extreme variety" of buttons were manufactured from the "extreme variety" of clays and other ingredients used to produce the pastes. These included buttons having a more glass-like appearance in addition to the porcelain ones. The consequent "extreme variety" of dies were made on site in a large mechanised workshop; each die had to be made with "absolute precision". The presses included "an ingenious mechanism" with spikes for buttons with holes; other presses made the more expensive cylindrical buttons, to which shanks were later attached, which *Turgen* described as "the most ingenious machines created by mankind". The pressed buttons were turned out onto a sheet of brown paper held taut in a frame and taken to the adjoining "immaculately clean" kiln room for firing, which only took between six and ten minutes depending on thickness, type and colour. The everyday white and black buttons, sold in their millions, after cooling only had to be sorted and carded. *Turgen* then described at length the different methods used to produce decorative buttons: painting, gilding, transfer printing of patterns and glazing. The last process, which required a second firing, was used to produce "pearlescent colours... which imitate ivory, gold, white mother of pearl, the varied shades of seashells and even the iridescence of certain minerals". *FB Sample Card - Jody Behrbaum Collection*



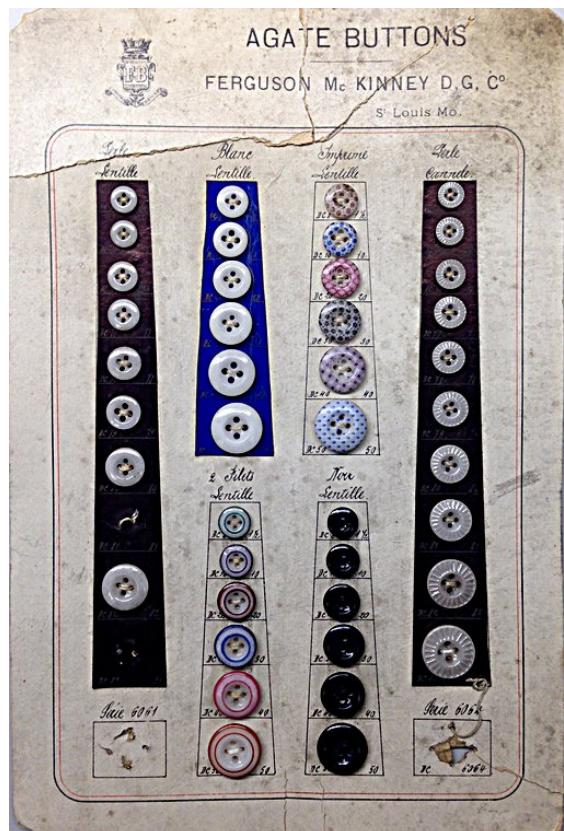
Bapterosses had achieved the complete industrialisation of the mass manufacture of porcelain buttons in an astonishingly short timescale. To a large extent his early success must have depended on access to the huge demand for the buttons in the U.S.. As such, Thomas's failure to establish the validity of his American patent in 1847, when he sued the Cooks, must have been pivotal; it left the doors of the U.S. china button market wide open. This

raises a further question; U.S. patents were fully assignable under the 1836 Act at little cost; Thomas could have sold his to Minton, rather than enter into the risky and expensive proceedings against the Cooks. As Minton was a manufacturer of the buttons, the Cooks' lawyers' argument in the retrial should have failed against him. Had Thomas refused to sell the patent? Was this another factor in Minton's decision in 1848 to close his button business? Minton must have bitterly rued the day in 1843 when, whether through hubris and/or vanity, he allowed a young French man to enter his button factory.

Bapterosses's buttons were the foundation of a business dynasty that prospered for over one hundred years. It was still owned by members of the family until 1962, when, by then in decline, it was sold to a concern that developed the mosaic branch of the business that still trades successfully today under the name Emaux de Briare. This narrative is not the place for further discussion of the Bapterosses' success story; it is well recorded elsewhere, including in a YouTube video of a lecture, entitled *Beads and Buttons from Briare: A Global Industrial Success Story from 19th-Century France*, given in New York in April 2014, which my American co-researcher, Jody, referred me to: [http://www.youtube.com/watch?v=u9CuEGO\\_wm8](http://www.youtube.com/watch?v=u9CuEGO_wm8). For those wanting to learn more of the later history of the Bapterosses' business, this video is well worth watching, notwithstanding that the brief references to the earlier Prosser and Chamberlain roles' in the story of the buttons are inaccurate.

In the UK there appears to be little interest in the porcelain or china button at the present time (2016). The British Button Society was only formed in 1976 and the mass manufactured, dust-pressed china buttons seem to be largely ignored by its members. We attended a BBS meeting in 2013 and one of the organisers kindly gave us some china buttons refusing to accept any payment as they had no value.

In the U.S. the National Button Society was formed in 1938 and has several thousand members, whose specialist interests encompass every type of button ever made and include a very active group of china button collectors. The NBS website



has links to china button sites with displays of an enormous variety of "Chinas", classification tables and pattern identification guides. One of the most common patterns is the pretty calico transfer print, which comes in hundreds of designs and must hark back to the calico dresses worn by the wives and daughters of the American pioneers in the mid-nineteenth century. The popular china button appears to have become part of the folklore of the Western frontier. *FB Sample Card including Calicoes previous page - Jody Behrbaum Collection*

Undoubtedly, the great majority of the "Chinas" in American collections will have emanated from Bapterosses's factory. A group of these collectors, including Jody, visited Briare in 2005 and 2014 to tour the museum now housed in the family mansion built by Bapterosses. The displays of buttons included many familiar to the collectors and many never seen before. In the woods adjacent to the factory these enthusiasts searched the mountainous spoil heap of waste strewn with rejected buttons, beads and tiles.

So, what of "Prosser's Patent Agate Buttons"? Do any of these appear in U.S. collections? If they do, they have not been identified as such, visually they will be indistinguishable from Bapterosses's. I have found no Minton or Prosser sample cards on the internet and Jody is not aware of any. "Prosser Agates" might be identifiable by chemical analysis of the clay, but Jody is not aware that this has ever been carried out. However there is one photograph of buttons which are indisputably "Prosser's". Jody sent me a scan of an article from an NBS *National Button Bulletin* dated March 1952, which reported on the then recent finding of a "cache" of buttons when floorboards were taken up in an old part of Minton's factory. The buttons are mainly simple white types but include one "calico" and another with a scalloped edged; they were said to date to about 1842.

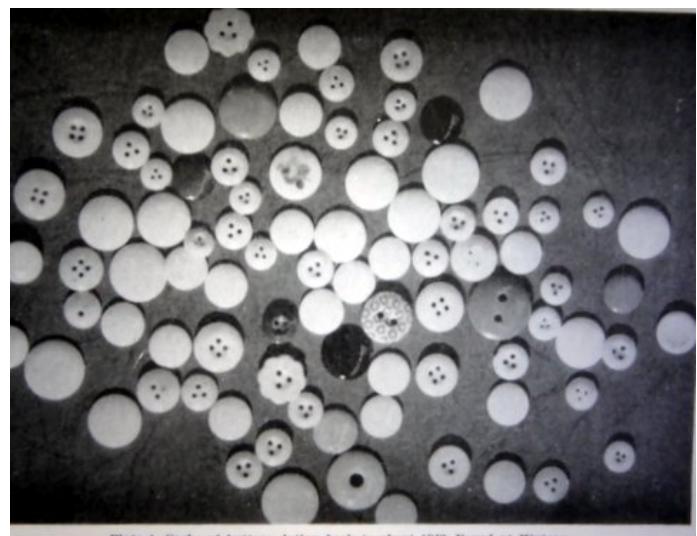


Plate 1. Cache of buttons dating back to about 1842. Found at Minton's.

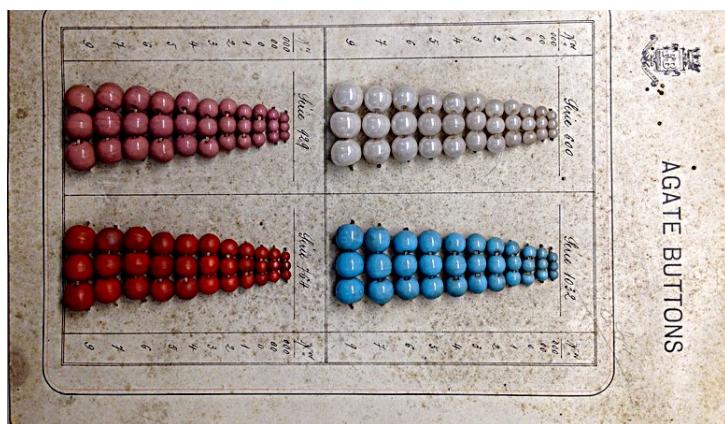
Buttons are the most dress-related artefact recovered on archaeological sites according to one authority (*Carolyn L. White Encyclopaedia of Historical Archaeology*). When I first searched the web for "Prosser Buttons" I was

impressed by the number of results that appeared on U.S. websites containing archaeological reports. The reports usually contained a short narrative on Richard's patent and sometimes referred to Bapterosses' influence as well, but always attributed the origination of the "dry" process to Richard (sometimes with Thomas). The same can be said of most button collectors' websites.

So, notwithstanding the overwhelming supremacy of Bapterosses's buttons, they are widely described as "Prosser" buttons or "Prosser-type". The "Prosser's Patent Agate Button" has largely been forgotten, but the eponymous name still reigns over its French conqueror's.

I still find it fascinating to think of the thousands of "Prosser Agates" that would have accompanied American pioneer families, sewn on their shirts and dresses, as they made their way in wagon trains to the West in the early 1840s.

In 1864 Bapterosses extended his range by the production of trade beads: colourful and in all shapes and sizes, their global success, particularly in African countries, is fully described in the YouTube lecture. The beads, too, are generally known as "Prosser Beads" or "Prosser Trade Beads" and are now collectables.



*FB Sample Card: Beads - Jody Behrbaum Collection*

It was in 1889, following Bapterosses's death in 1885, that his descendants commenced the manufacture of mosaics for which Emaux de Briare is now internationally reputed (<https://emauxdebriare.com/en/home/>). The highly specialised mosaic manufacturing process is, albeit distantly, derived from Richard's patent. Jody sent me another link to a YouTube video describing the modern process (in French) - [http://www.youtube.com/watch?v=zWluE\\_spbSI](http://www.youtube.com/watch?v=zWluE_spbSI).

The firm ceased making its porcelain buttons sometime in the 1950s due to the advent of another invention: the automatic washing machine. The "Agate" button, famous for its durability, broke in the steel drum of the housewife's new labour saving device.

### **"Divers articles" : other applications of the dust-pressed process**

In his written testimony in the Chamberlain and Lilley case Richard contended that, following the enrolment of his patent specification in December 1840, he "commenced and forthwith completed the construction of divers machines and presses for the manufacture of divers articles and particularly buttons". He continued with statements to the effect that he had "derived large profits" from the manufacture and sale of the "divers articles" and buttons at home and from exports abroad, in particular to the U.S..

Richard had attempted to cover all ceramic products capable of being manufactured by the dust-pressed process in his patent. He had specifically mentioned buttons, knobs and rings in his initial provisional patent and, to these, had added tiles and bricks in his later specification.

I have found no evidence of the commercial manufacture of the knobs and rings. The proposed application of the "rings", we know from Thomas's first U.S. patent application, was as machinery parts; whether the proposed application of the equally equivocal "knobs" was decorative or mechanical, has not been identified.

I have, however, found reference to "Prosser's Patent Agate" in two newspaper adverts in 1846 for porcelain flower trays. Varieties of these trays appear on antique websites; decorated with flowers they were used for serving or as dressing or other tableware.

The process could easily have been applied to the manufacture of all types of ceramic flatware. If adopted for the production of flower trays, why not for plates and saucers? However, I have found only one other instance of this application in the UK during the 19th century: *Jewitt* in *The Ceramic Arts* referred to the process being used by the Burslem firm of Messrs. T & R Boote. In 1865 the firm took out a patent for a 'Process for inlaying encaustic tiles with clay dust'. The "dust" process was also used by Messrs. Boote for the manufacture of dishes and other articles in ware which they called "Royal Patent Ironstone". One press could make as many as 1,200 plates in one

day. (An example of genealogical coincidence: Messrs Boote operated from the Waterloo Pottery in Burslem, which had been founded in the 18th century by Walter Daniel. Walter was a brother of Timothy Daniel, a great grandfather of Richard Bissell Prosser's daughter-in-law, Edith Annie Prosser nee Daniel, John's maternal grandmother.)

In his 1850 letter Thomas Prosser maintained that "all kinds of flat articles have been, and continue to be made, in almost endless variety" using the dust-pressed process, including, even, "keys for pianoforte". If so, apart from those already identified, they have left no readily discernible trace.

The history of the development of the dust-pressed process over the following century and a half does not appear to have been written; that it was developed is evident by the numerous modern applications that now exist.

Tableware is now extensively manufactured by advanced versions of the dust-pressed process; not only flatware but also the three dimensional pieces, eg bowls and cups, envisaged by Thomas in his initial U.S. patent application.

Technical ceramics, such as electrical insulators, were a comparatively early dust-pressed manufacture; this industry, which has grown enormously for over a century, has extended into many specialist areas of production.

However, the ceramics industry which continues to be the most intensive and productive user of dust-pressing is tile manufacture. The early history of the application of the process to tiles, Minton's obsession, and to tesserae and bricks, is the subject of the next three chapters.

Richard Bissell Prosser in his *BI&I* wrote extensively on the Birmingham button industry; he devoted less than a page to the "Agate" button and explained how the English were defeated by the French. There is no mention of Thomas, but he continued to play a significant role in Richard's story and will reappear again.

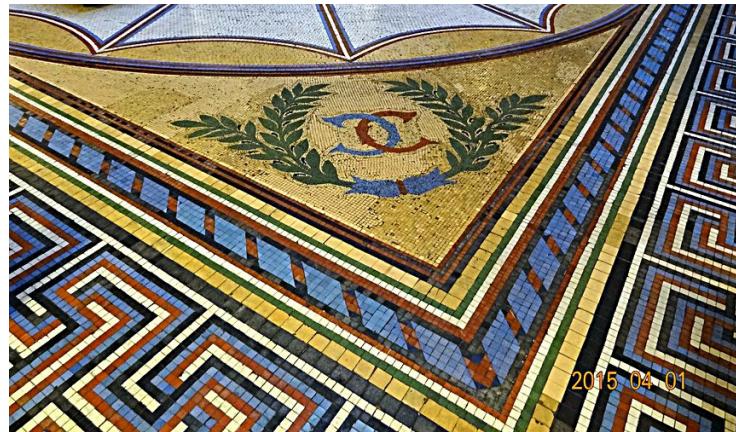
## The Dust-Pressed Process

### Part Two: The Tile Revolution

<b>Chapter 7</b>	Paving the Nation. The Victorian Tile Revolution - The Beginning: From Mosaic to Geometrical Pavements	91
	Family life and other non-inventive events: 1841 to 1848	92
	Researching the Victorian Tile Revolution - Where to Start	98
	Mosaic Pavements - Richard's Triumph	100
	Mosaic Pavements - Blashfield's Downfall	120
	Mosaic and Geometrical Pavements - The Minton Era	133
<b>Chapter 8</b>	The Toy & Brick Ventures of Mr Cole & Mr Prosser: Foresight Unrewarded	162
	Mr. Cole's "Lego"	162
	Bricks - Mr. Prosser, Mr. Blashfield and Mr. Dobson	167
<b>Chapter 9</b>	Minton Tiles 1840-54 Richard's Role: The Knowns & Known Unknowns	194
	The Wall Tile Conundrum - Turley's Confusion?	195
	The "Prosser's Patent" Wall Tiles	196
	The Great Exhibition - Minton's Tile Exhibits	202
	Mr Nasmyth's Machines	206
	1845: The Chamberlain and Blashfield Factors	208
	The Encaustic Tile - Richard's Unrecognised Role	210
	The Non-Renewal of the Patent	218
	The Minton Archive is Saved	222
	Packet 674	224
	Richard's Legacy: A Contribution to Minton's Fame?	230
	Richard, Pugin and the Palace of Westminster	235
<b>An Early Addendum</b>		239
<b>Appendix to The Tile Revolution</b>		258

# Chapter 7

## Paving the Nation. The Victorian Tile Revolution - The Beginning: From Mosaic to Geometrical Pavements



*1845 Dust-pressed Mosaic Pavement (renovated)  
Conservative Club St. James's Street London*

*"At the suggestion of Mr Blashfield the process was applied to the making of tesserae and tiles, and the foundation of a most important industry was thus laid. An early use of the patent tesselated pavement in Birmingham was for the steps of Mr Prosser's house, No. 18, Broad Street. We have ventured to digress thus far from the subject in hand to place on record a few facts, which seem to be in danger of being forgotten, relating to the origin of the "dry clay" process of making tiles and buttons."*

The above quote ends Richard Bissell Prosser's short account of the story of his father's "Agate" button on the final page of his second of three articles on the history of button manufacture in Birmingham. These were written for the *Birmingham Weekly Post* in 1880 and they form three chapters of his *Birmingham Inventors and Inventions (BI&I)* published privately the following year. It is, therefore, not surprising that he did not go into great detail about a manufacture that was not relevant to Birmingham. As with his father's other inventions he appears to have otherwise remained silent on the subject, although he wrote extensively on other inventors and inventions throughout

his later life. Richard's contributions to the tile industry have, indeed, largely been forgotten.

Before embarking on the dust-pressed tile story I shall continue with a necessarily brief and factual overview of the known events in Richard's private life during the period 1841 to 1848.

### **Family life and other non-inventive events: 1841 to 1848**

Richard and his family continued to live at 9 Camp Hill until at least 17th February 1842 the date that his wife Sarah registered the birth of their fourth child Marianne, who was born the previous month on 8th January. Marianne had been baptised on 7th February at St Martin in the Bullring, as were all her older siblings.

It seems likely that the family had left the Camp Hill address by the baptism of the fifth child William Henry on 1st January 1844 as the St Martin's register merely gives his parents' abode as "Deritend". The baptism register states that he was born on 28th October 1843, but I have been unable to trace his birth certificate in the UK records including those of Scotland; in later census returns William Henry consistently confirmed that he was born in Aston.

According to his birth certificate Richard and Sarah's sixth child Robert Walter was born on 24th November 1845 at 53, Warwick Street, Deritend (then in the parish of Aston); he was baptised at St Martin's on 11th February 1846. Warwick Street was almost around the corner from the Camp Hill house; it linked Warner Street to Alcester Street and ran nearly parallel to Bradford Street and the Digbeth High Street. The street still exists but no buildings from the mid-nineteenth century appear to have survived.

The Warwick Street house was the family's residence from about 1844 to late 1847; it was one of the addresses given for Richard in *Kelly's Directory* for 1845 along with the office at 1, Cherry Street. It has not been possible to identify the house in the 1841 census as none of the 123 "houses" were numbered; it seems doubtful that all of these were actually houses and many of the households probably inhabited multi-occupied tenements or "courts". The occupations of the inhabitants were varied: most worked in the hardware trades in brass foundries and wire works or as nail or screw or spoon makers; several were button makers (horn and bone); a few were carpenters and bricklayers; the occasional dressmaker, tailor, teacher and agricultural

labourer appear amongst a variety of other trades including a couple of engineers; there was one pawnbroker. All in all, Warwick Street, closer to the centre of Birmingham, appears to have been a less salubrious location in which to live than that of 9 Camp Hill on the town's outskirts.



*1839 Map (Darby Collection) - Warwick Street to east of Bradford Street between Alcester Street to north and Warners Lane to south; 9, Camp Hill close to junction with Warners Lane near Cumberland Row; Watery Lane workshops far right above "London".*

However, number 53 may have been one of the grander houses in Warwick Street. In the 1851 census the number of households had reduced to 64, presumably to make way for the larger manufactories that are evident in the street on later maps. Two of the 64 households occupied a property numbered 53. The head of one was described as a provision shopkeeper; he, his wife and three children appear to have occupied a separate building perhaps fronting the street. The other household at 53 was larger; the head was a single woman, Olivia Acheson, aged 38 and born in London, she had two live-in servants: a cook and a housemaid. On the night of the census there were three other single ladies visiting; like their host all were born elsewhere and had no occupation. The other occupant was an 18 year old girl described as a governess, who gave her occupation as "Mistress of Poor School".

In 1841, on the night of that census, Olivia and her two sisters, all of independent means, were staying with the Countess of Gosford at

Worlingham Hall in Suffolk. The Countess was, in fact, Olivia's mother, who had married Archibald Acheson, the 2nd Earl of Gosford, an Irish peer in 1805 (*Ancestry*). The Earl had inherited the Hall on the death of his wife's wealthy father, Baron Worlingham. The Hall, an elegant Georgian country house, survives and is currently used as an exclusive holiday rental catering for up to 21 guests. Lady Olivia Acheson died at Birmingham on 28th March 1852; her death was announced in numerous newspapers (*BNA*).

By 1844/1845 Richard would have been earning substantial revenues from his various inventions and, as is recounted later in this chapter, his status in society had changed dramatically. It would therefore not be surprising if he had moved his family to a house deemed fit to be a residence for the aristocratic Lady Olivia, possibly the next occupant, even if it was in a less desirable location than his former home on Camp Hill. A search in the street directories and maps held by Birmingham Library Archives revealed that the house was nearer to the Warner Street end of Warwick Street, on its left hand side when facing towards Birmingham. Number 53 did not appear in the 1861 census and its site had probably been absorbed into the Warwick Works of William Garrad a brass founder and a manufacturer, amongst other items, of coffin furniture.

(I was puzzled as to what drew Lady Olivia to live in industrial Birmingham and, in particular, in Deritend probably one of its most unhealthy districts. There is a clue amongst the many other references to her during her lifetime in the society columns of the British and Irish press, which included several reports in January and February 1847 of her and her sister Annabella's conversion to Roman Catholicism. It was about this time that the charismatic priest and later Cardinal, John Henry Newman, a convert in 1845, arrived in Birmingham from Rome with authority from the Pope to found an Oratorian community in the town, a long established haven of religious tolerance for non-conformists and Catholics. As recounted in Chapter 3, in 1849 the first home of Birmingham's now famous Oratory was the imposing classical building in Alcester Street that had been the gin distillery owned by the Fuller father and son, who in 1835 had been duped into "lending" £500 to the wily Walter, Richard's father. Newman's community of Oratorians was therefore based within a few hundred yards of Lady Olivia's home. On the night of the 1851 census of her three female guests one was Irish born in Cork and another was baptised a Catholic (*Ancestry*). The third visitor, Catherine Elizabeth Bathurst, would also have been visiting her brother Stuart, who had become a Catholic in 1850 when he joined the Birmingham Oratorians. Catherine too converted and became a nun in a Dominican order; she later

founded a convent at Harrow on the Hill. Stuart and Catherine's parents were General Sir James and Lady Caroline Bathurst; Sir James had been an aide de camp to Wellington in the Peninsular Wars. (*Stuart Bathurst High School website*)

Bearing in mind Lady Olivia's religious convictions, number 53 Warwick Street was probably maintained as a very modest establishment compared to her family's country house in Suffolk (never mind its 150 room family seat in Ireland, Gosford Castle in County Armagh, and its unidentified, but certain, London town house). However, for Richard and Sarah number 53 in 1845 may have felt like a stately home compared to their rooms in the Chunk Engine Works where their second child Richard Bissell Prosser had been born in 1838 only seven years previously.

It was Richard Bissell's notes in the catalogue for the 1840 auction of the "Great Lathe" and other machinery at the Works, described in Chapter 4, that identified "late 1847" as the date of his family's presumed next move to the house in the country that was to remain its home until Richard's death in 1854 and for the following seven years until 1861. Richard had almost certainly rented the family's previous homes and it seems likely that in 1847 he took a 14 year lease of High House in Kings Norton. (In the nineteenth century houses were commonly let for 7, 14 or 21 year terms; I have wondered whether Lady Olivia may have sub-let her Birmingham residence from Richard for the residue of a lease that he was granted in 1844/1845).

I will describe High House in more detail when I tell the story of Richard's lap-welded and anti-welded (weldless) tube machinery inventions. It was a substantial Georgian house set in 60 acres of farmland and situated off the Pershore Road about half a mile north of the village of Kings Norton (then in Worcestershire) and, in fact, closer to the then hamlet of Cotteridge. The driveway to the house is still marked by an avenue of trees that can be seen on the left of the road shortly after passing Kings Norton railway station (on the right) on the way to the village it served. The station was opened in 1849 on the Birmingham and Gloucester line, an alternative route for which had been put forward by the city of Worcester in the 1830s after a survey carried out by Richard's elder brother Thomas (see Chapter 2). In 1847 Richard was no doubt aware of the impending arrival of this new railway service into Birmingham when he leased High House.

Another impending arrival was almost certainly in contemplation by the time the family moved into High House; Richard and Sarah's seventh child was

born there in February 1848. Sarah Hannah only survived three months, but she outlived her mother who had died on 29th February 1848 shortly after her third daughter's birth. Sarah was only 33 and her death certificate reveals she died of puerperal fever "4 days"; Richard, aged 43, was with her ("present") when she died. Puerperal fever or sepsis is caused by an infection of the womb and was one of the main causes of maternal death after childbirth until the advent of antibiotics.

Sarah Hannah, named after her mother and, presumably, her maternal aunt Hannah Potter, was baptised on 3rd May 1848 at St Nicolas Church Kings Norton. She died just three weeks later on 20th May. The cause of death recorded on her death certificate was "Tabes Mesenterica"; a probably unreliable, but convenient, diagnosis in the case of an infant death usually defined as a wasting disease caused by a form of tuberculosis of the intestinal tract sometimes attributed to the ingestion of infected milk.

On 23rd May 1848 Sarah Hannah was buried at Holy Trinity Church in Bordesley, she was no doubt laid to rest with her mother who had been buried there on 4th March. Richard had returned his "beloved wife" to Birmingham for her burial at the church on Camp Hill where her mother and several of her siblings had already been interred. Announcements of Sarah's death appeared in at least two local papers.



#### *Silhouettes Darby Collection*

The only likeness that survives that might be of Sarah is the silhouette above, it appears to be a companion to the other silhouette, which is identified as of Richard on the back. These silhouettes, in similar frames, probably date from the mid to late 1840s, they portray a couple, each in their prime, of some standing and wealth proudly asserting that they have "arrived".

Richard was left a wealthy widower with six young children aged from two to eleven years old to support. He was to remarry in October 1850; a second

marriage which deliberately courted controversy and will form part of the continuing history of Richard's family life told later as part of the Third Story.

Trade directories indicate that Richard retained the office in Cherry Street until about 1848/1849. He also retained the house and workshops in Watery Lane, which, presumably, continued to be the home of his elderly mother and his sister Hester, with whom he may have stayed overnight occasionally after the family had moved to Kings Norton nearly seven miles away.

Searches in the *BNA* have revealed little else about Richard during the years 1841 to 1848 which did not relate to his inventions. He appeared occasionally in the lists of donors that responded to requests to the public to subscribe to various local fund raising initiatives, including in 1844 the proposed provision of public baths for the growing and largely unwashed population of Birmingham; in recognition, perhaps, of the fact that he was once, reluctantly, one of their number Richard made a large donation of £50 to this cause.

However, there was one other newspaper report during this period which is of greater interest. This appeared in the *Birmingham Journal* on 28th March 1846 barely six months after all the publicity in the press that was created by Richard's acrimonious dispute with Chamberlain and Lilley described in the previous chapter. In late 1845 or early 1846 Richard issued proceedings for slander against a former employee, Samuel Bayliss. The case was heard at the Warwick Assizes in March 1846, before the "Chief Justice" according to the press report. I had found no record of the pleadings in *The National Archives* and, therefore, the nature of the alleged slander remained unknown in 2014 (but is disclosed in the final chapter of this biography - *SD 2022 rev.*). Whatever he was alleged to have said, Bayliss, through his counsel, denied uttering the defamatory words, but, if it was proved he had, he "repudiated" (withdrew) them and "would make the most ample apology". Richard, who according to his counsel's opening remarks "had no vindictive feeling...only wished to have his character set right with the world", accepted nominal damages and paid his own costs.

Bayliss did not make the promised apology; in a short letter dated 28th March published on 30th March in *Aris's Birmingham Gazette* (expressly prompted by the *Journal's* report) he stated: "I wish it to be clearly understood that I have never offered and shall never offer Prosser any apology for any thing I have ever said of him. I have long determined to have nothing whatever to do with him, and to this determination I shall adhere."

Richard's counsel had described Bayliss as an "engineer or engineer's draughtsman", "a clever man" who had been first apprenticed to and then employed by Richard until 1845, when there was some disagreement over wages. Bayliss had clearly worked for Richard for some time, in fact since he left school according to his entry in *Grace's Guide*. Samuel Bayliss (1821-1898) went on to have a successful career as a railway engineer; whatever his grudge against Richard, justified or not, his early training had stood him in good stead.

These few insights into Richard's private life in Birmingham may give the misleading impression that he rarely left his home town. In fact, this was certainly not the case. During the 1840s he must have spent a considerable amount of time elsewhere, in London in particular, as will become clear in this and the following chapters. There is no doubt that he must also have been a frequent visitor to Stoke on Trent in the Staffordshire potteries at the beginning of and possibly throughout this decade. Minton's pottery at Stoke must have been a meaningful source of Richard's income throughout the 1840s, but probably not the largest. His continuing active involvement in the successful development and application of the dust-pressed process to the mass manufacture of buttons and, subsequently, tiles would have been vital to secure for himself the maximum return from his patent. The successful application of the process to the mass manufacture of tiles was not as immediate as its application to buttons.

## **Researching the Victorian Tile Revolution - Where to Start?**

The story of the early application of the dust-pressed process to the tile industry proved rather impenetrable. I had decided early on in my researches that I would have to confine myself largely to the period from the granting of the patent in June 1840 to its expiry in June 1854, less than a month after Richard's death. Bearing in mind the copious amount that has been written on the subject of tiles both in general and with reference to specific topics, I was surprised to find comparatively little on the early development of the new process that is generally accepted to have revolutionised Victorian tile production.

In particular, although most authorities usually credit Richard with patenting the process, they say little more about him; some knew he was an engineer from Birmingham and most knew that the process was first applied to the manufacture of buttons - and that was about it. The only exception was

Jewitt's massive treatise *The Ceramic Arts etc.* and the brief, but important, details he had obtained from Turley, partly recounted in the previous chapter. In addition, the importance of the "Prosser's Patent Agate Button" to Minton's manufactory up to 1847/48 had been virtually completely ignored or not recognised. Yet, the progress of the development and application of the process to tiles by Minton in the first half of the 1840s was clearly heavily influenced by the dominance of this "porcelain" button in the dust-pressing branch of his business.

In the light of Richard's virtual disappearance from the historical record in general, it is not surprising that he remained little known to tile historians. His obscurity would probably have remained undisturbed if it was not for the advent of the Internet and the mass digitisation of historical and modern source material that is now available on it.

However, the more I studied the subject, the more perplexed I became. Needless to say, my own ignorance of the technical aspects of ceramic manufacture was an enormous impediment; in addition it rapidly became clear that the mechanical advantages of the presses and dies developed by Richard were crucial to the manufacture of dust-pressed products, but I had no understanding as to what they were.

I did however conclude from my initial Internet searches that there were two early developments of dust-pressing associated with the tile industry for which there were contemporary accounts. As quoted above Richard's son, Richard Bissell Prosser, had mentioned one, "tesselated pavements", in his *BI&I*; the other was bricks, as in the ubiquitous building brick, evidence of which I had come across in my "button" researches.

In describing the steps to his father's house as an example of tessellated pavement, Richard Bissell Prosser was using a generic term that in the context of ceramic tiling actually includes both of the two types of pavement mentioned in the title to this chapter. As *Hans van Lemmen* has explained to me, where a tile pavement is composed wholly or predominantly of tiles of one geometrical shape it is more correctly classed as a "mosaic" floor, whereas a "geometrical" pavement is composed of tiles of a variety of geometrical shapes. This terminology is just one of the many technical points upon which I have been advised by *Hans*, the tile historian and author of many books on the subject, who I have already quoted in the previous chapter. I am very much indebted to *Hans* for his help, time and, above all, patience in guiding me through my attempt to grasp the basics of the

extraordinarily diverse and complicated ceramic manufacturing processes, as well as his generosity in sharing his fund of knowledge and archival materials on Victorian tiles.

The dust-pressed process was first applied to the earlier "mosaic" form of the Victorian tessellated pavement and this seemed to be the most promising subject in terms of interest and content. I therefore decided to research these mosaic floors further, in the hope that they would lead to a better understanding of the development of the dust-pressed floor and wall tile. The mosaic pavements were in fact an almost immediate and direct adaptation of the button process, and therefore, an appropriate initial topic.

I continued my online researches and a story unfolded; I hoped that the Minton Archive, when it became fully available, would confirm the accuracy of the following narrative and provide answers to at least some of the many outstanding questions.

(One of my initial dilemmas was one of spelling: the Victorians often wrote of "tesselated" pavements, which I have not corrected or "sic"ed when quoting. I have otherwise adopted the recognised modern English spelling as confirmed by the *OED*, which defines "tessellate" as "Decorate (a floor or pavement) with mosaics".)

## Mosaic Pavements - Richard's Triumph



(The title to this section may appear overblown and inappropriate, but my reason for choosing it will become clear.)

The above photographs were sent to me by *Hans*, they are examples of early mosaic and geometrical pavements; each was laid in about 1847 and 1850

respectively using Minton dust-pressed tesserae and small dust-pressed geometrical tiles; all made under Richard's patent. The beautiful pavement on the left is in a building in a suburb of Leeds, which is not open to the public and will have been seen by relatively few. The photograph on the right is of a small section of a very large pavement, which has been walked upon by millions, the monogram in the blue encaustic tile is a clue as to its location. (*Images © Hans van Lemmen*)

The quality of these two examples alone goes some way to explaining the excitement that was caused when samples of similar pavements, made by a revolutionary new manufacturing process, were first displayed in 1843.

John Marriott Blashfield (1811 -1882) was to play a very significant role in this part of Richard's story; certainly during the period 1841 to 1843 and probably for longer. The two appear to have forged a close relationship of mutual cooperation to begin with, suggestive of actual friendship, but one that probably soured after the outcome of later events. The month of March 1843 was to see Richard accepted into a sphere of society he had probably never dreamt of entering and, in addition, achieving some fame in the elite world of the various Victorian art movements that were then becoming fashionable. This recognition was mainly due to Blashfield's persistence and enthusiasm - and his ability as a self-promoting publicist.

Blashfield was born on 1st November 1811, the date recorded at his baptism at St James's, Westminster, which was also his place of birth according to the details he gave in later census returns (*Ancestry*). He was the eldest surviving son of John and Eleanor; his older brother, just named "John", born and baptised in 1810 was only aged four months when he died. John, their father, was described as a solicitor in the baptism registers of two of his younger children; "Blashfield" is an uncommon name and John Marriott's siblings were relatively easy to trace on the *Ancestry* site. His father's parentage was more difficult to trace, but he was almost certainly descended from one of the Blashfield families who lived in or near Hereford and Abergavenny in the latter half of the 18th century; in other words within 20 miles of the Prossers of Llows, Richard's grandparents and earlier ancestors - a coincidence which may, initially, have contributed positively to the relationship between Blashfield and Richard.

According to Blashfield himself it was at some date in 1841 that he first came across some of the beautiful, but exceptionally durable, dust-pressed "Agate" buttons manufactured by Minton. He realised that the new process used to

make the buttons would be suitable for making a type of tesserae that would emulate those used by the ancient Romans for their wonderful mosaic floors or "tessellated pavements" as they were then commonly known. Many of these had been exposed (probably a more accurate description for the archaeological methods then employed) in England during the previous fifty years and had been of great public interest; to such an extent, in fact, that there was perceived to be a demand for similar floors for public buildings and the homes of those who could afford them.

Blashfield's early training and career is not known, except for one reference to his having made ornamental pavements in 1836 (*Spons Encyclopaedia*); for which I owe thanks to Hans who referred me to an article in 2006 by Mario Baeck on Blashfield in *Glazed Expressions*, the magazine of TACS (the *Tiles and Architectural Ceramics Society*). However, it seems likely that Blashfield had worked on projects involving cement and architectural ceramic products generally during the 1830s, including possibly the use of terracotta for which he became well known after 1850.

It is generally accepted that Blashfield had been trying to create a satisfactory method of making mosaic floors for several years prior to 1841; lack of durability and unevenness were the main difficulties encountered. He had some success eventually, including involvement in the laying of a floor in about 1839 at a large Surrey mansion called Deepdene (demolished) to which he referred at a meeting of the Society of Arts in May 1858; the chairman of the meeting was the owner of Deepdene, so Blashfield's statement must be true.

At the same meeting he also claimed responsibility for other early Victorian mosaic pavements: one laid in 1841 at the London Coffee House on Ludgate Hill and others "afterwards" at the London Bridge Hotel and "in some of the houses of the higher classes".

In 1858 Blashfield asserted that the pavement he had laid at the London Coffee House was the first composed of Minton mosaics. However, I believe he either mis-remembered or was mis-reported as the date he gave, 1841, is too early. Jewitt was to quote from an account sent to him by Blashfield, which must have been written in his later years, in which Blashfield stated that his first samples of the Minton tesserae pavements were not exhibited until March 1843. (In his diary, Henry Cole attributed the Coffee House pavement to the Vauxhall Potteries of Messrs Singer and Co., whose works he visited after first seeing the pavement in January 1842 (and, also, a similar

pavement in Ludgate Hill in the shop of Hilditch, a silk merchant). I owe this information to an essay written by *Ezra Shales*, "Toying with Design Reform: Henry Cole and Instructive Play for Children", to which I shall return.)

My searches in trade directories and in the *British Newspaper Archive (BNA)* revealed no adverts by or press reports of Blashfield trading on his own account in the 1830s or during the period 1840 to 1842. His involvement on early mosaic pavement projects must have been in a subordinate capacity, may be as a freelance employee or sub-contractor. Of the two most likely candidates to have been his employers, I would opt for Singer's firm as the more credible; a view which may gain some circumstantial support from a press report I found in the *Yorkshire Gazette* dated 8th March 1845 in which Blashfield, presumably at his instigation, is disassociated from any involvement with the mosaic pavement laid by Singer and Co. at the landmark Royal Exchange building opened by Queen Victoria on 28th October 1844. There had been much press comment on the construction of the new Royal Exchange, including the laying of this pavement by Singers who were reported to have used nearly 2 million tesserae of their manufacture (*London Standard* dated 25th October 1844); subsequently there was much adverse comment as the pavement failed, becoming uneven almost immediately and it was taken up in December 1844. By 1845 Blashfield's name would have been closely associated, since at least 1843, with another firm, Wyatt, Parker and Co., so his concern to disown Singer's firm may infer that he had had some involvement with them in the past.

All the contemporary accounts I have read, including his own, give the impression that Blashfield was acting on his own account when he first approached Minton in "1841" with his suggestion that dust-pressing could be applied to the manufacture of tesserae. Blashfield is sometimes credited with including the manufacture of tiles in this suggestion, but, if Turley is to be believed, Minton, his employer, had commenced making dust-pressed glazed white tiles at the same time as his new "Agate" buttons in August 1840.

Alternatively, it is possible that Blashfield actually made contact with Minton in late 1840. The account Blashfield later gave to *Jewitt* included his claim that he had suggested to Minton that Richard's patent be enlarged to include tesserae and tiles. It is certainly true that in the patent's specification, enrolled by Richard on 17th December 1840, the brief references to tiles and bricks give the impression that they were late insertions. However, as explained in the previous chapter, Richard's summing up of his claimed invention was all encompassing and included the dust-pressing of all products "which have

been and can be made from any of the materials used in the manufacturing of earthenware and porcelain" i.e. whether or not previously made using the plastic clay method. The late insertions, if that is what they were, were unnecessary.

I had found no reference to Richard having a role in these early discussions between Minton and Blashfield - anywhere. Yet he must have been closely involved as, at least, a part owner of the dust-pressed patent. I speculated that documents might still exist within the Minton Archive which recorded the terms agreed between Richard and Minton as to ownership of the patent and regulating its use by both and each of them. Turley told *Jewitt* that Minton had bought a half share, but this much repeated assertion had never been verified.

When a notice of intention to renew the patent was advertised in April 1854 it stated that the application would be made on behalf of Richard (identified also as the original patentee) and on behalf of Minton, who was "interested" in the patent. The contents of the notice support Turley's statement and it would be reasonable to assume that Minton had, at some date, acquired a substantial share in the invention. The sale of the share, however, was probably only one term in a complicated agreement regulating the application of the patent by the joint owners, including provisions as to: the products that could be manufactured by Minton; profit sharing and or royalties; the supply of the presses and dies (this right may have been exclusively limited to Richard's workshops); the granting of licences to other manufacturers; and possibly much more.

Richard's co-operation would, therefore, almost certainly have been required for the use of the patented process to make tesserae. In the accounts given to *Ward* (see below) in 1842 and, later, to *Jewitt*, Blashfield stated that in 1841 Minton had sent him some dust-pressed tesserae that he had manufactured in order that Blashfield could carry out tests on them. What he omitted to point out was that Richard must first have supplied Minton with the necessary presses and tesserae dies. That Richard was the supplier was confirmed in *Spons' Encyclopædia of the Industrial Arts, Manufactures, and Commercial Products* (1882 edition) which stated that 'Minton hesitated to order machines for forming tesserae and tiles beyond the sizes of a 1in cube; but Prosser made the necessary tools'. *Spons* had also stated that Richard had "entered freely into Blashfield's views": suggestive of his enthusiasm for the project. The source for these statements may have been Michael Dainty Hollins and they contradicted the assertion made by Blashfield at the 1858

meeting of the Society of Arts, mentioned previously, that Richard had tried to dissuade Minton from applying the process to tiles and tesserae and that if it had not been for Minton's determination "the beautiful machine of Mr Prosser would have been applied solely for the manufacture of buttons". Blashfield also contended that Hollins should be credited with the successful development and application of the dust-pressed process to the manufacture of tiles in terms that clearly sought to downplay, even denigrate, Richard's role. There can be no doubt that Hollins did indeed have a major influence and he was to become the sole owner of the tile branch of Minton's business after the latter's death in 1858: "Michael Hollins, the present proprietor of the tile works, laboured most zealously from the first in the fabrication of the raw material and colours" (*Spons*).

I have not been able to trace Blashfield in the 1841 census, but it is likely he carried out his "severe" tests on Minton's tesserae in London. On 8th March 1843 at a meeting of the Society of Arts he described how the small cubes were subjected to frost by first "having been immersed in boiling water and then exposed to a temperature of 32" degrees fahrenheit; he also claimed that they could tolerate high temperatures without damage so that flues could be constructed below the mosaic pavements. Blashfield must also have carried out weight bearing tests on the tesserae as he announced to the Society members that they could "bear a pressure of 40 tons". This weight is equivalent to the maximum permitted gross weight, i.e. fully laden, of a large articulated lorry ([gov.uk](#)); in fact, it is a weight tolerance that is so far in excess of that which could have actually been required that it has little practical relevance - Blashfield was out to impress.

In addition to samples of the tesserae, Blashfield also exhibited pre-fabricated slabs of mosaic pavement to the Society members. These had been manufactured using Minton's tesserae but adopting a technique that had been patented by Alfred Singer and Henry Pether in 1839. Briefly, this involved laying the tesserae upside down on a flat surface and then applying a covering of fine cement which was worked between the crevices of the adjoining tesserae to form a smooth finish. The resultant slab when inverted was ready for laying. Blashfield must have experimented in 1841 and early 1842 using Singer and Pether's method to make these slabs. However, Singer became aware of this and put Blashfield on notice of the infringement of his patent, following which Blashfield "consented" to acquire a licence from the patentees. This presumably occurred during 1842. A letter from Singer's father to this effect was published in *The Athenaeum* weekly magazine dated March 25th 1843; the letter was written in response to the magazine's report

of the Society's meeting in the previous week's edition (my thanks are, again, due to *Ezra Shales* for alerting me to this source).

As well as licensing the use of Singer and Pether's patent, Blashfield must also have entered into some arrangement with Minton and/or Richard in 1841 or 1842 as to the use of dust-pressed tesserae and small polygonal tiles for the manufacture of mosaic pavements. It may be that Blashfield acquired an exclusive licence to use the tesserae and tiles for this purpose; in his later account, quoted by *Jewitt*, Blashfield referred to having been "obliged to surrender all interest in" the trade in the pavements to "the manufacturer, Herbert Minton", the exact date of this event was not identified, but it was after "the end of 1845". The term "surrender" is consistent with Blashfield having acquired some right from Minton, which he was forced to transfer back to the manufacturer due to circumstances which Blashfield did not disclose to *Jewitt*, but which I will describe in due course.

By September 1842 or shortly thereafter, Blashfield was almost certainly a partner in the firm of Wyatt, Parker and Co.; a partnership with W. H. Wyatt which is evidenced by the notice of its dissolution on 26th October 1844 advertised in the *London Gazette*. Wyatt, Parker and Co. had been in existence for many years, as manufacturers of "Roman" cement, and W. H. Wyatt had probably succeeded to the firm on the death of Charles Wyatt in 1819.

(Charles (1750-1819), who may have been "W.H.'s" father, may himself have been in partnership with James Parker, the inventor of the cement which was exceptionally quick drying and adhesive, it was also waterproof and very hard; Parker patented his invention in 1796 and is said to have emigrated to the U.S. the following year. Various authorities state that the patent was worked by Charles in conjunction with his cousin Samuel Wyatt (1737-1807), trading as Wyatt, Parker and Co. In 1808 a notice was inserted in the *London Gazette* dated 24th September to the effect that Charles intended to present a private Bill to Parliament to confirm his sole ownership of the patent as the lawful assignee. What the background or outcome of these proceedings was is unknown, but the notice is an indication of how valuable the cement patent was. Charles Wyatt had actually taken out a patent for making "tessellated" pavements in about 1800 (*Ward*), but it was not successful as the materials used wore unevenly.)

Blashfield may have had some working association with the Wyatt firm for some years before Alfred Singer's firm appeared on the scene at Vauxhall in

about 1837 (*BNA*). The Wyatt name would have been known to Richard from his own family background in the building trade; he would have been impressed by any claim by Blashfield to know a member of this extended family of famous architects. Not only was Samuel Wyatt a friend of Matthew Boulton, he had designed Soho House for him and also Heathfield House for James Watt (both in Handsworth), as well as alterations to the frontage of Birmingham's Theatre Royal. W.H. Wyatt, if he was Charles Wyatt's son, would have been a first cousin once removed of Samuel, but more importantly he would have been the grandson of John Wyatt (1700-1766), the neglected Birmingham inventor, who was, in fact, "the first person to spin cotton by mechanical means" i.e. before Arkwright and his Spinning Jenny. John Wyatt was supported financially by Boulton and, after their father's death, Boulton took John jun. and Charles on as apprentices. Charles has been accused of ingratitude to Boulton and the full story is told by *George Selgin* in his study of Charles Wyatt ([https://www.britnumsoc.org/publications/Digital BNJ/pdfs/2005\\_BNJ\\_75\\_8.pdf](https://www.britnumsoc.org/publications/Digital BNJ/pdfs/2005_BNJ_75_8.pdf)). Richard with his interest in inventors and invention would have been well aware of this background, which emanated from his home town. I have not been able to confirm W.H. Wyatt's antecedents, but he was undoubtedly a member of this illustrious family. "W.H." may have been elderly by 1842 and the family firm may have seen better times; the "Roman" cement patent would have expired in 1810 opening up its manufacture to competitors.

Wyatt, Parker and Co. traded from a warehouse close to London's Southwark Bridge until about 1841; the earliest advert I have found inserted on their own account was in the *Morning Post* dated 29th March 1838 for a model of the Queen's coat of arms which had been executed for the firm by "a first-class artist". The advert describes the firm as the original patentees of "Roman" cement and mentions various other products including "tessellated pavements".

Just when Blashfield became a partner in Wyatt, Parker and Co. remains unclear. *Ward* attributed the pavement laid in the Deepdene mansion in 1839 entirely to Blashfield; he had previously referred to Charles Wyatt's patent and Blashfield's earlier attempts to make mosaic pavements using the "Roman" cement without inferring any connection between the two men. *Ward* continued with a description of the new method of making tesserae using the dust-pressed process patented by Richard which Blashfield had tested for pavement use and "recently, in conjunction with Messrs. Wyatt, Parker and Co.", carried out on an extensive scale. *Ward's* essay, entitled "Tessellated Pavements", had been commissioned by Blashfield and was

published towards the end of 1842 in the book *Designs for Mosaic and Tessellated Pavements* (*The Spectator* received a copy for review at the end of December).

However, I suspect that Ward's essay was written earlier in 1842 and that by the date of publication Blashfield had become W.H. Wyatt's partner. Wyatt, Parker and Co. had hardly advertised at all prior to 1838, it increased its advertising very slightly during the following three years but during March 1842 it ran a series of adverts in the London *Morning Post* for a new product range of architectural ceramics, e.g. statues and garden ornaments. In the same month press reports also referred to the firm exhibiting some of Minton's encaustic tiles in its "gallery". In the second week of September 1842 the firm launched its new mosaic pavements with the following advert which was inserted in the *London Standard* and *Morning Chronicle*:

1842 Sept 16th *London Standard*

*TESSELATED PAVEMENT. — WYATT, PARKER, and CO., request the attention of the Public to their Specimens of Tesselated Pavement, which may be seen at Albion Wharf, Holland-street, Surrey foot of Blackfriars Bridge. The Tessera for forming this pavement, or flooring, being composed of similar material to that used in the manufacture of Porcelain and highly vitrified, are imperishable. They can be had of any size and form, from cubes of a quarter of an inch, and with the colours burnt throughout the entire body. If required, they can be gilt similar to those on the Tombs of Edward the Confessor and Henry the Third. Wyatt, Parker, and Co., are prepared to execute designs for these floors, or to dispose of the small Quarries, or Tessera, by those who may wish to execute their own floors. These Tessera may be united on the floor with Roman Cement, Lime and Pezzolano, Plaster of Paris, and most of the cements now in use; or prepared in Slabs, and laid with the same facility as Portland Encaustic and Old English Tiles, for paving Churches, Halls, etc. Also White and Ornamental Glazed Tiles and Slabs, for Stoves, Dairies, etc.*

A new entrepreneurial spirit had apparently entered the firm of Wyatt Parker and Co.

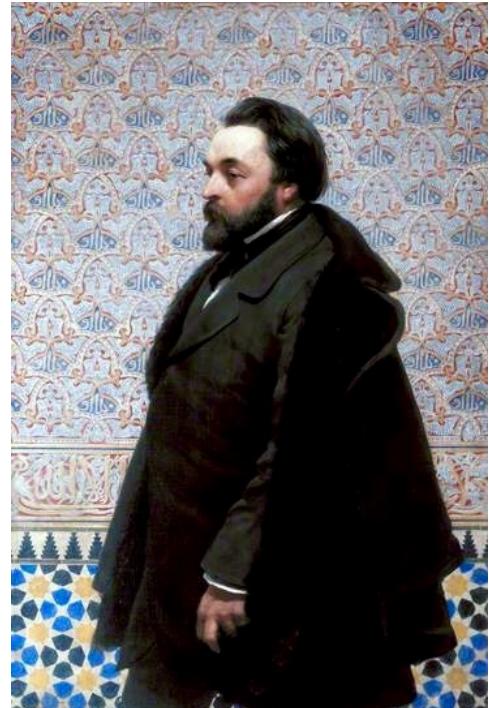
It would not be surprising if Blashfield, now in possession of his licences to use both Singer's patent and Minton's tesserae, had been able to persuade W.H. Wyatt to admit him as a partner to his long-established and prestigious firm. The firm had relocated and been based near Blackfriars Bridge at Albion Wharf since at least January 1841 according to press adverts. The *London*

*Post Office Directory* for 1843, presumably compiled in 1842, contains an entry for a "Blashfield John, artist, 1 Upper Stamford St. Blackfriars"; this street is one of his addresses in his entry in the members' list of the Society of Arts in its 1843 *Transactions*; his other address is Albion Wharf, Holland Street. Upper Stamford Street was close to the north end of Blackfriars Bridge, just across the Thames from Albion Wharf.

If Blashfield considered himself an artist, then those authorities who describe him as a friend of the subsequently renowned Owen Jones (1809-1874) may be correct. Anyone as ignorant of Owen Jones's achievements as I was on first encountering his name can find an abundance of detail on the Internet:

*"Owen Jones was a versatile architect and designer, and one of the most influential design theorists of the 19th century. Through his work at the 1851 Great Exhibition, he was also a key figure in the foundation of the Victoria and Albert Museum."*

This quote is of the opening lines of his webpage on the V&A website. *Portrait of Owen Jones by Henry Wyndham Phillips - RIBA Collections.*



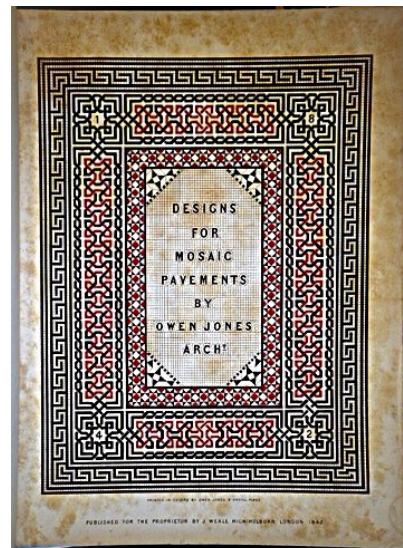
Although born in London, Owen Jones was obviously of Welsh descent; his father, a furrier, was also a Welsh antiquarian and the family was Welsh speaking. Owen Jones senior was born in north Wales, some distance from Radnorshire and Herefordshire where the Prossers and Blashfields hailed from, but nevertheless Richard had a common heritage with Owen Jones as well as Blashfield. As for Richard's own interest in "the Arts", the contents of the catalogue of his large private library, which was printed following his death for its two day auction sale, suggest that he was interested in just about everything.

Owen Jones earliest publication was one of his most influential: entitled "*Plans, Elevations, Sections and Details of the Alhambra*", he published volume one himself at great expense in July 1842. This magnificent work is available digitally (<https://archive.org/stream/Planselevations1Gour#page/n14/mode/1up>) and was dedicated to Owen Jones's travelling companion on his first visit to the Moorish palace in 1834, the French architect Jules Goury,

who died of cholera in Spain that year. Owen Jones immediately cut short his studies but completed them on his return to the Alhambra in 1837. The text is printed in both English and French in deference to Goury and also the sixteen French individuals listed as "subscribers", who had contributed to the cost of its publication, including the then King of France, Louis Phillippe. Other subscribers are also listed and are far more numerous than the French, they include: the late King (William IV); fifteen British aristocrats; the King of Prussia; Isambard Kingdom Brunel and Augustus Welby Pugin amongst other distinguished names; the rival pavement manufacturers, Singer and Pether; together with Minton, Blashfield and, immediately above Pugin, "PROSSER,R. ESQ".

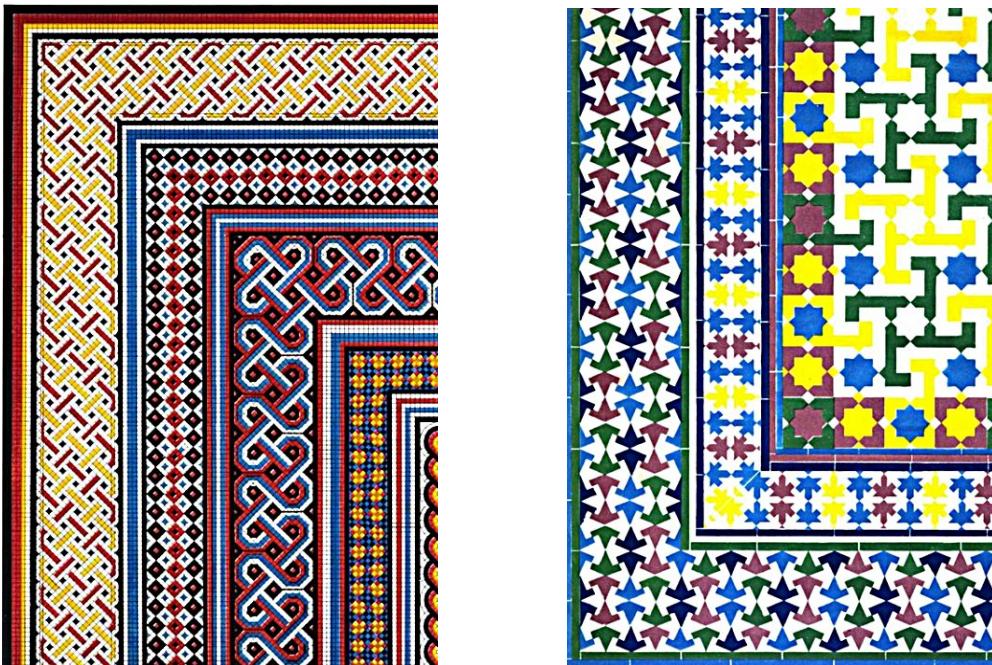
I would probably not have made this exciting discovery if *Hans* had not referred me to an article by Kathryn Ferry in the *TACS Journal* for 2005 (*Colour and Geometry: The Tile Designs of Owen Jones*). This article confirmed many of my own findings as well as shedding new light on Owen Jones's collaboration with Blashfield. Ferry argues that a triumvirate must have been formed between Minton, Blashfield and Owen Jones to promote and manufacture their mosaic pavements. However, I would argue that there must, in fact, have been a quartet of participants in this endeavour as Richard's contribution would have been essential. Without his "beautiful" presses with their precision engineered metal dies, the project would not have got off (or the pavements onto) the ground.

The publicity generated by Owen Jones's Alhambra book must have motivated Blashfield to bring out his own publication: the book that I first described and quoted from in the previous chapter, "The Button Wars", telling the story of "Prosser's Patent Agate Button". Blashfield's book was published before the end of 1842, within six months of the issue of the Alhambra volume; it was a minnow in comparison but would still have been expensive to produce. *Designs for Mosaic and Tessellated Pavements* is available as a free eBook; authorship is attributed to Owen Jones on the inner title page and he is also acknowledged as having printed the ten startlingly coloured plates of his mosaic designs within the book. Blashfield also got his name on the title page; the actual (well known) firm of publishers acknowledging that they did so for Blashfield (inferring that he bore the whole expense of



publication). Interestingly, the cover of the book (image previous page), which must have been designed by Owen Jones himself, omits the words "and Tessellated" from the title; as *Hans* has suggested was this, surely deliberate, omission an indication of Owen Jones preferred description of his pavement designs - the word "tessellated" being Blashfield's preference and extensively used by him in the advertisements he, presumably, composed for Wyatt Parker and Co.? *Image of cover courtesy of Kent State University, Ohio, U.S.*

The first eight of the "Designs" are of antique Roman style pavements, all clearly composed of small square cubes, classic tesserae. The final two designs are more "Alhambran" or Moresque (Islamic) to my uneducated eye and the form of the individual tiles are not so distinct; they are suggestive of a variety of geometrical shapes.



*Images - Google Books Screenshots*

The book also includes the essay that I have quoted from previously by "Ward". It precedes the coloured plates and is by way of an introduction, briefly describing the history of mosaic pavements, ancient and modern, leading up to those made by Blashfield using mosaic tiles manufactured under Richard's patent. The essayist was named as *F.O.Ward* and is identified on some webpages as Frederick Oldfield Ward (1818-1877), which, at first, I found unlikely. He was best known as a surgeon specialising in osteology but, according to the short biography written by *Jessie Dobson* in 1949, now [online](#), his interests were wide ranging and extended to writing his

essay on mosaics and tessellated pavements in 1842. His later professional career included a period when he was involved in sanitation reform and this may explain his earlier interest in the manufacture of tiles. In 1844 and 1845 he corresponded with Robert Browning over matters concerning his patient, Browning's fellow poet, Thomas Hood ([www.browningscorrespondence.com](http://www.browningscorrespondence.com)).

From the outset *Ward's* essay makes it clear that "*Designs etc.*" was published as an advertisement: "The object of the following pages is to call public attention to a new material for Tessellated Pavements." The first two and a half pages discuss the ancient pavements and in particular their deficiencies: unevenness and irregularity caused by the different sizes and types of stones used and unequal durability. *Ward* then continues with the short description mentioned previously of the efforts to recreate the pavements in the previous forty years by Charles Wyatt, Blashfield and Singer; he praised Singer and Pether, in particular, for their patent.

*Ward* then turned his full attention to the "new material" that the book was promoting; his description of Richard's dust-pressed process has been quoted previously (pp. 10/11 Chapter 6) and he accurately préciséd the history of Minton and Blashfield's involvement. Of particular interest is his statement which appeared to confirm that, during the latter half of 1842, Minton must have started manufacturing geometrical "porcelain" tiles in addition to the "porcelain" tesserae cubes; the shapes mentioned are "quadrilateral, triangular, rhomboidal, hexagonal &c". The presses and steel dies for making these geometric tiles must have been supplied by Richard (as later acknowledged by Hollins to Spons). *Ward* continued his essay by enumerating the advantages of the new manufacturing process: the uniformity of size and shape of the tesserae and tiles which enabled the desired design to be laid accurately; the equality of durability which ensured no future unevenness; imperviousness to moisture and hardness that rendered them "absolutely imperishable". The latter attribute meant that the new pavements would also be suitable for outdoor use.

*Ward* detailed the colours that could be produced: red, blue, yellow, white, black, brown and pointed out the brightness generated by glazing; in addition the tesserae could be gilded to achieve a "richly ornamented" gold effect. The customer was advised that they could design and lay their own pavement or purchase pre-fabricated slabs made under Singer and Pether's patent; that complicated figurative designs e.g. horses and warriors could be executed.

The final part of *Ward's* essay dwelt on matters of design; he pointed out the design limitations of the antique Roman pavements, endorsing instead those of the Greek, the Etruscans and, of course, the "Mauresque" designs of the Alhambra. He praised Singer and Pether, yet again, for their recently laid pavement in the Reform Club, which had been designed by the eminent architect Charles Barry - a clever bit of diplomacy.

Ward ended his essay with the following statement: "*there is no material which presents so many advantages as the compressed porcelain tesserae - whether on account of their uniform size and shape - the purity and brilliancy of their colours - or their extreme hardness, and unalterable durability*".

It would be surprising if Blashfield and Owen Jones did not have some influence over the content of the essay. *Ward* no doubt relied upon them to supply the history and the technical detail and there was clearly concern not to cause offence to Singer and Barry, potential patrons of Owen Jones. Whether *Ward* consulted Richard is not known, but Richard must have had some input in the decisions that were made as to the various geometrical dies that Owen Jones required for his "Mauresque" designs. However, in the unlikely event that Richard, a subscriber to the Alhambra masterpiece, had not met Owen Jones during 1842, it is almost inconceivable that he did not do so at some time in the years that followed and, more than probably, during the month of March 1843.

As with all advertisements, *Ward's* essay should not be taken entirely at face value. One statement in particular appears to be untrue, namely that Wyatt Parker and Co had already constructed "pavements of considerable extent" with Minton's tesserae and tiles. This conflicts with Blashfield's later statements that samples of the pavements were first exhibited in March 1843. I also question whether the reference to the geometrical tiles was premature; they were not mentioned in the September press advert nor in the next, nearly six months later, quoted below.

*Designs etc* was reviewed in *The Spectator* dated 31st December 1842. The reviewer (probably Henry Cole) in his synopsis of *Ward's* essay mentioned "Mr Prosser of Birmingham" but, having referred to all the merits of the dust-pressed tesserae listed by *Ward*, ended his review by praising Singer and Barry's "magnificent" Reform Club pavement made of baked tesserae cut out of rolled clay: "the hues are of a quiet cast, and more agreeable to the eye, we should fancy, than the brighter colours of the porcelain tesserae." The reviewer had obviously not yet seen any samples of Minton's mosaic tiles.

The pavement in the recently built (1836-41) Reform Club in Pall Mall was indeed magnificent and still exists. However, not all contemporary commentators agreed with *The Spectator's* reviewer; in an article in *The Athenaeum* dated 11th November 1843 the anonymous author described the tesserae of the Reform Club's pavement as having a "dingy" appearance in contrast to those manufactured by Blashfield. Some modern authorities have suggested that Cole was also the likely author of this article. Cole was very taken with Singer's pavement when the Club first opened according to his diary (per Shales). If he was also *The Spectator's* reviewer, he had had a change of heart on actually viewing Minton's tesserae.

The publicity campaign of Wyatt Parker and Co. did not recommence until the end of February 1843 when a flurry of adverts appeared in the London press and also nationally. There were three separate insertions: one for Minton's encaustic tiles, another for architectural ceramic ornaments and a third, the following, for mosaic pavements:

1843 March 4 *The Examiner*

"TESSELATED and MOSAIC PAVEMENT, executed by WYATT PARKER, and CO. Albion wharf, Holland Street, Surrey foot of Blackfriars bridge W., P., and CO. Invite the Public to INSPECT their SPECIMENS of TESSELLATED and MOSAIC PAVEMENTS, copied from the finest remains of Roman pavement, and also examples from modern designs. For brilliancy of colour, accuracy of form, and uniform hardness of material, these specimens are allowed to excel any of the ancient examples. The material is similar to that of porcelain, and highly vitrified, and the colours are throughout the entire body of the material. Baths and fountains may be lined with the tesserae. It will bear the roughest ordinary usage, and attacks of the most severe frost, without injury, and can be as easily cleaned as a piece of earthenware. The tesserae may be had gilt, or with flowers and other devices painted upon them, for inlaying table tops or chimney pieces or for illuminating monuments. Floors are prepared in slabs, and laid with the same facility as Portland stone paving"

So, by the beginning of March 1843 there was some truth in Ward's assertion that the firm had manufactured mosaic pavements, but specimens, presumably in the form of slabs, rather than complete pavements.

However, the above advert differed from Ward's earlier 1842 account in that the tesserae were described, not as porcelain, but as made of "material similar to that of porcelain". This discrepancy suggests that there had been

recent developments in the manufacturing process, which would be consistent with the following explanation received from *Hans* in the course of editing this chapter: "There are three main classes of ceramics; earthenware, stoneware and porcelain. ... Apart from the clay composition, it has to do with how high things are fired. The higher the temperature, the harder and denser the body. Minton mosaic and geometrical floor tiles (and his encaustics) are fired to stoneware temperatures which makes them dense, water-resistant and very hard-wearing. They can also be called 'vitreous' ...".

In the specification of his patent Richard did not mention stoneware, but he did not need to; he had stated that the process utilised the materials used in making earthenware (and porcelain). Earthenwares, the least durable and most porous form of pottery, can be made of any clay based compound, including those used in the manufacture of stonewares, which have to be suitable for the higher firing temperatures required to produce stoneware (and porcelain).

Whether, and to what extent, any early surviving Minton dust-pressed mosaic and geometrical floors were made of a porcelain or porcelain-type powder compound has yet to be determined.

The new advertising campaign in March 1843 was, no doubt, timed to coincide with what was to become a huge publicity coup for Blashfield - and, by association, Richard.

In 1839 W.H.Wyatt was already named as a "Life Member" of the Society of Arts in its *Transactions* for that year. Blashfield first appeared as an annual member in 1843 and therefore it was probably Wyatt who was instrumental in facilitating the demonstration to members of the Society that took place on 8th March 1843. I had first found out about this in my initial researches. I had read, probably in his son's *Bl&I*, of Richard's patent being applied to the manufacture of tiles and had contacted *Hans* for more information. He, very helpfully, referred me to *Jewitt* and also *Julian Barnard's Victorian Ceramic Tiles*; I was excited to learn from *Hans* that the latter actually had a chapter with a reference to "Mr Prosser" in the title - so little did I know at that time.

I acquired a used copy of *Barnard*, his account of the events of March 1843 is taken from *Jewitt*, who in turn had been told of them by Minton's engineer, John Turley. I have referred to Turley in the previous chapter; the information contained in the "notes" he gave to *Jewitt* on the manufacture of the "Agate" buttons by Minton was invaluable.

Turley's notes, quoted by *Jewitt*, must have been written long after the events he described and probably when he was getting on in years. However, he was specific and correct in the dates he gave and, in most respects, there is no reason to doubt the accuracy of his account. It is, perhaps, understandable that Turley was keen to emphasise the importance of his role on the 8th and, also, 11th March, 1843, which he did almost to the exclusion of the principal players:

*"...on 8th March the process of making tesserae was exhibited by Mr. Turley at the Society of Arts London - Lecture by Cowper, paper read by Blashfield...March 11th 1843 the same press and process was exhibited by Mr. Turley ..."*

(In April 1843 a "Mr. Cowper" attended a lecture on brick making with "Mr. Blashfield" at the Institution of Civil Engineers; the impression given by the report of the following discussion is that Cowper was a colleague of Blashfield (*The Civil Engineers and Architects Journal* October 1843). He may have been the inventor of the eponymous "Cowper's Parlour Printing Press" described as for use by amateurs and youth; one of these presses had been presented to the Society of Arts in 1842/43 according to its *Transactions*. If so he was Edward Cowper and he is referred to in a book on printing presses by *James Moran*, who confirms that Cowper had studied Bramah's hydraulic presses, which were being developed in 1842/43 by Richard for making bricks and large ceramic slabs.)

Turley made no mention of his employer or Richard being present on 8th March but noted that 290 boxes, each containing three dozen of the "Agate" buttons, were handed out at the doors of the Society before the meeting.

The "paper" read out by Blashfield at the meeting was published in the Society's *Transactions* and, later, elsewhere. Entitled "*Prosser's Process of Making Bricks, Tiles and Tesserae from a New Material*"; its rendition by the author would not have taken long. Only a page in length, it briefly describes the process and the merits of the tesserae. The only new information is a reference to a colour not included in *Ward's* list, namely green, and, in the closing remarks, as to the manufacture of bricks using hydraulic presses and large richly inlaid slabs for e.g. fireplaces, which required presses exerting 250 tons of pressure.

I was curious to know whether Richard had attended this meeting held in the Society's neoclassical building, designed by the Adam brothers, in John Street, near the Strand and Charing Cross. I made enquiries of the archivist

at the now (since 1908) Royal Society of Arts, who kindly searched its archives, but to no avail.

The Marquess of Northampton may well have been at the demonstration; he was the then President of the long established The Royal Society (of London for Improving Natural Knowledge - to complete its full name), not to be confused with the "younger" Society of Arts. The Marquess held "Soirées" for members of The Royal Society at his mansion in Piccadilly and he "kindly permitted" Blashfield to exhibit the process at the next one, only three days later on 11th March (*Jewitt* per Blashfield). Turley described this occasion more fully but attributed the Marquess with the presidency of the British Association (for the Advancement of Science), yet another learned society catering for the Victorians' thirst for enlightenment. The press reports confirm that Blashfield was right.

Turley told *Jewitt* that the Soirée was "a brilliant gathering at which were present Prince Albert, the Duke of Wellington, Sir Robert Peel, a number of bishops and about thirty foreign princes". Again Turley omitted any mention of Minton and Richard.

The Soirée was reported extensively in the press, more than 300 members attended plus nearly 200 guests. Amongst the other notables, the attendees also included the Duke of Cambridge, the Archbishop of York and Professor Faraday. All the newspapers reported on the especial interest that Prince Albert took in the demonstration of Prosser's process and the exhibited samples of the tesserae and slabs of mosaic pavement. One paper, the *Morning Post* dated 13th March concluded its account as follows:

*Several beautiful specimens of tessera, slabs, buttons, &c, were spread out: a few were, at his request, selected for his Royal Highness Prince Albert, and destined, doubtless, to be shown to her Majesty.*

I was obviously very pleased to find this report and fondly imagined a conversation at the breakfast table between the young royal couple, who had only married in 1840: Albert telling Victoria about the beautiful new pavements and the clever engineer from Birmingham, who he had met the previous night. However, I still had no



proof that Richard had attended the Soiree and possibly met not only the Prince but, also, the Duke of Wellington, as well as Peel the then Prime Minister. *Image - Franz Xaver Winterhalter (1805-73), The Royal Family in 1846. Signed and dated 1846: Royal Collection Trust / © Her Majesty Queen Elizabeth II 2016.*

I had felt fairly confident that Richard and Minton must have attended both meetings. In Minton's case, it seemed unlikely that he would have sent his engineer as his firm's sole representative. In addition, Turley described how, in the light of the great interest shown by Albert at the Soirée, Minton and Richard decided to present the Prince with a full description of the process. Blashfield, in his version, told *Jewitt* that Albert had requested that an "especial account" be written for him "which was done". I first referred to this "account" in the previous chapter and I will return to it in the next section of this one.

Eventually my searches in the *BNA* confirmed what I had been hoping to discover ever since I had first read Turley's account over two years previously:

1843 March 21 (a Tuesday) *Morning Post*

*Royal Institution (sic) — At the meeting of the Royal Institution on Friday (sic it was actually the previous Saturday) some beautiful specimens of tiles, tessera, &c, manufactured by Messrs. Minton and Co., under Mr. Prosser's patent, from clay, in a state of dry powder, being subjected to pressure and then vitrified, were shown. The tesserae and small tiles are combined into forms, and prepared in slabs in a simple and economical mode, by Mr. Blashfield, of the firm of Wyatt, Parker, and Co., where Prince Albert took much interest in the subject and expressed surprise at the perfection and great brightness obtained, the latter being equal to the ancient specimens. On Wednesday last (i.e. 15th March) Mr. Prosser again (my underlining) saw Prince Albert at Buckingham Palace, more fully to explain the nature of the material and its manifold application.*

The report reads like a press release and Blashfield may well have instigated it, but, despite the inaccuracies noted above, presumably the final sentence is true; to fabricate such a story would have risked disgrace if it was found to be false.

I had not expected to learn that Richard, himself, had attended on Prince Albert at the Palace. What the Prince made of Richard we will probably never know; did Richard speak with a strong Birmingham accent (as the banker

Thomas Attwood MP for Birmingham was alleged to do); may be there were Welsh inflections too? Albert was said to have spoken with a heavy German accent. He was only 23 and Richard was nearly 39. Their conversation may have been rather stilted. The date that this meeting was reported to have taken place, 15th March 1843, is significant.

Ten years previously Richard had been on the brink of bankruptcy; eight years had passed since his acquittal at the Warwick assizes of the charges of forgery brought by his own brother. During those eight years Richard's fortunes must have been transformed financially and, with the events of March 1843, so was his social status.

To cap off what must have been an extraordinary fortnight, he was elected to membership of the Society of Arts on 29th March; his proposer was John Bethell (1804-1867), a lawyer by training but also a fellow inventor and patentee, his first patent in 1834 was, coincidentally, for improvements to screw making machinery (*obituary Graces Guide*). Richard's membership pre-dated that of Minton, Owen Jones, Cole and Charles Dickens. Three months later, in June 1843, Prince Albert accepted the Society's invitation to become its new President. This was a considerable boost to the Society, whose membership, mainly middle-class and trade, had admittedly been falling to the point of the Society's potential insolvency; even with the Prince at its head the resurgent Society was still looked down on by many senior establishment figures.

To Richard his reception in London during that fortnight in March 1843, amongst those in the highest echelons of British society, must have felt like that of a triumph awarded by the Romans to a successful general; not however for conquests in battle, but for imitations of their mosaic pavements.

Footnote - The Piccadilly mansion of the Marquess of Northampton was at No. 145 Piccadilly, near Hyde Park Corner. It was destroyed in the Blitz but from 1927 to 1936 it was the childhood home of our late Queen, Elizabeth II. (Image: <https://theroyalpost.wordpress.com/2014/11/22/145-piccadilly-the-queens-childhood-home/>)



## Mosaic Pavements - Blashfield's Downfall

The mosaics of the pavement slabs exhibited by Blashfield at the meetings of the two august societies would surely have been based on those in his publication of Owen Jones's designs. Whether they were just made from the cubes as in the Roman pavements or included geometrical tiles in a "Mauresque" design is unknown.

However, some geometrical tiles had been manufactured by Minton by the end of April 1843, if not before, as they were amongst tiles and bricks produced by Blashfield at the meeting of the Institution of Civil Engineers referred to previously. Brick manufacture was under discussion but the tiles were clearly of some interest; the dust-pressed process was described and one member confirmed he had seen "Mr. Prosser's machine at work". Blashfield specifically referred to two tiles "on the table, the small hexagonal tile 3 1/4 inches diameter and 3/8 inch thick, had sustained a pressure of 30 tons, without the edges being crushed, another of the same diameter and 2 1/4 inches thick, bore 35 tons.". There is a considerable difference in the depth of each of these two little tiles; one very thin and the other quite chunky; were they both composed of the same clays? In 1868, as recounted more fully in the next chapter, Blashfield was to describe the mosaics then being manufactured for mosaic pavements as being made "in thin slices and little more than a quarter of an inch thick".

Significantly, earlier in the meeting a member had referred to Richard's patent stating that "At present the system was confined to the production of buttons, small tiles and slabs for painting but the patentee asserted that the machine could be advantageously used in making bricks".

I have previously referred to Blashfield's allegation that Richard favoured button manufacture to the exclusion of tesserae and tiles. This claim was made, following Minton's death on 1st April 1858, at a meeting of the Society of Arts on 26th May reported in its *Journal* dated 28th May. At this meeting Blashfield also contended that following the publicity achieved in March 1843 there was much demand for "tessellated" pavements in "high quarters"; demand which could not be met as "Mr. Prosser" was at the time unable to supply sufficient presses.

Blashfield's comments were made in a discussion session following the reading of a lengthy eulogy for the recently deceased Minton by the architect Sir Matthew Digby Wyatt (1820-1877), yet another member of the influential

Wyatt family. Digby Wyatt, as he was known, had comprehensively covered all of Minton's major achievements in the manufacture of ceramics. He described in some detail the revival of the mosaic pavements, including Blashfield's contribution. He referred to the dust-pressed process as "the brilliant idea of Mr Prosser's" and pointed out that it was first applied by Minton to the manufacture of buttons and "that for some time a very large trade was driven in this department of industry". *Image: Sir Matthew Digby Wyatt, FSA Slade Professor from 1869-73; <http://www.hoart.cam.ac.uk/aboutthedepartment/sladeprofessors/sladeprofessors>*.



As I have described in the previous chapter the demand for Minton's "Prosser's Patent Agate Buttons" in the years 1841 to 1846 was huge and production had increased from 720,000 buttons per week in January 1842 to 1.5 million buttons per week in the first half of 1844; but still the demand exceeded supply. The reason, admitted by Richard, being that he could not supply the presses in the quantities required by Minton.

Richard's Birmingham workshops in Watery Lane were not large. I have already speculated that, after his experiences in the nail industry, he had decided to leave the manufacture of products under his patents to others; preferring to sell the patent outright, as he did with the parlour stoves, or granting licences to manufacture products under his patent, as he did with tubes. However, in the case of the dust-pressing patent he appears to have retained the exclusive right to supply the presses to Minton and presumably the other manufacturers of the "divers articles" that he referred to in his evidence in the proceedings against Chamberlain and Lilley. In the early 1840s he was also developing hydraulic presses for the manufacture of bricks, larger tiles and slabs. In addition he was working on improvements to his machines for making the tubes for steam engines, which may have been of greater interest to him than button and tile manufacture.

The reason for Richard retaining control of the supply of his "beautiful" press may be explained by documents in the Minton Archive; it was probably purely financial. He may, in addition, have been concerned to maintain quality control; although the small screw press and hydraulic press were earlier inventions of others, Richard's ingenious adaptations for dust-pressing and in particular the expensive metal dies were his own innovations. However, it was

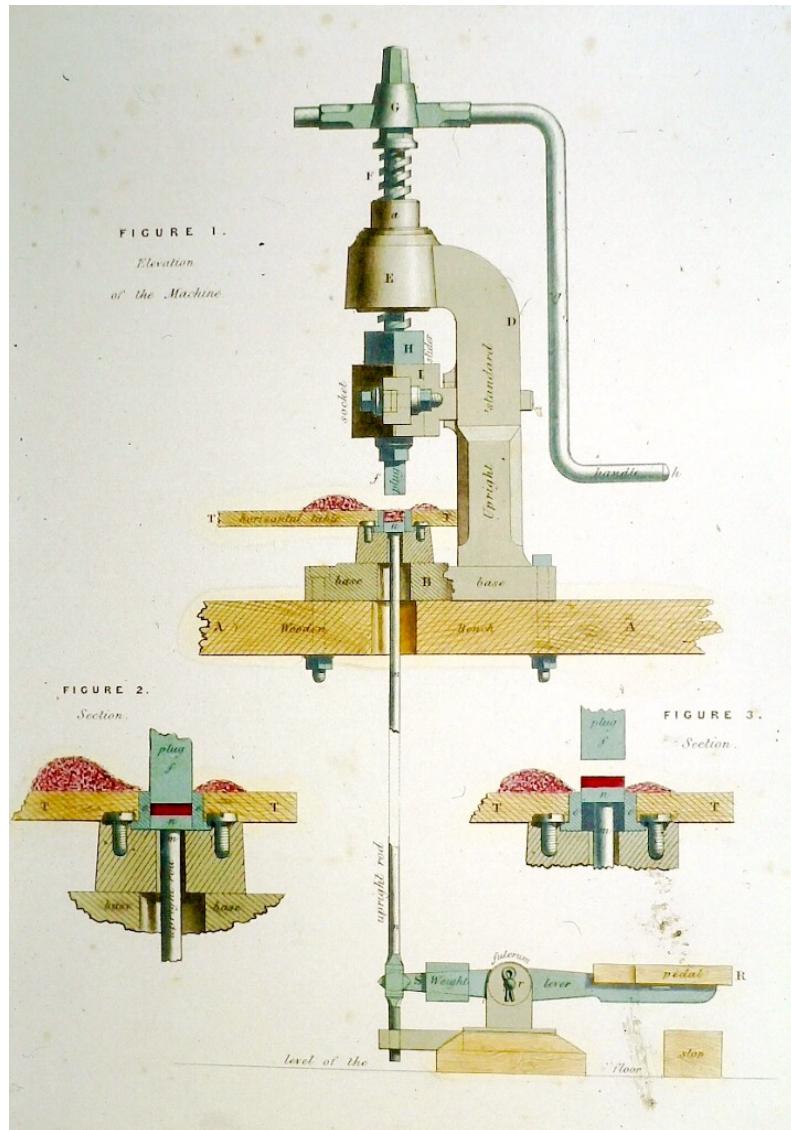
surely Minton, as the manufacturer of both the buttons and the tesserae, who would have told Richard which of the presses he wanted prioritised - Blashfield's complaints may have been misdirected.

Whilst Turley gave *Jewitt* production figures for buttons up to 1848 he gave none for the tesserae. As to the presses, as previously related, he told *Jewitt* that by September 1842 sixty two presses were in operation, a number that had increased to ninety by March 1844; but he did not distinguish between button and tesserae/tile presses. However, Richard's brother Thomas had stated in 1850 (see Chapter 6 p.17) that one press operator could conservatively produce twelve buttons a minute. On the basis of the then usual ten hour working day, and a six day week, only thirty five presses would have been needed to meet the 1844 button output of 1.5 million a week. So, this would have left fifty five presses available for other products, some would have been larger tile presses, but, on the face of it, there should have been ample capacity to meet Blashfield's requirements.

In all likelihood Blashfield's requests for increased production of tesserae and small geometric tiles were, if not ignored, given less importance than those of customers for the "Agate" button and the larger tiles. This is not surprising as there was probably more profit for Minton (and Richard) in these products. Both were the end product required by massive mass markets and no doubt cheaper to manufacture than the tesserae of different colours, which then had to be subjected to further processes of design and construction to form the pavements. The market for the pavements would have been very limited as they could only be afforded by the very wealthy or public institutions; this was a point made by the author (Cole ?) of the article referred to previously in *The Athenaeum* dated 11th November 1843; he had obviously made a detailed study of the subject, but only referred to one example of a completed Blashfield pavement, "a beautiful mosaic", which he said had cost £50, but would "last a thousand years" and had replaced a "floor cloth" that had to be replaced annually. The comparative value of £50 in 1843 based on cost would be nearly £5,500 in 2014 but based on income would be nearly £80,000 (*measuringworth.com*). The description inferred that the area of this pavement was not unusually large.

Blashfield possibly exaggerated the initial demand for his pavements, notwithstanding the publicity gained from the events of March 1843 and his subsequent advertising. Nevertheless, if he was unable to secure a regular and guaranteed supply of the tesserae from Minton, he would have felt let down after all his efforts, particularly perhaps by Richard. There may have

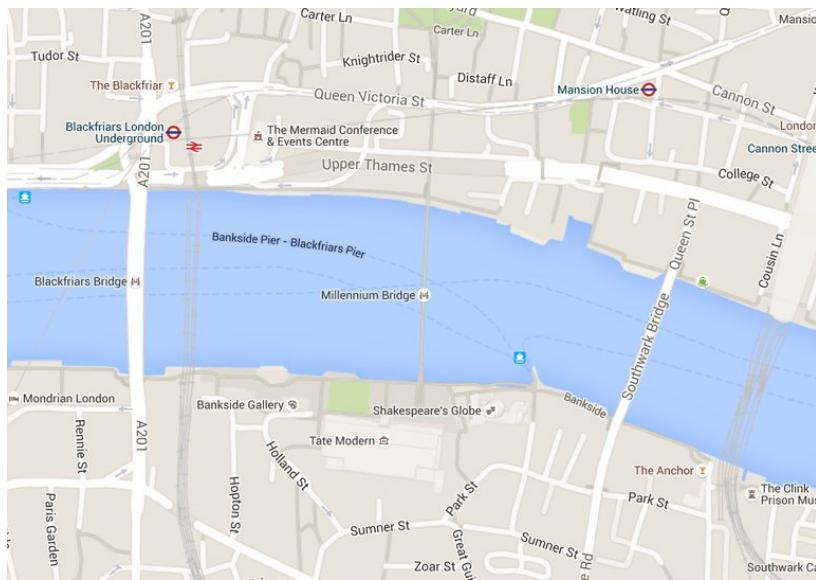
been a breakdown in their previous good relations; but Blashfield may have, perhaps unwittingly, contributed to this with the unforeseen consequence that Minton might have actually withheld or limited supplies to him.



(Image © Hans van Lemmen)

Sometime in 1843 Blashfield had published the reprint of the Owen Jones book *Designs for Mosaic and Tessellated Pavements*. It included Ward's introductory essay but Blashfield added, as an appendix, a transcript of the "especial account" of the dust-pressed process that had been written for Prince Albert following the Duke of Northampton's Soirée, including the above drawing of the "beautiful" press illustrating the making of a red tessera. The eight page treatise was dated 15th March 1843, just four days after the Soirée, and the same date that Richard subsequently attended on Prince Albert at Buckingham Palace according to the *Morning Post* report. (A

transcript of the published version is contained in the appendix to *The Tile Revolution.*)



*Google Maps Screenshot - Holland Street to left of Tate Modern*

I, initially, fell into the trap of presuming that Richard was the author of the "account", a presumption that became a fact in my mind. It was *Hans van Lemmen* who, later, pointed out to me that the author was not identified in the version published by Blashfield, although an address was: "Holland Street, Blackfriars" the street where Wyatt Parker and Co traded at the Albion Wharf. Was Blashfield seeking to infer that he was the author? Blashfield does not appear to have been a bashful man and he had ensured that his name had appeared on the title page of "Designs etc.", the work that he had commissioned from *Ward and Owen Jones*; if he had written the "especial account" not only would he, surely, have proclaimed himself the author in the appendix to the 1843 edition of "Designs", but also again when he, much later, told *Jewitt* of it having been written especially for Prince Albert.

Richard was not without literary flair, as evidenced by his letters to the press (in particular those published during his patent law reform campaign at the end of the decade) and the 1842 and 1849 articles on brick making described in the next chapter. He was also articulate, as demonstrated by the Hansard reports of his evidence given before parliamentary committees. In the weeks before his death he was in the throes of writing a commissioned report for Parliament on firearms' manufacture. The composition of the account would have been within Richard's capabilities. What is more, Richard, himself a proud and opinionated man, would have, surely, demanded that he had the

greatest input into the description of his patented process if he intended to present it in person to the consort of his Queen.

A comparison of Richard's patent specification with the "account" published by Blashfield revealed that they were written in very different literary styles, which is, perhaps, unsurprising. The account is an "easier" read, it is also very well written. In fact, it is very accomplished and whether Richard was the author may, understandably, be in doubt, particularly bearing in mind it was written over a period of only three days. Blashfield, in my view, was much less likely to have been the author based on the two short examples of his writings that I have come across in all of my researches.

(My initial belief that the account was written by Richard was confirmed to be correct by Blashfield himself when he spoke at a meeting of the Society of Arts in 1858. Minton had recently died and a long eulogy had been given by Digby Wyatt. Blashfield was one of the responders during which he alluded to the presentation at the Soirée and the account: "a report upon the subject was drawn up by Mr. Prosser, and transmitted to Buckingham Palace" - *Journal of the Society of Arts 28th May 1858.*) SD 2022 rev.

Most significantly the "account" contained observations and details that were not made in the patent's specification. In particular, in the description of the press it is explained how the machine differed from an ordinary fly press, namely the ingenious precision engineering of the mould and die mechanisms and that of the treadle that ejected the dust-pressed article. Reference was made to the need to compress the powdered clay in two stages by turning the handle of the press slowly to begin with to allow air to escape and then finishing the motion with great force to achieve consolidation of the powder (the enrolled specification advised using "moderate velocity" throughout the pressing to avoid the powder being blown out of the mould). The "account" also dwelt at much greater length and technical detail on the ingredients of the powdered compound, which could include "more advantageous mixtures" that were not suitable for use in pottery manufacture using wet/plastic clay.

Only at the very end of the "account" was there any reference to particular products: buttons are mentioned in passing, and barely a page is dedicated to tesserae and the unnamed Blashfield's "tessellated" pavements, although Roman cement is recommended for use in making the mosaic slabs. The final short paragraph referred to the manufacture of large square and hexagonal dust-pressed paving tiles using powerful hydraulic presses.

On enquiry from me, the Royal Archives were unable to trace the document that Richard presented to Prince Albert; whether it was identical to the version of the "account" published by Blashfield will, probably, never be known.

As speculated in the previous chapter, I believe this publication may have been done without Richard's authority. The "account" was much more detailed than the patent specification, particularly as to the composition of the powder, and was soon republished in scientific journals and elsewhere; in 1845 in his testimony in the Chamberlain case Richard was to complain that details of the dust-pressed process had become common knowledge. If the eighty six copies of the book, in his private library at his death, had been bought up by Richard, it would have been a costly exercise as they were being sold for £1 1s by a bookseller in 1846 (*Daily News 23rd May*).

Minton, too, cannot have been pleased at Blashfield's indiscretion, perhaps at a time when, encouraged by Michael Dainty Hollins, he had begun to realise the potential of dust-pressing for floor tiles.

In fact, one of the earliest mosaic pavements utilising Minton tesserae so far identified was probably that donated by Richard, which was laid in the entrance to the old Birmingham Library. Richard received a vote of thanks from its shareholders at their meeting on 13th December 1843 (*Birmingham Gazette* dated 18th December 1843). This private lending library was located at 24 Union Street Birmingham: long since demolished. Whether this pavement was made by Blashfield is unknown.



Union Street - c. 1870

The corner where Cherry Street met Union Street and led by a series of sharp corners to Dale End. Cherry Street is named after Mr Walker's cherry orchard situated below Temple Row. The imposing buildings in Union Street included from left to right: the Old Library erected in 1798, the Borough Treasurer's Office and the Union Hotel.

The first major pavement that can be attributed to Blashfield is either the external one at 8, Kensington Palace Gardens (demolished) or the ones that still exist, although much renovated (due to damage caused during electrical installations in the 1960s: *Ferry*), in the then new Conservative Club at 78 St James's Street. The latter was opened early in 1845, building work having commenced in June 1843 (*British History Online*). The pavements were presumably laid towards the end of the project. The new Club received much comment in the press, generally favourable, and the mosaic pavements were much praised:

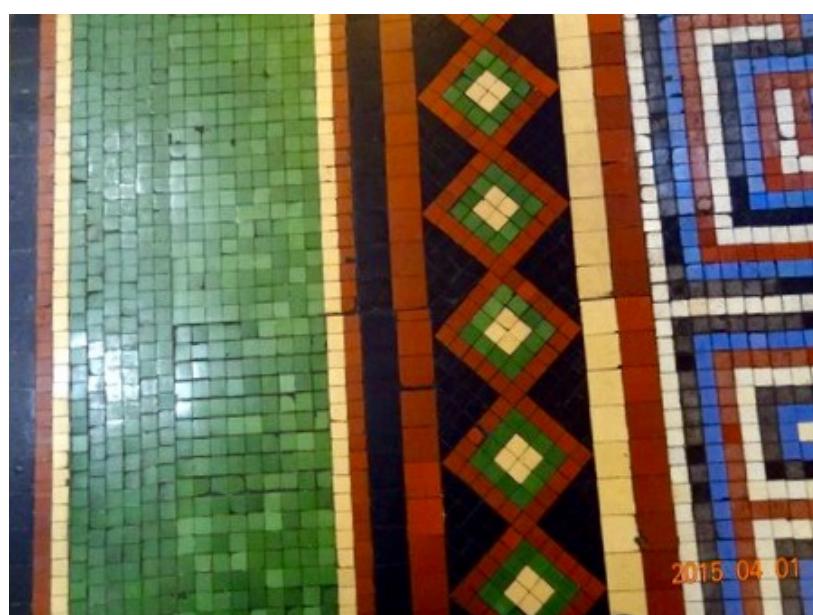
*London Standard* 1st January

*The vestibules are laid with mosaic or tessera, by Mr. Blashfield. The patterns of these are tasteful in the extreme, and well accord with the character of the surrounding architecture.*

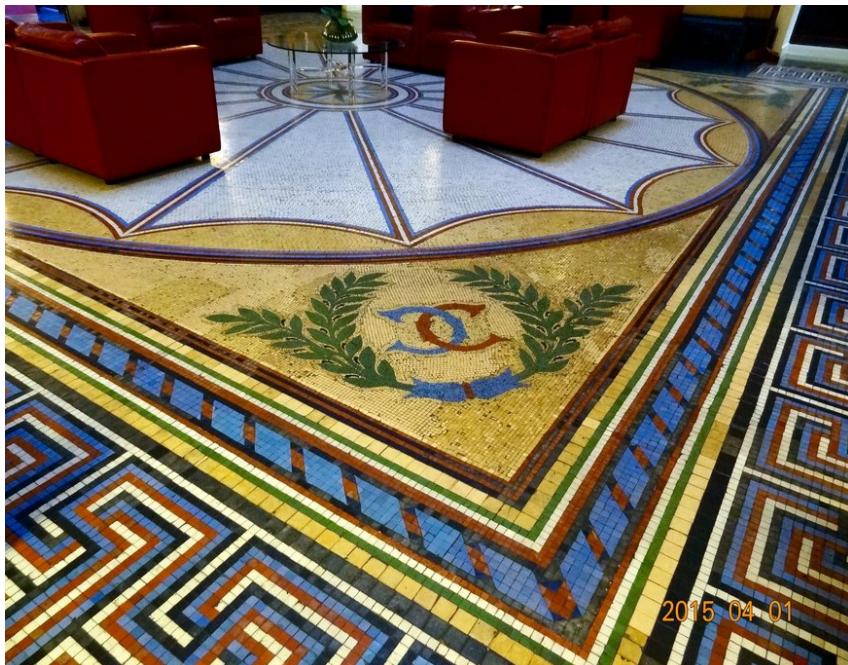
*London Standard* 28th February

*these floors are composed of some hundreds of thousands of pieces of tessera—of cubes of various sizes, varying from the eighth an inch to one inch and a half, and every one placed, according to its dimensions and colour, to form one harmonious whole, and exhibiting the best example now in existence of the famous floors.*

The Club's decorative style may seem a bit overpowering today - but the mosaic pavements, with their bright gold, green, white, blue and red tesserae, are certainly striking as illustrated in the image at the commencement of this chapter and in the close up below.



These extraordinary floors are the only surviving examples that I have located to date (November 2015) that can be attributed to Blashfield and Wyatt Parker and Co. None of the press reports mentioned Minton or Richard; nor is Owen Jones mentioned but *Ferry* suggests that he must at least have influenced the floors' design. In April 2015 we were able to view the ground floor pavement; the large "vestibule" is now the reception area of the owning investment bank.



It is possible that the mosaic pavement at 8, Kensington Palace Gardens pre-dated that of the Conservative Club. The house in which it was laid was the first built by Blashfield as part of a speculative building development project which was to end in his bankruptcy in 1847. It also led to his "surrendering" his "tessellated" pavement business to Minton in late 1845.

The history of Blashfield's involvement in the development of the old kitchen gardens of Kensington Palace is described in detail on the *BHO* at <http://www.british-history.ac.uk/survey-london/vol37/pp151-162>.

What persuaded Blashfield to take on the development of twenty of these building plots, which the Crown had failed to sell for over eighteen months, is a mystery. He was not a builder and he had to commit to building 21 houses within five years and a total minimum expenditure of £63000. Perhaps the attraction of such a potentially prestigious project resulted in his losing all sense of commercial reality. He actually commenced building No. 8 before he

had exchanged contracts, which took place in July 1844. He engaged *Owen Jones* as his architect for this house and built an Italianate mansion which included Alhambra style decoration and the external mosaic pavement. A contemporary account in 1846 described the pavement as "lively and pleasing" when viewed through the house's adjoining windows (per *Ferry*). It was demolished in 1961 and a block of luxury flats now occupies the site.

Blashfield struggled to honour his obligations to the Crown during the next three years, vastly overspending on his extravagant proposals, until his assignees in bankruptcy took over responsibility for the site.

I will not dwell further on this sorry tale other than to quote from *Simon Jenkins's Landlords to London: The Story of a Capital and Its Growth*: "it is he (*Blashfield*) who deserves to be remembered as we stroll down that magnificent avenue today".

Blashfield eventually succumbed to bankruptcy on 14th May 1847. His partnership with W. H. Wyatt had been dissolved on 26th October 1844; perhaps Wyatt had grown alarmed at his younger partner's rash new venture in Kensington. Blashfield continued his other business trading from Albion Wharf under the Wyatt Parker and Co name until 1846, still advertising his "tessellated pavements".

However, from about December 1845 there are subtle changes in the adverts, not only does "mosaic" replace "tessellated", the firm is described as acting as an agent for Minton's firm; in addition Minton and Co. had acquired their own warehouse at or adjacent to Albion Wharf:

*Morning Post* 20th December 1845

*ENCAUSTIC, VENETIAN, and other PATENT TILES, and MOSAIC PAVEMENTS, may be purchased at MINTON and Co.'s Warehouse, No. 9, Albion-place, Surrey-side of Blackfriars Bridge. Wyatt, Parker, and Co. Agents. The above tiles have lately been considerably reduced in price. N.B. An Assortment of plain and ornamental Door Furniture, Slabs, and Tiles, for Fireplaces, &c.*

The reason for these changes is to be found in the following press report:

*London Daily News* June 4th 1847

*COURT OF BANKRUPTCY. Before Mr. Commissioner Fane. re J. M. Blashfield. —Extensive Failure.— This was a meeting for the choice of assignees in the matter of this bankrupt, who was a cement manufacturer, and who has failed for between £40,000 and £50,000.*

*About two years since, the bankrupt was in difficulties to the extent of about £42,000, and he offered composition of 10s. in the pound, which was accepted. One instalment 3s. 4d. in the pound was paid, and another of the like amount was secured by certain property, so that, in point of fact, the creditors will have to prove for only 13s. 4d. (sic) in the pound.*

This last report is evidence that Blashfield was already hugely in debt by the middle of 1845. He managed to come to an agreement with his then creditors, now called a voluntary arrangement, that they would in effect let Blashfield off half the debt. These seem very generous terms and may be indicative of Blashfield's standing and perhaps also his value as a customer or supplier. He, in fact, only paid a third of the agreed amount in cash, another third was probably secured by a mortgage on property he owned and the final third, 3s. 4d., still remained unpaid two years later. The 1845 creditors would have had to prove for this in the bankruptcy; the press reporter misunderstood the amount. Blashfield must have continued spending recklessly and by 1847 his debt had increased again to the 1845 levels.

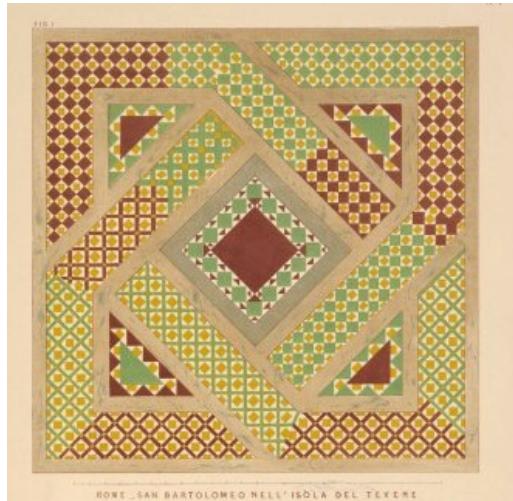
Minton was, possibly, one of Blashfield's major creditors in 1845, perhaps the principal one, or alternatively Blashfield had to sell out to him to raise funds to satisfy his other creditors. Certainly this must be the background to Blashfield "being obliged to surrender all interest" in his "tesselated pavement" business to Minton, as he later told *Jewitt*. Not only must he have released whatever licence he had acquired to use the tesserae, he probably also assigned or released his interest in Singer's patent in favour of Minton. In addition, Minton appears to have gained the warehouse at Albion Place by way of a sub-lease granted by Blashfield, subject to which the Albion Wharf site was sold in 1847 by Blashfield's bankruptcy assignees (*The Times* dated 19th June 1847).

Therefore, I believe, that from some date in late 1845 the manufacture and sale of the pavements was, in effect, carried out by Minton's firm, perhaps having taken on some of the Wyatt, Parker employees. At the beginning of August 1846 there was an auction sale of all that firm's stock in trade on the Albion Wharf premises. This included some of the "Prosser's Patent" flower trays referred to in the previous chapter; I had seen the advert when researching the "Agate" buttons without realising its significance (were these flower trays made by Minton?). A week later the indefatigable Blashfield inserted the following advert in the *London Daily News* dated 12th August 1846:

*ROMAN CEMENT - J. M BLASHFIELD successor to WYATT, PARKER, and CO., the original patentees, begs to acquaint Architects and Builders, that they may be supplied with the genuine Roman Cement heretofore, at Albion-wharf Holland-street, Surrey, foot of Blackfriars-Bridge. Also Atkinson's Cement, Plaster of Paris, Tessellated Pavements, etc*

There is one more pavement with which Blashfield was rightfully associated, jointly with Minton, although it was not laid until the end of 1846. In my very early searches for Richard in the *Mechanics' Magazine*, I had come across a transcript of a lecture given by Digby Wyatt in 1848 on *The Present State of the Art of Mosaic* at the Society of Arts; I have often referred to it in researching this topic. Wyatt closed his talk with the following comment: "*I need not do more than call the attention of the members of this society to the paving of their entrance hall for the formation of which they are indebted to Mr Minton and Mr Blashfield to convince them of the beauty and perfection to which this art may be carried.*"

In his 1858 eulogy for Minton, Digby Wyatt clarified that whilst Minton had donated the tesserae, it was Blashfield who provided the design and laid the pavement. The design was actually based on one of Digby Wyatt's own drawings that Blashfield had commissioned in 1844 when Wyatt went abroad "to study his profession". It was one of the drawings in Wyatt's *Specimens of the Geometrical Mosaic of the Middle Ages* published in 1848. The drawing (image right) is of a mosaic in the church of San Bartolomeo nell' Isola del Tevere in Rome.



In 1911 *Sir Henry Trueman Wood MA*, the Secretary of the Society, wrote an article about its offices published in its *Journal* dated 22nd September. He mentioned the "mosaic pavement" in the entrance hall: "*it is interesting as being one of the earliest examples of the application of mechanically produced tesserae under Prosser's patent, afterwards the foundation of an extensive industry.*"

In 1922 the Society raised funds to enable it to buy the freehold of its building and carry out extensive alterations including the enlargement of its entrance

hall. *Wood*, now the Chairman of the Council of the Society, was a member of the Premises Committee appointed to oversee these events, which were described in the Society's *Journal* dated 2nd March 1923. The anonymous author of this article, headed "The Society's House", described the alterations to the entrance hall in some detail, including the preservation of its lovely glass mosaics on its staircase and landings laid in 1874 by James Powell & Sons. Strangely, there was no mention of the alterations that were carried out to the floor of the entrance hall itself other than in the list of suppliers at the end of the article, which acknowledged the firm that supplied the "terrazzo marble floor". This floor still survives as do the Powell glass mosaics. If the minutes of the 1922 Premises Committee still exist, they may reveal what happened to the 1846 mosaic pavement, the historical significance of which *Wood* had pointed out only eleven years previously. (I am much indebted to the Society's archivist, Eve Watson, for her assistance in this research and for providing images of the relevant articles.)

In his 1848 lecture Digby Wyatt had also mentioned that the pavement donated to the Society had been made using a new cement that Blashfield had developed, which was preferable to the dark coloured Roman cement. This was possibly the new product sold as "Tarras", a light coloured cement which Wyatt, Parker and Co. advertised in 1844. Had Minton also acquired the right to use this cement in his dealings with Blashfield in 1845?

One further remark made by Digby Wyatt in 1848 encourages me to hope that there may be more Blashfield pavements lying undiscovered; the context is slightly ambiguous but I believe Wyatt is referring to Blashfield rather than Minton: "*he has much benefited the art and carried out many large works with very great success.*"

If Owen Jones had been more conventional with the design he submitted (in collaboration with Blashfield) in 1844 in the competition for the contract for the floors of the proposed new Palace of Westminster, today's politicians might be walking on mosaic pavements manufactured using dust-pressed tesserae and tiles made under Richard's patent. Minton would presumably have taken over the contract and manufactured the floors, but Blashfield would, no doubt, have made sure his name was associated with them. However, Owen Jones's designs were considered too "Moresco" (Islamic), although the sample pavements provided for the public exhibition, made by Wyatt Parker and Co. and incorporating "Prosser's Patent" Minton tesserae, were much admired. *The Illustrated London News* reported that they were "very beautiful, and the colours extremely gorgeous."(Ferry).

This is almost the final appearance of Blashfield in the mosaic pavement history, but not his last in the dust-pressed story.

## Mosaic and Geometrical Pavements - The Minton Era

1846 Feb 6 *Morning Post*:

*Much curiosity and admiration have been excited amongst our learned bodies of late, more particularly with those savans to whom the introduction of tesselated or mosaic floorings are an object of interest, by the exhibition of a variety of specimens of this description of pavement, which for purity and regularity of pattern and strength, and consequent durability, leave far distant anything of the kind which has, even amongst the ancients, preceded them. The manufacturers, the Messrs. Minton, of Stoke upon Trent, for whom the firm of Wyatt and Parker are agents, long held a very distinguished name as men of untiring energy in this department of the arts. Amongst these specimens are some termed "Old English Tiles," the strength of which is such as to defy the roughest usage, to which the commonest footway is subjected; nor is it possible, by ordinary means, to obliterate or deface the beauty of inlaid ornament. The "Hexagon Tiles," which admit of an infinite variety of pleasing devices, as seen in the Alhambra, will, although less than half an inch in thickness, bear a pressure of 30 tons! These designs may be still greatly increased if combined with rhomboidal and triangular pieces. It is scarcely possible to imagine anything more pleasing of the kind than an avenue or pathway decorated in this facile and inexpensive manner, and its introduction is consequently most encouragingly hailed by both architect and builder.— Standard.*

Minton must have considered his acquisition in 1845 of Blashfield's pavement business extremely opportune. It occurred at a time when he would have been aware of the threat to his "Agate" buttons that was emerging from Bapterosses's factory in France. Although the following year, 1846, saw the largest production of buttons from Stoke, over 87 million, it halved in 1847 and must have ceased in early 1848. The reason for doing so may be the unsuccessful enforcement in 1847 of the American patent by Richard's brother, Thomas. Although Richard had been able to enforce his patent in England, Wales and the British colonies, the loss of exclusivity in the U.S. market may have persuaded Minton that it was no longer commercially viable to try to compete with Bapterosses.

It cannot just be coincidence, that 1845 was also the year that Michael Dainty Hollins "joined Mr. Minton in the general manufacturing business" in August, (*Jewitt*). According to *Jewitt* the "tile department" then started operating as a separate concern under the name of Minton, Hollins, & Co., although the earliest use of this name I have found in the press is in 1851. Prior to August 1851 tiles and tesserae were advertised under the "Minton and Co." banner. (Throughout this narrative I will continue to use the name "Minton" alone to denote the firm, although Herbert had probably never been a sole partner of the dust-pressed branch.)

The structure of Minton's firm in the 1840s is unclear. The tile branch of the business may have emanated from another separate "department" or sub-firm; namely that which was dissolved on 15th August 1846 known as Minton & Co "Manufacturers of Prosser's Patent Agate buttons", according to the notice in the *London Gazette*. As described in the last chapter, the elder brother, Samuel Hollins, then left this firm leaving Minton and Michael Dainty Hollins as the continuing partners. *Jewitt* may have got the month right, but was he a year premature for the creation of the new tile business?

Whatever the actual firm structure, it is clear that the two Hollins brothers, but probably principally the younger brother Michael, were closely involved with the button business and must have had many dealings with Richard. However, it appears that it was Michael who took an interest in the mosaic pavements and was probably more enthusiastic about them than Minton, if Blashfield and the comments in *Spons* are to be believed.

Samuel Hollins left the business for his long and comfortable retirement as a "Fundholder"; the only "Hollins" featuring in Richard's story from August 1846 is Michael Dainty Hollins. Minton may well have put his wife's 30 year old nephew in charge of the new "tile department" or at least the "dust-pressed" tile and tesserae manufactory (this is of course pure speculation, which may be disproved by documents in the Minton Archive). Presumably, the relatively new button factory in Church Street, mentioned in the diary of Minton's previous partner Boyle, was wholly given over to the tesserae and tiles; the button presses may have been converted in Richard's Birmingham workshops for this purpose.

In addition, Minton was also making pavements in London, as evidenced by the short report in the *London Daily News* dated 26th February 1849:

*Prince Albert, attended by Col. Seymour, inspected, on Saturday, the manufactory of tessellated pavement, at Messrs. Minton and Co., in*

*Albion-place, Blackfriars. His royal highness was conducted over the establishment by the Members of the firm, and was pleased to express his gratification with the manufacture of encaustic tiles and porcelain.*

Albert certainly had his own personal reasons for viewing Minton's factory, but his visit may also have been made in connection with the preparations that must have been in hand for the Society of Arts' Exhibition of Arts and Manufactures due to be held in April 1849. Albert had been the Society's President for six years and it had been granted a Royal Charter in 1847. In the previous year, 1846, Henry Cole (1808-1882) had been elected a member. Cole quickly became a prominent figure within the Society and an influential adviser to the Prince on matters of design, in particular industrial design, on which Cole had become an authority. I am indebted to *Elizabeth Bonython and Anthony Burton*, the joint authors of *The Great Exhibitor - The Life and Work of Henry Cole*, for much of the background to Cole's role in Richard's story.

During the late 1840s Cole, a civil servant, had by his own initiatives, played leading roles in both the re-organisation of the Schools of Design, which had been set up in the 1830s to educate the "artisans" with a view to making Britain's manufactories more competitive, and, also, the promotion of the international trade fair now known as the Great Exhibition. Subsequently, he became the driving force, with the backing of Prince Albert, for the creation of the South Kensington Museum; conceived as an educational institution for the arts and sciences it gradually evolved through absorption and growth into the magnificent complex of museums we know today in the Royal Borough. We, also, have Cole to thank for the Royal Albert Hall. A hugely busy man of great vision, energy and perseverance with an enquiring mind, he certainly "made a difference" but was not to everyone's liking; partly, at least, for "his rough offhand manner" which Queen Victoria affectionately attributed to her "Good Mr Cole". He became known as "King Cole" - even within the royal circle. He was knighted in 1875 and his long and distinguished career is well attested to on the Internet; a wing of the V&A is named after him. *Image - Sir Henry Cole in later years: Wikimedia Public Domain.*



As recounted in chapter 1, it was Cole who, as a witness, told a Parliamentary committee in 1864 that he regarded Richard as a "high authority" on matters of invention. Cole had himself quoted, from some unidentified source, Richard's own suggestions for the creation of a museum of inventions. In his testimony Cole also referred to the dust-pressed process "for making the tiles which are now used in the Houses of Parliament", a not totally inaccurate observation as will be shown.

Had Cole already met Richard before 1849? Almost certainly, in my opinion; the question is still unanswered. Cole was, certainly, well acquainted with Minton, with whom he had collaborated on a number of projects, including ones in 1845 and 1846 involving dust-pressing (described later). More significantly Cole was the leading member of the committee of the Society of Arts constituted in 1850 to report on the proposed reform of the patent system. This was the committee referred to in chapter 4 on which Richard and Charles Dickens had sat; when the list of members of this committee first came to my notice most of the other names meant nothing to me, including those of Cole - and, also, Owen Jones. Patent issues were one of Cole's responsibilities in connection with the 1851 Great Exhibition.

The 1849 Exhibition was held in the Society of Arts' building in John Street (now John Adam Street) near the Strand; it was to be the most successful of the exhibitions organised by the Society during the 1840s, attracting over 70,000 visitors, probably largely thanks to Cole's input. Minton was a major exhibitor at this London event, which received much coverage in the London press, but it was the report of the correspondent to the *Manchester Courier* dated 14th April that was of the most interest to me. The reporter was clearly very taken with the Exhibition's display of Minton's tiles and tesserae and also with the examples of mosaic pavement, both Roman and "Moorish". It was, however, the mention of cheaper versions of the tiles which intrigued me. Reference was made to an article in the *Art Journal* which described the dust-pressed process and which the Manchester correspondent had attempted to précis, somewhat inaccurately as I found out when I tracked down the relevant issue of the *Art Journal* dated 1st February 1849.

The *Art Journal* article was written by *Robert Hunt* (1807–1887), the then Keeper of Mining Records at the Museum of Practical Geology (also described as a "Professor of mechanical science, School of Mines; photographer; chemist; scientific writer" in *Wikisource*: in other words an authoritative commentator). The article was entitled "On the Application of Science to the Fine and Useful Arts" and was in two parts, the second of

which was headed "Artificial Stone - Tessera etc." After a lengthy historical overview *Hunt* reported on the "admirable improvements" to the manufacturing process of tiles and tessera of:

*"Mr Singer, Mr Pether, Mr Blashfield and Mr Prosser in connexion with Messrs. Minton & Co. ... In this manufactory, tessera are made as small as the eighth of an inch square; and ornamental tiles of twelve inches square. The coarser kinds, such as are employed for doorways or open passages are prepared from the common Staffordshire clays which are found associated with the coal; the finer varieties are made of selected clays. The clay is reduced to an impalpable powder, by grinding and sifting, and being thus prepared is put, in its dry state, in iron moulds of the size and shape required, and compressed by machinery made under the patent of Mr. R. Prosser, of Birmingham."*

*Hunt* continued his description of the dust-pressed process with references to the pressure achieved by, what must have been, hydraulic presses, namely 200 tons, and the resulting significant reduction in the amount of contraction of the tiles during firing compared with the wet plastic process.

*Hunt* then went on to describe the manufacture of the inlaid plastic clay encaustic tiles by Minton and also Singer's method of making the mosaic pavement slabs, both in complimentary terms.

*Hunt's* article is evidence that by early 1849 the dust-pressed process was also being used to make floor tiles of various sizes and shapes from a variety of other clay compounds. A significant development as these tiles, the commencement of the mass manufacture of which marked the emergence of the geometrical pavement, would be much less expensive than the early dust-pressed mosaic pavements and the encaustic tiles. The correspondent to the *Manchester Courier* envisaged "the likelihood that eventually the less costly descriptions (of dust-pressed tiles) will come to be very much in use even in our humblest dwellings". The later, almost ubiquitous, popularity of the geometrical pavements in Victorian and Edwardian houses for their hallways and vestibules proved the reporter correct. The geometrical pavements were clearly engendered by the mosaic pavements, their precursors.

The other significant inference that can possibly be made from *Hunt's* article is that Minton may have been using presses which were not manufactured in Richard's workshops, but were supposedly made "under" his patent. This

would not be a surprising development, if Richard had been unable to meet the demand for the machines.

Further evidence that dust-pressed floor tiles were being made from the less expensive clays on a commercial basis by Minton by the end of the 1840s is contained in the *Cyclopædia of Useful Arts & Manufactures* published by *C. Tomlinson* in 1852.

In the long section on "Pottery and Porcelain" *Tomlinson* referred to visiting Minton's works in Stoke "a few years ago". He described the dust-pressed manufacture of floor and wall tiles that he had then observed and referred to the presses achieving up to 400 tons pressure: "A thickness of 3 inches of powder is thus compressed into a tile 1 inch thick, with sharp edges, and a beautiful polished surface". *Tomlinson* also mentioned that the dies for the reverse of the tiles were so formed as to mould a ribbed effect in order that the tiles would adhere better to the mortar or cement used to embed the tiles on the "wall or pavement". As well as the tiles *Tomlinson* saw "scale-plates, table tops, furniture panels, and other articles of considerable size" produced by the dry process. These were in addition to the tesserae for "mosaic works" made by the "smaller presses", which were still being used to make "ornamental buttons for shirt studs". Minton's engineer, Turley, had informed *Jewitt* that button making had ceased in 1848; presumably early on in that year on the basis of the small quantity specified by Turley. *Tomlinson*'s visit would therefore appear to have taken place by the beginning of 1848, at the latest.

*Hunt* and *Tomlinson* both appear to support the theory that larger dust-pressed floor tiles made from a variety of clay compounds were being manufactured by Minton during the 1840s. Bearing in mind that Richard had developed the process and the hydraulic presses to make building bricks as early as 1841 this did not seem surprising; with all its advantages the mass manufacture of these cheaper dust-pressed floor tiles was surely an obvious progression - or so it seemed to me. However, although much had been written about the development of the beautiful wet/plastic inlaid encaustic tile by Minton in the 1830s and 1840s, the development in the 1840s of the affordable square and other geometrical dust-pressed floor tiles, an enormous contribution to Victorian hygiene and sanitation, appeared to have been mostly ignored. Even the stunning, but expensive, mosaic pavements have had little exposure.

The early development of the dust-pressed tile by Minton's firm during the 1840s had proved difficult to understand when I first started studying the topic; the chronology was very unclear. The numerous different types of tiles caused me great confusion; particularly as some terms were used somewhat indiscriminately in contemporary accounts; "tessellated", "mosaic", "geometrical" and "encaustic" seemed to be almost interchangeable descriptions when it came to pavements, in particular.

In my frustration I had sent *Hans van Lemmen* a very lengthy email at the beginning of December 2014. He very kindly responded immediately and the following flurry of emails between us greatly helped to clear my thoughts. As a result, as described at the beginning of this chapter, I had decided to concentrate on the mosaic pavements in my initial research - the immediate by-product of the "Agate" button.

In my first long electronic epistle to *Hans*, I had mentioned some of the pre - 1847 mosaic pavements described above; those at the Conservative Club and the Society of Arts. I had also referred to the two other pavements that appear in the photos on page 100; I was thrilled to see these images when *Hans* emailed these to me with his reply. (*Hans* also referred me to the articles by *Ferry* and *Baeck*, which I have quoted from earlier.)

I had seen a black and white photo of the Woodhouse pavement in *Hans's* book *Victorian Tiles*; when I opened the emailed colour photo it exceeded all expectations. The beauty of the colours and design are stunning; very different from the comparatively garish colours of the Conservative Club pavement that I had already seen on websites. The Woodhouse pavement was laid in 1847 in Little Woodhouse Hall, the Leeds mansion of its prosperous local owner; composed of Minton tesserae cubes and triangles it is said to have been designed by or with the help of *Owen Jones* (*Ferry*). *Hans's* photo had been taken over 20 years previously, but he revisited the Hall in 2015 and the pavement is still in excellent condition. It remains uncovered and is walked over daily by the



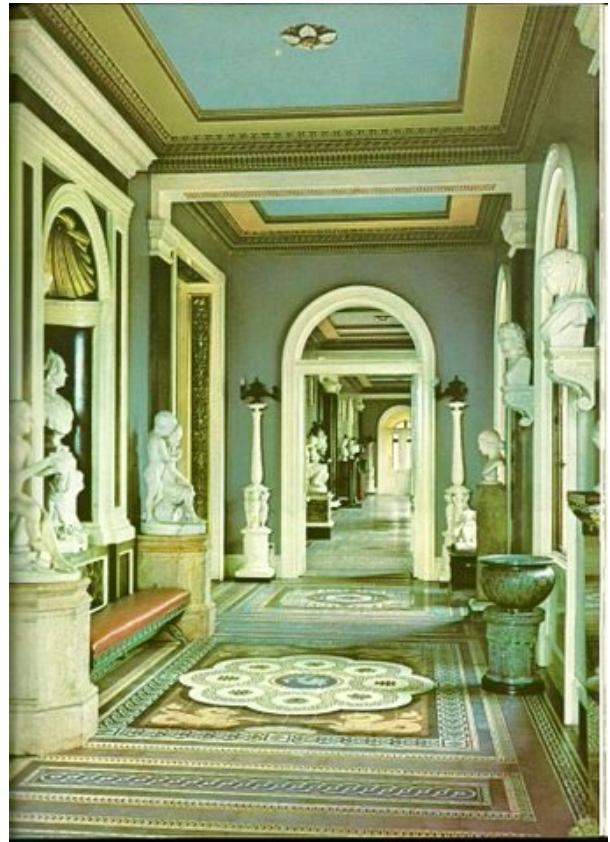
staff and patients of the busy NHS unit that has been in occupation of the Hall for many years.



(Images © Hans van Lemmen)

The other photo emailed by *Hans* confirmed the claim made by Richard's brother Thomas in his 1850 letter to the New York *Merchants Magazine* concerning the manufacture of porcelain buttons; the letter which I have often referred to in the previous chapter. Thomas ended his missive with a reference to Osborne House, the recently built summer residence of Queen Victoria and Prince Albert on the Isle of Wight. He had stated that Richard's presses were still being used to manufacture floor tiles and tesserae and continued: "The Queen is a great patron of this manufacture and has ordered more than ten thousand dollars worth for Osborne House alone". I had found some references to "Minton" floors at Osborne House but they were not described as mosaic or tessellated pavements. *Hans*'s photo, the close up of a small section, actually showed a blue plastic clay encaustic tile inlaid with the "VA" monogram, but surrounded by a mosaic composed of tesserae cubes and small geometrical tiles. There are very few images of the Osborne House pavements on the Internet and those that exist are poor quality, but they appear to show a series of large decorative squares formed of mosaics with a central encaustic tile.

These, predominately mosaic, pavements form the floors of the Grand Corridor, originally called the Marble Corridor for its display of statues. It was probably laid in or shortly after 1849; Digby Wyatt referred in 1858 to Minton consulting him about them in that year. I had also made enquiries of the *Royal Archives*, not only to corroborate this date, but also as to whether there was any evidence of early Minton pavements existing at other Royal residences. The archivist who replied had clearly gone to some trouble, including referring to her contact at *English Heritage*, but had found just one reference of relevance: a brief but valuable note in Prince Albert's diaries of a meeting in March 1849 when he and "Mr Minton chose mosaics for the floor of the Marble Corridor". *Image: photo bucket.com.*



As we discovered when we visited Osborne House in June 2015 the floor of the Corridor is largely covered by carpets, only the borders of the mosaic pavement are visible. Each year the carpets are walked over by the tourists who visit Osborne House in their hundreds of thousands, most of them unaware of the tiles beneath. *English Heritage*, the custodian of Victoria and Albert's beloved retreat, does not mention the floors on its website and they are barely acknowledged in its guidebook: "...sections of the Minton tile floor are exposed. The design includes the arms of Great Britain and maritime symbols" - none of which are visible. The preservation of these pavements must, of course, be the paramount priority, but surely a way could be found to exhibit some representation of what, in fact, is one of the more beautiful features of Victoria and Albert's "dear little home". The royal couple's guests, when admiring the pavements, may even have



been told by Prince Albert of his meeting with the engineer from Birmingham who had sold his "brilliant idea" to Mr. Minton, but today's visitors to Osborne are left in virtually total ignorance of the stunning floor's existence, never mind its significance.

Another question I had put to *Hans* was to ask where were the rest of the early "absolutely imperishable" mosaic pavements that had been laid by Minton and, before him, by Blashfield (his "many large works" as referred to by Digby Wyatt in 1848)? Surely more of these had survived than the ones I have mentioned so far? *Hans*'s reply indicated that this was a subject that required more research.

Richard's son, Richard Bissell Prosser, stated that one of the "early uses" of the "tesselated pavement" was for the steps to Richard's house at 18, Broad Street, Birmingham (*BI&I*). In fact, Richard had moved his wife and children to High House, the large house in the countryside south of Birmingham, at Kings Norton, in 1847 and did not acquire the Broad Street town house and his nearby new workshops in Cambridge Street until about 1848/49. Whether the tiling of the steps to no.18 was mosaic or geometrical will never be known.

My own research online for the early mosaic pavements had produced very few hopeful new leads; most of the references I found were clearly to encaustic or geometrical pavements on further scrutiny.

Blashfield, after criticising Richard at the 1858 Society of Arts' meeting, had referred to a mosaic pavement laid in York Minster in 1845/46; presumably by Minton as he did not claim it for himself. Yet, the only Minton pavement in the Minster appears to be that in the Chapter House composed of encaustic tiles. Blashfield, as we have already seen, was not always a reliable witness.

Thomas's 1850 comment (quoted above) had inferred that Osborne House might not be the only royal property for which the pavements had been ordered, but, if so, I have not yet identified them.

A mosaic pavement definitely was laid in the entrance hall of the new Museum of Practical Geology in Jermyn Street, which was opened by Prince Albert on 12th May 1851. The *Reading Mercury* dated May 17th reported: "A large portion of the floor is occupied with a gorgeous specimen of Minton's tessellated pavement". The design was said to be based on a famous Roman pavement at Woodchester and included a decorative frieze of dolphins and leafy scrolls. (*Furnival pp 165/166*). One of the exhibits in the Museum were

samples of Minton's dust-pressed porcelain tesserae made using dry kaolin clay under "Prosser's Patent" (*Handbook to the collection of British pottery and porcelain, in the Museum of Practical Geology - <http://www.ebooksread.com/authors-eng/museum-of-practical-geology-great-britain/handbook-to-the-span-classsearchtermspan-classsearchtermcollectionsp-esu/page-13-handbook-to-the-span-classsearchtermspan-classsearchtermcollectionsp-esu.shtml>*

The Museum moved to Kensington in 1934/35 and the Jermyn Street building was demolished in 1936, when the pavement appears to have been lost. The Museum's tesserae exhibits were passed from the Natural History Museum to Stoke Museum via the V&A and now cannot be found.



*Image: Woodchester Roman Pavement (reconstruction)*

Hopefully, further research will reveal the location of more of the mosaic pavements laid before 17th June 1854, the expiry date of Richard's patent, or shortly thereafter - some perhaps still surviving.

I have kept until last, what must have been the apogee during Richard's lifetime of the mosaic and geometrical tiles made by Minton under the patent.

The location was the 1851 Great Exhibition in Hyde Park, where Bapterosses had exhibited his buttons much to Minton's displeasure. Cole, Owen Jones and Digby Wyatt were heavily involved with this extraordinary international trade show, which attracted millions of visitors from all over the world after it was opened by Queen Victoria on May 1st.

Digby Wyatt had been appointed the Secretary of the Exhibition and Owen Jones was one of its Superintendent of Works. Cole, however, if not the, then certainly, a major initiator of the Exhibition, although a member of the Executive Committee of the Royal Commission appointed to administer it, had been subjected to attempts to sideline him; he, nevertheless, became a self-appointed problem solver according to his diary and was eventually put in charge of organising and awarding the exhibitors their spaces within the Exhibition - an unenviable task. Minton, who was to become a major exhibitor, was one of the many guarantors who were cajoled by his friend Cole and his colleagues into underwriting the building costs of the famed Crystal Palace; the enormous glass building was designed by Joseph Paxton, an unusual choice as he was actually not an architect, but the head gardener to the Duke of Devonshire at Chatsworth House. Paxton had hastily prepared some drawings after he had heard that many other proposals had been rejected; his controversial glasshouse was based on a much smaller version he had designed for the Duke.



*The Crystal Palace from the northeast from Dickinson's Comprehensive Pictures of the Great Exhibition of 1851, published 1854 - Image Wikipedia*

Richard, undoubtedly, would have been an enthusiastic supporter of the contentious Exhibition project. He was probably approached for a contribution to the guarantee fund; if he did agree to add his name to the list, it was probably only for a small amount as his profits from his various inventions had been reinvested in a new tube machinery invention to the tune of £20,000. He was, however, an exhibitor at the Exhibition, at least indirectly, through Minton. He also made his presence felt as a visitor, causing the American exhibitors of a new reaping machine much offence when he claimed that it was an old invention: "I thought the Yankees were going to eat me" he told a Parliamentary Select Committee in 1854 (on Small Firearms), adding that he had subsequently proved the mechanism was, indeed, of English origin.

Minton had exhibited his tiles and tesserae in Class XXVII: "Manufactures in Mineral Substances, Used for Buildings or Decorations etc."; a wide ranging class sub-divided and then grouped into various types of architectural natural stonewares (within Division 1) and ceramics (within Division 2). The Jury of the Class recommended just four of these exhibitors for the coveted Council Medal, of whom Minton was the only potter, on the basis of the "decided novelty" and "the great merit of design and execution" of their exhibits. In confirming his medal Minton's encaustic tiles were acknowledged by the Council as the prime reason for the award, together with other "modern improvements in pottery" due to his "enlightened appreciation" of their merit; the Council awarded him the medal jointly for exhibits in this Class and, as described in the previous chapter, Class XXV. Presumably the "modern improvements in pottery" included the dust-pressed process.

Minton's exhibits had been placed in Division 2, Group 3, sub-group K (b) of Class XXVII for "Clay and Porcelain mosaics". The report of the Jury's recommendations for this sub-sub-group places a slightly different emphasis on Minton's exhibits and commenced:

*No Exhibitors can at all compete with Messrs MINTON for the variety, beauty and excellence of the encaustic and mosaic tiles manufactured by them by a process which involves very great mechanical ingenuity, and which has been carried to a very high pitch of perfection. ...introducing one method more especially - enormous compression to consolidate dry clay - which deserves very distinguished notice, and has been the commencement of an entirely new era in mosaic work in plastic material. To Messrs Minton accordingly the Jury recommended a Council medal...*

The report then continued with a short description of the three types of tile exhibited by Minton: the plastic inlaid encaustic; the dust-pressed tiles "of any geometrical form that may be desired"; and finally tiles not otherwise mentioned "made after the manner of the Alhambra, and other Spanish tiles" made from plastic clay compressed in an embossed mould.

Richard played some role in the production of each of these three types of tile as will become clear, but his name is not mentioned in this report. Ironically, as recounted in chapter 6, his name did appear in the report of Class XXV's Jury; not in connection with any exhibit of Minton, but in this Jury's explanation for it feeling unable to award a Council medal to Bapterosses for his buttons manufactured in France knowingly using the dust-pressed process that Richard had previously patented in England.

Why Richard's contributions to Minton's exhibits were not acknowledged in the report for Class XXVII remains unexplained. Hollins name was also omitted.

I have found no official description of the tiles exhibited by Minton, but the Jury's report does specifically refer to the method of manufacturing the mosaic pavements in slabs, so presumably samples of these were on display. Have any survived?

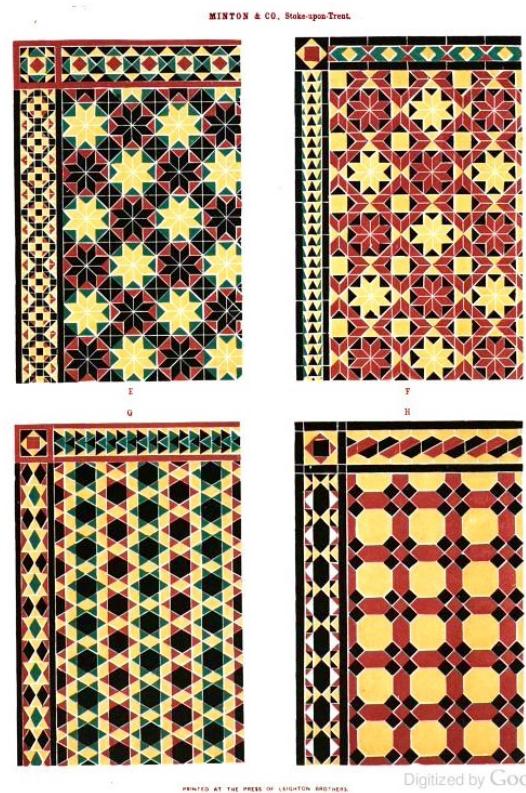
The article on the Class in the *Morning Chronicle* dated September 29th 1851 stated that, in addition to the tesserae (which could be made as small as one eighth of an inch square), ornamental tiles of various sizes up to 18 inches square were exhibited by Minton. The report continued with a description of the dust-pressed process, explaining that "finest clays", namely powdered "Cornish kaolin or China clay", were selected for the tesserae. For the tiles a variety of powdered clays was used depending on the desired quality of the end product; the finer tiles were made from "selected clays" and the "great many specimens" of tiles of "coarser kinds" exhibited by Minton were made from Staffordshire clays - yet more evidence that his dust-pressed product range had expanded. The article then continued with a description of Minton's new plastic method of making the encaustic tile. The author may have been *Hunt* or, else, the reporter cribbed from *Hunt's 1849 Art Journal* article - there are distinct similarities. Richard was given some credit, but for patenting the "machinery" used in the dust-pressed process; a mistake that was also contained in *The Art Journal* article.

Hans has also sent me the image right of a page from a Minton pattern book copied in an article in *The Art Journal* 1851 vol.3 pp146/147. As Hans commented, it would appear that by 1851 Minton had started to advertise "standardised" geometrical patterns to exploit the mass market potential of these pavements.

The Great Exhibition closed on 11th October 1851. It had been an enormous and popular success; moreover it generated a huge profit (£186,000 - *British Library* website), which Prince Albert and Cole were able to reinvest in their South Kensington museum scheme. Paxton's "Crystal Palace" was taken down and, at his instigation, was sold to a consortium, who had it re-erected at Sydenham in south London on land owned by a railway entrepreneur, a friend of Paxton (<http://www.crystalpalacefoundation.org.uk/history/leaving-hyde-park-1851-2>).

Minton's own success at the Exhibition must have generated more interest in his mosaic and geometrical pavements, at least amongst its wealthy visitors from home and, also, abroad. A demand that Minton would have been better equipped to meet according to *Tomlinson* in his 1852 *Cyclopædia*; having described the tile production observed on his earlier visit to Minton's factory, he mentioned that improvements had been made since the closure of the Exhibition: steam presses were already in operation capable of making 5,000 tiles in 24 hours and which when "applied to the tesserae the number will be not less than 115,000 in the same time". In addition to increasing productivity, *Tomlinson* stated that the new machines also applied the same pressure on each pressing resulting in a uniformity of tile depth that could not be achieved by the presses worked by hand.

Whether Richard supplied any of these presses is not known, but he did specialise in this type of machinery; one of the principal lots sold in the six day auction of the contents of his Cambridge Street Works after his death in 1854 was a compound steam hydraulic press "invented by the late Mr Prosser" capable of exerting pressure of over 900 tons "the only one of its kind in existence". Richard did not take out any patents for his presses, not



necessarily an unusual omission by inventors then as this would have entailed publication of a specification, of which he was no doubt very wary after his experience with Blashfield.

*Tomlinson* continued his description of Minton's tile production with a brief summary of the encaustic tile method, in which he included an oblique reference to tiles made by "the dry method" in imitation of terracotta exhibited by Minton in the "architectural court of the Great Exhibition": yet further evidence that the dust-pressing process was acquiring a wider application in Minton's factory.

Richard died unexpectedly on 21st May 1854. If he had lived a further three weeks he may have attended the opening of the Crystal Palace at Sydenham on 10th June; described as the "world's first theme park" it attracted an average of two million visitors a year between 1854 and 1884 (the website of *The Crystal Palace Foundation*). However, it was never profitable as the owning company was burdened by a huge debt; the total cost of the development was £1,300,000 more than twice the sum of £500,000 originally invested by the consortium.



*The New Crystal Palace Sydenham, Grand Entrance, pub. 1854 (litho), Butler, Augustus (fl. 1854) / London Metropolitan Archives, City of London / The Bridgeman Art Library*

It is possible that Richard visited the Palace site before the opening ceremony. In March 1854 he was in London giving evidence to a Parliamentary committee on the manufacture of firearms, in particular the tubes for the barrels. He may therefore, after all, have seen the mosaic pavement that Minton was most proud of according to Digby Wyatt.

One of the many new features, added to the outside of the re-designed glass and iron building, were courts representing the fine art of different historical periods. Amongst other experts both Digby Wyatt and Owen Jones had been employed to advise on and design these.

In his eulogy speech for Minton given to members of the Royal Society of Arts in 1858, Digby Wyatt described the mosaic pavement in the atrium and tablinum of the Pompeian Court, designed by himself, as "the best and best known".



DP004644

SOURCE: Historic England Archive

© English Heritage. NMR Reference Number: DP004644

*The interior of the Pompeian House, a reproduction of the house of a wealthy resident of Pompeii. This view looks into the tablinum, the area for the entertainment of guests, with the peristyle or courtyard garden beyond.*

*Photographer: Philip Henry Delamotte c. 1859*

*Website: [viewfinder.historicengland.org.uk](http://viewfinder.historicengland.org.uk)*

However, it was in the Alhambra Court designed by Owen Jones that the display of Minton mosaics and tiles was possibly most admired in this spectacular re-creation of the Islamic architecture of the medieval palace.



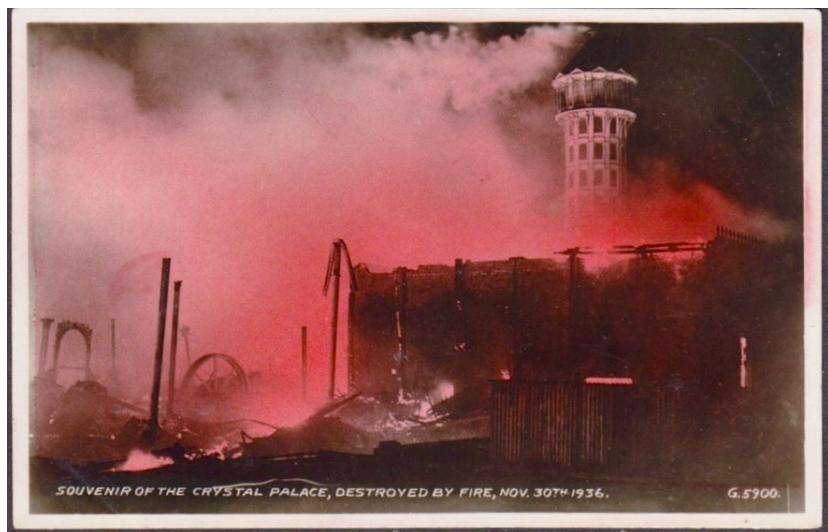
DP004624

SOURCE: Historic England Archive

© English Heritage.NMR Reference Number: DP004624  
*The facade of the Alhambra Court at the north end of the Fine Art Courts. Based on the Alhambra Palace in Granada, Spain, the Court was to contain dining rooms. It was destroyed in the fire of 1866 but recreated in the surviving part of the Crystal Palace.*  
Photographer: Philip Henry Delamotte c. 1859  
Website: [viewfinder.historicengland.org.uk](http://viewfinder.historicengland.org.uk)

The extent to which dust-pressed tiles and mosaics was utilised in its initial construction may never be known as the Alhambra Court was one of those badly damaged in a fire on 30th December 1866 (the Pompeian Court was not affected). *The Morning Post* dated 5th January 1866 reported that this "the most popular of the Fine Art Courts" had been "partially destroyed". It was restored and it seems likely that much of the original ceramic decorations may have survived unscathed or been reutilised where possible.

The Crystal Palace's popularity as a tourist attraction had declined by the end of Victoria's reign; it was allowed to fall into disrepair and the owning company went into liquidation in 1911. Subsequently the site was bought for the nation, funds having been raised by public subscription and restoration works were carried out; visitors returned in sufficient numbers for a small annual profit to be made. The preservation of the Palace seemed to have been secured until it was totally destroyed by the fire that occurred on the night of 30th November 1936; Winston Churchill watching the inferno when on his way to Chartwell allegedly tearfully declared "This is the end of an age".



I had hoped to find that, at least, some parts of the heat resistant mosaic pavements in the Pompeian Court may have survived this cataclysmic event. I emailed *Melvyn Harrison* the Chairman of *The Crystal Palace Foundation* (its website has been the main fund of my knowledge about the Palace's history); his response was not entirely without encouragement:

*"After the Palace was destroyed in 1936 the site was completely cleared of everything and the basements filled with WW2 bomb rubble so any items of any type existing now must have been removed before then. Some archaeological excavations have taken place over years but very little has ever been found because of the clearance."*

Some salvage did take place after the fire; I have found references to a "fire sale", but most of the artefacts that survived appear to have been disposed of indiscriminately and little exists in public collections. However, some of the mosaics from the walls of the Alhambra Court have eventually found their way to the V&A.

We have church-going ladies of Sydenham and Penge to thank for this; following the fire, parts of the Court were still standing and in the summer of 1937 mosaics and tiles were prised off the walls by these enterprising women and made into fire surrounds, which were sold at local church fêtes. One was donated to the V&A in 2008 and subsequently restored by its conservators. The full story with images is told on its website at: <http://www.vam.ac.uk/content/journals/conservation-journal/spring-2012-issue-60/the-alhambra-court-fire-surround/>. (Photo right from the Sydenham Society News Spring 2011: [sydenhamsociety.com](http://sydenhamsociety.com))



Chrystal Buckland and a friend removing tiles from the burnt remains of The Alhambra Court replica at the Crystal Palace.

In March 2015 we had to arrange to view the restored surround at the V&A's storage facility because it was no longer on public display. This proved quite fortuitous as we were also shown some individual mosaics that were surplus to the restoration.

The small tiles are brightly coloured and of a variety of shapes, some quite intricate; their edges are sharp and the duplicated shapes appeared to be identical as if out of the same mould. However, the mosaics are glazed earthenware, not porcelain. I wanted to know whether or not they were dust-pressed, but the V&A have expressed no opinion either on its webpage or in response to my enquiry. The V&A's mosaics may in any event date to after the 1866 fire, but if so they must have been made to replicate the originals that had survived. The uniformity of the duplicate tiles suggested they must be dust-pressed to me. Regrettably, the V&A cannot permit me to use my photos of the individual mosaics, but the webpage above includes one closeup.

However, I have one other reason for believing that the 1854 Minton mosaics for the Alhambra Court would have been dust-pressed - the comments of Owen Jones himself in his essay published that year: *The Alhambra Court in the Crystal Palace*, a facsimile print of which is now available in paperback. I

had been alerted to these comments by *Kathleen Ferry* in her article on Jones for the 2005 *TACS Journal*. Ferry pointed out that Jones had expressed his preference for the visual effect of the mosaics at the original Alhambra Palace in Granada, which were less exact in their uniformity resulting in jointing that was uneven. To Owen Jones the aesthetic appearance of the medieval mosaics was more pleasing than the perfect geometry of the mosaics made by Minton for the Alhambra Court; he regretted the visual "stiffness and hardness" generated by their "perfection of manufacture".



The image of the restored fireplace above is on the V&A's "Collections" website. © Victoria and Albert Museum, London

Owen Jones did not describe how Minton's mosaics were made in any detail, other than to say that the individual tiles were "much harder than the Moorish" and were laid in prefabricated slabs (the method originally adopted by his old friend Blashfield). He did not mention dust-pressing and, as Hans has pointed out to me, it is possible that Minton adopted an ancient Islamic method:

*where the pieces were cut from already fired and glazed coloured slabs. The shapes were marked with paint on the glazed surface using already fired mosaic pieces as templates. The shapes were then cut out by hand using a special brick axe which is a two-side hammer with razor sharp edges. The tile cutter tapped along the marked outlines and once the desired shape had been cut the edges of the tile body were bevelled to allow plaster or mortar to squeeze between them when the pieces were assembled. This method required great skill but if the pieces were cut exactly and precisely they allowed for a very tight fit without any gaps.*

Minton's workers may well have had the necessary skill and tools, but surely this technique would have been too time consuming and labour intensive? The metal dyes for dust-pressing were expensive, but in one day one dye could have produced thousands of the little tiles using just one of Richard's modified button presses; the steam press described by Tomlinson could have produced one hundred thousand allegedly. The number of mosaics required for the Alhambra Court must have been enormous; the small panel shown being prised apart in 1937 contains over one thousand. Certainly, the durability of the Alhambra Court mosaics is evidenced by their surviving not only the 1936 inferno, but also the determined exertions of the Sydenham ladies. Would tiles made by the Islamic method have remained unscathed by these events?

I am, therefore, minded to believe that Richard (or his estate) would have received royalty payments from Minton for the Alhambra Court mosaics (and tiles), as well as for those in the pavements of the Pompeian Court; both subsequently admired by the tens of millions visitors to the Crystal Palace in the ensuing years.

(In the 1950s, when I was a small child, my family moved to nearby Beckenham; I was thrilled one day, on a drive into London, to overhear my parents saying that we would be passing through "Crystal Palace" - I have never forgotten my disappointment.)

In September 2015, while on holiday near Norwich, we went to the lovely Somerleyton Hall, set in its 5000 acre estate in Suffolk. I had searched the TACS Gazetteer for any early Minton pavements that might be worth visiting and the entry for the Hall, only 30 miles away, looked promising.

We were not disappointed; not only was the excellent guided tour of this historically interesting mansion very informative, we were able to view and

walk upon early examples of Minton mosaic, geometrical and encaustic pavements all in one location. Unfortunately we were not allowed to take photographs within the Hall itself, which is still in the private ownership of the Crossley family, the descendants of the well known Yorkshire carpet manufacturers. The rapid rise of this family from weaver to Barons Somerleyton is another story worth exploring on the Internet.

Sir Francis Crossley, the weaver's youngest son, had acquired the Somerleyton Estate in 1863 from Sir Samuel Morton Peto (1809-1889). By 1863 Peto may already have been facing the financial difficulties that led to the insolvency of his business and his own bankruptcy in 1866, which in turn had contributed to a major banking crisis that year. Peto, who died in impoverished obscurity, had been a hugely successful civil engineer, cum building contractor, cum railway entrepreneur, and a Member of Parliament; he was knighted in 1855. The famous buildings and other works his name is associated with, too numerous to list, include Birmingham's Curzon Street station (1838) the monumental, but disused, entrance hall of which is still standing (it is being restored for public use as part of the city's scheme for its adjoining terminus for the contentious HS2 rail line). A controversial figure in his own time, Peto was distrusted by many for some of his business methods and admired by others, including Gladstone and Disraeli, for his entrepreneurship. There are many accounts of his career available on the Internet.

Cole was probably one of Peto's admirers too; in July 1850 it was Peto who provided the impetus to the financial sponsorships that Cole was struggling to raise for the Great Exhibition. A disheartened Cole had told Peto of his difficulty on a chance meeting outside Peto's London office, inviting Cole inside Peto immediately gave him his written guarantee for £50,000. This grand gesture quickly resulted in the guarantee fund increasing to £350,000. (*Cole: Fifty Years of Public Work*)

It was Peto who had the Minton pavements laid as part of the substantial renovation and conversion of the Tudor-Jacobean mansion, which he had purchased in 1843, into the Hall at Somerleyton which is depicted in the 1880 watercolour right. The building works were not fully completed until 1850.



The 1880 image is of particular interest as it shows (on the left) the huge conservatory that Peto had built, which came to be known as the Winter Garden and in which a mosaic pavement was laid. The extent of the pavement is not known as the conservatory was demolished in 1914, but the loggia and orangery were retained and the floor incorporates three panels of mosaic pavement. Enclosed in a border of stone or marble, the coloured tesserae are laid in a classical design and surround a central motif of encaustic tiles; each panel is, possibly, an example of the prefabricated slab method patented by Singer and Pether.



Within the Hall itself there is a beautiful encaustic pavement in the entrance hall, but it was the pavements in two corridors that were of the most interest as they seemed to me to show the transition of the mosaic pavement into the geometrical form. Both pavements are colourful, but the first that we saw had a border of tesserae surrounding small geometric tiles. The second corridor's floor was solely geometrical and included larger hexagonal tiles.

In February 2016 I contacted the Hall through its website and Lord Somerleyton kindly authorised the taking and release of the images on the next page of the internal pavements.

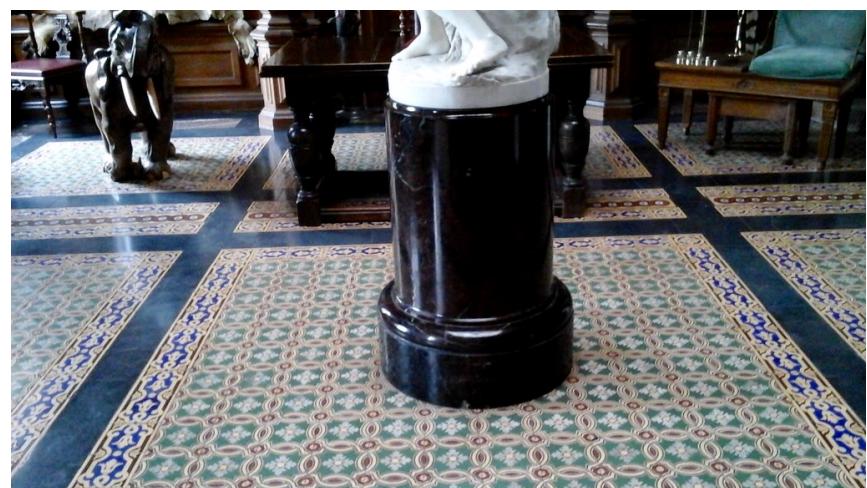
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Mosaic pavement



Geometric Pavement



Encaustic Pavement



That production of the expensive mosaic pavements should be overtaken by the less costly geometrical variety is not surprising, but the Somerleyton floors suggest that this had begun before the end of the 1840s, some years before Richard's demise and the expiry of his patent. Further evidence of this had been sent to me by *Hans* on 4th June 2015 in an email which commenced: "I was in Huddersfield this week and discovered the Kings Head pub at Huddersfield station. The station was built 1846-50 and the Kings Head used to be the old ticket office. It has an old geometrical tiled floor and could have been put in when the station was built." Further research revealed that the ticket office of this handsome building was probably completed during 1848-49 (*West Yorkshire Archive Service* website). *Hans* had also sent me the photo below of the floor.



heavy as at Huddersfield station; remarkable state of preservation of this early geometrical pavement. Although the style fell out of favour in the middle of the 20th century and many were ripped or covered up, they are having something of a revival and there are many specialist tile manufacturers, restoration and conservation firms profiting from this renewed popularity. (Images © Hans van Lemmen)

The mass market potential of the geometrical pavement was fully realised as evidenced by their increasing and worldwide popularity throughout the second half of the nineteenth century and during the Edwardian period. The durability of the dust-pressed high-fired powder compound means that an enormous number of them survive still in good condition, even where usage was *Hans*'s close up below shows the



Victorian geometrical pavements are to be found in government and public buildings, hotels, theatres, public houses, shops, mansions, Victorian villas and terraced houses throughout the UK and, also, worldwide. Sometimes,

encaustic tiles were laid with them where they could be afforded, or (to reduce the cost) geometrics were laid in encaustic pavements (this particularly occurs in churches). After the expiry of Richard's patent in 1854, other potters entered into competition with Minton's tile branch, by then widely known as Minton Hollins. The Shropshire firm of Maw & Co. quickly grew to be its main and larger competitor. However, the name of Minton is probably still eminent amongst the Victorian geometrical pavement manufacturers; an eminence that derived out of the forgotten "Prosser's Patent Agate Button".

As for the mosaic pavement, its popularity with even the Victorian wealthy may have been short lived as I have found very few post-1854 examples, although Minton Hollins and Maw & Co. continued to include them in their advertising material into the 1890s.

Richard, from the outset, may himself have had more interest in the application of the process he had patented to another, more prosaic, architectural product; one with huge mass market potential - bricks. These will form the main topic of the next chapter, which will also include a short account of the innovative educational toys for children that Cole attempted to introduce; an early initiative with Blashfield that was intended to utilise dust-pressing and, possibly, brought Cole into contact with Richard for the first time.

However, to end this chapter, I mention another early and, I believe little known, contemporary account of the use of dust-pressed tesserae and tiles in the brewery industry which may be of interest to tile aficionados.

On our visit to the British Library in March 2012 one of the documents copied for us by Beryl Leigh was the obituary for Richard contained in *The Spectator* dated 27th May 1854. At the bottom of the page a note had been written in ink in an old-fashioned hand: "For an account of Prosser Tiles See Tizard. Theory and Practice of Brewing. 1843. app.287,etc. (33098)". The number at the end may refer to the old Patent Office Library catalogue. I could find no reference to the book on-line at the time, but two years later, I discovered that the 1846 second edition had been digitised. It is a substantial volume containing much technical information on brewing. Chapter X on cooling and coolers ends with the following recommendation of what must have been the latest type of cooler on the market in 1843 when *William Littell Tizard's* work was first published; his description contains some interesting technical details, but my ignorance of ceramic processes leaves me unable to understand their significance:

*The most durable, and at the same time the neatest, composition yet discovered, or likely to be, is the Felspathic Tile, for the manufacture of which, chiefly from felspar, a patent is held by Mr. R. Prosser, C. E., of Birmingham. It is unnecessary to say that felspar is one of the constituents of granite and other dense rocks, and is, with the exception of quartz, the most abundant species of stone that exists. Mr. Prosser says, in his specification, that his materials "are brought to a state of fusion in the oven," are "superior to Wedgwood's ware," and that the specific gravity of his tile is in a great measure dependent on the "degree of heat employed in the baking" of it. Specimens, however, of this anhydrous and compact composition have been weighed, and found to coincide with the fine porcelain brought from Sevres, its specific gravity being about 2145. What the degree of heat is on which he depends, can only be guessed at, when we are told that it is unapproachable by any metre at present known, and that from the manner in which its particles are jammed together, it is more dense than the pyrometrical rod, and is less liable to fracture than the toughest porcelain from Sevres or China, though in specific gravity more than 200 below the latter, which is sometimes as high as 2384. The quantity of felspar contained within the tile, gives it an internal vitreous appearance, and yet resembling unctuousness, which splendour is entirely attributable to its compactness: in durability, therefore, it is at present incomparable with anything known as a clayey production, whether fire-brick, porcelain, or other admixture. 32,277° F., the highest heat known, will not affect it, though the best Chinese ware softens at 21,357° F, cast-iron is thoroughly melted at 20,560°, common stone potters' ware is baked at 14,340°, and delft at 6,407° F, which is 117° higher than the melting point of gold. Such astonishing powers as these must at once give the reader some idea of the adamantine substantiality of Prosser's Patent Tile.*

*This tile is made without water, of a peculiarly dry and finely-pulverised composition, resembling flour, the atoms of which are brought to adhere, and are shapen into definite form in moulds, by immense hydraulic pressure, by means of Bramah's apparatus, so that during vitrification, no pores or passages can be formed by the escape of any steam or vapour. This, then, is the sum and substance of that wonderful improvement upon "the old or slip process of pottery and brick-making." The first object of the inventor was to manufacture, as he still does, buttons called "agate," rings, and knobs, and he subsequently produced the tile. Prosser's tile, as supplied to the author through a commercial treaty, is about 5/8 of an inch thick, and of a dusky white hue, but may be obtained*

*of various colours and tints, as the beautiful tessellated floor at Messrs. Wyatt and Parker's, near Blackfriar's Bridge, London, a similar one at the Old Library in Birmingham, and some others, will conveniently testify; and although divested of everything like crystal in its composition, and assuming more the character of a lava, it is semi-transparent, and in external appearance like polished marble, but as far superior to it in reality, as marble is to chalk.*

### ***The Felspathic Tile Cooler.***

*In the employment of Prosser's tile as a substitute for wood or metal in the construction of coolers, we must bear in mind, that being of a composition chiefly silicious and felspathic, it is insipid, and consequently cannot by possibility impart a taint to the wort; and so impermeable is it, that neither Nankin porcelain, nor any other substance now known, is so close in its texture. The tiles may be moulded either in trigons, squares, or hexagons; and they can be so finely and accurately cast, that the sides and angles shall exactly coincide; but if they should not precisely fit, through any uneven shrinkage in the oven or otherwise, the moulds being made with sides precisely even, they may be ground to dispose of any unevenness they may have received; and the author recommends that they be cemented when laid down edge to edge, by a peculiar cement mentioned for another purpose in Chapter XIII\*. Thus we have a beautiful, smooth, level, and clean surface, and so firm, that nothing short of the most extraordinary pressure can affect it. The sides must be bolted down to the joists in the usual way; and the flanges of all taps, valves, and plug-holes, must be cast of the size and form of a tile, and fitted and fastened in the place of such. Any of the patterns may be enlarged, or additional pieces may be cast, to fill up any spaces that would otherwise appear in completing the edges, especially where the hexagon is selected.*

*These, then, are some of the principal reasons why the author prefers the Felspathic Tile Cooler to any other; for, after all considerations, it appears superior to any other substance yet devised for the brewer's use, whether its durability, its impenetrability, its cleanliness, its inflexibility, or its eventual cheapness, be considered; and its gradual and certain effect may be relied on.*

\*NB Chapter XIII : "Wyatt and Parker's cement".

## Chapter 8

### The Toy and Brick Ventures of Mr Cole and Mr Prosser: Foresight Unrewarded

#### Mr. Cole's "Lego"

One of Henry Cole's early initiatives may have been another casualty of Blashfield's speculated rift with Richard and Minton.

*Cole 1846 miniature by John Simpson (Cole family collection) - photo V&A*



In 1843 the enterprising Cole, a civil servant in the Records Office, in his mid-thirties and a father to a growing family, instigated the publication of an educational series for children, whose literary interests he considered were then being badly served. He had already adopted a pseudonym, Felix Summerly, for another personal publishing venture: early, family-oriented, travel guides to places and buildings of historical and architectural interest. "The Home Treasury" for children was intended to instruct by way of amusement and mainly consisted of a series of books re-telling biblical and well known "fairy" stories complemented by illustrations, some in colour, by "eminent" artists such as Raphael, Titian and Holbein. The artistic emphasis was an important element and followed on from Cole's own enthusiasm for the teaching of "Design".

Cole, with the Treasury's publisher Joseph Cundall, embarked on an extensive advertising campaign in *The Athenaeum*, the weekly literary and cultural review, to which Cole was already a regular, but anonymous, contributor through his friendships with its proprietor editor and his son, both

named Charles Wentworth Dilke. *The Athenaeum* had already been advertising Cole's travel guides.

My searches of the Internet, including in the *BNA*, have found comparatively few adverts for the Treasury in other publications.

The earliest advert for the proposed Treasury appeared in *The Athenaeum* dated May 6th 1843; in an introductory preamble Cole expressed his concern at the inferiority of the literary works then available for children. He listed the first books that would shortly be published in the Treasury and, also, included references to two toys: one called "Tesselated Pastime" and the other an unnamed box of terracotta toy bricks. This advert specifically linked Blashfield's name to the "Mosaics" of the "Tesselated Pastime" and the name of Minton to the box of terracotta bricks said to be made under "Prosser's Patent". On June 6th 1843 these names also appeared in *The Athenaeum's* large advert for the Treasury announcing the availability of the first four books in the series; the toys were still pending publications. The names do not appear in subsequent adverts.

No further books were published until November and December 1843, when four more were added, just in time for the Christmas market. The toys were still "In Preparation" but *The Athenaeum's* advert on 25th November announced that they would be ready in early December together with two other "Toys": a box of paints and a colouring book of pictures.

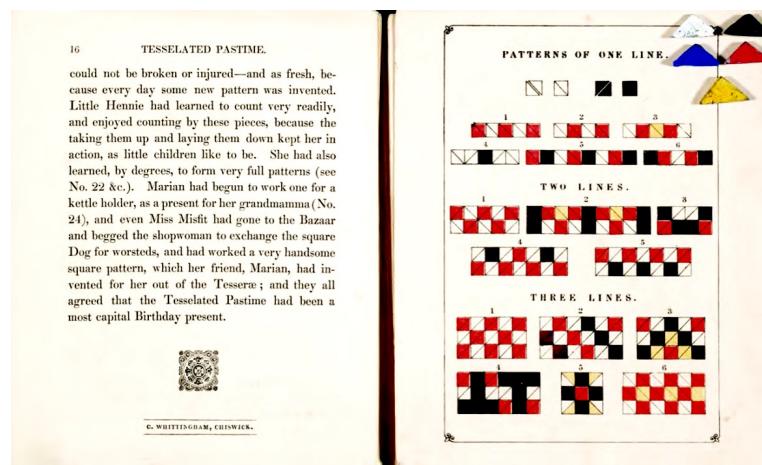
The advert on December 2nd confirmed not only the publication of the box of paints and the Tesselated Pastime toys, but also "A Christmas Congratulation Card: Or Picture Emblematical of Old English Festivity, to Perpetuate Kind Recollections between Dear Friends". The terracotta bricks and colouring book remained "In Preparation"; the latter had been published by 10th February 1844, but the bricks were still pending in *The Athenaeum's* last regular advert for the Treasury on 2nd March 1844. Occasional adverts of future additions to the Treasury appeared later in 1844, but none for the bricks or for the Tesselated Pastime.

I briefly referred to the Tesselated Pastime toy in Chapter 2, when I speculated that in 1843 Cole may have sent Richard one of his cheery Christmas cards, said to be the first ever printed. This speculation was based on references I had found to the toy which stated that its small triangular tiles were manufactured by Minton under Richard's patent. I subsequently found online the essay mentioned previously, "*Toying with Design*" etc., by Ezra

*Shales*, who had clearly researched the history of the development of Cole's tile and brick toys in great depth ( [https://www.researchgate.net/publication/249251816\\_Toying\\_with\\_Design\\_Reform\\_Henry\\_Cole\\_and\\_Instructive\\_Play\\_for\\_Children](https://www.researchgate.net/publication/249251816_Toying_with_Design_Reform_Henry_Cole_and_Instructive_Play_for_Children) )

It was from *Shales's* academic treatise that I learnt that Cole had actually interviewed Minton in the autumn of 1842 for a pamphlet Cole was writing on the renovations taking place at the Temple Church of the eponymous Inns of Court in London, for which Minton supplied the encaustic floor tiles. *Shales* also refers to Coles's initial admiration in early 1842 of the Singer and Pether earthenware pavements, including that in the Reform Club; an admiration which waned in favour of the Blashfield/Minton/Prosser pavements when he eventually viewed one in the latter half of 1843. Cole had missed the March 1843 triumphal demonstrations of Richard's press and in June 1843 had still not seen it in action despite his best efforts to do so (Cole's diary per *Shales*). Cole's presumed article in *The Athenaeum* dated 11th November confirms that he had done so by then or had, at least, seen one of the pavements made with Minton's "porcelain" tesserae (as maintained by *Ward* in 1842) or tesserae of "material similar to that of porcelain" (as described in the March 1843 advert of Wyatt, Parker & Co.). The Tesselated Pastime was first advertised as available for purchase on 2nd December 1843.

*Shales* has traced only one surviving complete example of the toy, which he viewed in the Toronto Public Library where it is held in the Osborne Collection of Early Children's Books. He describes a mahogany box, a booklet and a selection of small coloured tiles. The booklet, written by Cole, included a story as well as diagrams of possible designs and suggestions of buildings to visit. *Image:Tesselated Pastime, page 16, plate 1 and five tesserae. Courtesy of the Osborne Collection of Early Children's Books, Toronto Public Library, Canada per Shales.*



I was, however, taken by surprise at *Shales's* assertion that the tiles were not made by Minton, contradicting not only other commentators but Cole himself

in his autobiography. At first I doubted the correctness of *Shales*'s view, but his description of the tiles, confirmed in a reply to my email to him in March 2015, led me to change my mind. In his essay he describes the Osborne collection tiles as "roughly cut" and of "irregular shapes". In his email to me he remembered that: "*Those tiles were flaking and certainly not porcelain; if they were porcelainous there was still a sense that some of the colors were intrinsic to the bodies of the tiles and others were applied. The shoddiness of those tiles was a bit of an aesthetic disappointment to be honest, especially after looking at them in reproduction. One had the sense that they might have been a prototype even, or some early variant.*"

The five tiles shown in the previous image appear to confirm *Shales* description.

In his essay *Shales* ascribed the tiles to Singer and Pether, which is a possibility. However, I do not believe this was Cole's original intention. The first two adverts in *The Athenaeum* in May and June 1843 had described the tiles as "formed out of the Mosaics published by Mr Blashfield" i.e. the porcelain or porcelain-type tiles Blashfield had advertised in "Designs for Mosaic Pavements" made by Minton under Richard's patent. Cole appears to have formed the view that Minton's tiles, possibly still unseen by him, would be more suitable for his toy than Singer and Pether's, perhaps as a result of his interview a few months previously with Minton or had he been influenced by Blashfield himself?

The Tesselated Pastime was not a commercial success, none were sold in December 1843 according to Cole in his diary (per *Shales*). The price may have been a factor, the least expensive version was 6s and this may have been the cost of the toy reviewed in the *Spectator* dated 30th December 1843:

*Tesselated Pastime. With a Chapter on some Uses of the Toy, and on Taste in Ornamental Patterns. By FELIX SUMMERLY.*

*A simple, pretty, and durable toy; calculated not only to amuse children, but also to cultivate their perceptions of colour and form, and to exercise their taste and ingenuity. It consists of a small, flat, square box, containing a number of triangular-shaped tesserae, of various hues, such as are used for tesselated pavements, but smaller; and the pastime consists of forming them into patterns such as are represented in the book: it resembles somewhat the once popular toy known as the "Chinese Puzzle"; though utility and beauty are superadded [superior/*

superlative?] in this case. The tesserae are made by Mr. BLASHFIELD'S patent process of compressing dry porcelain powder in moulds; and they are so hard as not to be liable either to chip or break, while they may be cleaned with soap and water. The tesserae, however, are not sufficiently numerous to form all the patterns complete.

Except for criticising the number of tiles provided, the review is complementary; Blashfield's name is prominent and the patented process is wrongly ascribed to him. Might these two anomalies suggest that Blashfield had influenced the reviewer? Cole had only mentioned his name in two of the very early adverts. The *Spectator's* is the only review I have found.

The Tesselated Pastime had been removed from the Home Treasury series by May 1846, the last mention I have found for it was in one of its storybooks published by Cundall in 1845.

It is difficult to know what to make of these events. Some commentators suggest that the toy was a joint venture between Cole and Cundall, but was Blashfield a third party? Had he agreed to supply the Minton tiles for the toy and was unable to do so in sufficient quantities; might he have supplemented these with other inferior tiles, such as the ones held in the Toronto library, perhaps without Cole's knowledge?

As for the terracotta brick toy, this was eventually published by Cundall in 1845; the price was relatively expensive, 10s 6d. Cole had visited Minton's factory in September 1844 (*Bonython and Burton*), and it is tempting to link the two occurrences. Again Cole wrote a booklet to accompany the toy, named in it as "Architectural Pastime", although it was not advertised as such. The toy either remained unnamed in Cundall's adverts or appeared as "The Little Architect". It too had disappeared from the Home Treasury adverts in 1846. Shales located one of the booklets in the Bodleian library but without the box of bricks. The bricks had been initially advertised as dust-pressed and they were said to be made to a scale of one eighth the size of standard builder's bricks, in fact very small. At slightly over an inch (2.65cm) in length and less than half that in width and depth, it would surely have tried the patience of even the most conscientious child to build anything meaningful with them.

Shales makes the point that, on the whole, even successful toys have a very low survival rate and that it is not surprising that so little of Cole's Pastimes has been preserved, particularly the mini-tiles and bricks. How many were

actually made and sold must be questionable. Indeed, bearing in mind that we know Richard was unable to keep up with Minton's demands for his presses and dies for the buttons and tesserae, it would seem surprising that any were made at all for Cole's exclusive toys - perhaps they were not. If Blashfield had been involved in this venture of the then relatively unknown Cole, might this also have disinclined Richard and Minton to co-operate?

Cole's enthusiasm for the two toys appears to have waned by 1846. Whatever the reasons for their apparent commercial failure, Cole continued to remain on very good terms with Minton, with whom he collaborated and encouraged to exhibit in the Society of Arts' 1846 Exhibition. Minton's exhibits included a tea service designed by Cole, which won a prize; subsequently known as the "Felix Summerly Tea Service" it became a long-term best seller for Minton, its early popularity extending to the young royals, Victoria and Albert.

Richard, too, does not appear to have fallen out of favour with Cole, as evidenced by the latter's later endorsements of him. Cole's relations, if any, with Blashfield remain a matter of conjecture; that they would have known of each other from the early 1840s is certain and later, following his bankruptcy, Blashfield's success as a terracotta and architectural stone manufacturer would have brought him to Cole's notice again.

### **Bricks - Mr. Prosser, Mr. Blashfield and Mr. Dobson**

*The paper "On Brickmaking, as practised in the Staffordshire Potteries," was contributed to this volume by Mr. R. Prosser, of Birmingham, whose name is a sufficient guarantee for the value of the information therein contained. The details for this paper were collected by Mr. Prosser's assistant, Mr. John Turley of Stoke; and the valuable analyses of brickearths were made for Mr. Prosser by Mr. F. C. Wrightson, of Birmingham, at a considerable expense.*

The above quote is from the self-styled "little work" of over 200 pages entitled *A Rudimentary Treatise on the Manufacture of Bricks and Tiles* by Edward Dobson, Assoc.I.C.E. and M.R.I.B.A.. It was first published in two volumes in 1850 and ran to 37 editions, the last being published in 1980 (OCLC WorldCat.).

I was unaware of the existence of *Dobson's* best seller until April 2015, when I came across a reference to it on the website of the *British Brick Society*, which describes it as "A valuable account of traditional and early industrialized brick making." I had been searching on the Internet for contemporary source material to the early Victorian brick industry and the book looked promising. I am also indebted to the *BBS*'s Enquiries Secretary Michael Hammet for his subsequent help with my researches.

The *Society* had provided a link to a free digitised copy of the seventh edition, published in 1882; it commenced with *Dobson's* original Preface to the first 1850 edition in which he explained the purpose of his narrative, namely to provide:

*"much practical information which has never yet been published, and descriptions of processes which are little known beyond the localities where they are practised. ... Working brickmakers are mostly illiterate men, unable to describe correctly their own operations, and still less to explain their meaning. I have therefore considered it necessary to have every process here described carefully watched throughout, either by myself or by some one on whose accuracy of observation I could place dependance."*

*Dobson* then explained at the end of page one of his Preface that in the autumn of 1849 he had asked a number of his "friends" for help with his project.

When I read the next page, I was entirely taken by surprise to see Richard's name amongst *Dobson's* acknowledgements: "Mr. Richard Prosser has kindly contributed a valuable account of the practice of Brickmaking in Staffordshire which will be read with much interest,...".

I subsequently found a free eBook of the first edition of *Dobson's* invaluable "little work". The quote at the beginning of this section appears on page 36, it is one of several references to Richard but is of particular interest for the inferences that can be drawn: *Dobson*, like Cole, clearly had a high regard for Richard as an authoritative and reliable source (even on a subject, brick making, which might appear outside the expertise of a mechanical engineer); the reader was presumed to have heard of Richard, one of the few contemporary acknowledgements that I have found of his fame during his lifetime. As for the "considerable expense" incurred, presumably by Richard, this would have been at a time when his finances were heavily committed to his latest tube machinery invention and shortly after hugely costly litigation

over his earlier lap-welded tube machine; either Richard was a very good friend of *Dobson* or he had some other incentive for investing in the book.

The reference to Richard's "assistant", John Turley, was intriguing; was he no longer employed by Minton? Mr Wrightson has eluded me, except as the author of a couple of articles in journals, which indicate he was a scientist, probably a chemist.

*Dobson* himself also proved difficult to trace on the Internet, even though the *WorldCat* library site indicated he had written over 149 books, treatises and other works on engineering and building/construction. However, there are several websites for an Edward Dobson (1816-1908), railway engineer, who achieved some fame for himself in New Zealand (and Australia). He proved to be Richard's "friend", when I acquired a copy of the 1971 reprint of the 1850 *Treatise* published by the *Journal of Ceramic History* with an introduction and short biography of *Dobson* by *Francis Celoria*. The image below (c.1866) and a fuller account of *Dobson*'s life (and that of one of his sons) can be found on the *Encyclopaedia of New Zealand* website: <http://www.teara.govt.nz/en/biographies/1d14/dobson-arthur-dudley>.

*Dobson* qualified as both a civil engineer and architect; he had worked as a railway engineer in Nottingham from 1846-1849 and had emigrated to New Zealand in 1850 after the end of the railway boom in England. *Celoria* speculated that this and his several other Rudimentary Treatises on construction topics may have been written at a time when *Dobson* was otherwise unemployed.

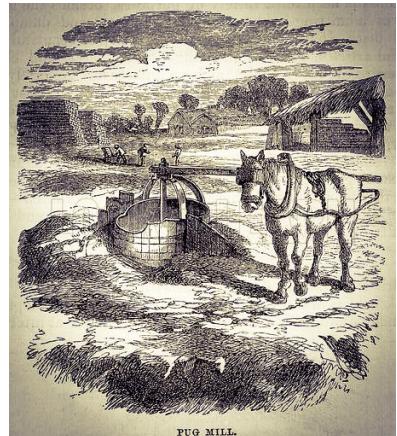


Was Richard generously merely helping out his "friend" in his time of need? More likely, I believe, he also saw an opportunity to advertise the application of the dust-pressed process to bricks and other architectural ceramics.

It is clear that from an early date Richard had contemplated that the dust-pressed process could be applied to the manufacture of bricks: a mass market of huge potential. In 1840 brick making was still largely carried out by hand in the locality of the clay deposits used. Earlier attempts at mechanisation, of which there were many, had largely been unsuccessful except for the use of large mixer-like horse-driven "pug" mills to grind and soften the clay before it was put into the brick moulds; much water was added in this softening or tempering process. Bricks were still cheap and, in fact, any

demand for mechanisation was confined to larger building projects, but with the then growth in population and of towns, cities, factories and, in particular, with the emergence of the railways this was an increasing demand.

Richard's initial provisional application for the dust-pressed patent granted in June 1840 had only specifically identified buttons, rings and knobs as possible articles of manufacture, but his full specification enrolled in December 1840 also briefly mentioned bricks and tiles. The specification explained that the main advantage of using dust-pressing was that the bricks and tiles could be impressed, in hollow or relief, with a design such as coats of arms and architectural ornamentation. Richard admitted that, apart from speed and economy of manufacture (important benefits, surely), the process did not improve on "a brick made in the ordinary way". However, Richard had first specifically qualified this last statement in that he was referring to a brick made by a "fly" (screw) press, the same as used for the manufacture of buttons, capable of exerting a pressure of up to about 200lbs a square inch.



If he had not already done so, Richard must have quickly commenced developing an hydraulic press for the manufacture of bricks capable of exerting pressure of 300 tons. The hydraulic press was then also commonly known as the Bramah press after its inventor Joseph Bramah (1748-1814), who had taken out a patent for his invention in 1795.

In January 1842, a little over a year after the enrolment of the specification, an article appeared in the *Liverpool Standard*, all or extracts of which were quickly re-published by many other newspapers throughout the UK including the *Hereford Journal* dated 26th January:

*New Process of Manufacturing Bricks, Tiles, Architectural Mouldings, &c.  
At the annual meeting of the Liverpool Polytechnic Society, on Friday, the  
Secretary, (C. F. Salt, Esq.) read a communication from Mr. R. Prosser,  
C.E. of Birmingham, on his patent process of manufacturing bricks, tiles,  
architectural mouldings, &c.*

The Liverpool Polytechnic Society had only been founded in 1838 "for the encouragement of the useful arts and of inventions" and met monthly in the then wealthy seaport town's own prestigious Royal Institution; both of these learned bodies no longer exist as they were dissolved in 1898 and 1948

respectively - *National Archives website*. The Society long predated the Liverpool Polytechnic (formed in 1970 and which became the Liverpool John Moores University in 1992), but may, presumably have had some links to one of the Polytechnic's predecessors, the Liverpool Mechanics Institute (formed in 1825 as the Mechanics' School of Arts) - *LJMU website*.

With one possible exception quoted later, I have found no evidence that Richard sent his "communication" to any other societies; if he did, it appears to have gone unreported, but this may not be surprising in the light of the nationwide coverage achieved by the *Liverpool Standard's* article. The coverage was in fact international, extracts being published as far apart as St Petersburg and Philadelphia.

Having made the claim that his "invention is applicable to the manufacture of any articles that can be produced under a press.", Richard had commenced his account with a description of the brick making methods then current. In particular, he had emphasised the amount of water used to soften the clay, which greatly added to both the weight of the undried bricks and the evaporation time it took for them to dry out enough to be baked in the kiln. The press report then continued:

*The novelty of Mr. Prosser's process consists in the clay being dried, ground to powder, and submitted to pressure, in metallic moulds, until the particles cohere together. As there is no water in combination with the clay, no drying process is necessary; consequently the articles made by this method are ready to be fired or burned as soon as they leave the machine. Owing to the great pressure required to cause the particles of clay to cohere together, the articles made by this process have greater density than those made in the ordinary way; they are also less porous, and not subject to decay by wet or frost. In addition to these advantages, any architectural device may be impressed upon the clay, which, when burned, will retain all the sharpness of the original, however elaborately finished. By this process bricks can be made in all weathers, and with greater economy than any other plan known at present. The brick press is worked by hydraulic pumps, giving about three hundred tons pressure, thus producing the adhesion of cohesion. The machine delivers the brick (four at a time in the present machine) ready at that instant for the kiln, requiring no exposure to the atmosphere to dry. The whole operation, from the time of putting the powdered clay into the machine to the delivery of the brick, occupies about half a minute. Machinery might readily be constructed to produce fifty bricks in a minute. This invention is likely to work a revolution in the style of buildings in this country;*

***the most elaborate gothic may be produced at no very great cost.***  
*The secretary exhibited a brick made by this process. It attracted much attention.*

The reporter ended by mentioning that Richard had, also, sent the Society a sample of his "Agate" buttons, which were shown to the members and said to be "truly elegant" and "very much admired".

The speculated "revolution", which I have highlighted above, did not occur immediately and, in fact, not at all "in this country".

Whether Blashfield was already involved with the promotion of this application of Richard's patent is not known, but seems quite likely bearing in mind his known interest, since the 1830s, in the manufacture of architectural ceramics and artificial stone.

The Liverpool article was also briefly reported in the April 1842 issue of *The Civil Engineer and Architect's Journal*.

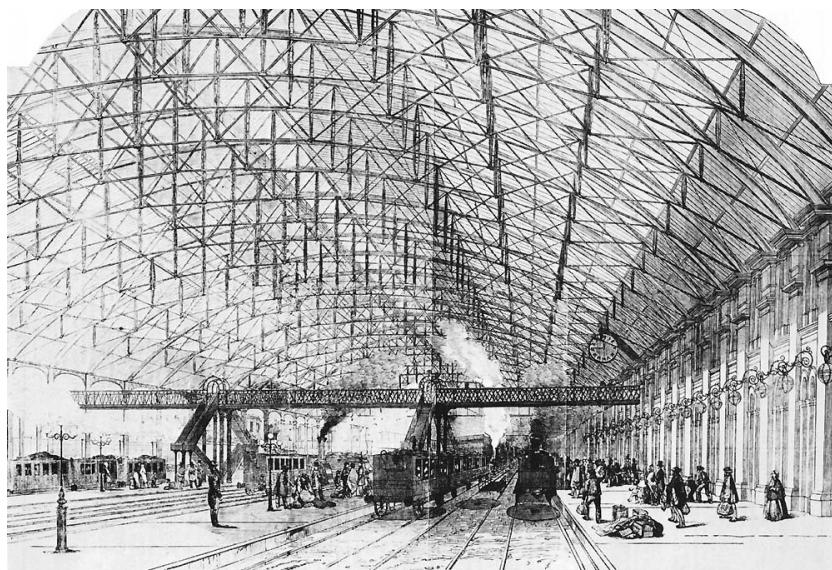
In the October 1843 issue of the *Journal* there was a long report of the meetings of the Institution of Civil Engineers held on 25th April and 2nd May 1843. These took place only a few weeks after the successful demonstrations of the dust-pressed process at the Society of Arts and the Marquis of Northampton's Soirée. Blashfield, as already mentioned in the previous chapter, had attended at least one of the ICE meetings, again accompanied by Cowper, and had brought samples of dust-pressed tiles and a brick to show to its members.

Both of the meetings appear to have been fully occupied with a reading, followed by a surprisingly lively discussion, of a paper written by one of the Institution's members: *An Account of the Brick-making at the Blechingley (sic) Tunnel, during the winter of 1840 and summer of 1841*. The writer Frederick Walter Simms (1803-1865) attended the meetings and had presumably read out his treatise which then gave rise to the prolonged discussion by the attendees that was reported in the *CE&A Journal*. Of the many members who voiced their views, a few are identifiable as eminent civil engineers of their day; in particular "Mr Cubitt" was presumably William Cubitt (1785-1861), one of the greatest of the great Victorian civil engineers, who at the end of his illustrious career was appointed to supervise the construction of the Great Exhibition's glass palace in Hyde Park for which he was knighted in 1851. This identification was almost certainly confirmed when the archivist of the

ICE sent me a copy of the minutes of the meetings which gave the initials of many of the speakers, including "Mr W. Cubitt".

Blashfield was not a member of the Institution, but a Cowper was; Edward Shickle Cowper (1790-1852) was not only a printing engineer of some renown, he was also an academic and by 1843 may already have taken up his appointment as professor of "manufacturing art and mechanics" at King's College, London mentioned in his entry in the *DNB 1885-1900*. E.S. Cowper had been elected a member of the ICE in 1830 and would no doubt have lent some authority to Blashfield's claims for the merits of the application of Richard's process to tiles and bricks. However, there is another possible candidate for Blashfield's companion at the ICE meeting, namely Professor Cowper's eldest son, Edward Alfred Cowper (1819-1893).

E.A.Cowper's engineering career started with his apprenticeship at the age of fourteen and was more distinguished than his father's; he also has an entry in *Wikipedia* and will be known to Birmingham railway enthusiasts as the designer, in about 1850, of "the wrought-iron and glass roof of New Street Station in Birmingham, which was then the largest single-span roof in the world at 211 feet (64.31m) wide. ...George Gilbert Scott praised Cowper's roof at New Street, stating "An iron roof in its most normal condition is too spider-like a structure to be handsome, but with a very little attention this defect is obviated. The most wonderful specimen, probably, is that at the great Birmingham Station . . . " - *Wikipedia*.



*Birmingham New Street Station:*

[https://www.warwickshirerailways.com/lms/lnwrbs\\_str1874.htm](https://www.warwickshirerailways.com/lms/lnwrbs_str1874.htm)

This elegant roof was another victim of the vandalism to Birmingham's heritage buildings that occurred in the 1960's; the then redevelopment of the station resulted in concrete-enclosed concourses and platforms with no natural light and the latter with inadequate ventilation for the escape of the pervading diesel fumes. (At the time of writing (April 2015), the latest renewal of the station was nearing completion; it was opened in September 2015 and, architecturally at least, is a vast improvement on its immediate predecessor, except for the still unwelcoming platforms which remain beneath the new atrium.)

In 1843 Cowper jun. was employed by Fox, Henderson & Co. of Smethwick, a leading firm of structural and railway engineers, who were also to be the erectors of Paxton's palace in Hyde Park in 1851, for which Cowper jun. oversaw the contract drawings. His obituary in the journal of the Institute of Mechanical Engineers reveals that, whilst at Smethwick, he "invented and made hydraulic machinery for bending railway-wheel spokes out of flat bars".

Both father and son would therefore have had experience of the machinery required to make dust-pressed bricks and large tiles; in addition the son was an employee of a concern for whom bricks was a huge part of their building stock, in particular for the railway construction boom then still underway. The ICE minutes, unhelpfully, identify the speaker at the meeting as "Mr E Cowper"; on balance I consider this probably refers to the father rather than the son.

The number of bricks used in the building of tunnels, bridges, cuttings and viaducts for the Victorian railway lines is one of those unconsidered facts which only come to mind when presented with a visual reminder: such as seen when arriving by rail into one of our major cities through towering brick lined cuttings or, when driving, the sight of one of the major rail viaducts straddling a beautiful valley. These are visible reminders, but in the case of the hundreds of tunnels built by the Victorian navvies only the bricks used in the construction of the entrances and exits are apparent; we do not see the brick lining throughout the length of most of the tunnels, some more than two miles long. Dobson stated that a tunnel of "ordinary dimensions" would consume about 8,000 bricks per yard.

On this basis, the construction in 1840/1841 of the Bletchingley tunnel, over three quarters of a mile in length, would have consumed about 10.6 million bricks. Simms, whose paper on this tunnel in Kent was under discussion at the Institution's meetings, was the resident engineer of the South Eastern

Railway and the author of *Practical Tunnelling* "generally accepted as the authoritative work" on the subject (<http://www.forgottenrelics.co.uk/index.html> - the hostile working conditions and dangers confronting the tunnel builders are another story told on this wonderful website recording the history of our railways).



*Working drawing of Bletchingley tunnel entrance and image of the construction site from <http://www.kenthistoryforum.co.uk>*

The total number of bricks made annually in England and Wales was estimated at 1,600,000,000 (1.6 billion U.S.) by one contributor to the discussion, J. Hunt, who was an acknowledged expert on the industry. Dobson's very exact figure for 1840 is more, 1,725,628,333 and is based on the brick duty taxation records for England and Scotland. He estimated the amount made for railways at between 600 to 800 millions annually.

Blashfield may therefore have been very excited when, quite early on in the discussions, a "Mr Farey" reported that:

*"A very ingenious system of moulding without wetting the clay had recently been introduced by Mr Prosser of Birmingham. At present the system was confined to the production of buttons, small tiles, and slabs for painting; but the patentee asserted that the machine could be advantageously used in making bricks. A few had been made which in burning only shrunk 1/30th of an inch in 9 inches".*

J.Farey was probably John Farey jnr. (1791-1851), "a mechanical engineer and polymath ... with a precocious talent for mechanical draughtsmanship" according to his entry in *A Biographical Dictionary of Civil Engineers in Great Britain and Ireland* by A. W. Skempton. It seems likely that Farey was collaborating with Blashfield (and Cowper) in introducing Richard's "system" to the meeting; he later made a further interjection in which he described the process and produced the specimens of dust-pressed tiles and brick:

*"A brick of the usual dimensions, which was exhibited, had been made by this process from the common brick earth of Staffordshire, ground fine; it was of a clear red colour and of homogeneous texture, and the edges were sharp; its weight was 6 3/4 lbs and the specific gravity was 2.5. Mr Farey stated that this brick was not vitrified, but merely baked, and that it had acquired its density from the great pressure used, which was equal to 250 tons"*

A "Mr Pellatt" then stated that he had actually seen buttons and other small objects being made by "Mr Prosser's machine" and described the powdered clay as appearing to retain a degree of moisture to aid its cohesion when pressed. Apsley Pellatt (1791-1863) was a glass manufacturer especially interested in "the artistic improvement of glassware" according to his obituary in the 1864 *ICE Journal*; in 1819 he had also patented "the method of ornamenting glass with delicate white Argentine incrustations of dry porcelain clay, cemented into the solid glass" aka cameo incrustation. His interest in the dust-pressed process is understandable.

Pellatt continued with an explanation of the difference between Staffordshire clay and clays from the West Country counties including Cornwall. At this point the comparatively young, and relatively unknown, Blashfield had the temerity to make some observations himself; firstly, on the dust-pressed tile specimens "on the table" as quoted earlier in chapter 7 and, secondly, on:

*"the 9 inch stock brick (that) remained perfect under a pressure of 90 tons: the largest sized slab hitherto produced by the process was 34*

*inches long by 8 inches wide and half an inch thick: but he believed that as soon as the new hydraulic presses were completed, it was Mr Prosser's intention to make large bricks of varied forms for architectural purposes".*

Cowper was also then given an opportunity to speak: "In reply to a question from the President, Mr Cowper explained that the tiles &c, after being subjected to the pressure, were released by the action of a treddle (*sic*), which raised the bottom of the mould, and brought out the object without injuring its edges."

"Mr Hunt" then described the brick making machine he had invented, which had met with some success abroad; it used wet/plastic clay.

Two members then commented briefly on Richard's brick, both thought its weight and density would make it unacceptable to builders and one, also, that its surface was so smooth that mortar would not adhere to it. Blashfield made the point that ash "or other substances" could be mixed with the clay to make the dust-pressed bricks lighter. The discussions continued with comments from several members on (inter alia) the merits or otherwise of dense bricks, the variations in brick strength from different localities and the use of ashes in their composition.

In the *ICE Journal* report a note had been added to Farry's description of the weight, 6 3/4 lbs, of the dust-pressed brick, comparing it with that of Hunt's machine-made bricks, 6 1/2lbs, and the 5lb 5oz weight of another common brick.

The Journal's report of the meeting gives the impression that its members did not greet their introduction to Richard's brick with much enthusiasm; sceptical questions were raised which were unanswered, whether due to failure or lack of opportunity by Blashfield and Cowper it is impossible to know. This omission on their part begs the unresolved question as to why Richard did not attend the meetings himself.

He would undoubtedly have been extremely busy developing not only the hydraulic presses, but his tube machines as well (ongoing litigation over the latter may have been a factor too). Yet, only a few weeks earlier, in March, he had made time to attend the demonstrations of his process for the promotion of Blashfield's tessellated pavements. Arguably, the application of dust-pressing to bricks was, potentially, of much more commercial importance.

Richard had either entrusted Blashfield to represent him at the meetings or, perhaps, Blashfield was acting for himself having purchased an interest in the patent for the manufacture of bricks (and architectural ceramics), as well as the pavements.

Whatever the background to the promotion of the process to the ICE members, my searches have revealed no evidence that the manufacture of dust-pressed bricks became a commercial reality before the expiry of Richard's patent in 1854. What is more, I have found no reference to their being exhibited at the Great Exhibition in 1851.

The contribution by Richard in 1849/1850 to *Dobson's Rudimentary Treatise* (on brick making in Staffordshire) made no reference to the process, but *Dobson* had already done so in the first chapter when describing the various methods then adopted to mould bricks. *Dobson* described the advantages of the invention in its application to bricks: the elimination of the drying time; their strength; and, in a footnote, the correction of "a common but an erroneous notion" that they were denser i.e. heavier than bricks made in "the common way". (In a later revised edition of *Dobson's Treatise* it was stated that in 1861 it was found that the average weight of each of 25 bricks from different districts was 7.85 lbs.) *Dobson* also maintained that the process had great advantages for the manufacture of ornamental bricks for cornices and bas relief.

If Blashfield had acquired a licence to make bricks under Richard's patent, it may have lapsed or been surrendered by 1850; perhaps at the same time, in 1845/46, that he was forced to give up his interest in the manufacture of mosaic pavements due to his financial difficulties. However, Blashfield clearly still retained hopes of exploiting the process, as, within a year of the expiry of the patent in 1854, he made reference to the application of the process to bricks in a short (32 page) book published in 1855: *An Account of the History and Manufacture of Ancient and Modern Terra Cotta etc.*

The determined Blashfield had risen from the ashes of financial ruin to become a successful manufacturer of terracotta based in Millwall. His 1855 book was favourably reviewed and quoted from in *The Athenaeum* dated 30th June of that year. The quoted passage dealt with the advantages of using terracotta for building purposes, in particular its ability to withstand the polluted atmospheres then prevalent in towns and cities, which caused damage to other building material, natural and artificial. London was named as having the "most destructive" atmosphere. In addition, Blashfield

maintained that terracotta facades would be easier to clean by simply hosing or wiping down; he then continued: "Brick's made on Prosser's principle, with buff and red clays, would be sufficiently smooth on the surface to be kept clean in this way at all times without being glazed."

However, I have found no evidence that Blashfield employed the process in the production of terracotta, whether brick or ornamental. He may have tried to do so, but encountered the problem that was described in later editions of *Dobson*.

It is clear that there was a plethora of inventions for brick making machinery in the 1860s, including machines for making bricks using the dust-pressed process. The 1863 edition of *Dobson* had been edited by Professor Charles Tomlinson, whose 1852 *Cyclopaedia* contained a description of his earlier visit to Minton's tile manufactory, which I have referred to previously. *Tomlinson* added a short chapter to the *Treatise* on the impact of mechanisation on brick and tile manufacture dividing the new machinery into two classes: that using moist/plastic clay and the other using dried ground clay. The additional costs of drying and grinding was pointed out as a disadvantage of the latter method.

However in 1868 a further edition of *Dobson* was published with yet another, much longer, chapter on the mechanisation of the industry by Robert Mallet, A.M., F.R.S., in which he described various plastic and dry clay brick making machines, including one for dry clay which emanated from the U.S.. However he also disclosed a complication that had not previously been mentioned with the dry process of brick making; namely that hollows were found in dry-pressed bricks caused by pockets of air trapped in the pulverised clay. To eradicate this defect one machine had been developed which pressed the powder more than once; *Mallet* also described another machine which moistened the dry ground clay with steam before pressing, which also apparently solved the problem. In fact, the necessity to expel air from the powder used to make the tesserae for the mosaic pavements had been recognised by the time that the "especial account" of the dust-pressed process had been written for Prince Albert in March 1843.

Notwithstanding its disadvantages the dust-pressed process clearly continued to be used to make bricks, but to what extent is unclear. The plastic clay process still dominated the industry but in mechanised forms. By the 1911 edition of *Dobson*, the then editor Alfred B. Searle maintained that the "Dry-Dust Process is seldom used for brick-making" due to the additional cost

incurred in drying the clay. *Searle* then, somewhat equivocally, went on to describe machines which successfully made bricks by the dry process by pressing the powder at least twice.

*Searle* had also previously described a "Semi-Dry Process", which utilised a "slightly moist powder": the adaptation of the "precisely similar" dry process first mentioned by Mallet to overcome the trapped air problem. The "Semi-Dry Process" was used "extensively" in brick making by 1911, particularly in the area of Fletton near Peterborough, where the type of clay was particularly suitable. Now called "Fletton bricks", in the 20th century they formed and still form a significant proportion of brick output in the UK. Millions of homes have been built with them.

The "dry" dust-pressed brick no longer appears to be made, but it was probably a misnomer anyway. The "dust" in Richard's original process was never completely dry and required a minimum retention of moisture for the clay to cohere - whatever the end product: buttons, tesserae, tiles or bricks. The actual amount depended on the composition used for the particular product. The powdered kaolin based mix for the buttons and tesserae was said to be as fine as flour; it required so little moisture to be cohesive, 1.5% or less, that it was not apparent; dust-pressed tiles require about 8%. The much coarser ground clay earths used in "dry" pressed brick manufacture would have required more moisture, but still comparatively little; even the powder for semi-dry pressed bricks contains only about 20%. The term "semi-dry", used in this context, is therefore misleading.

It would be foolish to suggest that Richard invented the manufacturing process of one of the commonest forms of modern brick; but he was one, and probably the first, of the pioneers in the UK of the mechanisation of the (semi-)dry pressed brick industry. A claim that gains some credence from an entry in the 1902-03 *Encyclopaedia Britannica* on the subject of fire bricks:

*The ground clay is either brought into a plastic state with water in a pug-mill and moulded by hand, or by brick-moulding machinery generally connected with the pug-mill outlet; or the partially moist ground-clay dust is compressed into bricks in iron moulds by steam power, a modification of Prosser's well-known process. More shapely bricks are thus produced than by plastic moulding, and their perfectly true flat sides enable a minimum of jointing materials to be employed—a circumstance of importance in the stability of fire-brick masonry, as thick fire-clay jointing contracts in the firing, tending to shatter the structure.*

(The author of the entry was George Maw of the firm of Maw & Co.; founded in 1850 these tile manufacturers grew to dominate the industry in the latter half of the nineteenth century.)

Fire bricks are dense and heavy and, as the name suggests, are able to withstand high temperatures; they are used to line furnaces, kilns and fireplaces.

George Maw may have written his contribution to the *Encyclopaedia* as early as 1875 as the 1902-03 10th edition incorporated entries from the 9th dated 1875-89. The *Encyclopaedia's* entry on "Bricks" may date from an earlier period too, but the contributor, an unidentifiable "A.B.M." (who was not George's brother Arthur Maw, "A.M.", the contributor of the entry on encaustic tiles) confirmed that dust-pressed common bricks were then being made, but probably on a minor scale:

*Thus far only brickmaking by hand has been spoken of, but of recent years there has been no little activity in making by the invention of brickmaking machines, with a view to economy, certainty, and rapidity of production, and improvement in the quality and appearance of the bricks. It is only in brickmaking on a considerable scale, of course, that moulding by machinery can present much advantage over hand moulding, since the cost of moulding bears so small a proportion to the total cost. The various machines that have been offered to the public may be arranged in two classes,—those which operate on the clay (with moderate pressure) in a moist and plastic state, and those in which the material used is pulverized and dry, or nearly so. A denser brick, and one less liable to shrinking, is produced in the latter case; but much care is needed in preparation of the clay, and a much stronger compression is required, to ensure the proper tenacity.*

The machinery Richard developed, hydraulic presses with multi-brick moulds, was very simple in comparison with the multitude of complex machines that appeared from 1860 onwards. However, the development of such machinery would surely have been within his capability.

His contribution to *Dobson's Rudimentary Treatise* in 1850 indicates that he still considered that the industry held potential for the exploitation of his patent. There are probably a number of factors that deterred him from doing so, not the least being the scepticism of his peers voiced at the 1843 meetings of the ICE and his preoccupation with his tube machinery inventions throughout the 1840s.

There may, however, have been another deterrent; one related to his temperament and which we have seen in his dispute with his brother Thomas in the nail-machine story and in his reaction to the infringement of his patent by Chamberlain and Lilley in the story of the "Agate" button. Richard, we already know, was very confrontational and, apparently, was not a man easily appeased by those causing offence, certainly on matters of principle (Thomas possibly excepted).

Blashfield, I believe, may have been that other deterrent or, at least, one of them. There is little doubt that, in later life, Blashfield held a grudge against Richard as evidenced by his reported remarks in 1858 following Digby Wyatt's eulogy for Minton at the Society of Arts. Hints of this antagonism surfaced again on 16th November 1868 when Blashfield addressed a meeting at the Royal Institute of British Architects at which a paper was under discussion given by the architect Charles Barry jun., whose eminent father, Sir Charles Barry, was the architect of the new Houses of Parliament, the Reform Club and many other prestigious buildings. The paper concerned the use of terracotta at the new Dulwich College, designed by the younger Barry; the terracotta was supplied by Blashfield and the College is one of the buildings for which his terracotta is best known. Blashfield, described as a "Contributing Visitor", was asked to address the meeting; after expressing his thanks to Barry for his patronage and introduction to the meeting, Blashfield continued:

*"My own acquaintance with pottery grew out of my connection with the late Herbert Minton, who was interested in Prosser's patent for making buttons from porcelain. Long before the date of this patent I had been making tesserae from cement, broken tile, and marble, and contriving tesselated pavements; and at this time may be seen in many places the remains of mosaic and inlaid pavements made by me before Mr. Minton fabricated tessera. The consideration of the subject of architectural pottery occupied my mind at the time I began to make these pavements. I pressed upon Herbert Minton the importance of manufacturing architectural pottery; and some twenty four years ago (i.e. 1844) I gave him a piece of work to make with an ornamental pattern on the surface enamelled. But I had a great deal of trouble at the early period of his making mosaics to keep him up to the mark in the production of such geometrical forms as would readily combine in the formation of pavements,— of Classic, Mauresque, and Mediaeval character,— and I never could at that date induce him to give attention to architectural embossed and moulded forms."*

*When Herbert Minton commenced making tesserae, he used a coarse pottery body for the base, and laid on the surface a finer material. He did not make the ware as it is now made, in thin slices and little more than a quarter of an inch thick. He at first made the tesserae in the form of parallelopipedons (sic aka "rhomboid") of coarse clay with a mere facing of blue, white, and other colours. Those colours looked well for a time, but they soon cracked and flaked off. After numerous experiments, Herbert Minton found that the best way of making tessera was from clay in dry powder, and of the same colour and body throughout, in the same way as Prosser made buttons, and by means of similar machinery. I recollect a communication (the same as that read at the Liverpool Polytechnic Society in January 1842 presumably) which was made by Mr. Prosser, of Birmingham, to the Society of Arts about 1841, in which he expressed his views as to the importance of the use of compressed clay with a view to its application to mouldings; but his machinery was found to be so imperfect for compressing large pieces, that it was a long time (actually no more than 18 months) before Mr. Minton could make from Prosser's machines an hexagonal brick above 3 1/2 inches diameter and 2 inches thick, from dry powder. Subsequently (by April 1843 according to his comments at the ICE meetings) plain surface forms of larger area were made, and eventually slabs of 3 feet length with arabesque ornament on the face for the chimney pieces of the Conservative Club House (opened early 1845). A communication was made, I think about 1845, with Mr. Page (who was then about to construct some bridges at Windsor), on the subject of making voussoirs for arches from clay in dry powder; but some circumstance connected with Mr. Prosser's patent embarrassed the subject, and prevented Prosser going on with experiments for making large masses of ware in that manner. Mr. Prosser had certain views with regard to the manufacture which I am unacquainted with, and which he did not, as far as I am aware, leave on record. I have now related my first acquaintance with pottery. About the year 1850 I began to make terra cotta..."*

Blashfield's recollections may not be entirely reliable (as I have previously observed on his remarks in 1858) and his remarks as to Minton first making tesserae from coarse clay are curious and seem unlikely, although they do bring to mind Shales's comments about the Tesselated Pastime tiles he saw in the Toronto library. Blashfield also ascribed the application of Richard's patent to tesserae manufacture as Minton's initiative, in contradiction to the statements made to Spons (probably by Hollins) and all the other evidence of Richard's actual active contribution.

It is Blashfield's remarks at the end of the above quote that are of particular interest. Voussoirs can be seen forming the arches of bridges and tunnels; they are the substantial wedge shaped stones that support the upper stone and brick work. Mr Page CE was actually present at the meeting, he later made some comments himself on the merits of terracotta including the following statement: "In 1844, I laid before Her Majesty's Commissioners for Metropolitan Improvements, under the presidency of the late Duke of Newcastle, a design for a bridge in a material very much like terracotta, which was then being manufactured by Mr. Prosser, of Birmingham, and of which he had made hexagonal bricks of great durability, thus proving I consider, better than stone."

*Thomas Page (26 October 1803 – 8 January 1877) was a British civil engineer who was responsible for the design and construction of many bridges, including Westminster Bridge and the first Chelsea Bridge (both crossing the River Thames) - Wikipedia*

These remarks of Blashfield and Page each suggest that by 1844 Richard had set up his own dust-pressed brick manufactory and may have been tendering for contracts to supply specialised bricks for major civil engineering projects. Had he employed Turley to assist him in this enterprise?

As for Blashfield's other asides about Richard, he stated, with a contrived air of vagueness, that Richard was unable to pursue this project due to some "circumstance" relating to the patent that "embarrassed the subject". Blashfield was almost certainly privy to this "circumstance" upon which I could only speculate: had Richard encountered the problem with trapped pockets of air described by Mallet; or was the right to manufacture and/or sell dust-pressed bricks actually vested in a third party, possibly Blashfield himself?

We know that by the end of 1845 Blashfield, in dire financial straits, had "surrendered" his right to manufacture mosaic pavements using dust-pressed tesserae to Minton. Had Blashfield retained ownership of a separate exclusive licence, granted to him by Richard, to manufacture dust-pressed bricks; had their speculated rift, over Blashfield's publication of Richard's account of the process for Prince Albert, left irreconcilable differences between them? And what of Blashfield's further enigmatic comment that Richard had "certain views with regard to the manufacture which I am unacquainted with, and which he did not, as far as I am aware, leave on record."? Was he referring to brick products or the process itself?

The lack of the survival of any personal records by Richard is something of which I am only too aware. We do know, however, that at least one other contemporary commentator, *Binns*, had attributed a sense of intense disillusionment ("disgust") to Richard after the outcome of his litigation against Chamberlain and Lilley in 1845 (see chapter 6).

The truth behind Blashfield's weasel words and Binns' remarks may never be known, unless the Minton Archive, the only likely source, can provide an answer. (In fact, a visit to The National Archives in 2016 was to result in the discovery of the "circumstance" that had, probably, "embarrassed the subject" for Richard to his subsequent "disgust" - see *An Early Addendum* to this Story. SD 2022 rev. )

It was whilst I was, unsuccessfully, searching in the *BNA* for some evidence of the existence of Richard's brick works, that I came across a report of the outcome of the 1845 case, which had not emerged on my previous searches (probably because the *BNA* had not then added it to its archive, which is still constantly being updated). The report was contained in the *The Staffordshire Advertiser* dated Saturday 30th August 1845 and differed from other reports in that it made reference to Minton himself and his role in the "Agate" button business. In describing the background to the case the reporter described "the eminent firm of Minton and Co" as having made the buttons "under licence" since the grant of the patent in 1840. This assertion that Minton and his partners were mere licensees may have been a misunderstanding, if it was not for the reporter's later comment on the compromise agreement reached between the litigants:

*The arrangement, we understand, to be this; that Mr. Minton is henceforth to be joint patentee with Mr. Prosser and Messrs. Chamberlain are to be licensed, so as to enable them to continue the manufacture of the buttons on payment of a royalty to the patentees.*

If it was correct, this information would cast a fresh and very different light on the events that occurred during the first five years and more of the patent. I have found no later correction published by the newspaper and it is unlikely that it would have made such statements about one of its most important local citizens and employers without some corroboration. It is surprising, however, that none of the other accounts of the court proceedings in papers in Birmingham, Worcester and London made any mention of Minton at all. In addition, none commented on the terms of the compromise, because, as explained in London's *Morning Post's* report, they were not disclosed in court.

I will not speculate further on the contents of *The Staffordshire Advertiser's* report - for now.

By the time of the 1868 RIBA meeting Blashfield had been manufacturing terracotta in Stamford, Lincolnshire for ten years trading as The Stamford Terracotta Company. He had relocated his business to this elegant Georgian town in 1858 to exploit the clay deposited in its vicinity, which was particularly suited to terracotta production.

I have found no suggestion in the numerous reported comments made by members and others at the RIBA meeting that the dust-pressed process was used to manufacture the architectural terracotta pieces then so much in vogue. Blashfield did, however, describe his methods of grinding and sieving the clay to a very fine consistency and of using moulds "with 25 tons pressure", but after moulding the pieces required a prolonged drying period before they could be fired.

Blashfield's entry in *Wikipedia* and commentaries on other websites testify to his success as a manufacturer of fine architectural terracotta and his products are associated with many other notable buildings, some abroad, in addition to Dulwich College. However, in the early 1870s he entered into a contract, potentially his most prestigious, which was to be his undoing - an echo from Kensington Gardens?

The original Museum of Fine Arts in Boston U.S. was a Gothic Revival building designed, presumably, to emulate its counterparts in Kensington; it incorporated a large amount of architectural terracotta, which Blashfield undertook to supply. The venture proved a disaster for Blashfield, his losses were so substantial that he had to wind up his business in 1874 and he was again declared bankrupt in 1878. He died in 1882, he had returned to London and was living in Westminster; probate was granted to one of his brothers. Blashfield's estate was valued at £52.

The Boston Museum of Fine Arts was completed in 1876; a landmark building in the city, it was nevertheless demolished in 1910 after the Museum was relocated to the newly built neoclassical building that is still its home.  
*Image - Wikipedia*



Evidence of the quality and durability of Blashfield's terracotta is also evident in the gardens of many of our stately homes, in their fountains, pedestals, gateways, balustrades and garden ornaments. His large garden urns and vases, some of which are to be found at Buckingham Palace, are now collectables; stamped with his name and, sometimes, his signature, they can sell for many thousands of pounds.



*Dobson*, writing in 1850, made no reference to Blashfield in his *Rudimentary Treatise*, although he did describe the manufacture of mosaic pavements in some detail in a chapter on Minton's tile manufactory. He described the method for making the pavements in slabs using tesserae made by "Messrs. Minton under Mr. Prosser's patent", that had first been adopted by the unnamed Blashfield.

Richard's own chapter in the 1850 *Treatise* took up about 20 pages and was illustrated with drawings of the equipment and methods used at two Staffordshire brick and tile works, including a machine for grinding the raw clays. Otherwise, apart from the usual pug mills, the manufacture remained largely unmechanised. Richard analysed the profitability of the two brickyards in some detail. Bricks were very cheap, as they still are; profit margins were small and easily eroded by additional power and transportation costs, hence the lack of mechanisation and the custom of building with locally made bricks. It was also a seasonal manufacture carried out during the spring and summer using clay that had been dug the previous autumn.

Demand for bricks had been affected by the onerous brick tax (duty) that was first imposed in 1784 to help pay for the war against the American colonists; this cost had to be borne by the brick maker, affecting his cashflow, but was

added to the price to the end user, making other building material, such as natural stone, more attractive. The duty levied was actually higher on larger and special purpose bricks. The tax was abolished in 1850 and there followed a surge in brick production (see *The Tax on Bricks and Tiles, 1784-1850* by Robin Lucas online at <https://www.arct.cam.ac.uk/system/files/documents/chs-vol.13-pp.29-to-55.pdf> ).

Dobson and his other contributing friends confined themselves to similar analyses of the trade elsewhere, but Richard ended his with a more thoughtful view to its future:

*The manufacture of bricks, &c., for building and paving purposes, in a systematic manner, in suitable premises with improved conveniences, so that the operatives may be employed the whole of the year instead of a portion of it as now, is a subject deserving the attention of the capitalist and inventor. Improvements in the quality and conveniences of this manufacture are intimately connected with the moral, intellectual, and physical condition of society, as may be seen by a visit to any ordinary brickyard, and a reference to the evidence before the Sanitary Commission. Where extensive supplies of marls or clay are found, suitable works might be erected for such manufacture, could a cheap and ready mode of transportation be commanded, so as to carry bricks, &c. a distance of 60 to 100 miles without materially increasing their price. ...a carriage of 60 miles at the lowest railway rate more than doubles the value of a common brick compared with the price at the yard. The high rate of charge for carriage, and the duty, which amounts to nearly 22 per cent, of the selling price at the yard, constitute obstacles to the improvement of the brick manufacture, and the bettering of the condition of the operatives employed therein. The recent improvements in connection with domestic comfort and health, and the encouragement offered to architectural improvements, in the houses for artizans (sic), may probably awaken an interest in this department of industry, and place even brickmaking in the position its importance deserves, if not demands.*

Whether Richard, with his commercial acumen, was aware of the imminent abolition of the brick tax is unknown, but his above comments also demonstrate a social awareness.

Improvements to the living conditions of "artizans", particularly the urban poor, had been a preoccupation of Victorian legislators since at least the early 1840s. Diseases, such as cholera, were a constant threat in the towns and

cities. Sanitation was the principal issue, an effective method of sewage disposal had yet to be adopted, but by the end of the 1840s one innovation was beginning to be recognised for its contribution to the nation's hygiene, as well as its artistic merits, - the affordable dust-pressed floor and wall tiles manufactured by Messrs Minton and Co.

#### Addendum.

One of the joys, but also a potential nightmare, of historical research is the continual emergence of fresh source material and this is particularly true nowadays in the age of the Internet. Having researched a topic and written up an account, it is disconcerting to discover new material surfacing which may contradict the existing narrative. I therefore had mixed feelings when, some time after (as I thought) I had concluded this chapter, I came across the 1990 PHD thesis of *Kathleen Ann Watt*: "*Nineteenth Century Brickmaking Innovations in Britain: Building and Technological Change*" available online at <http://etheses.whiterose.ac.uk/4248/1/DX094368.pdf>.

*Watt's* numerous sources include most of those I have cited, including *Dobson*. She emphasised the adverse impact of the brick tax on the development of the mechanisation of brick making in the UK in the first half of the nineteenth century; the tax was levied on bricks before they were fired with only a ten per cent allowance for the inevitable losses incurred later in their manufacture, which were often much heavier when the brick maker was experimenting with mechanisation. The rigid regulations for collecting the tax had been imposed with plastic moulded bricks in mind, which had to be delivered to appointed centres for counting, but at least this could be done while they were still drying. Richard's dust-pressed bricks did not need drying and could be made throughout the year, but would still have had to be transported to an assessment centre after pressing to await inspection by an excise officer. *Watt* considered that this was a powerful disincentive to the application of the dry process to bricks.

Even after the tax was lifted in 1850, builders and architects remained sceptical of the merits of dust-pressed bricks for a long time according to *Watt*; their arguments for and against repeated those voiced in 1843 at the ICE meeting. In addition, the "Gothic" architects, in particular, found their smooth surfaces too perfect, preferring the rougher appearance of moulded bricks.

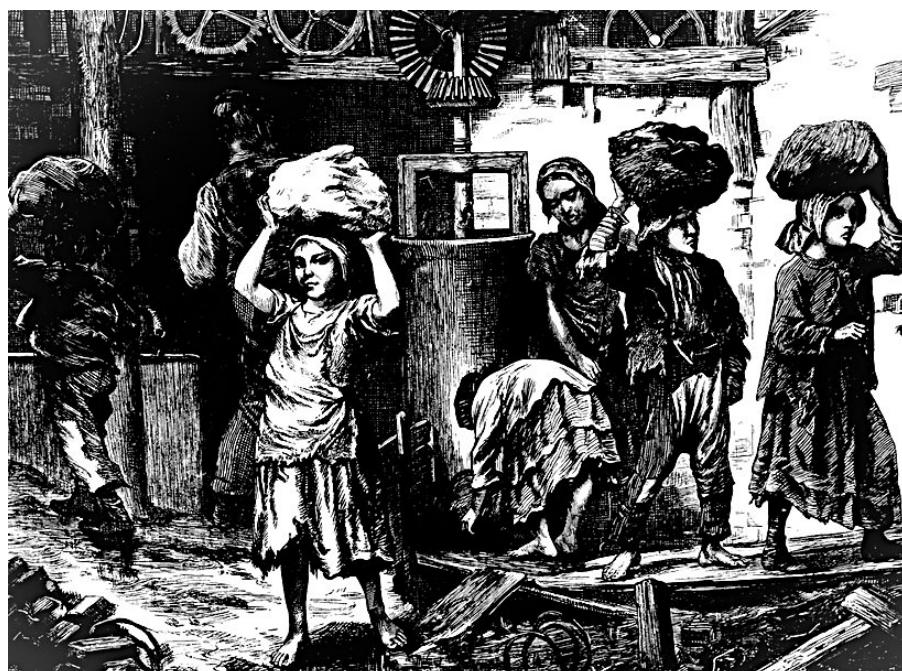
*Watt* also made it clear that other obstacles had to be overcome, including the problem of expelling all air from the powder and, also, the need for a

suitable variety of carbonaceous clay to reduce the otherwise higher firing costs of dust-pressed bricks; the latter was not found in large deposits until about 1880 when the hugely successful Fletton brick industry was born.

So, it would seem unlikely that Richard could in any event have been successful in the commercial application of the process to bricks during his own lifetime. The ambivalence to the process attributed to him by *Binns* and *Blashfield* is probably, after all, irrelevant; as was *Blashfield's* role, whatever it may have been.

*Blashfield* is mentioned only once in *Watt's* thesis in the chapter on hollow bricks; Richard's name appears ten times. In her section describing the appalling working conditions in the brick fields (which prevailed during most of the nineteenth century), *Watt* cited Richard from his closing remarks in *Dobson* quoted above:

*Although the brickfields were not investigated until the 1860's, most of the profession would have agreed with Richard Prosser when he wrote about the brickmaking industry in 1850: "Improvements in the quality and conveniences of this manufacture are intimately connected with the moral, intellectual and physical conditions of society" (Dobson Part 1 1850, p.113).*



THE BRICKYARDS OF ENGLAND—CHILDREN CARRYING THE CLAY

*The Graphic* 27 May 1871  
Image © The British Library Board all rights reserved

However, it was *Watt's* later comments on the origin of the dust-pressed process that really caught my attention. Having discussed the many earlier attempts to use presses to reduce the moisture content in plastic moulded bricks, *Watt* referred to the following passage from the 1839 edition of *Ure's Dictionary of Arts, Manufacture and Mines*:

*In many brick-works near Paris, screw-presses are now used for consolidating the bricks and paving tiles in their moulds. M. Mollerat employed the hydraulic press for the purpose of condensing pulverised clay, which, after baking, formed beautiful bricks; but the process was too tedious and costly. An ingenious contrivance for moulding bricks mechanically is said to be employed near Washington, in America. This machine moulds 30,000 in a day's work of 12 hours, with the help of one horse, yoked to a gin wheel, and the bricks are so dry when discharged from their moulds, as to be ready for immediate burning. The machine is described, with figures, in the "Bulletin de la Société d'Encouragement" for 1819, p. 361.*

*Watt* then continued with the following speculation:

*Perhaps as a result of these descriptions Richard Prosser, a civil engineer from Birmingham, began to experiment with a clay working process using dry clay ...*

I have found no other references to Mollerat's machine, but quickly found the article in the 1819 French "Bulletin" online, which was rendered reasonably intelligible by Google's remarkable translation function.

Earlier in her thesis, *Watt* had referred to the many patents for brick making machines that had been taken out in other countries, including in the U.S., predominantly for moulding bricks from plastic clay. She had also previously described the 1819 American machine, but does not appear to have realised that it was the same machine as that mentioned by *Ure*. A Mr Doolittle had given an account of the machine to the Société: it appears to have been a sort of rotating turntable with eight holes in it for brick moulds, which were filled from a hopper with clay which was then compressed by a "plugger" (Google) before each brick was pushed out of its mould by another contrivance ready for immediate firing. The clay was said to have come straight from the "quarry", presumably in a fairly dry state, and had only been pressed to half of its initial depth in the mould, which must cast doubt on the quality of the end product. The credibility of the alleged productivity of the machine (30,000 bricks in 12 hours equating to over 300 revolutions of the turntable in an hour) is also undermined by Doolittle admitting that he had not seen it working - perhaps, the poor horse was too dizzy or exhausted.

Doolittle had told the Société that he hoped to develop improvements to this machine and he may have done so. In 1837 the following report appeared in New York's own *Mechanics' Magazine*

*Fire Bricks.—Mr. Isaac Doolittle, Superintendent of Iron Works at Bennington, Vermont, has, from materials found in that vicinity, manufactured fire bricks, which have stood a blast of five months, and being recently examined appeared so little worn that the furnace has again been put in blast.*

*This discovery appears of serious importance. We have seen specimens of the sand, which is purely siliceous—of the clay, which is of the porcelain family, and of the brick and a crucible made from these materials, all of which appear to be excellent.*

*In the furnaces they substitute blocks and bricks formed of these materials for fire stones in the construction of hearths, and of tymps for blast furnaces. Heretofore hearth-stones have been obtained from Stafford, Connecticut, but these materials appear preferable to either for durability and cheapness.*

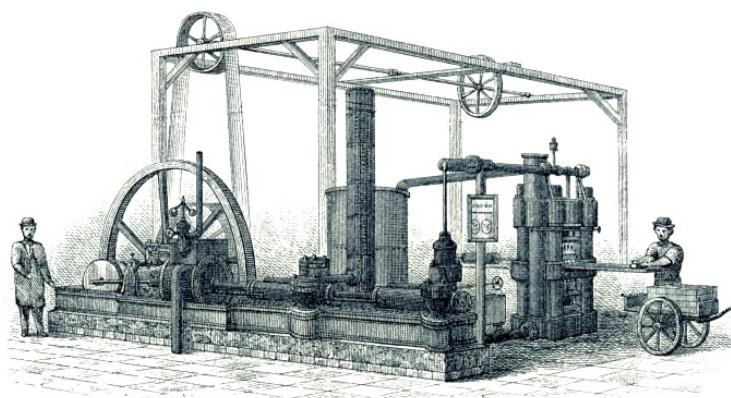
My reason for this diversion from *Watt's* thesis is two fold. First, it is further evidence of the principles of dust-pressing being in the "air" before the Prosser brothers took out their patents (as *Hans* had previously explained to me when I was researching the "Agate" button). Secondly, Thomas may well have been encouraged to emigrate to the U.S. to continue his own dust-pressing experiments by accounts in scientific publications such as the one above, a possible example of the "free interchange of ideas and techniques (that) existed between the two countries" (*Watt*).

*Watt* had described the process as patented by Richard in some detail and also referred to the sceptical comments made at the 1843 ICE meeting at its suggested application to bricks, as well as *Dobson's* encouraging remarks in 1850: "Despite this encouragement, there was little more than curiosity about the dry clay system for brickmaking. It received its most extensive development in the manufacture of decorative tiles, where it was frequently called dust pressing."

In her summary at the end of her 400 hundred page thesis, *Watt* concluded that fully mechanised brick making in the UK during the nineteenth century was confined to a few large manufacturers. Of these dry-pressed manufacturers emerged in the 1880s, but were confined to the region in which Fletton is located:

*After mid-century several machine manufacturers attempted to overcome the numerous problems associated with the production of dry or semi-dry pressed bricks. By the end of the century large brickmaking firms in the Oxford Clay Vale had perfected the process and exclusively utilized machinery of this type. However, the semi-dry process was limited to only certain types of clays and was not suitable for the material commonly found in many parts of the country. Thus, a new mechanized method was developed for a wider range of clay types combining elements from the plastic and semi-dry systems. This new method, called the semi-plastic process, ultimately succeeded in producing moderately-priced, homogenous, and uniform bricks acceptable to most building practitioners.*

In the U.S. the "dry clay process" had much greater and earlier success, but not until the 1870s according to a Bulletin of the New York State Museum dated April 1893: "The introduction of this method in the United States dates back 15 or 20 years only, it having been first introduced at Louisville, Ky." The author was unaware of another earlier contender for this accolade, which coincidentally was located in St Louis, Missouri; the, later mighty, concern that came to be known as The Hydraulic Press Brick Company was founded there in 1864. The suitability of the clay deposits in the vicinity of each of these similarly named cities was the determining common factor. The U.S.'s earlier brick pioneer, Doolittle, does indeed appear to have had little commercial success with the development of the process, but not so his successors.



*Vignette from HPB stock certificate illustrating the original brick press - "The Clayworking Plants of St. Louis" in the journal Brick, Special Issue on St. Louis, May, 1904, p. 235-239.  
nationalbuildingarts.org*

## Chapter 9

### Minton Tiles 1840-54 Richard's Role: the Knowns & Known Unknowns



*"Prosser's Patent" Tiles - Darby Collection*

The more I studied the development of the Victorian tile industry, the more I realised how very little I knew about it and, what is more, could possibly expect to know in the time I had allocated for the writing of this story in Richard's life. I was also very aware that I was trespassing on the territory of others, some of whose qualifications extended to a lifetime's work in and/or study of the industry.

I therefore decided to limit the rest of the narrative in "The Tile Revolution" to a largely speculative discussion of the topic outlined in the above title.

As previously explained, the history of the early development of the dust-pressed process at Minton's manufactory was still relatively unknown at the time of writing (June-October 2015). Contemporary newspaper and other accounts that had recently become available on the Internet shed little light, with the exception of those relating to the porcelain/porcelain-type mosaic pavements, for which we must thank Blashfield. The emergence of Minton's dust-pressed earthenware geometric and other plain floor tiles was also mentioned in the reports of the tessellated pavements exhibited at the Society of Arts in 1849. (I have presumed that Minton was not involved with the dust-pressed brick project.)

However, the early history of the dust-pressed wall tile still remains obscure and the known facts are very confusing.

## The Wall Tile Conundrum - Turley's Confusion?

Turley, Minton's engineer, had told *Jewitt* that the manufacture of dust-pressed, six inch (15.2cm.) square, white glazed wall tiles commenced in August 1840, at the same time that the production of the "Agate" buttons began. According to Turley, Richard had initially provided six button presses and just one larger tile press; these would have been screw presses (*Jewitt* explained that tiles more than fifty square inches (322.58 sq. cm.) in size required an hydraulic press). More of the tile presses must have been quickly supplied by Richard if Turley's statement that the "demand for white glazed tiles was soon very great" is to be believed. These cheap plain white tiles were a substitute for the delftware tiles, which had previously dominated the English market; the delftware tile sold for less than the cost of its production by Stoke potters (Turley). These few brief comments were almost all that Turley and *Jewitt* had to say in the 1870s about the first five years of the manufacture by Minton of an innovative product that should have had immediate significant implications for the English wall tile industry. Turley had given *Jewitt* far more information about Minton's button production during the period 1840 to 1845.

Delftware tiles had originated in Holland as the name suggests; they had also been manufactured in England since the mid-16th century and their production here reached its height in the eighteenth century for use primarily in kitchens, dairies and as decorative surrounds for fireplaces. Typically painted with a vast variety of blue and white illustrations, these attractive, but comparatively fragile, tiles had declined in popularity by 1840. Some Stoke potters were already making wall tiles using different methods by then, but, according to Turley, these too quickly succumbed to Minton's more durable dust-pressed rival; many other potters adopted the new process themselves after the expiry of the patent in 1854.

However, the "great demand" for Minton's new tile claimed by Turley is not in evidence in contemporary accounts nor in the few surviving dust-pressed wall tiles ascribed to the 1840s. In fact, I have not found any trace of these, presumably plain, 15.2cm. sq., white tiles which Turley stated were the first dust-pressed by Minton and *Hans Van Lemmen* confirmed to me that he had never seen one. This is not entirely surprising, they would not have been

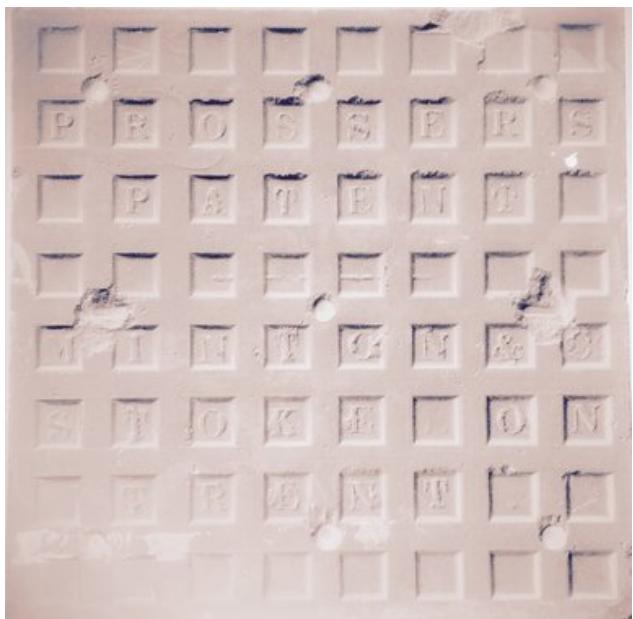
considered of any historical importance or artistic merit and vast numbers could have been destroyed without being noticed.

Turley's claim is also at odds with Farey's statement in April 1843, to his fellow engineers at the ICE meeting, that the products then being made by the process were limited to "buttons, small tiles and slabs for painting". The reference to "small tiles" is capable of a wide interpretation, but the context makes it almost certain that Farey was referring to the tesserae and geometric floor tiles. The "slabs" were, no doubt, those later exhibited by Minton at the 1851 Great Exhibition and were, I believe, probably the "white glazed tiles for the sides of stoves, dairies, baths etc." advertised by Wyatt & Parker as a footnote in its widespread advert for Minton's encaustic tiles in early 1843.

It is difficult to know what to make of Turley's statement to Jewitt, unless he simply misremembered, but if small white dust-pressed wall tiles were, indeed, being manufactured by Minton in large quantities from 1840 they had remarkably little recognition at the time.

### The "Prosser's Patent" Wall Tiles

The earliest surviving small (i.e. 15.2 cm.sq.) dust-pressed Minton wall tiles are commonly dated to the period 1845 to 1850; the body of these tiles is a milky white in colour suggesting they are made of a kaolin based dust. They have survived because they were decorated and therefore collectable; some of the illustrations seem similar to me to those of the blue and white delftware, being detailed line drawings in one colour on a white background. The method adopted, transfer printing, involved printing the illustration from an engraved copper plate onto a tissue paper which was then pressed onto the surface of the tile; the technique was not new and had been in use in the pottery industry since the 1750s on table and other wares of all shapes and sizes. These early Minton dust-pressed tiles are readily identifiable - they say how



and where they were manufactured on their backs, which are neatly moulded with a distinctive square grid pattern and the legend "PROSSER'S PATENT - MINTON & CO STOKE ON TRENT". The die that achieved this impression was precision engineered and I believe this took place in Richard's Watery Lane Birmingham workshops. *Image - Darby Collection.*

No doubt, the exploitation of the success of the eponymously named "Agate" buttons, was at least one reason for the same "Prosser's Patent" brand name being to the fore on Minton's new tiles. Another reason might be Richard's own wish to assert the validity of his patent after this was challenged by Chamberlain in 1845 as described in chapter 6.



*Images © Hans van Lemmen*

The above photos are of tiles in a series of twelve blue or grey/black on white tiles; the pattern is named "Watteau" after the French rococo painter on whose works the twelve designs are based. They are said to be some of the earliest pictorial dust-pressed wall tiles produced by Minton; one dealer's web site states that the series was given the factory pattern number 12 and dates its introduction to about 1845 (<http://www.blueandwhite.com/museum.asp?ca=QR>).

The Watteau pattern actually remained in production into the 1880s; "Watteau" tiles bearing the back stamp "Minton's China Works" are relatively common, those bearing the "Prosser's Patent" attribution are not. The blue "Watteau" tile depicted at the beginning of this chapter is the first "Prosser's Patent" tile that we acquired in our small collection.

Whether the plain, 15.2 cm., white dust-pressed tiles, allegedly being made pre-1845, would have borne the "Prosser's Patent" back stamp remains unknown, but I believe it is unlikely. According to Cole in his autobiography, *Fifty Years of Public Work*, Minton did not, in fact, put a manufacturer's name (other than an initial "M") on his wares before 1846; Cole maintained that this anonymity had remained the usual practice of most potters as they were still "subject to the tyranny of the retailers" in London. In 1846 Cole persuaded Minton to do so (notwithstanding his "terror") in order to be able to exhibit a beer mug and Cole's own Felix Summerly Tea Service at the Society of Arts' exhibition held that year; it was a condition that the maker's name was marked on the exhibit.

Most authorities, including the website for the Staffordshire potteries (<http://www.thepotteries.org/mark/m/minton.html>), actually attribute the earliest use of the "Minton" name on its wares to 1851, the year of the Great Exhibition. Hollins, still a partner in the firm or, at least, the tile branch of it, does not appear to have been acknowledged by name on wares until later, other than in a mark using the initials "M&H" which is sometimes dated to as early as 1845.

In my view, any smaller dust-pressed wall tiles, whether plain white or transfer printed, made pre-1846 by Minton would have been unmarked on the reverse except for the moulded key to aid adhesion: perhaps, a distinctive square grid.



*"Rustic Figures" Images -  
Darby Collection*



*"Prosser's Patent" Tiles*

*Flower Basket" Images ©  
Hans van Lemmen*



If we assume that the "Prosser's Patent" dies were only used for the nine year period 1846 until 1854, the year the patent expired, then it is unsurprising that so few of the tiles have survived. Apart from the "Watteau" patterns, the only other surviving transfer printed "Prosser's Patent" tiles I have come across are tiles from a series of eight named "Rustic Figures", pattern number 57; a few of floral basket designs including two held by the V&A; an oriental scene; and an almost complete fire hearth of tiles of a geometric design. The latter must be a very unusual survivor, the pattern (number 54) perhaps influenced by the increasing popularity of the mosaic and geometric pavements.



*Image © Tile Heaven : <http://www.tileheaven.uk/cats/minton.htm>*

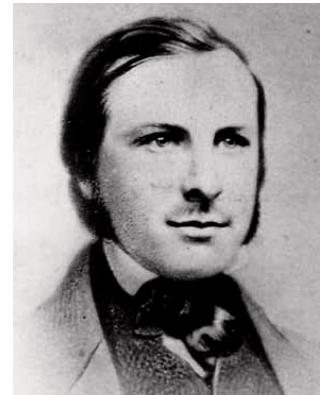
(A few more "Prosser's Patents" tiles have since come to light - see Pictures web page on [prossertheengineer.com](http://prossertheengineer.com) - SD 2022 rev.)

The "Prosser's Patent" back stamp is also found on a few early block printed tiles manufactured by Minton from about 1850 to 1854.

Block printing is a technique in which, not only can more than one colour be printed onto a tile in one operation, but the colours are, indeed, in solid blocks. *Jewitt*, stated that in 1848 Minton took out a patent jointly with its inventors, Collins and Reynolds, for this method of printing on ceramics.

In fact this statement has been shown to be incorrect, the patent was granted to Collins and Reynolds, who must have almost immediately assigned a third share in it to Joseph Cundall, the publisher of Cole's children's books and toys including the toy tile and brick Pastimes. Cundall sold his share to a third party in 1849, presumed, quite reasonably, to be Minton by Reynolds's descendant the *Revd. J.S. Reynolds* in an article, "*Alfred Reynolds and the Block Process*", published in the *TACS Journal* for 1994 to which *Hans van Lemmen* had referred me. *Reynolds* suggested that Cole may well have been instrumental in the introduction of Minton to his ancestor, which quickly led to Reynolds move to Stoke and employment in the tile branch of the Minton firm.

Difficulties were encountered in perfecting the block printing process for use on all wares, but Minton and Hollins, aided by Reynolds, successfully applied it to decorate dust-pressed tiles within a year or two. Minton was encouraged to do so by his great friend and collaborator Augustus Welby Northmore Pugin (1812-1852), the architect now renowned for his crusade to resurrect a medieval style in all matters of design: the Gothic Revival. Image - *Pugin: earliest known photograph/daguerreotype from a private collection per Fisher.*



In 1844 Pugin had been persuaded to design the interior schemes for the new Palace of Westminster, the Houses of Parliament, by its appointed architect Charles Barry (senior). According to *Jewitt*, the Pugin-designed Minton block printed tiles on the walls of the Strangers Smoking Room in the House of Commons were the first instance of their use. Although *Jewitt* does not say so, these tiles were dust-pressed. This fact was confirmed to me by the tile conservator and author *Lesley Durbin*, who had been involved with a project to repair the tiles after they had been found behind timber panelling; this had been removed in 1994 as part of the refurbishment of the room re-opened as the new House of Commons Terrace Cafeteria in November 1996. In an exchange of emails at the end of 2014 and the beginning of 2015, *Lesley* had provided me with much helpful information and encouragement; she also confirmed that "The wall tiles from the Strangers Smoking Room ... do not have any maker's marks or "Prosser Patent" acknowledgement on the reverse. The only mark is the square grid formation for the key."



*Images © Lesley Durbin*

The "square grid formation" is the key moulded on the reverse of the early dust-pressed tiles exhibiting the "Prossers Patent" legend. The absence of any manufacturer's marks on the Strangers Smoking Room tiles remains unexplained; it may have been a requirement imposed on all suppliers of materials for the construction of the new Palace. Alternatively, the tiles may, after all, have been made later than stated by *Jewitt* i.e. after 17th June 1854 the date of expiry of the patent (records in the *NA* catalogue indicate that the Smoking Room may not have been finally fitted out until the mid-1850s), but this would not explain the absence of the mark of the Minton factory. The true explanation may be that Minton was simply using up old unmarked stock.

This last explanation may, also, be the reason for the absence of marks on the large block printed Minton dust-pressed tiles in two of the jardinieres designed by Pugin for his spectacular Medieval Court exhibit at the 1851 Great Exhibition. These jardinieres, on display at the V&A, were made by Hardman & Co., a Birmingham firm; the backs of the tiles in the larger of the two are glazed white, the square grid key pattern can be seen on the reverse of the other (see *author's photos below*). They are possibly the only survivors of these jardinieres, several of which are shown in contemporary illustrations of the Court (a misleading description as most of the "Court" appears to have been of an ecclesiastical nature and was much criticised for being too "Romanish" - Pugin was an ardent convert to the Catholic Church).



*Image - Dickinson's Comprehensive Pictures of the Great Exhibition of 1851 from the originals painted...for Prince Albert, by Messrs. Nash, Haghe and Roberts : British Library, Public Domain.*



Pugin is also thought to be the designer of other larger Minton block printed tiles on display in the British Museum; dated to "about 1850" they are said to be partly hand painted (*see author's photos below*). The backs of the tiles are not visible in the display case, but *Hans* confirmed to me that they are merely marked "Minton & Co." and that he had never seen the patent acknowledged on other surviving examples of these tiles.



Both the V&A and British Museum's web sites do describe these tiles as dust-pressed and refer to Richard and his patent.

The early Minton block printed "Prosser's Patent" wall tiles that do still exist have the patent acknowledged and square grid on the reverse in the same format as the back stamp on the transfer printed tile illustrated previously. The two shown right are specimens of 15.2 cm. sq. tiles said to have been designed by Pugin and used by Minton to decorate the house in Torquay to which he retired due to ill health in 1856 (*Jones*). *Images - Darby Collection*.



The British Museum's online gallery contains just two examples of "Prosser's Patent" tiles, both are block printed; the V&A appear to have just a very few transfer printed tiles bearing the attribution.

## The Great Exhibition - Minton's Tile Exhibits

I was puzzled that during all my trawls for contemporary accounts on the Internet I had found only one brief mention of the application of the process to wall tiles in the 1840s and early 1850s. This was by *Tomlinson* in 1852 when

he referred to the ribbed effect on the reverse of the dust-pressed tiles which he saw being manufactured at Minton's manufactory in about 1848; the "ribbed" moulding was stated to facilitate adhesion to the "wall or pavement". However, the press *Tomlinson* described was clearly hydraulic and was making large tiles, "one inch" (2.5cm) in depth, suitable for "Tiles, scale-plates, table-tops, furniture panels, and other articles of considerable size". "Smaller presses", he said, were used to make "tesserae for mosaic work" and buttons; there was no mention of the smaller, and thinner, 15.2cm. square wall tile.

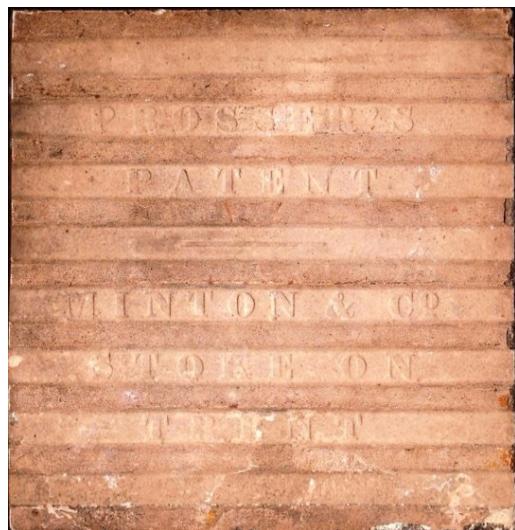
Minton's smaller dust-pressed wall tiles were not mentioned in the reports I found of the exhibitions held before the Great Exhibition, although much was made of the firm's encaustic and dust-pressed tesserae and other floor tiles.

Minton certainly exhibited dust-pressed wall tiles in 1851 at the Great Exhibition, but, curiously, they are not mentioned in the Jury's report recommending three types of his tile products for a Council Medal: the encaustic tile; the dust-pressed floor tiles and tesserae for tessellated pavements; and "Tiles made after the manner of the Alhambra...". However, press reports of Minton's exhibits do refer to wall tiles, but on the whole the descriptions are brief and confusing - probably an indication of the reporters' ignorance of the manufacturing techniques.

The "special correspondent" who wrote the article entitled "The Staffordshire Potteries' Productions in the Great Exhibition" in *The Staffordshire Advertiser* dated 7th June 1851 appears to have been more knowledgeable; commenting on the wares of 20 potters he gave the most space to a description of the wares of the largest exhibitor in the "English Ceramic Department" - Minton & Co.. About a quarter of this coverage was devoted to Minton's tiles: in particular, the plastic encaustic variety and, in addition, the plain and "Mosaic" floor tiles (without any direct reference to dust-pressing, although the context clearly indicated that they were made by the process). Wall tiles were also given a mention: "Slabs and tiles for fire places, lining the walls of dairies, baths and house decoration generally are numerous". Pugin and Owen Jones, as well as other "first rate artists", were reported to have designed many of their patterns; "some" of these wall tiles were decorated by the "new" block printing process, which was briefly described, but the fact that the wall tiles must have been dust-pressed was, again, omitted.

*The Staffordshire Advertiser's* special correspondent only expressly referred to the process once, this was in relation to the exhibit by Minton of the

"Moorish" tiles made to resemble those at the Alhambra. These tiles he stated to have been made by the "compression of powdered clay, various enamelled colours having been poured into the indentations by a peculiar method". His description conflicted with that in the Jury's report in one respect, which described the tiles as made by "pressing plastic clays on an embossed mould, which forms grooves or indentations". It would seem unlikely that this description by the Great Exhibition's Jury was incorrect, except that similar Minton Alhambra style tiles do exist with the "Prosser's Patent" acknowledgement on the reverse; whether they are floor or wall tiles is unclear, their indented surface suggests the latter, unless they are hearth tiles as suggested by *Hans*.



*Images © Hans van Lemmen*

The above images were sent to me by *Hans* early on in my research, they are of a tile which he uses as a paperweight on his desk. It measures 12.7 cm. square and 2.2 cm. in depth, smaller and much thicker than the "Prosser's Patent" wall tiles. Several of these tiles came to light in 2003 and were the subject of an article in 2004 by *Michael Spender* in the *TACS*' magazine, *Glazed Expressions*, to which *Hans* referred me. *Spender's* research had led him to believe that the tiles were exhibited at the 1851 Exhibition, but he remained silent on the production method. *Hans*, however, has described his tile as made from "yellow dust".

The key on the reverse of these "Prosser Alhambra" tiles differs from that on the "Prosser's Patent" wall tiles, being ribbed only (as described by *Tomlinson*).

A distinctive square grid did however appear on a large broken block print tile slab in a fireplace at Pugin's house, The Grange, in Ramsgate.



*Images © Hans van Lemmen*

Again, I have to thank *Hans* for the above photos, which were taken in the early 1990s before The Grange was restored; designed by Pugin, he had this Gothic Revival residence built for his young family in the early 1840s and they moved there in 1844, although work on the interior finish and furnishings of the house continued until 1850. *Hans* confirmed that the slab must have emanated from Minton's factory, but that there are no maker's or other marks on the reverse.

(How many more of these early dust-pressed large Minton tiles and slabs have survived is a matter for further research; one of the fireplaces at Osborne House has white side slabs with, what appeared to me, a painted floral decoration. I have not found out whether those with "arabesque ornament" in the Conservative Club fireplaces still exist - see page 98.

On visiting the Roman Catholic church of St. Giles in Cheadle Staffordshire ("Pugin's Gem" completed in 1846) to view its stunning Minton encaustic floor tiles, I was struck by the large colourful tiles lining the dados of its walls and (*author's photo right*) the reredos of the Chapel of the Blessed Sacrament.)



## Mr Nasmyth's Machines

One other fact emerged out of *The Staffordshire Advertiser's* account of Minton's exhibits at the Exhibition, which added further confusion to the already bemusing history of tile production at Minton's factory during 1840 to 1854. This was the revelation that in 1851, and presumably somewhat earlier, Minton was collaborating with another engineer in the development of machinery to improve dust-pressed manufacture. The engineer was named as "Mr Nasmyth of Patricroft, near Manchester"; I researched this intriguing lead.

I quickly found several contemporary references to the grant on 26th April 1851 of a patent to James Nasmyth and Herbert Minton for "Machinery to be employed in the manufacture of tiles, bricks and other articles from disintegrated or pulverised clay". Was this machinery, in fact, the new steam powered presses mentioned by *Tomlinson* in his 1852 *Cyclopaedia*, which I had previously, tentatively, inferred might have been supplied by Richard?

James Hall Nasmyth (1808 -1890) was a mechanical engineer who had already made his name and fortune by 1851, principally as a machine tool maker; he is best known for the development of the steam hammer that he patented in England in 1842. His life story and achievements are well known and readily retrievable on the Internet, including his own autobiography, which is available as a free eBook.

I was aware that Minton had taken out a patent with Nasmyth in 1856 following Richard's death, it is briefly mentioned in *Barnard*, but I had overlooked a reference by *Jewitt* to the 1851 patent. In fact, this oversight is not surprising as *Jewitt's* note of the patent merely described it as for "certain improvements in machinery" in a context that was not related to dust-pressing.

I found a précis of the specification of the patent, which had been enrolled in October 1851, online in *Newton's London Journal of Arts and Sciences Vol 42* published in 1853. The specification commenced with the explanation that the claimed invention related to the manufacture of "bricks, tiles, quarries, and other similar articles, from disintegrated or pulverised clay, by compression, in suitable moulds or dies" by machinery which would achieve this object in "a more perfect, economical and expeditious manner" than had been possible with the screw or fly presses and hydraulic presses used "heretofore". There then followed a description of the problem that has been described in

previous chapters, which had actually been identified as early as 1843, namely the necessity to expel air from the clay "particles" in order to achieve their "due consolidation", which, it was claimed, could only be achieved with the fly or screw press by, in effect, two separate pressings; the first a very slow compression to get rid of the air and a second, quicker and more vigorous, pressing to consolidate the pulverised clay. The patentees alleged that this dual process resulted in a "considerable amount of time" being lost and the work being "imperfectly performed, with great expenditure of unnecessary labor (sic) or power".

Nasmyth and Minton claimed that their new machine achieved the expulsion of air from and the consolidation of the clay particles with a single pressing by one "rotary motion", which increased in speed throughout and which ended by discharging the compressed article from the mould and re-filling it with more pulverised clay. The précis of the specification then continued with an overview of the mechanism and method of operation of this ingenious machine.

The machine as described was powered by a small steam engine but other alternative forms of "adequate motive power" could be utilised. There were references to a "fly wheel", but no mention of any hydraulic mechanism or the amount of pressure achieved. The machine depicted in the accompanying drawings (not shown) was for tile manufacture but could be "readily adapted" to make bricks.

It seems likely that Nasmyth's machine was, indeed, that mentioned by *Tomlinson*. If it replaced Richard's hand operated presses by 1851, this could have curtailed the manufacture of the "Prosser's Patent" wall tile to the five year period 1846 to 1850.

However, the efficacy of this single "rotary motion" machine is cast in doubt by the patentees' 1856 patent, which was very briefly described in *Abridgements of the Specifications relating to Bricks and Tiles* published by the Patent Office in 1862. These improvements to the machinery for making "tiles, bricks etc. from pulverised clay" resulted in the dual process being reinstated; the new rotary movement achieved two compressions and the first was released to allow air to escape before the second compression consolidated the clay.

Presuming that they have not been omitted from the précis, which seems unlikely, there are no references to Richard or "Prosser's Patent" or dust/dry-

pressing in the 1851 specification. These omissions must have been deliberate.

So what were the circumstances that led to Minton's collaboration with Nasmyth, rather than with Richard, to develop this new machinery?

### 1845: The Chamberlain and Blashfield Factors

The events of the years 1845 and 1846 are very important in the early story of the dust-pressed process. We know that in August of 1845 Richard had settled his patent infringement claim against Chamberlain and Lilley on, then, undisclosed terms; we also know that, owing to Blashfield's money troubles, by the end of 1845 Minton had probably acquired whatever rights Blashfield had licensed in the process to make his tessellated pavements; and finally *Jewitt* stated that it was in August of 1845 that the younger of the two Hollins brothers, Michael Daintry, "joined Mr Minton in the general manufacturing business; and the tile department formed a separate concern, under the style of Minton, Hollins & Co.". Richard, in the meantime, had been seeking to promote dust-pressing for the manufacture of bricks and in 1844 his voussoirs had been put forward for a major bridge building project.

Against this background the report in *The Staffordshire Advertiser* dated Saturday 30th August 1845, referred to previously, gains significance. If the reporter's assertions were correct: namely that one of the terms of settlement with Chamberlain and Lilley was that Minton was to be made a joint patentee of the process with Richard, having previously been only a licensee, then this ties in with the date ascribed by *Jewitt* to the setting up and presumably expansion of the new tile factory.

I have previously suggested that *Jewitt* may have been a year premature in this attribution, on the basis that the older Hollins brother, Samuel, did not leave the button partnership between himself, his younger brother Michael Daintry and Minton until August of 1846, as evidenced by the notice in the London Gazette. The report in *The Staffordshire Advertiser* has inclined me to reconsider my earlier speculation, but, even if my first thoughts prove correct, Minton (and the younger Hollins) had probably made the business decision to give precedence to tile production over buttons at an earlier date.

Button production reached its maximum output in 1846, halved in 1847 and ceased in 1848, probably early in that year. Turley had told *Jewitt* that the

decision to stop production was due in part to "unfavourable surroundings" (the emergence and success of Bapterosses's buttons?) and "the inability of the patentees (*i.e. Richard and Minton*) to agree on the future of the manufacture".

In addition, there are the later (1865) remarks by *Binns* referring to Richard's "disgust" (at the outcome of the Chamberlain and Lilley litigation); and Blashfield's 1868 comments referring to some embarrassment over the patent in 1845 and Richard subsequently holding "certain views on the manufacture", of which Blashfield claimed to have no knowledge.

The coincidence of these events and accounts lead to the further speculation that there may have been some deterioration in the relations between Richard and Minton in 1845/46. If Richard had retained sole ownership of the patent until August 1845, a different light is cast on the events of the years 1840 to 1845. The use of the process by Minton (and Blashfield) would have been limited to that authorised by a licence or licences granted by the commercially astute Richard. In effect, Richard would have been in control of Minton's dust-pressed product line; a control which, according to *The Staffordshire Advertiser*, he relinquished in order to reach a settlement with Chamberlain and Lilley.

The circumstances and pressures that must have forced Richard to do this and Minton's part in the negotiations between the warring parties are speculations within the speculation that arises out of the tantalising newspaper report. However, as I will describe later, *The Staffordshire Advertiser's* reporter was wrong as to the date that Minton became the joint owner of the dust-pressed patent; if this information had been leaked from Minton's firm was the informant deliberately "economic with the truth"?

It is generally believed that the mass production of the dust-pressed decorative smaller wall tiles did not really get underway before 1854, the year of the demise of both Richard and his patent. This could be due to any one of the known factors mentioned above or other unknown factors or a combination of some or all of them.

The actual reasons for Minton's apparent failure to fully exploit the product during the currency of the patent remain a matter of conjecture.

## The Encaustic Tile - Richard's Unrecognised Role

Whatever Richard's influence over or interference with the early progress of wall tile production at Minton's works, there is one other known factor that may have prevailed over all others.

In chapter 7 I mentioned Minton's interest in tiles, I described it as an obsession, but I had not realised that his affections were focused on a particular type of floor tile, which was only made with plastic clay until 1863 - the encaustic tile.

This narrative is no place for a detailed account of the history of Minton's obdurate persistence, in the face of all manner of technical difficulties, in his pursuit of the perfection of a process for the manufacture of these beautiful inlaid tiles; a process which he had licenced from the patent holder Samuel Wright in about 1835 (*Van Lemmen - Overview of nineteenth century church tile manufacturers and architects, TACS Conference 2006*). The story has been told and retold many times commencing with that written by Jewitt when he quoted Minton's well known retort to his exasperated partner: "Say no more on the subject, Mr. Boyle, I will make these tiles if they cost me a guinea each!".

Wright must have obtained his 1830 patent before he had actually perfected his attempt to revive encaustic tile manufacture, a medieval craft that had fallen into disuse. It appears to have taken Minton until sometime in 1841 or 1842 to achieve a tile of the quality he required. Minton was a devout man and his devotion to the encaustic tile was fuelled by his desire to replicate the decorative floor tiles of the early Middle Ages; in particular those in churches and other religious houses, where the floors that had survived the depredations of the iconoclasts were in a poor state of repair after centuries of use.

Minton's first major commission for his encaustic tiles was for the 12th century Temple Church in the Inns of Court of the lawyers of the Inner and Middle Temple in London; Minton's first meeting with Cole was probably in late 1842 when Cole interviewed him for the guide book he was writing for the renovated church (see p.164). Minton obviously had sufficient confidence in his tiles to offer them for the floors of this prestigious church, which he did at a discounted price; whether this was a gesture of devotional philanthropy or an indication of his commercial acumen remains a matter of conjecture. However, Minton continued his tile donations to churches throughout his

lifetime, not only in England but worldwide (these were regularly reported in the press, but the incidental loss of many early medieval pavements tended to be ignored by the contemporary commentators).

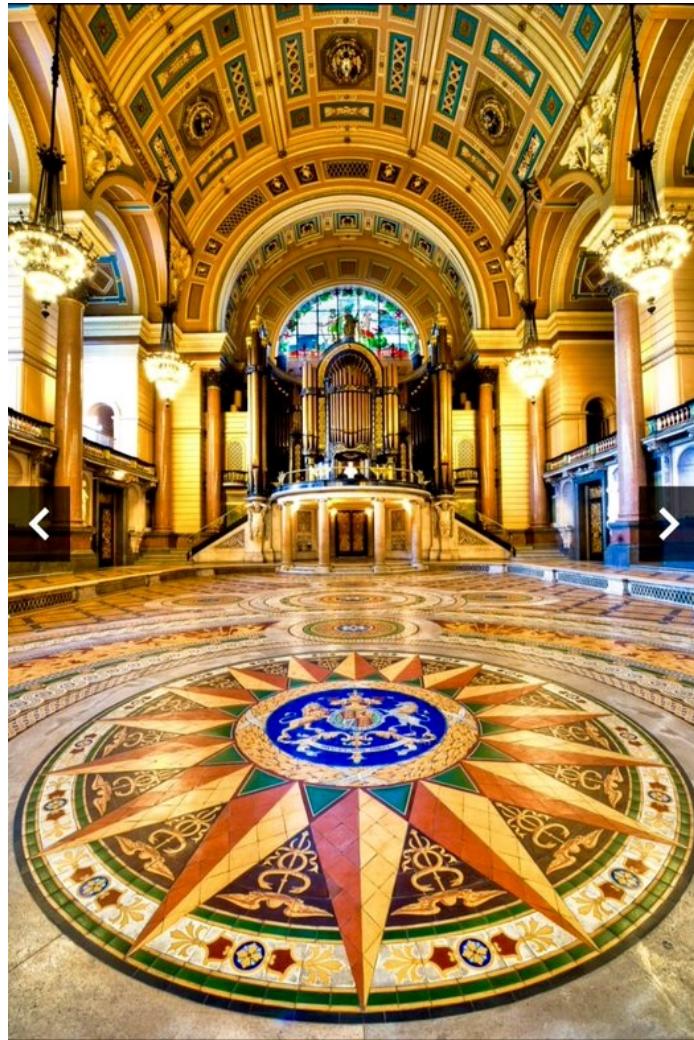
Blashfield must have quickly realised the potential of the encaustic tile, not only for ecclesiastical buildings, but also for the floors of the wealthy laity. What is thought to have been Minton's first trade catalogue was issued in 1842, but there can be little doubt that this was actually published on Blashfield's initiative as it was entitled "Examples of Old English Tiles Manufactured by Minton and Co., Stoke upon Trent and sold by Wyatt Parker & Co., Holland Street, London". *Image - page of 1842 catalogue © Hans van Lemmen*



Blashfield may well have had some input into the successful development of one technique adopted by Minton in the laying of his encaustic floors: prefabrication at his factory of tile panels or "compartments", the method that had been licensed to Blashfield by Singer and Pether. When Minton first started using this technique with encaustic tiles is unclear, but it was no later than 1848 when the manufacture of the floor for Liverpool's town hall utilising this method was described in the *Liverpool Courier* (per *The Staffordshire Advertiser* 25th November 1848).

During the 1840s Minton extended the number and range of colours of the clays used in the composition of his inlaid tiles; the red and yellow of the bi-coloured early ecclesiastical tile was overtaken by tiles incorporating several colours, some of extraordinary complexity and detail, which were used to create exquisite pictorial and geometric pavements that defy description as at Pugin's St. Giles (1846) - *author's photo right*. The town of Liverpool commissioned two early examples for its town hall (1848) and its, now famous, St George's Hall (1854).





*St George's Hall Liverpool Minton Floor 1854  
© Liverpool Echo*

But what is the relevance of the plastic encaustic tile to Richard and his dust-pressed story?

First, it seems likely that the manufacture of plastic encaustic tiles was given priority by Minton during the 1840s, possibly inhibiting the development and growth of dust-pressed tile production at Stoke - other than that for the tesserae, geometric and plain floor tiles, which probably increased post 1845 following the take-over of Blashfield's business and the cessation of button manufacture.

Secondly, although Minton's earliest encaustic pavements were composed mainly of the very expensive inlaid plastic tiles, it very quickly became the practice to incorporate plain square and geometric tiles in the designs; no doubt this had a cost advantage, but it also had an aesthetic benefit - the

single coloured plain tiles enhancing the beauty of the encaustics, which otherwise competed with each other to the bewilderment of the eyes of the beholder. *Image - author's photo; St John the Evangelist Darlington 1847 (the incumbent was the Rev. Thomas Webb Minton the older brother of Herbert).* In my researches I had read that it was generally acknowledged that dust-pressed plain and geometric floor tiles came to be used in floors with plastic encaustics at some unidentified, but later, date. It seemed to have been assumed that the enormous number of plain and geometric tiles included in Minton's earlier encaustic pavements would also have been made of plastic clay or a stone, such as marble, from which Richard would have received no royalties. I was therefore very pleased when I came across a press report in July 1846 in the *BNA* of the recent consecration of St James's Church at Birch, near Manchester, which referred to the floor "formed of beautiful encaustic and dry pressure tiles from the establishment of Messrs. Minton & Co., of Stoke-upon-Trent. The Messrs. Minton & Co. made a present of the altar platform." (*The Manchester Courier and Lancashire General Advertiser* dated 4th July 1846). This presumed reference to dust-pressed tiles raises the intriguing possibility that many more church and other Minton "encaustic" floors were laid during the 1840s incorporating tiles made under Richard's patent than has previously been recognised.



Thirdly, and of most interest, importance and relevance, is the, as yet, unacknowledged and unidentified role that Richard played in the successful development by Minton of the encaustic tile. A claim that was made by Richard when he gave evidence on 5th July 1843 to the Lords and other distinguished members then sitting on the Judicial Committee of the Privy Council on the application by Samuel Wright to renew his 1830 patent, which was due to expire in January 1844. The hearing was reported in the *Mechanics' Magazine* dated 8th July 1843 and, at least, one other scientific journal (*Iron: Vol.39*). Wright was represented by two legal counsel (barristers), one of whom gave the Committee an account of the historical background to the application, including Minton's involvement and referred to his recent Temple Church encaustic pavements, which he said were attracting much attention. Witnesses were then called: a solicitor confirmed the publication of the necessary notices; a patent agent verified the authenticity of the copy of the patent's specification produced to the Committee; Richard then gave the following evidence:

*MR RICHARD PROSSER, of Birmingham. C.E. described the process of manufacturing the tiles. They were harder, and would stand wear better than the hardest stone. They were not affected by changes of temperature. The cost was 18s. a square yard; originally it had been two guineas; if numerous orders were received it might be reduced to about 12s. Mr Minton had advised with the witness professionally as to the best means of carrying out the invention, and had acted chiefly under his advice in the matter. He had been a loser to the amount of about £200 by the contract for the Temple Church, but he did not mind that so as it served to bring the article into notice.*

*LORD BROUGHAM. He did it, in fact, as a sort of advertisement?*

*WITNESS. Yes. He would rather have done it for nothing than not have had the thing to do. He could say from his own knowledge, that Mr. Wright, the patentee, must have been, up to the present time, a great loser by the invention. The sum which he had received from Mr. Minton for royalty did not amount to more than about £80.*

*LORD BROUGHAM was anxious to know how the interests of Mr. Wright would be secured in the event of their Lordships granting a prolongation of the term of the patent.*

Wright's attorney was able to satisfy this concern of the former Lord Chancellor and eminent statesman; the Attorney General confirmed that he had no objection to the proposed renewal which he considered was well deserved. After a short consultation with his colleagues, Lord Brougham delivered the Committee's judgement and the patent was prolonged for the maximum period allowed, seven years, "quite as much for the sake of the public as the patentee. With a little further protection ...the more extensively it (*encaustic flooring*) was used, the more cheaply it could be afforded by the public."

Richard's boast before such a distinguished tribunal and Wright's representatives, to have been Minton's chief adviser in the successful development of his encaustic tile, was unlikely to have been greatly exaggerated. It would not be surprising if Wright and Minton were also present. However, it must be remembered that Richard was closely associated with the editor of the *Mechanics' Magazine*, who was the senior partner of the firm of patent agents which represented Wright at the hearing and who probably also acted for Richard; this would explain the prominence of his evidence in the report, but he does appear to have been the only independent witness called at the hearing.

So, what was Richard's contribution to the development of Minton's encaustic tile? Presumably, it must have been "chiefly" of a mechanical nature, although Richard had clearly gained some expertise in the science of ceramic manufacture. The main body of the encaustic tile is achieved by compression of the plastic clay into which an indented pattern is pressed, using plaster moulds, to take the inlaid contrasting clay(s) (my very over simplified description of an extraordinarily difficult process).

Richard's full role in the success story of Minton's tiles, encaustic and dust-pressed, has been unrecognised to date. Indeed, he appears to have been largely "written out" of the story at an early date; entirely so in the case of the encaustic tile apart from his own testimony to the Privy Councillors. Minton took all the credit for his tiles at the Great Exhibition, there is no mention of Richard in the official reports on Minton's tile exhibits; Hollins's contribution was also unacknowledged at the time. As mentioned previously some newspaper reports in 1849 and 1851 do mistakenly credit Richard with patenting the press used in dust-pressing, but not the process itself.

If Minton deliberately manipulated this state of affairs, it would have been uncharacteristic of a principled man known for his generosity and philanthropy. However, there are circumstances which may have led Minton to consider that he was justified in acquiescing to the lack of recognition of Richard's contributions to the success of his tile manufactory.

It is necessary to backtrack to the mid-1830s when Wright, unable to make a commercial success of his encaustic tiles, had granted rights in the patent to Minton. According to Digby Wyatt in his 1858 eulogy, Minton "in effect" purchased the patent. Wyatt continued with a lengthy description of Minton's subsequent development of Wright's process, but later made the interesting comment that towards the end of the expiry of the original patent Minton had granted a license to make the tiles to another potter. The pottery in question was none other than the Royal Worcester firm then commonly known as "Chamberlains", two of whose owners were to be sued by Richard in the 1845 button litigation. Wyatt's account is supported by the earliest press reports found in the *BNA* of Chamberlains making encaustic tiles, which date to November 1841 and describe the firm as "lately" commencing the manufacture.

Not only did Minton grant Chamberlains a licence for the last few years of Wright's original patent, he also collaborated with the Worcester pottery in the joint outright purchase of the renewed patent from Wright in April 1844 for the

large sum of £612 (*Minton Archive per Van Lemmen 2006 ibid*). Had the two potteries also funded the cost of the renewal application, which Wright himself might have been pressed to afford?

Chamberlains' encaustic tiles differed from Minton's, some commentators preferred their more medieval appearance, but they were not a success for long. Wyatt explained in 1858 that Chamberlains quickly discovered that the local Worcestershire clays were not suitable and had to source the clay from Broseley in Shropshire, increasing the production cost. The unprofitable business was sold by Walter Chamberlain and Lilley, the then remaining joint owners, in 1849. (Might Minton have been aware from the outset of this potential problem for the Worcester firm's foray into encaustic tile manufacture?)

It is reasonable to presume that Minton had been on good terms with his renowned rival potters in Worcester, otherwise he would surely not have collaborated with them over the use of Wright's patent. Richard's much publicised law suit in 1845 may have caused Minton some embarrassment, particularly as Richard's invective appears to have been largely targeted at the esteemed Walter Chamberlain himself. If Minton did indeed intercede between the warring parties, as suggested by the report in the *Staffordshire Advertiser*, it seemed surprising to me that he had been prepared to do so in the light of Chamberlains' duplicity in secretly manufacturing and exporting dust-pressed porcelain buttons; even, allegedly, passing them off as Minton's. Might Minton have been influenced by Walter Chamberlain's claim to be the first inventor of the dust-pressed process? Did Chamberlain also allege that Richard had actually acquired the idea of dust-pressing from him through his brother Thomas Prosser, previously a successful architect in Worcester and possibly a business associate and friend of Chamberlain?

On the morning of the second day of the 1845 trial the judge reportedly recommended that the parties would be well advised to settle the action following discussions before him between the parties' counsel.

The legal costs incurred by each of the parties were already substantial and would have been enormous if the trial had proceeded. The case must also have become something of a cause célèbre in the pottery and related industries due to the pre-trial publicity engendered by Richard's intemperate press campaign, including his notices offering a reward of £50 to anyone giving evidence against Chamberlains. If the trial had continued the details of the further evidence may have attracted much more undesirable publicity,

which may have tarnished not only Richard's reputation but, by association, that of Minton as well. In the lottery that is litigation the actual outcome of a trial can never be certain; neither party could have been sure of success, not even Richard.

However, Richard, as we have already seen and will see yet again in the next chapter, was a combative and determined litigant. It would not have been in character for him to settle with Chamberlain and Lilley bearing in mind their deceitful conduct, in particular on terms that left him with a large legal bill to pay. It is my belief that Minton, a close business associate and probably previously on good terms with both of the litigants, must have exercised considerable influence over the parties to persuade them to reach the settlement eventually agreed. Perhaps, to achieve this end Minton also confided in Chamberlain, that he was the, previously undisclosed, joint owner of the patent.

As recounted in Chapter 6, Chamberlain and Lilley effectively conceded defeat and Richard was granted his injunction, but the full settlement terms remained confidential, although the press speculated that the parties had agreed to pay their own costs, a fact later confirmed by *Binns*. The press also reported that Chamberlains had agreed to pay a royalty for the privilege of continuing to manufacture the porcelain buttons; the amount was not disclosed at the time, but if the later report of a 17% royalty was correct and Minton as a joint recipient was a party to its negotiation, he was not letting Chamberlains off lightly.

The disillusion with dust-pressed manufacture that *Binns* and Blashfield both suggested afflicted Richard following the settlement of the case is understandable if he had felt let down by Minton's interference and if he had been left to foot the bill for all the costs he had incurred. It would not be surprising if there had been some consequent deterioration in the relations between the two parties; a deterioration that was exacerbated in 1847/1848 when Minton decided to stop production of the "Agate" button in Stoke.

Minton, in turn, may have felt that Richard's claim to have invented dust-pressing lacked legitimacy in the light of Chamberlain's claims. Was this, in fact, the "embarrassment" affecting the patent which Blashfield referred to in 1868 and the reason why Minton apparently felt no obligation to give any credit to Richard at the Great Exhibition in 1851?

Yet, there is evidence that Minton and Richard did collaborate with each other that year. A common foe, the French button maker Bapterosses, had indicated his intention to exhibit his pirated dust-pressed buttons at the Great Exhibition. This so infuriated both Minton and Richard that they commenced the joint publicity campaign described in Chapter 6 threatening to sue anyone importing "Agate" buttons. In addition, the manufacture of Minton's "Prosser's Patent" Alhambra style tiles, possibly Great Exhibition exhibits, suggests a continuing business relationship before that event.

These contra-indications are themselves contradicted by Minton's collaboration with Nasmyth which resulted in their 1851 joint patent for the steam powered tile press.

However, amidst all this confusion, it must not be forgotten that Richard was very heavily committed both financially and time wise to the development of his tube machinery inventions throughout the 1840s. In particular, during the second half of the decade when he was also engaged in probably the most prolonged and expensive court battle of his life over his lap welded tube invention. His enthusiastic participation in the promulgation of the proposed reform of the patent system would also have been a heavy commitment at the end of the decade and the beginning of the next. Richard may have had little time and resources to spare for an invention in which he had lost interest, both emotionally and financially. The invention and development of more efficient tile presses for Minton may have been a commission he declined.

Nevertheless, Richard had spared the time in 1850 to contribute his chapter to *Dobson's* book on brick making and, as late as 1852, successfully sued the London firm of Morrison Dillon & Co. twice for infringement of his patent; first for importing Bapterosses's buttons and secondly when the firm was later discovered to be still exporting the French buttons through London to Jamaica.

## The Non-Renewal of the Patent

Probably the most intriguing conundrum of all in this confusing story is Richard's failure to take timely steps to renew his patent before its expiry on 17th June 1854. In 1843 Wright had applied to renew his patent at least six months before it expired. On 3rd April 1854 a notice dated 1st April was placed in *Aris's Birmingham Gazette* by a London solicitor of an intended joint application by both Richard, the patentee, and Minton to renew the patent;

Minton was stated to have an interest in the patent. The application was to be made to the Judicial Committee of the Privy Council on 9th May 1854 or, if later, the earliest date of its next sitting. However, this would have been a preliminary hearing only to fix the date when the full hearing of the petition would be held.

In fact, this proposed application must have been abandoned immediately after, and, possibly, even before, the notice in the *Birmingham Gazette* was published. A conclusion I came to after reading the relevant chapter in *A Treatise on the Law of Letters-Patent* by John Coryton, a Lincolns Inn barrister, which was published in 1855 and is now available online in *The Law Library Vol.87*. From *Coryton* I learned that the law required that in all nine notices of the proposed application had to be advertised; three at separate times in each of *The London Gazette*, a London newspaper and a paper in the locality of the patentee's business or residence. The purpose of the adverts was to give potential objectors to the patent's extension adequate notice in which to file their "caveats" before the hearing date. The *Birmingham Gazette*'s notice is the only one I could find in my searches in the *BNA*, *The Times Digital Archive* and *The London Gazette*.

I pondered further as to what might have caused the abandonment of the opportunity to extend the duration of the patent for a further seven years. Both Richard and Minton stood to profit enormously by retaining exclusivity for these additional years, particularly Richard as recognised by one of his obituarists, who expressed the hope that the patent could be extended for the benefit of Richard's family as it was "just getting into the remunerative stage" (*The Spectator* 27th May 1854). *The Spectator* reported that Richard had died "suddenly" on 21st May 1854 and immediately after his death his estate was thought to be insolvent. Richard could have ill afforded to lose any future royalties.

*Coryton's Treatise* proved a valuable resource in my musings as to what might have occurred to frustrate the prolongation of the patent. He confirmed that want of adequate remuneration to the patentee (and/or his assignees) had to be proved; as Richard had sworn to in support of Wright's application. For this purpose the application to extend could not be made too early. However, normally an application would not be entertained if it was made less than six months before the expiry of the patent, an 1849 case was cited in which an application made just two months before the expiry was refused for being presented too late. This could well be the reason for the abandonment

of Richard and Minton's proposed joint application in May 1854, but why had they not applied earlier?

One reason might have been their failure to agree on the terms regulating their future ownership of the extended patent, which would possibly have been a requirement of the Judicial Committee. In fact *Coryton* confirmed that either Richard or Minton could have made the application without the other, but that Richard as the original patentee would have priority (Wright's application was cited as a precedent for this). Obviously a sole application could be subject to intervention in the form of caveats entered by other concerned parties, whose interests the Council would take into account.

However, Richard would have had nothing to lose by making the application himself. Without an extension Richard would have ceased to receive any royalties from the patent, the validity of which had recently been upheld in his claim against Morrisons in 1852. Minton, on the other hand, would have been able to continue dust-pressed manufacture freed from the patent and ties to Richard, although subject to competition from the other potters who would quickly take up the process.

I have therefore come to the tentative conclusion that Richard himself must have refused to extend the patent, but why? Might it have been on a point of principle, perhaps connected to the outcome of the Chamberlain and Lilley litigation? There was one other explanation that occurred to me: namely, that in his parlous financial state and needing to raise a large capital sum quickly, Richard accepted a payment from some other potter or potters on condition that he did not apply for an extension. Minton might have been legally entitled to make his own application; perhaps, he (and Hollins) had contemplated doing so, but without Richard's co-operation this was unlikely to succeed,

The London solicitor who placed the advert in the *Birmingham Gazette* gave his address as "34, Stamford Street, Christ Church, Surrey", the same street in Southwark/Blackfriars where Blashfield had lived in 1843 near to Albion Wharf, where Minton & Co. traded from in 1854. Was this just a coincidence?

The solicitor was named as a Mr Edward Meymott and in early October 2015 I was to discover that he had acted for Richard in 1852 in his successful law suits against Morrison and his partners, the London firm importing French "Agate" buttons. I had carried out further searches in the *National Archives* online catalogue and had identified two further court records involving Richard which had either not appeared on my earlier searches or which I had

overlooked: one related to the lap-welded tube litigation (source material for future study), the other was Richard's Bill of Complaint in the second of the court cases he had commenced against the firm of Morrison Dillon & Co. on 19th May 1852. I applied online for a photocopy of these pleadings; the cost was considerably more than and the response was not as immediate as the service provided by the Kansas branch of the U.S. National Archives, but still cheaper and less time consuming than another trip to Kew.

Fortunately, this time Richard's testimony was confined to just two of the four sheets of parchment comprising the Bill and most of it was taken up with an account of Meymott's many meetings with Customs officers, dock workers and others in London and Southampton in his quest to obtain evidence that the defendant firm was in breach of the Court Order that had been made when the previous proceedings had been settled in February 1852. Richard testified that he had instructed Meymott in the third week of April after he had been alerted to a consignment of the French buttons arriving by ship in the London docks, which Meymott subsequently learnt had been sent to Southampton on the defendants' instructions for onward export to the British colony of Jamaica. In his testimony Richard also confirmed that under the Court Order made only three months previously the defendants had admitted the validity of his patent, had agreed to pay his costs and had undertaken only to sell "Agate" buttons if they were purchased from Richard's "licensee Herbert Minton Esquire" or Minton's agent or nominee. As recounted in Chapter 6 the press reported in May that the defendants were again found to have infringed the patent.

Why Richard described Minton as his "licensee" remains unexplained; by 1852 Minton was certainly a joint owner of the patent and had been described as such in the press campaign in early 1851 when Richard and Minton had jointly given notice that they would sue anyone infringing the patent by importing "Agate" buttons.

Richard's testimony in the Morrison suit had merely added to the confusion surrounding the mystery as to why he did not renew the patent.

Ostensibly Meymott was acting for Richard in 1852, but it would seem reasonable to assume that Minton was supporting, perhaps actually underwriting, the action. So was Meymott, after all, instructed by both Minton and Richard in April 1854 when he placed the patent renewal notice in the *Birmingham Gazette*?

This question is just one of the many that remain unanswered in the story of the early development of dust-pressed tiles at Minton's factory and the role that Richard played in it; that he had a more important role than had previously been recognised was evident to me from the "knowns" that had come to light in my researches. There was one obvious further source that I had not been able to investigate - the Minton Archive.

## The Minton Archive is Saved

It was *Hans* who had alerted me to the announcements in the press, at the beginning of April 2015, of the acquisition of the Archive from its American owners at a cost of £1.56 million; this had been funded by private and charitable donations plus a grant of £1.16 million from the National Heritage Memorial Fund. The purchase was negotiated by the Art Fund, the national fundraising charity for art, who immediately gifted the Archive to the Staffordshire County Council and Stoke-on-Trent City Council Joint Archives Service.

I was obviously delighted to learn that the Archive had been saved and was returning to its rightful home. I was also somewhat daunted at the prospect of the amount of material that might soon be available for research. The Archive was said to comprise comprehensive business records and in addition all the pattern books, totalling hundreds of thousands of items, relating to the Minton and Doulton group of companies. How much had survived from the period 1840-1854 was unclear, but I was aware that the Minton records had been catalogued in the 1970s and this did include at least two references to papers relevant to Richard.

Claire Blakey, then an Assistant Ceramics Officer at The Potteries Museum & Art Gallery, had kindly searched the catalogue in response to an enquiry from me in June 2014 about Richard's buttons. The catalogue was not indexed and could not be searched by name, but Claire was able to send me details of two records: one described as a copy of the specification of Richard's 1840 patent and the other a packet numbered 674 which appeared to contain a number of documents from 1840-1848 including "Richard Prosser and his patent for improvements in the manufacture of buttons, knobs, rings etc.; the extension of this to include tiles and tesserae; etc., etc.". My interest in the latter record had grown during the first half of 2015 as a result of my findings when researching the history of Minton's tiles.

In April 2015 Stoke City Archives had quickly reported that it would be some time before the Archive was fully accessible, but that it hoped that at least parts of the already catalogued Minton records might be available by the early autumn. I had therefore decided to continue my, mainly, Internet based researches and the writing up of my findings as this should, at least, lead to a better understanding of what to look for in the Archive. One piece of information that did come to light was the *Rev. Reynolds's* comments, in his 1994 article about his ancestor's block print process, which indicated that few of the early Minton records had survived. *Reynolds* had clearly researched his subject matter conscientiously and in depth; I was not hopeful that the Archive would provide answers to many of the "known unknowns" of the story of Richard's involvement with Minton (never mind any new "unknown unknowns").

I did, however, harbour the hope that the documents in packet no. 674 relating apparently to "the extension" of Richard's patent might establish the date that Minton became joint owner of the patent. I had come across some references in later commentaries to the patent being subsequently extended to include tiles, but the date inferred was later than December 1840, when the detailed specification was enrolled. This did not make any sense to me; the specification was all encompassing and included all products capable of being made by the dust-pressed process. There was no need for any extension. The specification did, in fact, specifically mention tiles (and bricks), which Richard had added, probably as an afterthought, to "buttons, knobs, rings, etc.", but the product range was unlimited.

The references to a later "extension" are, however, consistent with *The Staffordshire Advertiser's* suggestion that Minton had extended his own interest in the patent in the latter half of 1845 by then becoming a joint patentee, as well as acquiring Blashfield's tile business and interests in the patent.

I had never been entirely comfortable with Turley's assertion that Richard had sold a half share in the patent to Minton almost immediately after its grant on 17th June 1840. In chapter 6, I had questioned the speed with which Richard had been able to agree terms with Minton to enable manufacture to commence as early as August 1840; I speculated that the potter and the engineer might previously have been collaborating over the development of the process. This speculation would also explain why Richard agreed to sell the half share to Minton, but surely Minton would have insisted that the patent be taken out jointly from the outset?

If there was no prior collaboration, I believe it unlikely that Richard would have been prepared to sell a half share in his valuable patent outright, other than for a very large sum. Minton was a self-made man; although he had become head of the family firm on his father Thomas's death in 1836, it was his older brother the Rev. Thomas Webb Minton, the financier of the new button factory in 1841, who had inherited his father's fortune. In 1840 Minton's own financial position was probably still relatively weak, not helped by the costs incurred in his encaustic tile experiments; he also wanted to buy out Boyle, his uncooperative partner. In addition, there are the comments by *Spons* that Minton was sceptical that the patented process could be applied successfully to tiles as suggested to him by Blashfield. It therefore seems likely that initially Minton wanted to pay for the right to use the process to make just one product - buttons. In my view it was probably the Hollins family who encouraged Minton to acquire a licence only from Richard to make porcelain buttons for export to the lucrative U.S. market through the family's commission agency based in Manchester. Minton's brother-in-law Thomas Hollins, the head of the agency, would have been in a position to provide the capital to buy out the reluctant Boyle to which the latter agreed, eventually, in November 1841; if Hollins senior did finance this deal it was no doubt on condition that two of his sons be taken in as partners in Minton's firm or at least the new button making branch of it.

## Packet 674

Towards the end of October 2015 we visited the Stoke on Trent City Archives to view the documents described in the two records in the Minton Archive that Claire Blakey had found relating to Richard. On making a telephone enquiry I had been told that the digital Archive catalogue was still being compiled and remained unsearchable online, but as we had the old 1970s catalogue numbers these papers could be made available.

The first document we looked at, number 673, was the manuscript transcript of the specification of the patent enrolled on 17th December 1840. There was no indication as to the date when it was transcribed; it appeared to be a full and accurate copy and, in particular included the reference to tiles and bricks.

The second document was that in packet 674, which, to my surprise, contained not the several documents I was expecting, but a single sheet of foolscap paper covered on one side only in what appeared to be hastily written notes. The nearly scrawling hand, nevertheless, looked educated, but

occasionally illegible and was certainly not that of a meticulous Victorian clerk.

The following is a full transcript set out as written:

*75 Margaret Street 21 January 1848 [With?] Madame Dolores' [????]*

*Proposal for working the patent of mosaics, artificial marble and artificial stone. The expenses of the Patent to be defrayed by Mr Minton. The necessary machinery to be paid by him. The machinery already constructed by Madame Dolores being taken at cost price. A premium of £1000 sterling to be paid by HM to Madame D. All further advances required for materials, labour, advertising and the like are also to be made by Mr Minton but to be repaid out of the [first?] profits realised by the patent with interest at 5% on one half of such advances the said interest to be debited to Madame Dolores. This done, Madame D is to receive one half the profits of the Patent, whether arising from actual manufacture by Mr Minton or his agents or by sale of licences.*

----- [representing an ink line dashed across the page]

*Richard Prosser Civil Engineer of Birmingham. Patent dated 17th June 40*

*"for certain improvements in manufacturing Buttons from certain materials such impts ["14 years" is here inserted in the margin] in manufacturing are applicable in whole or part to the production of knobs, Rings and other articles from the same materials*

*Applicable to the manufacture of Bricks Tiles & Quarries such as are usually made in a Brickyard for Building & Agricultural purposes: also to bricks tiles & Quarries made of Red Clay or Brick earth with or without devices impressed in the surface in the act of making*

*R Prosser has the entire possession of the Patent for the colonies*

*Agreement Between R Prosser - HM of Stoke 2nd part and Jos Mayer (sic) of Hanley of 3rd part*

*30th Oct 1841 £500 one moiety - for [their/share? app?] to the manufacturing of Buttons, Tiles, Tesserae or any other articles to which the same invention then may or might be applicable - no mention of*

*having assigned to Fred Wills Mr Wm Ryton or [B???] Walton - HM agreed to waive full & strict performance of the contract*

*Letters Patent U.S America - Kingdom of Belgium & France*

*Prosser indebted to Kinnersley 1000 - Jos Mayer (sic) advanced that sum - HM. surety to Kinnersley*

These notes were clearly written no earlier than 21st January 1848, the date in the heading, but were they contemporaneous notes of meetings held that day (or on different days) or a précis of documents made, perhaps decades later, for some unknown reason? The reference to "Proposals" and the use of the passive infinitive (eg. "to be defrayed") in the first paragraph suggest that the former was the case; if the "Proposals" had come to fruition and been formally documented or had been abandoned, any later record keeper would not have bothered to record these initial negotiations.

I therefore believe the commencing notes were written on 21st January 1848 and that those relating to Richard were taken down the same day or shortly thereafter.

The "Proposals" agreed with the alluringly named "Madame Dolores" are clear and comprehensible. They are interesting as an example of the type of terms that Minton was prepared to enter into with patent holders; surprisingly generous in this case it seems to me. I have found only one other mention of the "Madame"; in its issue dated 1st April 1848 the *Art Journal* commented on her exhibit of tesserae at the recent Society of Arts Exhibition. The tesserae were said to have been made of a new material and of various sizes, the correspondent had "sympathy" for the "lady's performance" but considered her process would be too "laborious and expensive" for large spaces. Had Minton (and/or Hollins) been seduced by the mysterious "Madame's" charms?

The notes of the agreement reached with Richard are far more enigmatic than those relating to his exotic sounding rival. They are more "rushed" and incomplete as if the writer could not keep up with the discussions. The following is my interpretation of what took place at this meeting at which Herbert Minton was clearly present, who the other attendees were is not known; Richard may not have been there if it was an internal meeting between the Minton partners.

The specification of Richard's patent, perhaps the actual transcript held in the Archive described above, had been referred to; the note taker had copied out the title of the patent from its preamble virtually verbatim. The purpose of the meeting appears then to have been noted down: presumably to discuss a proposal to apply the patented process to the manufacture of bricks and also tiles and quarries (quarry tiles) used for building and agricultural purposes (not decorative tiles or mosaics). It is reasonable to assume that this proposal had emanated from Richard in the light of his own early interest in dust-pressed brick manufacture and his subsequent contribution to *Dobson's Treatise*.

The meeting next acknowledged that Richard had retained sole ownership of the patent "for the colonies"; this must have included full royalties on all exports of dust-pressed products to British colonies in addition to colonial manufacturing rights.

Another document was then placed on the table: an agreement between three individuals, each a separate party with separate interests requiring protection - Richard, Herbert Minton and Jos. "Mayer.". The note taker recorded that this agreement was dated 30th October 1841 and that it provided for a payment of £500 for "one moiety", i.e. a half, of the manufacturing rights under Richard's patent (except in the "colonies" presumably). The payment would have been made by Herbert Minton to Richard; the role of Jos. "Mayer" as a party to the 1841 agreement is explained at the very end of the note.

Joshua Meyer (one of three brothers trading as T.J. and J. Meyer - [thepotteries.org](http://thepotteries.org) website) was another Staffordshire potter with whom Richard must have had dealings prior to the 1841 agreement and at sometime Meyer had advanced Richard the considerable sum of £1000 for rights in the patent. Meyer must have joined in the agreement to release those rights, but he had to be repaid the advance he had made and this was effected by Richard borrowing £1000 from Thomas Kinnersley of Clough Hall in Kidsgrove to the north of Stoke. Kinnersley is variously described on a number of websites as a local landowner, business proprietor and as a banker. Kinnersley had required some security for this loan and Minton had agreed to act as Richard's surety or guarantor. This loan was still outstanding when the 1848 meeting took place.

There had probably been some reminiscence or explanation of Meyer's part in the 1841 negotiations. The names of three other individuals, presumably

potters, known to or suspected of having acquired interests in the patent were raised, but "no mention" of these dealings were found in the 1841 agreement.

The meeting then addressed the issue for which it had been convened: the proposal to manufacture dust-pressed bricks etc. that had been outlined earlier. Minton must have confirmed that these products were of no interest to him, as he "agreed to waive" all rights he had in this manufacture as a joint owner of the patent; he did not seek any payment for this concession.

Mention was then made of the foreign dust-pressed patents that had been taken out: those already known in the U.S. and France, but in addition another in Belgium.

The discussion then ended with a reminder of Richard's continuing indebtedness to Kinnersley, which was still guaranteed by Minton.

What conclusions and inferences can be drawn from the notes of these discussions or, at least, my interpretation of them?

My speculation that Minton had not immediately acquired his half share in the patent in June 1840 was correct, but he had done so much earlier than suggested by *The Staffordshire Advertiser's* 1845 report. The 1841 agreement appears to have been kept secret at the time and, in fact, except for the one 1845 press report, Minton's joint ownership does not appear to have been publicly admitted until 1851 when he and Richard jointly gave notice that they would sue importers of Bapterosses's "Agate" buttons. In 1845 the 1841 assignment of the half share was clearly not public knowledge as even *The Staffordshire Advertiser's* reporter was unaware of it. If Minton was, indeed, concerned to conceal his joint ownership, his reasons for doing so remain obscure - in the beginning might his relationship with his fellow potters, in particular Chamberlain, have been a factor?

Before the end of October 1841 Richard had clearly granted licences to manufacture products under the patent to other potters (of whom Meyer may have been the principal), in addition to the licence he had granted to Minton. It is possible that some of these other potters retained their licences. In his evidence given in 1845 in the Chamberlain and Lilley "Agate" button infringement litigation Richard had asserted that he had made substantial profits from the "divers articles" made under his patent, suggesting that he had granted rights to manufacture several other products of varying type.

Whether Blashfield was granted his licence before or after 30th October 1841 is unknown.

The background to the 1841 agreement remains a matter of conjecture. It was entered into shortly before Boyle retired from the partnership, at a time when Minton must also have been in negotiation with the two Hollins brothers (and their father). If the Hollins family were being asked to inject a considerable amount of capital into the dust-pressed venture, had they insisted on greater security for their investment including the buying out of other potters' interests in the patent and the acquisition of a share in the patent itself? Had Richard been persuaded to part with a half share in his patent by the prospect of the expansion of the new button manufactory?

Joshua Meyer's loan to Richard of £1000 at some unknown earlier date gives rise to the speculation that Richard may have, in fact, been collaborating with Meyer for some time; perhaps even before June 1840 when the dust-pressed patent was granted.

The fact that in 1841 Minton had been prepared to guarantee Richard's indebtedness to Kinnersley could be viewed as simply a commercial necessity in order to buy out some commitment of Richard's to Meyer, but it was a potentially huge liability. In addition in 1848 Minton had not sought any payment from Richard for the waiver of his interest in the patent; was this a conciliatory gesture, an attempt by Minton to repair a fractured relationship following the recent cessation of button manufacture? Whilst their business association may have had its "ups and downs", Minton must, also, have held Richard in high regard.

If the original of the 1841 agreement has survived somewhere within the Minton Archive it may provide much new information (and may prove that my speculations above are mistaken; as was the case with those I initially made over the contents of the 1841 census return for the household of Thomas Hollins's sister, the recently widowed Mrs Mare).

Until the Minton Archive becomes fully searchable we will not know what else can be gleaned from its contents relevant to the story of Richard and his dust-pressed patent. Even when the Archive becomes more available this may take many months, perhaps even years, of painstaking research and analysis depending on how much has survived from the 1840s and 1850s. Research and analysis which may have to be left to others if I am ever to complete the telling of the remaining stories in Richard's life.

## Richard's Legacy: A Contribution to Minton's Fame?

*He was the inventor of many mechanical improvements, and amongst others, of the process of forming pottery from dry clay dust, made to adhere together by pressure,—a process which gave rise to the manufacture of the mosaic tiles in colours known far and wide as Minton's; a patent process only just getting into the remunerative stage, and which we hope will obtain an extension for the benefit of Mr. Prosser's family*

The above quote is a short extract from the obituary for Richard that was published in *The Spectator* on 27th May 1854 (see the Appendix to chapter 1); this glowing tribute was headed "PROSSER THE ENGINEER". The author is unknown, "a Correspondent", but the high-flown style is reminiscent of Cole's, although Bennet Woodcroft would seem the more likely candidate.

Richard had died, aged 50, on 21st May, unexpectedly, after a short illness "of less than 24 hours" at his home in Kings Norton. *The Spectator*'s obituarist attributed his death to overwork.

Whether Richard was the inventor of the dust-pressed process is questionable; others had also clearly been experimenting with the idea, including Chamberlain, Herr. March, Monsieur Mollerat, Doolittle and, of course, Richard's older brother Thomas. (The same can be said of many other "inventors": Nasmyth and the steam hammer, Arkwright and the Spinning Jenny, Bell and the telephone amongst them; all had other contenders to be the first with the idea for their inventions.) Richard had, however, perfected the process to the point that it could immediately be applied to the successful mass manufacture of small objects and he won the race to be the first to patent it. (See also further disclosures and discussion in *An Early Addendum - SD 2022 rev.*)

Blashfield's initial contribution to the application of dust-pressing to the tile industry cannot be ignored; nor can Hollins's probable considerable input to the subsequent development of the process's application to tiles.

It was, however, Minton's family name that was and still is to the fore on the floors laid with tiles made by the factory he founded with Hollins. "Minton" was already THE brand name of the ceramic wares sold by the acclaimed Stoke firm that had been established by his father, Thomas, when his second son assumed responsibility for the pottery in 1836. The "Minton" name alone was

a unique selling point of the firm's products and this "USP" was greatly enhanced under Herbert's stewardship. After his death in 1858 both Hollins and Colin Minton Campbell jealously guarded their right to use the name on the products manufactured by the respective factories they had inherited from their uncle; the relatively small tile factory passed to Hollins, who continued trading as "Minton & Hollins", and the remainder of the large pottery was left to Campbell, another nephew who had joined the partnership in about 1850.

As indicated by *The Spectator's* obituarist, from an early date Minton was perceived by the public in general as the sole creator of his wonderful tessellated pavements; the reference to "mosaics", I suspect, was also intended to include the early geometrics. Is there a suggestion of the unfairness of this attribution in the correspondent's comments?

However, the pavements for which Minton was (and remains) most famed were of course the encaustic variety and deservedly so for his hundreds of donations of these to churches and the expenditure he incurred both in the initial development of the process and the subsequent expansion of the range of colours used in the beautiful patterns and designs of his later pavements.

For a short period from about 1846 (possibly following the departure of Samuel Hollins) to 2nd January 1850 the tile factory had traded as Minton, Hollins and Wright - the "Wright" was Samuel Barlow Wright (a son of the patentee of the encaustic process), who had left the partnership on the latter date - *Furnival* and *The London Gazette*. Amongst connoisseurs and experts on the subject, Wright senior's part in the encaustic tile story has survived, notwithstanding he clearly did not perfect the process; Richard's, admittedly self-proclaimed, contribution to its perfection by Minton remains unidentified and appears never to have been acknowledged.

(Michael Dainty Hollins's early role has similarly largely gone unrecognised; Blashfield's self-serving contribution to the homage to Minton at the Royal Society for Arts in 1858 was largely to credit Hollins (and discredit Richard) with the advancements that Minton had achieved in tile manufacture. Another eminent potter, a "Mr. Daniell", had earlier in the discussion given Hollins a similar endorsement.)

Minton survived Richard for less than four years; the dust-pressed patent had expired within a month of Richard's death. In his final years Minton would have seen the process taken up by many other potters, amongst them the Maw brothers of Broseley in Shropshire, who I have mentioned in the

previous chapter in the section on bricks. There is a certain irony in the fact that Maw & Co. overtook Minton & Hollins to become the world leaders in Victorian tile manufacture, dust-pressed and encaustic. The two Maw brothers had originally been set up in the business in Worcester, when their father acquired the tile factory from Chamberlain and Lilley in 1849.

In 1854, on the other side of the Atlantic, the fortunes of Thomas Prosser had changed dramatically - for the better. His business, now based in Gold Street, New York had acted as import agents for Richard's successful lap welded tubes in the 1840s. In 1851, his bankruptcy annulled four years previously, he is said to have returned to England to attend the Great Exhibition. Various unattributed sources have claimed that the Exhibition was the venue of his first and fateful meeting with Alfred Krupp (1812-1887), the founder of the mighty German steel and armaments manufacturer. Krupp appears to have taken an immediate liking to Thomas and appointed Thomas Prosser & Son as his sole agent in the U.S. on 16th August 1851 (an attributed source revealed in the Fifth Story - *SD 2022 rev.*). This business relationship continued into the 1930s through several generations of the American family, whose immense wealth must have been the envy of their English cousins, Richard's descendants. (Hopefully my future research into Richard's tube inventions, the next story in this narrative, will reveal more of the background to Krupp's association with Thomas. Krupp had first visited England in 1839 returning frequently during the 1840s, including visits to Birmingham; a letter from Richard Bissell Prosser held in the British Library suggests that his father may have been living in Germany at some time between the years 1848 and 1851 "when we resided at Marburg".)

Thomas had clearly followed the progress of dust-pressing in Minton's tile factory in England as evidenced by his 1850 letter in which he had reasserted his claim to have invented the process and referred to the Osborne House pavements. The "special correspondent" who had so helpfully reported on Minton's tile exhibits at the Great Exhibition in *The Staffordshire Advertiser* dated 7th June 1851 (see p.118) had also referred to their export to India, Jamaica and other British colonies and "of late, a considerable demand" that had "sprung up" for them in the U.S.. Decorative tile manufacture was still virtually unknown in the U.S., which relied on imports to satisfy this demand. Lynn Pearson in her paper on British tile exports 1840-1940 points out that "their use tended to be confined to public buildings and the homes of the wealthy in east coast cities" - <http://www.arct.cam.ac.uk/Downloads/ichs/vol-3-2433-2450-peerson.pdf>. Although these comments of *The Staffordshire Advertiser* and Pearson refer to exports

of Minton's encaustic tile, there can be little doubt that these overseas donations and sales must have included dust-pressed tesserae and geometric tiles as well. Thomas must surely have followed their success in the U.S. with great interest; whether he had any Minton pavements laid in the mansion he had built on the large tract of land he acquired in about 1857, in what became known as the Stuyvesant Heights area of Brooklyn NY, will probably never be known.

Thomas, who died in 1870, must have been aware of the most famous of the Minton "encaustic" pavements in the U.S.; those laid during 1856 to 1861 in the new buildings of the Capitol in Washington. These pavements included plain, presumably dust-pressed, tiles:

*Two types of tile were used at the U.S. Capitol: plain and inlaid encaustic tiles in a range of colors. Plain tiles were used as borders for the elaborate inlaid designs or to pave large corridor areas. They were available in seven colors: buff, red, black, drab, chocolate, light blue and white. Additional colors, such as cobalt blue, blue-gray, and light and dark green, appear in the inlaid encaustic tiles that form the elaborate centerpieces and architectural borders.*

(The above quote is from a U.S. government web site (<http://www.aoc.gov/capitol-hill/other/minton-tiles>), which also recounts how the worn pavements came to be renewed with replicas in the 1980s.) Would Thomas have been able to resist boasting of his own contribution to these wonderful floors and of the part that his younger brother may well have told him he played in the development of the encaustic tile?



Before he died Thomas may have been aware of a new brick-making concern that had been established in 1864 in the vicinity of St. Louis Missouri; an area known for its large deposits of a suitable red clay. Thomas, who in 1849 had become the American representative for Robertson & Co., the London patent agents connected to Richard (and the *Mechanics' Magazine* through J. C. Robertson its editor), would probably have noticed with interest the grant of an American patent in 1856 for brick-making machinery using an hydraulic press. In 1868 The Hydraulic Press Brick Company was incorporated and in 2015 was still trading as Haydite (it appears to have been taken over since then -*SD 2022 rev.*). Its website described a process of making bricks by compression of dry clay. Haydite no longer made bricks, but by 1890 it had become the largest pressed brick maker in the world; New York's Chrysler Building is one of many iconic buildings constructed with its products. A fuller history of the Company can be found at <http://web.nationalbuildingarts.org/collections/clay-products/ornamental-brick/hydraulic-press-brick-company/>. One of its later Presidents was the father of the poet T.S. Eliot.

Dust-pressed tiles are now an ubiquitous part of modern daily life; we are surrounded by them in our kitchens, bathrooms and on our floors, they are to be found in virtually all our workplaces and public buildings. They are taken for granted, how they are made of no interest to most of us, including myself until I embarked on uncovering Richard's role in the history of Minton's tiles.

At the outset of my researches I had set myself the goal of identifying famous buildings in which dust-pressed tiling laid during Richard's lifetime or shortly thereafter still survived. This has proved more difficult than I imagined and requires further research. Clearly there are very many churches where early Minton tile floors do still exist; their encaustic tiles are much admired, their plain and geometric dust-pressed tiles are largely ignored. Early surviving tessellated/mosaic pavements, i.e. those comprised only of tesserae and the smaller geometrics, appear to be very rare - those in the old Conservative Club in St James's and in Woodford Hall Leeds are the only two I have identified to date. Osborne House is possibly the most famous residence in which early Minton floors, comprising a mixture of mosaic/geometric and encaustic tiling, have survived, but carpeted they go unnoticed by the visiting tourists. Somerleyton Hall is possibly of the greatest significance for the range of its tile pavements. The buildings of Huddersfield Station may be unappreciated now, but were much admired when built; its surviving Minton geometric floors may have been viewed and walked on by Richard.

I have not identified any significant early dust-pressed tiling in Birmingham, Richard's home town. The tessellated pavements he donated for the entrance to its library and had laid before the front door to his house in Broad Street have long gone, unsurprisingly. Also lost are the Minton encaustic tiles that Richard had laid in about 1850 to mark the location of nearby Baskerville Place; these were still in situ in 1880 when Richard Bissell Prosser wrote the first of the articles later re-published in *Bl&I* (according to his son, Richard was a great admirer of John Baskerville (1706-1775), the famous printer).

As for early Minton dust-pressed wall tiles, in the absence of other supporting evidence these are almost impossible to date without removing them from the surface to which they are affixed; even then any back-stamp may not be conclusive of the date of the actual tiling of the wall, including tiles marked with the Prosser's Patent attribution - such as the ones used by Minton for his retirement home after Richard's death, which may have been old stock. The patterns of these block printed tiles are said to have been designed by Pugin before his early and tragic death in 1852 following a brief period of insanity attributed then to overwork or, now, possibly to syphilis caught as a young man when he worked in London theatres (*Rosemary Hill - God's Architect*).

## Richard, Pugin and the Palace of Westminster

Minton had become a great friend of Pugin since their first collaboration over encaustic tiles, which had commenced by 1840 and continued until Pugin's health prevented him working. I had hoped to find some evidence that Richard had met the extraordinarily talented, but tormented, architect and designer. In August 2015 I contacted *Michael Fisher* an authority on both Pugin and Hardman & Co., the renowned Birmingham ecclesiastical metalwork and stained glass manufacturers, with whom Pugin was closely connected; *Michael* kindly checked the indexes of Pugin's letters and diaries for me, but "found no mention of Prosser. It's likely, though, that he knew of him, as Pugin was always interested in the technical side of the production of tiles, metalwork, glass, and much else." It seems improbable to me that an encounter with Richard did not take place at some time, perhaps on one of Pugin's many visits to Stoke and Birmingham or at the Great Exhibition.

In fact, two of Pugin's earliest architectural commissions were for Birmingham's Roman Catholic Cathedral, St. Chads (1839-41), and St. Mary's Convent of Mercy (1840-41) in nearby Handsworth; Pugin-designed Minton encaustic tiles were laid in both and, also locally, at about the same

time in the existing seminary at St. Mary's College, New Oscott. This was also the period when Richard must have been working closely with Minton, if he is to be believed, on encaustic manufacture as well as dust-pressing; surely the inquisitive Pugin would have wanted to visit Richard in his workshops in Watery Lane? If Pugin had met Richard this would almost certainly have been known to John Hardman Powell (1827-1895), the probable designer of the stained glass window containing the memorial to Richard and his first wife Sarah at St. Nicolas Church, Kings Norton. (The window dates to 1873 and was commissioned from Hardman & Co. by Joseph Sharp Stock, the wealthy husband of Richard's first child Eleanor Jane - *the Hardman Archive: Birmingham Library*).

Hardman Powell may himself have been present at such a meeting as he lived with Pugin and his family in Ramsgate from 1844 and married Pugin's first child Anne there in 1850. Hardman Powell, a nephew of John Hardman jun. (1811-1867) the founder of the firm, was employed by Pugin as his pupil-assistant and following Pugin's death returned to Birmingham to become the chief designer at his uncle's firm. Richard may previously have been well known to the Hardman family of Handsworth, leading Catholics in Birmingham. John Hardman's father, John senior, was a button maker in Paradise Street and he may have been a friend of Henry Winkfield the nail manufacturer, a significant character in Richard's nail story; the beleaguered Winkfield appointed a "James Hardman of Handsworth" one of his executors in the (invalid) will made a week before his death in 1834 (First Story p.130).

The Palace of Westminster, now better known as the Houses of Parliament, is without doubt the most iconic building in which early dust-pressed tiles are still to be found. The names of Pugin, Minton and Hardman are all closely associated with the internal finishings of the Palace, which was built in the Gothic Revival style over a period of about thirty years commencing in 1840. Charles Barry sen. had won the competition to be its architect and at the time took all the credit for the design of the buildings and their interiors without acknowledging the huge debt he owed to Pugin, who he employed as his assistant. Hardman & Co. supplied the decorative metalwork and stained glass windows and Minton supplied tiles, all designed by the extraordinarily productive Pugin.

Although a separate competition was held in 1844 for the contract to provide the floors in the Palace, Barry was clearly influential in ensuring that this was won by the samples of Pugin-designed encaustic pavements exhibited by Minton. This was the competition into which Blashfield and Owen Jones had

unsuccessfully entered samples of "gorgeous" dust-pressed mosaic pavement (p.132).



So it is that many of the corridors, lobbies and galleries of our Parliament are paved with colourful encaustic tiles of a multitude of designs, all identified as "Minton's". There are no dust-pressed tiles in these floors; the "compartments" of encaustic tiles are bordered by rectangular tiles of black marble. However, many areas have had to be repaved and are still being repaved by the specialist tile conservators of Craven Dunnill Jackfield of Ironbridge, Shropshire; the encaustic tiles have become so worn and

damaged that their inlaid patterns have virtually disappeared in places of high footfall. Might the dust-pressed mosaic pavements have endured for longer? Cole had speculated that the "indestructible" mosaic pavements would last a "thousand years"; certainly those in the Conservative Club and in Leeds have survived remarkably well, but their usage will have been incomparably lighter. *Images - St Stephen's Hall, Palace of Westminster.*



As far as I am aware the only early, probably pre-1854, dust-pressed tiles so far identified in the Palace are the wall tiles in the Strangers Smoking Room that were discovered behind wooden panelling in 1996 - see p.200. (There are also some, largely unnoticed, dust-pressed tiles in the magnificent fireplace in the Queens Robing Room, but this has been dated to 1864-1866:

<http://salviatimosaics.blogspot.co.uk/2013/11/queens-robing-room-houses-of-parliament.html .>

Cole, as we know, was well acquainted with both Minton and Richard, and had studied encaustic and dust-pressed tile manufacture. He would have been able to distinguish between the two types of tile used in the Palace when he referred to Richard "having invented the dry-powder process for making the tiles which are now used in the Houses of Parliament". He made this statement in July 1864 to a Parliamentary Select Committee; surely he was referring to more than just the tiles in the Strangers Smoking Room?

As for the Palace's encaustic floors, during the long House of Lords' Select Committee sessions on patent law reform in 1851, at which they each gave evidence, might Richard have confided in Cole the part which he had played in the success of the most beautiful of Minton's tiles?

## The Dust-Pressed Process - An Early Addendum

Following the on-line publication of "The Dust-Pressed Process" in March 2016, further relevant source material came to light later that year and in early 2017. The above Addendum was therefore written and was added to in 2022; in this 3rd revision it is included in the main narrative commencing on the next page.

The Addendum covers: the claim in 1846 by Benjamin Wakefield in the case of Prosser v. Wakefield of the alleged, but credible, collusion in 1845 between Richard, the owners of Royal Worcester Porcelain and, presumably, Minton to deprive other potters of the benefit of the process; Richard's 1853 Scottish and Irish dust-pressing patents; the accounts of the early Minton and Hollins partnership contained in a ledger held in the Minton Archive; and Richard's comments about Minton and Nasmyth's 1851 tile machine in his testimony to a Parliamentary Committee in 1854.

## The Dust-Pressed Process - An Early Addendum

### "What a damned foolish Specification" Prosser v Wakefield 1846

On 12th February 1846 Richard filed a claim in the court of Chancery against Benjamin Wakefield, a fellow Birmingham mechanical engineer, for infringement of his 1840 dust-pressing patent. The pleadings, a Bill (the claim) and an Answer (the defence), are held in *The National Archives (TNA)* at Kew. I had not come across the record in my earlier online searches and when I did (in November 2015) I could not be certain that the "Richard Prosser" named in the proceedings was "our" Richard nor did the entry provide any clues as to the subject matter of the litigation.

In June 2016 we visited *TNA* again to take photos of the surviving court records in the many cases in which Richard or his licensees were involved in litigation over his 1840 lap welded tube machinery patent. I had pre-ordered the pleadings in the Wakefield case as well.

Benjamin Wakefield (c1800 - 1887) has been described as "rather naive and not a very good businessman" by one of his descendants (*Ancestry*). He was born in Wolstanton in Staffordshire, a village on the outskirts of Newcastle under Lyme, but had probably moved to either Birmingham or nearby Aston by 1823; he was married in that year at the Aston church of St Peter & St Paul, where Richard was to marry Sarah thirteen years later.

This is not the only coincidence in the lives of the two engineers. In his 1846 Answer Wakefield testified that he had known Richard for many years and that by 1840 he was on "intimate terms" with him. An intimacy that possibly arose due to their both working with the American inventor Dr. William Church in their earlier careers. I have already described Richard's association with Dr. Church in *The First Story Rescuing Richard*.

Searches in the *British Newspaper Archive (BNA)* revealed that Wakefield had given evidence at the inquest following the explosion of the boiler that occurred when Dr. Church's steam engine "The Surprise" was being trialled at Bromsgrove in November 1840. Two workmen, including the engine driver, died of what must have been horrendous injuries from the description given in

one press report of the inquest. Wakefield's testimony was to the effect that he had been engaged by Dr. Church to superintend part of the engine's construction including that of the boiler, which had been tested to pressure of three times that which would normally have been required.

Although Wakefield described himself as an "engineer and machinist" at the inquest, his own career appears not to have advanced beyond that of a mechanical tool maker, although he was clearly a talented one. In 1838 he was credited with inventing an ingenious new railway coupling, but he failed to take out any patent for it. He did however patent two other inventions, both jointly with others: in 1841 for an improved bolt for building purposes and the other on 21st January 1840 for machinery and tools for cutting out, stamping and piercing buttons etc. from metal plate. It was this latter patent that was to be exploited in a seemingly unscrupulous fashion by Richard according to Wakefield's 1846 testimony.

The co-patentee of Wakefield's 1840 button patent was his then employer Charles Rowley of 23 Newhall Street, Birmingham. Rowley (1808-1863) started his career as a stamper and piercer but evolved into a very successful manufacturer of metal buttons; he left an estate valued at about £40,000 on his death (*Ancestry*).

It appears likely that Wakefield did not benefit greatly from the button patent and in 1841 he was actually charged by Rowley, still his employer, with neglecting his duties and wilfully damaging a "patented machine". The adjourned hearing held on 31st December 1841 resulted in the claim being settled when Wakefield undertook to repair the damage. This brief account in the local press was followed by a notice a fortnight later in *Aris's Birmingham Gazette* announcing that a pamphlet was shortly to be published containing a full report of the "important investigation" by the police into the charges preferred by Rowley and of the arguments at the hearing of the lawyers for each party. I have found no copy of the pamphlet, but it was clearly aimed at other manufacturers who would be interested in these legal arguments which concerned the "several Statutes concerning Masters and Servants". The notice also identified the Birmingham magistrates hearing the case and included a familiar name: that of Henry Van Wart.

Rowley's dispute with Wakefield might have, at least in part, been engendered by the circumstances described in the latter's testimony in 1846 when he was sued by Richard. This testimony sheds further light on several

aspects of the events described in "The Button Wars" (Part One of The Second Story "The Dust-Pressed Process").

The 1846 pleadings held in *TNA* consist of the then usual large parchment sheets; there were three each in the case of both testimonies, which had been transcribed by a clerk in a small but neat hand. Dockets attached to the pleadings revealed the names of the solicitors acting for each of the parties.

Richard was represented by Wills and Oliver, the Birmingham firm that had acted for him in his suit in 1845 against Walter Chamberlain and John Lilley, the owners of the Royal Porcelain Works in Worcester at the time known as "Chamberlains". Here, I have to admit to carelessness in my previous research. I had assumed in the first published version of "The Button Wars" that "Wills" was William Wills, the wealthy and influential lawyer who was a principal (but arguably unprincipled) participant in the battle for ownership of the Britannia Nail Manufactory (the story is told in "Rescuing Richard"). In fact, the 1846 court dockets revealed that the partners of Wills and Oliver were Frederick Wills and Edward Oliver. Frederick (1793 - 1874) was the younger brother of William; they had separate practices in Birmingham. Frederick's office was at 22 Temple Row and he had owned his practice there since at least 1821 (Edward Oliver was twenty years his junior and had left the firm by 1849).

Wakefield's solicitor was a Thomas Slaney and his junior partner was John Walford Cutler; both these names and that of Frederick Wills will feature prominently in the next story in Richard's life concerning his involvement in the much litigated development of metal tube manufacture.

On 9th April 1846 Frederick Wills attended at Slaney's office at 108 New Street Birmingham where they each witnessed Wakefield being sworn to his revealing Answer to the claim that Richard had filed in early February that year.

It has to be said that Richard's testimony in his Bill appears to have been somewhat economical with the truth. It commenced with a detailed description of his 1840 patent and, as he had in his claim against Chamberlain and Lilley, he alleged that he had expended thousands of pounds on presses for the manufacture of dust-pressed products. He also inferred that he was directly (as well as indirectly through others) involved in this manufacture profiting greatly, in particular, from the sale of buttons both in the home market and exports abroad, especially to the USA.

Richard then continued with a reference to his claim, commenced only six months previously in July 1845, against Chamberlain and Lilley. He glossed over the result of the August trial in Bristol stating that after a "thorough" investigation the jury had found for him on all the issues resulting in his being granted the requested injunction. He did not explain that the trial was brought to a swift end after only one day's evidence from both parties and that the outcome was, in fact, part of a hastily negotiated compromise in which he had agreed to pay his own costs. Richard did refer to the licence that was subsequently granted to Chamberlains to make buttons under his 1840 patent; he claimed he granted the licence. (By 1845 Herbert Minton was a joint owner of the patent, but his name was never mentioned by Richard in his testimony in 1845 nor that in 1846.)

The next event described in Richard's 1846 testimony was rather unexpected and its relevance was not immediately apparent to me. In "The Button Wars" I have briefly mentioned that Richard had amended the wording of his 1840 Specification for the dust-pressed process in so far as it related to a claim to a second invention: that of a two-hole button with a groove for the thread. Richard had alleged that this adaptation of the "common four-hole button" had a number of benefits: not only that the number of holes were reduced (presumably simplifying the manufacturing process and perhaps strengthening the button) but, in addition, that the groove for the thread reduced its abrasion and, if the groove was correctly aligned, that wear to the proposed garment's button holes would also be reduced. Richard had claimed this surprising, and seemingly unlikely, new invention not only for grooved two-hole buttons made by the dust-pressed process but also for those made with "other materials". It was this last claim that Richard sought to omit from his Specification by the deletion of wording that suggested the patent was applicable to the manufacture of buttons made with "other materials" e.g. metal. Richard confirmed in his testimony that he had filed his application for this "disclaimer" on 17th December 1845; it was very quickly approved as it was enrolled on 29th December 1845. (Six weeks later Richard filed his claim against Wakefield; the disclaimer was probably conceded by Richard to pave the way for these proceedings, perhaps as an inducement to the metal button manufacturer Rowley, Wakefield's joint patentee, in order to secure his neutrality.)

Richard then explained the grounds for his claim against Wakefield. According to Richard: following the settlement of the 1845 litigation he had agreed that Wakefield could be engaged by Chamberlains to make presses for the manufacture of dust-pressed buttons under their licence from Richard;

by January 1846 Wakefield had supplied the Worcester firm with presses based on those described in Richard's patent; however, Wakefield had also made additional presses which he had retained with the intention of making dust-pressed buttons and other articles himself or in collusion with unidentified others and had actually done so and sold dust-pressed products in large quantities; Richard had asked Wakefield "frequently and in a friendly manner to desist from doing so", but Wakefield had denied that he was involved in dust-pressed manufacture and had asserted that making and selling the presses to others who were did not infringe Richard's patent. (Although Richard ignored the point in his testimony, Wakefield had no doubt relied on the fact that Richard's patent did not actually cover the press and tools described and depicted in his enrolled Specification; the patent was limited to the dust-pressed process itself and the allegedly innovative two-hole button.)

Richard, nevertheless, claimed infringement of his patent on the grounds that Wakefield was not only knowingly selling presses "in large quantities" to persons for the express purpose of making dust-pressed buttons and other articles, he was actually sharing in the profits arising from such manufacture.

As I have described in *The Dust-Pressed Process* (p.56), according to Minton's chief engineer John Turley there had already been numerous infringements of Richard's patent, which had been stopped by the mere threat of proceedings. These compliant potters were not identified by Turley, who did briefly mention the court case against the defendant Chamberlain and Lilley and the proceedings in the USA in 1844 against the van Warts (the latter were actually instigated by Richard's elder brother Thomas for infringement of his own American patent by the importation of dust-pressed buttons from England).

It seems implausible that Richard did not know the identity of the manufacturers (presumably potters) who were supposedly being supplied with presses by Wakefield if they were making and selling dust-pressed products in the quantities suggested by Richard's testimony. So why did Richard not sue them, the clear infringers of his patent, instead of pursuing his more tenuous claim against Wakefield?

Whatever his reasons for making Wakefield his target, Richard may well have regretted doing so when he read Wakefield's defence testimony filed by his solicitor Thomas Slaney. (It may not be coincidence that Slaney also acted for Job Cutler, who was the father of his junior partner; Cutler senior was a

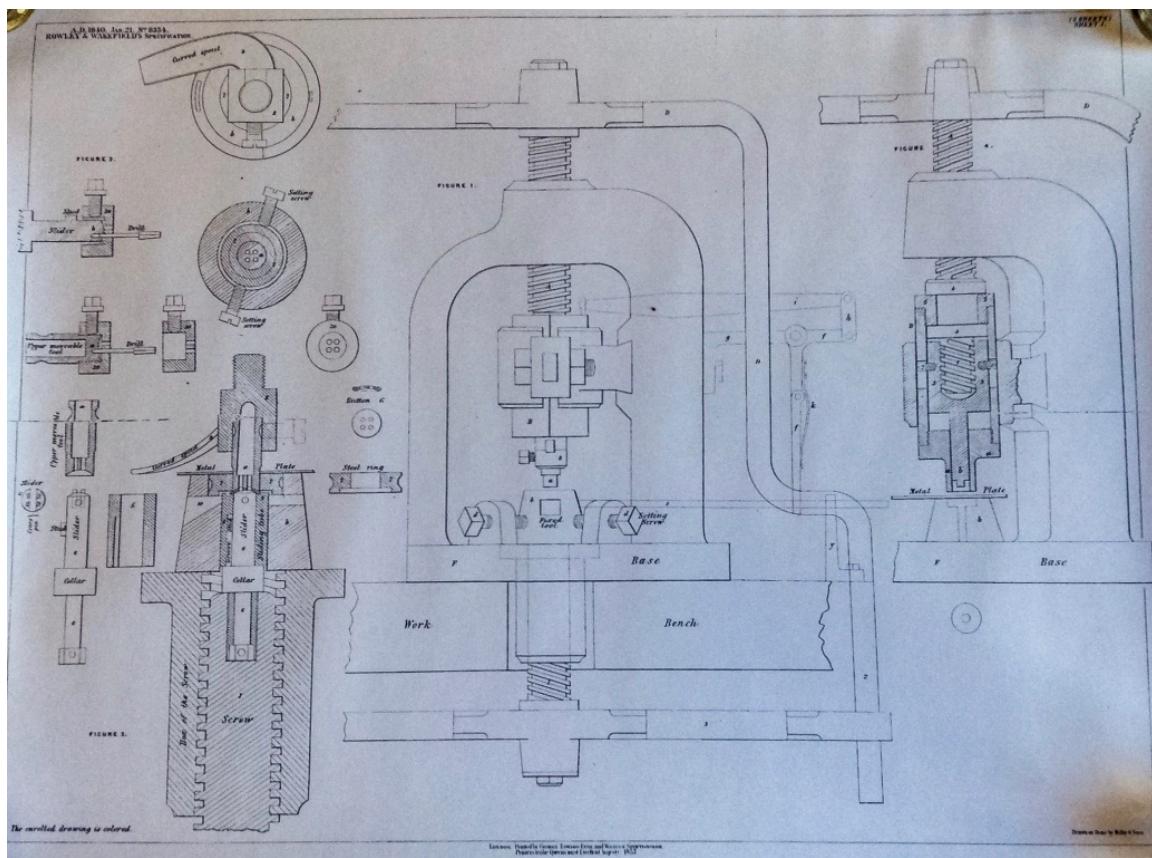
business associate of Richard's in a new tube manufacturing venture in which trouble between the participants may already have been brewing, causing Richard to resign from this partnership on 30th July 1846.)

Much of Wakefield's testimony has a ring of truth about it and its contents, if they had become public knowledge, would probably have damaged Richard's reputation (and that of Minton).

Wakefield wasted no time and went immediately on the attack from his opening statement; the following is a summary of his defence with my comments in italics:

1. The existence of Richard's 1840 patent was admitted, but Wakefield denied that Richard was the first inventor of the dust-pressed process, which he had been informed was introduced into England by a "Frenchman named St Amand" who had sold it to "Chamberlains of Worcester" about 20 years previously; he alleged that Chamberlains had been making dust-pressed buttons and other articles since then as they had proved at the 1845 trial in Bristol. *The probable earlier origins of the process were fully discussed in "The Dust-Pressed Process" including the doubtful (in my view) claims of Walter Chamberlain to have successfully developed and implemented the process. The naming of a M. St. Amand is consistent with other contemporary comments that the process may have originated in France (see "The Dust-Pressed Process" pp.18 and 191). The only reference I had found to a possible candidate for Wakefield's "Frenchman" is to a pottery in Bordeaux that was said to have been established in 1829 by a "M. de St. Amand ...which lasted a short time" (Marks and Monograms on Pottery and Porcelain: With Historical Notices etc. by William Chaffers 2nd Edition p.171)*
2. Richard's 1840 Specification in any event was not sufficiently clear/detailed to enable a competent workman to implement the process, in particular it would have been "mechanically impossible" to make a button with holes. *There would appear to be some truth in these statements, the Specification does not describe the composition of the clay powder in any detail, there is no detailed description of the machinery (a form of fly press, already an old invention, is depicted in the accompanying drawing) and the button dye depicted in the drawing is for a button with a shank rather than holes.*

3. Wakefield and Charles Rowley had taken out their patent on 21st January 1840 (five months prior to that granted to Richard) for a new stamping and piercing process for making buttons (and other articles) from metal plate by one pressing; the Specification, filed by Rowley and enrolled on 21st July 1840, described the invention in detail including drawings of the new type of fly press and the new ancillary tools; this new invention had "ever since" been used extensively (*by Rowley presumably who, in the light of their subsequent dispute, must have left Wakefield feeling inadequately rewarded for his input*). The first drawing in the Specification included an illustration of a four-hole button.



*Drawing 1 - Wakefield and Rowley Patent dated 21st January 1840*

4. At the time that Richard had enrolled his Specification, although it referred to a four-hole button (the form very generally manufactured in other materials), it did not describe how this form of button could be made as Richard did not then have any "correct notion" as to the tools required to do so and remained in such ignorance for a period of "some time" following the date of his patent; during this period, either it would have been impossible to make four-hole dust-pressed buttons or, if they had been,

they would have been "very imperfect". *Richard's patent was dated 17th June 1840 and his Specification was enrolled on 17th December 1840.*

5. Wakefield had known Richard for many years and by the end of 1840 was on "intimate terms" with him; Richard had learnt of the Wakefield/Rowley patent and had asked for details of the tools used; Wakefield showed him an abstract of the Specification prepared by John Farey CE together with a set of the tools; Richard, having studied and admired both, declared "What a damned foolish Specification - Clay is not metal plate - They are just what I want I shall use them" or words to that effect; Wakefield subsequently agreed to make some of the tools for Richard, he had by then "little interest" in his joint patent with Rowley and therefore did not object when Richard, with whom he was still on "friendly terms", claimed that he could use the patented tools to make clay, not metal, buttons without causing any infringement. *It must be doubtful that Rowley consented to this disclosure to Richard; Rowley had presumably paid Farey, another well-regarded mechanical engineer, to write the "damned foolish Specification" based on the press and tools made by Wakefield; Farey (1791-1851) has already appeared in The Dust-Pressed Process (p.176) in an account of a demonstration of the process at the Institution of Civil Engineers in April 1843, but in 1840 he was already known to Richard (since at least 1836 when they jointly acted as expert witnesses for a tube manufacturer defending an infringement action).*
6. Following the above discussions Richard and "his licensees" had abandoned their attempts to use the press shown in Richard's Specification to manufacture four-hole buttons and instead had been using the press and tools patented by Wakefield and Rowley, but Wakefield had not discovered this until August 1845 at the Bristol trial.
7. Wakefield did not know how much money Richard had expended on presses but did not believe Richard had ever himself "worked" his own patent or manufactured dust-pressed products for sale; until the August 1845 trial the patent was exclusively worked by "Minton and Company of Stoke on Trent" under licence from Richard (except for production by "Chamberlains" without reference to the patent); after the August 1845 trial Richard had granted Chamberlains a licence and both licensees, Minton and Chamberlains, continued to manufacture dust-pressed products (particularly buttons for sale both at home and abroad, especially to the USA) to their's and Richard's "great profit".

8. "Walter Chamberlain and John Lilly (herein called Messieurs Chamberlains)" subpoenaed Wakefield as a witness to give evidence on their behalf at the trial at Bristol; on 22nd August 1845 he attended the first day of the trial; towards the end of the day, after the conclusion of evidence given by and on behalf of Richard, it was the turn of Chamberlains to present their defence; Chamberlains produced abundant and conclusive evidence that they had made buttons and other articles from dry materials similar to that described in Richard's patent for at least 14 years prior to 1840 under a process bought from "Monsieur St Amand" twenty years previously and which proved that Richard's patent had been for the identical process (which was already in use by Chamberlains); however, the litigants then perceived that the threatened invalidation of Richard's patent would result in making the dust-pressed process freely available to other manufacturers to the injury of both parties and, therefore, Richard and his legal advisers suggested it would be expedient to come to an "arrangement", which the parties then attempted, unsuccessfully, to negotiate that evening; on the following day the judge allowed further time for discussions and it was decided that Richard's patent must be preserved to protect both parties; Wakefield was informed (and believed) that the litigants had agreed that Chamberlains would consent to a verdict in Richard's favour, that each party would pay its own costs, that Chamberlains would be granted a licence by Richard on "favourable" terms and, also, that to give greater "colour" (credibility) to the deceit Richard's application for an injunction would not be opposed by Chamberlains; during the course of the trial Richard had produced a press and tools used to make dust-pressed buttons and this was when Wakefield had discovered for the first time that the tools being used were the same as those patented by him and Rowley. *This last statement may be true as a matter of strict fact, but, in the light of his earlier evidence of his disclosure of his patent and tools to Richard in about 1841, Wakefield must surely have known that Minton was using these presses and dyes to produce his four-hole "Agate" buttons. Wakefield's explanation for the settlement of the litigation and the alleged collusion between the litigants does make sense. However, it must be viewed in the context of the events and sources already discussed in The Dust-Pressed Process inter alia: Binns comments on the difficulties that Walter Chamberlain had encountered in making dust-pressed buttons pre-1840; Chamberlains failure to challenge Richard's patent; Richard's evidence that Walter Chamberlain had sought a licence to use his patent in April 1842; Minton's probable role in the settlement negotiations as a (previously undisclosed) joint owner of Richard's patent and also a business associate of Walter*

*Chamberlain in encaustic tile manufacture; the crippling licence fee that Richard/Minton extracted from Chamberlains as part of the 1845 settlement (not at all "favourable" as suggested by Wakefield). The evidence produced by Chamberlains at the end of the first day of the trial was not reported in the press; it was clearly sufficiently convincing and potentially damaging for Richard (perhaps persuaded by Minton) to change the forceful and confident stance he had taken up to then (as demonstrated in his publicity campaign against Chamberlains prior to the trial); this suggests that Richard was in ignorance of all the facts concerning Chamberlains' claim to have originated the dust-pressed process. Wakefield did not explain why he had been subpoenaed by Chamberlain and Lilley; someone had supplied the Worcester firm with presses and dyes to make the large quantities of buttons it had recently been exporting to the USA - might this have been Wakefield? If so his next statements in his testimony are disingenuous.*

9. Following the outcome of the Bristol trial and after the licence was granted to them Chamberlains had asked Richard to provide the requisite "tools", but he had said he could not. Chamberlains then asked Wakefield to make some of the tools described in Richard's patent, but he had pointed out that these would be of no use to make four-hole buttons; he agreed to make Chamberlains tools for four-hole buttons, which he did being those he had patented jointly with Rowley. These tools were supplied during and after January 1846; they were suitable for making buttons from metal plate as well as by dust-pressing, however, Wakefield emphasised that he was not "familiar" with the latter process. As to Richard's claim that he had sanctioned Wakefield's arrangement with Chamberlains, Wakefield denied any knowledge of this.
10. Wakefield then claimed that he had not sold his button tools to anyone other than Chamberlains - except for only one set, which he had sold to a Samuel Bayliss, whose whereabouts he did not know; nor did he know why Bayliss wanted the tools and had not colluded with him; he did not believe that these tools had been used, but presumed they had been intended to make buttons of various descriptions and materials. *Samuel Bayliss (1821-1898) was later a successful engineer. He had been initially apprenticed to Richard and had become a valued and trusted employee before his departure in 1845 after a disagreement over wages according to Richard's counsel at the trial of the unrelated slander suit by Richard against Bayliss heard in March 1846. I have briefly referred to the press report of these proceedings in The Dust-Pressed Process pp. 97/98.*

*Wakefield did not state the date of his dealings with Bayliss; if they had occurred earlier in 1845 it is possible Bayliss was still employed by Richard, who had sent him to visit Wakefield pursuant to pre-trial investigations for his claim against Chamberlains. Bearing in mind the publicity generated in the local press by Richard's proceedings against Bayliss, it seems unlikely that Bayliss was unknown to Wakefield when he was sworn to his defence only a fortnight later.*

11. The defence testimony concluded with statements by Wakefield: that he had not made any dust-pressed buttons except when testing tools made for Chamberlains using "material" they supplied, these buttons were not finished, i.e. fired and glazed, and had immediately been broken into powder again; that Richard had not previously approached him regarding his allegations and the first he knew of them was when he was served with the subpoena; that, although he had not done so, he was entitled to make and sell the tools described in Richard's patent and, also, to make buttons by Richard's alleged, but "invalid", invention whether alone or in association with others and whether using those tools or those patented by him jointly with Rowley.

Dockets with the pleadings indicate that the case was still continuing in October 1846, but I have found no record that it came to trial. This is not surprising in the light of the contents of Wakefield's testimony, which neither Richard, Minton nor Chamberlain would have wanted to come into the public arena.

It is surprising that Richard commenced the proceedings if he knew, as seems probable, that Wakefield was aware of the reasons for the settlement of the action against Chamberlains.

Whether the defence's evidence given before the Bristol court in August 1845 would have been sufficiently persuasive to convince the special jury to find for Chamberlains, thus invalidating Richard's patent, will never be known. The verdicts of these juries, which were selected by both parties' lawyers from a list of qualifying property owners (rather than experts in the subject matter of the trial), were unreliable, sometimes even defying the clear recommendation of the presiding judge (as Richard was later to experience in unrelated litigation). Richard was clearly quickly persuaded (perhaps coerced by Minton) that he could not afford to risk the lottery of a jury verdict. Nor would he have wished to allow the substance of Chamberlains' claims to become generally known; such disclosure would also have been a matter of public

embarrassment to both Richard and Minton after the recognition that had been given to the important "new" invention in the highest of circles.

So, Richard, Minton and Chamberlains colluded and conspired to deprive other English potters access to the process until Richard's patent had expired, thereby retaining a monopoly contrary to the public good. The patent was tainted - perhaps the "circumstance connected with Mr. Prosser's patent (*that*) embarrassed the subject" hinted at by John Marriott Blashfield (*The Dust-Pressed Process* p.183). Richard's relations with Minton may have been compromised. As for Richard, his subsequent apparent disenchantment with the process, his "disgusted" reaction to the outcome of the 1845 proceedings described by *Binns* (*The Dust-Pressed Process* p.79), might be some indication of the extent to which he may have felt let down by Minton and/or deceived by his elder brother Thomas. Thomas, the Worcester architect, who had no doubt introduced Richard to dust-pressing after the outcome of the feud between them - the story told in *Rescuing Richard*.

As for Wakefield, however "naive" he was in his business affairs, it seems unlikely that he would not have exacted some financial reward from Richard for the design of his "tools" for making what is still probably the most common form of button - one with four-holes. His testimony was silent on this point.

#### *SD 2022 rev*

In 2019 the annual *Journal of The Tiles & Architectural Society* was devoted to one subject - the history of the dust-pressed tile. In early 2018 I was invited by the Journal's editor and the Society's President, Hans van Lemmen, to write a biography of Richard - a short one! Fortunately, Hans had wisely given me a long deadline and I was able to conclude researching and writing the Third Story, *Tubes etc.*, before embarking on this, for me, extremely difficult challenge. My biography (less than 2,500 words after much editing and re-editing) was one of the three articles published in the 2019 Journal. Hans contributed an overview of the early history of dust-pressed manufacture in England, *Prosser's Patent Tiles 1840-1854*, which was well illustrated with images of some of the rare survivors that exhibit the attribution on the reverse.

The third article was written by the Belgian tile historian Mario Baeck, to whose research on Blashfield, published in 2006, Hans had referred me to in 2014. Mario's 2019 article, *The myth of an invention: the early developments of dust-pressed tile manufacturing on the European continent*, included an analysis of the dust-pressing experiments that had taken place in France and

Germany before Richard was granted his patent in 1840, including those of the Frenchman “St. Amand” mentioned in Wakefield’s testimony and the German March described on p.19 of *The Dust-Pressed Process*. However, the earliest proponent of dust-pressing that Mario referred to was another Englishman Christopher Potter (1750-1817), who amongst the many other ceramic related patents granted to him in France, had been granted one for dust-pressing in 1804. I had come across a reference in a French text to Potter in my own researches on the origination of the process, but had rather stupidly attributed it to the craft not an individual - a mistake now rectified in this third revision of the Second Story (p. 74). Potter led an interesting life, told in some detail on his entry in [Wikipedia](#), but this does not mention dust-pressing - ([https://en.m.wikipedia.org/wiki/Christopher\\_Potter\\_\(died\\_1817\)](https://en.m.wikipedia.org/wiki/Christopher_Potter_(died_1817)) ).

My own article for the Journal had briefly mentioned the disputes over the validity of Richard’s 1840 patent in which Chamberlain of Worcester, his brother Thomas and Wakefield had been participants (and Minton whose undoubted involvement was not disclosed). Mario, in referring to this history, is generous in his acknowledgements of my research. He identifies “St. Amand” as a French ceramicist called Pierre Honoré Boudon de Saint-Amans (1774-1858) and suggests that he would have known Potter and would have been familiar with his ceramic experiments and would have been aware of the 1804 French patent.

However, the existence of the French patent was no bar under English law to the grant of the patent in England to Richard. In 1840 English patent law permitted the grant of patents for foreign inventions not already in use in the UK as an incentive for the introduction of new trades. The background to the emergence and development of the early British patent system is discussed in the Fourth Story, *The Emancipation of Inventors*. The principle of the grant of patents for inventions was not invariably condoned in Britain even amongst inventors; one of the objections raised was that a successful invention was often developed by one inventor using information gained from the experiments (including failures) of others.

As I have already acknowledged there are a number of possible claimants to be the inventor of the process (which might even have first originated in antiquity). However, any debate over who should be awarded the accolade (or a share in it) must take into account considerations which were to be the subject of discussion by Richard in late 1850 as to whether a theory (an idea, a principle) can be deemed to be an invention. It was his view (based on Aristotelian principles) that in the case of “manufactures resulting from

mechanical skill" there was no invention until the "theory" had been implemented with a successful "contrivance" and/or brought into "production". Minton certainly achieved "production" of dust-pressed products by using the "contrivances" manufactured by Richard. It appears doubtful that Potter, March or Saint-Armans did (in a manufacturing sense) before 1840 and Chamberlain's attempts to do so were admitted to have been unsuccessful.

However, Richard's "contrivances", the presses with their precision made dies, were not claimed to be new inventions in his patent, although they appear to have been very ingenious adaptations. What is more the patent did not reveal in any detail the constituents of the clay mixture and therefore, arguably, did not meet one of the then fundamental requirements, acknowledged by Richard, for the grant of a patent - the disclosure of sufficient information for the invention to be capable of implementation by "ordinary workmen" skilled in the particular trade. Potters were very secretive about the formulas of the clay mixtures they used to manufacture their own products and were therefore disinclined to take out patents. A recently (2018) published academic paper confirms this to be the case and that, of the few pre-1851 patents granted to potters that the author had identified, all the specifications were vague on details of the formula for the constituents of the patented ware. *Secrets for Sale? Innovation and the Nature of Knowledge in an Early Industrial District: The Potteries, 1750-1851* Joseph Lane - <https://eprints.lse.ac.uk/89386/1/WP284.pdf>. (Unfortunately, the author appears to have overlooked Richard's patent.)

Arguably, any patent that was not sufficiently informative to make the claimed invention available to an appropriately skilled workman should have been unenforceable in any event. Chamberlain's lawyers do not appear to have raised this argument as an objection to Richard's patent.

### The Scottish (and Irish) Dust - Pressed Patents

In *The Dust-Pressed Process* (pp 218-222) I have discussed the surprising failure by Richard to renew his patent before its expiry in June 1854. The contents of Wakefield's testimony may explain why, ultimately, this was not pursued - the threat that the originality of the patented invention might be challenged in any renewal proceedings.

However, as already discussed in *The Dust-Pressed Process*, Richard must have continued to harbour hopes of securing a renewal until almost the end

of both his life and that of his patent; possible further evidence of his intention to do so has recently come to light.

In 1853 Richard had applied for and obtained a Scottish patent for the process - the Specification filed was identical to that of the 1840 English patent (to which it referred) as amended by the 1845 disclaimer. The Scottish patent was dated 13th May 1853 and the Specification was enrolled on 16th August 1853. I learnt of its existence as a result of my enquiries of the *National Records of Scotland* in 2016 into Richard's Scottish tube patents; the dust-pressing patent was also uncovered by one of its archivists. Previously, I was only aware of the well documented contemporaneous English, French and American dust-pressing patents, the patentee of the latter actually being Richard's brother Thomas. In the course of my researches in the newly accessible Minton Archive in 2015 I had also seen mention of a Belgian patent (*The Dust-Pressed Process* p.226), which I presume was also obtained in 1840 or shortly thereafter.

Richard did not as a matter of course take out separate Scottish patents for those inventions he patented in England. Only two others have been identified, which relate to tube machinery and were patented in Scotland in 1844 and 1845. Richard was then still a partner in a tube works venture that had just been set up near Glasgow; the location of the business would have necessitated obtaining these patents.

The considerable cost of obtaining a Scottish patent in the first half of the 19th century, approximately £100 (worth about £10,000 today), would have been a deterrent to such duplication without some pressing commercial incentive. So, it is puzzling that Richard decided to incur this expense for his dust-pressing patent as late as 1853 and, presumably, for a limited period of protection which would expire at the same time as the English patent on 17th June 1854.

The archivist at the *NRS* helpfully referred me to an on-line paper "*Patenting in England, Scotland and Ireland during the Industrial Revolution, 1700-1852*" by Sean Bottomley. One of the reasons put forward by Bottomley for English patentees securing a Scottish (and/or Irish) patent for their invention was in order to have a remedy in the event of a competitor seeking "to circumvent a patent in one part of the Union by importing and selling the protected article from another, where no patent was in force".

As I have described in *The Button Wars*, in 1851 and 1852 Richard (supported by Minton) had been actively litigating and threatening litigation in England against importers of dust-pressed buttons made in France at the manufactory of M. Bapterosses. It seems likely that the Scottish patent was taken out to enable infringement action to be taken in Scotland in the event of the French buttons being imported there and sold on into England. (The application may have been lodged in Scotland before 1st October 1852 the date of commencement of the Patent Law Amendment Act 1852, which unified (and reformed) the patent systems of the UK or, possibly, subsequently pursuant to some transitional (and less costly) provisions which appear in the Act.)

By 1852 Richard's own finances would have been hugely depleted by the costs incurred in litigation over his tube machinery inventions and, in particular, the development costs of his anti-weld tube machine patented in 1850. Minton may, of course, have underwritten the cost of the Scottish patent.

Whatever the principal motive for the Scottish application, it is surely unlikely that Richard and/or Minton would have incurred this trouble and expense if they had abandoned all hope of obtaining a renewal of the dust-pressing patent on its expiry in 1854.

The reasons for its non-renewal remain a mystery. In *The Dust-Pressed Process* I speculated that Richard might have been bribed by one of Minton's competitors. One contender for doing so could have been the emergent tile firm of the Maw brothers, whose father had acquired the tile business of Chamberlain's pottery in 1849, including possibly the button licence granted by Richard in 1845. However, the defence testimony of Benjamin Wakefield suggests that the Maws had no need to pay such a bribe; they would surely have been informed of the claims put forward by Chamberlain at the 1845 trial and would have threatened to oppose the renewal unless their own interests in the process continued to be accommodated. Perhaps, no such accommodation was reached.

(In 2019 I discovered that Richard was also granted an Irish patent for the process in 1853 on 17th August - again, this would have been a significant expense *SD 2022 rev.*)

### **Minton Hollins Campbell private ledger 1841-1857 (Minton Archive)**

On 23rd March 2016 John and I visited Stoke-on-Trent Archives for a second time to inspect documents that had recently become available for viewing, including the above ledger.

The leather bound volume contains the financial accounts of the partnership existing between Herbert Minton and his first wife's nephew Michael Dainty Hollins from 1841; subsequently the firm was joined by one of Minton's own nephews, Colin Minton Campbell, in 1850. The entries reveal that the partners were co-owners of the entire Minton pottery, although the china, button and tile businesses were separate departments within the firm. After Campbell joined the partners were equal co-owners; until then Minton had retained a majority two thirds share in his partnership with Hollins, whose initial share before 1843 was only one sixth.

The business accounts within the ledger warrant detailed expert analysis, which is well beyond my capabilities and the scope of my narrative, but will be of importance for Minton historians and enthusiasts.

My own interest centred on the earlier years and it is clear that the button business achieved its zenith in 1844 and 1845, when the profit it generated had grown so rapidly that it equated to over half that of the long established china factory. The equally rapid subsequent decline of the button business is also evident.

### **Minton and Nasmyth's 1851 Patent**

In "The Tile Revolution" (pp. 206 - 208) I have described the patent taken out by Minton and Nasmyth in 1851 which was intended to speed up dust-pressed tile production at Minton's pottery. I speculated whether Richard's hydraulic presses had been supplanted by this new machinery when *Tomlinson* visited the pottery in Stoke in 1851 or 1852 and subsequently described the new steam presses then in operation in his *Cyclopaedia* published in the latter year (*ibid.* pp. 147/148). I cast doubt on this speculation in the light of the content of the later patent granted to Minton and Nasmyth in 1856.

Whilst writing up my findings on the background to Richard's tube patents, I revisited the evidence that he gave on 21st March 1854 when he was interrogated by members of the Parliamentary Select Committee on Small

Arms only two months before his unexpected death. I was surprised to find that the subject of Minton and Nasmyth's 1851 machine came up for discussion; a reference I had previously overlooked.

That tile manufacture was discussed at all in the context of the production of firearms may seem an unnecessary irrelevance and, in fact, it was introduced to counter Nasmyth's earlier evidence to the Committee that firearm manufacture could be more completely mechanised than Richard (and other expert witnesses) deemed possible.

Richard was being questioned by G.F. Muntz, an MP for Birmingham and prominent local businessman (the patentee of the famous "Muntz" metal), and, without doubt, they would have been well known to each other ("Rescuing Richard" p. 162). After a long interrogation concerning the manufacture of gun barrels, Muntz, surely disingenuously, asked Richard if he knew of "a man of the name of Minton, in the Potteries". The following exchange must have been "set up" between the two before the commencement of the session and a full transcript is included below.

In seeking to embarrass Nasmyth, Muntz enabled Richard to confirm that the 1851 patent was not successfully implemented. The presses seen by Tomlinson in operation in 1852 (and for some years afterwards) at Minton's pottery may, therefore, have emanated from Richard's Birmingham workshops.

The transcript of the extract of Richard's examination by Muntz follows:

*Do you happen to know a man of the name of Minton, in the Potteries?*  
-Yes. Mr. Minton is working my patent for buttons.

*I believe he is a potter, and he makes tiles and bricks? - Yes.*

*Has he got machinery for making tiles? - He has a great many.*

*When Mr. Nasmyth was examined, he stated that he had been making a machine for Mr. Minton? - He has a patent for a machine with Mr. Minton, jointly.*

*Has he ever made a machine for Mr. Minton? - There is one at Stoke now.*

*How long is it since he made it? - It is a patented machine, on 26 April 1851.*

*Was that the first that he made? - The first, and the only one.*

*Has it ever made any tiles? - It has; I had a letter from Mr. Minton this morning; I am often applied to for machinery for making bricks, and I wrote to Mr. Minton to know how they were getting on; and he says "Mr. Nasmyth's machine has worked well for a short time, but each time it has broken; we are now strengthening some of the parts, and hope soon to have it at work again."*

*How long has it been put up? - Between three and four years.*

*And is not got to work yet? - In a new machine there is generally a screw loose.*

*Have you ever seen it? - Yes.*

*What is the matter with it? - I told Mr. Minton, when I saw the specification, it never would make a brick.*

*But it has done so? - No; I distinguish between making and manufacturing, in a manufacturing sense.*

*It has not turned out well, has it? - I should say not.*

*Is Mr. Minton satisfied with it? - He is a very liberal man, and he does not grumble at a little expense.*

*Is he connected with Mr. Nasmyth in the machine? - Yes.*

*Who is the inventor? - They are joint inventors.*

*Then Mr. Minton cannot complain of Mr. Nasmyth, because it would seem that they are both in fault? - Yes*

## Appendix to The Tile Revolution

*Designs for Mosaic and Tessellated Pavements*  
Owen Jones  
1843 Second Edition

(Transcript Courtesy of Jody Behrbaum)

### APPENDIX.

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*An Account of the new process, invented by Mr. RICHARD PROSSER of Birmingham, for forming various articles of ornament and utility in Earthenware or Porcelain, of very superior qualities.*

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The distinction between the new process and the ordinary course which all potters have followed from time immemorial is, that the clay, or earthy material for making the earthenware or porcelain (instead of being used in the state of moist plastic clay), is used in the state of powder, at the time when the material is undergoing the operation of being moulded into the form of the articles intended to be made in earthenware or porcelain; which operation, according to the new process, is performed by compressing the powder in a hollow mould, by action of machinery, with so much force of compression as will cause the powdered material to cohere and retain the form of the intended article, which, after being so formed, is rendered hard and durable by firing, or burning by fire, in the usual manner of burning earthenware or porcelain in potters' kilns.

The material used for making earthenware or porcelain by this new process, may be (as to general character), the same clay or admixture of earthy matters as would be used in the ordinary way of manufacturing earthenware or porcelain; and the preparation of the material is conducted in the ordinary manner up to a certain stage of that preparation.

For instance; the clay or earthy matter which has been dug out of a natural soil (or a compound of different qualities of such matter, obtained from different soils), is mixed with water, and ground by machinery, so as to become thoroughly incorporated, and mixed into a semi-liquid state, about the consistency of cream; which, after being strained through sieves of fine silk lawn, in order to separate all gross particles and extraneous substances, is allowed to rest, until the earthy matter subsides to the bottom of the receptacle, and then as much of the water as remains at top is drawn off, leaving the earthy material in the state of soft mud, from which the redundant moisture is expelled by subsequent evaporation, until only so much water is retained in the earthy material, as will (after it has been duly kneaded or tempered) leave it in a plastic state, fit for the operation of being moulded, or formed by the hand of the potter, into the articles intended to be produced in earthenware or porcelain.

After having been so formed of plastic clay, the moulded article requires to be effectually dried, in order to dissipate all remaining moisture, before the article can be submitted to the usual operation of firing; and during such drying the article always contracts in bulk, but with an extent of contraction which is uncertain, and the article is liable to contract unequally at different parts, so as to become more or less distorted from the shape to which it was moulded when in the plastic state.

The uncertainty in the extent of contraction, and the unequal contraction of the moulded articles, is a difficulty appertaining to the potter's art, but which follows as an inevitable consequence of moulding the articles from clay in the plastic state.

There has hitherto been no mode of avoiding the difficulty, although it can be lessened by carrying on the drying of articles very slowly and gradually during a long time, and avoiding any rapid drying during that time; nevertheless, after all the care that can be taken in drying slowly, inequality of size, and also distortion will occur; and hence, for all superior articles in earthenware or porcelain, it is found necessary, after the partial drying of the article, to repeat the formation of its surface a second time; and the article is finished, and the true form given to it, by cutting the clay, in the partially dried state with cutting tools, in order to pare off so much from the surface of the articles, which has been moulded and partially dried, as will reduce it to the required form. In such case, the first formation of the article in the plastic state, is only a preparatory formation, with an excess of size, to allow for the utmost contraction which can take place in drying, and with a further allowance for

waste, by the subsequent cutting and reduction at the second formation, or finishing in the partially dried state.

The new process, invented by Mr. Prosser, avoids the difficulty altogether, by drying the earthy material or clay, previously to the operation of moulding it into the form of the articles by compressing the powdered clay into metal moulds; instead of moulding the clay when in a moist state, and then drying it after it has been moulded.

This change in the order of the potter's operations, although very simple in idea (and a sufficiently obvious result of reflection on the difficulties attending the usual course of procedure) has, nevertheless, required a long series of careful experiments to find out the means of rendering it available in practice.

The power, which the hand of the potter has exercised over his clay, has been proverbial from time immemorial, but is limited to clay in its moist or plastic state; and clay in its powdered state is an untractable material, requiring very exact and powerful machinery to be substituted for the hand of the potter; in order, by great pressure to obtain the requisite cohesion of the particles of the clay.

In the new process, the clay, or earthy material, after being prepared in the usual manner, and brought to the plastic state, as above described (except that no kneading or tempering is requisite), is formed into lumps, which are dried, until the water is evaporated from the clay.

The lumps of dried clay are then broken down into pieces, small enough to be ground by a suitable mill, into a state of powder, which is afterwards sifted, in order to separate all the coarse grains, and obtain a fine powder, which it is desirable should consist of particles of uniform size as nearly can be obtained. The powder so prepared is the state in which the clay is ready to be moulded into the form of the intended article by the new process.

The machine and mould used for moulding articles of a small size, in powdered clay, is represented in the annexed drawing, wherein Figure 1 is a lateral elevation of the whole machine, drawn about one-fourth of the real size.

A A is the wooden bench or table whereon the whole is fixed, that bench being sustained on legs standing on the floor. B D E is the frame, formed in one piece of cast iron, the base (B) standing on the bench, and being fixed

thereto by screw bolts, the upright standard (D) rising from the base, and sustaining at its upper end the boss (E), wherein the nut or box (a) is fixed for the reception of the vertical screw (F). The screw (F) works through the box (a), and has a handle (G g h), applied on the upper end of the screw; the handle is bended downwards at g, to bring the actual handle (h) to a suitable height for the person who works the machine to grasp that handle (h) in his right hand; and by pulling the handle (h) towards him, the screw (F) is turned round in its box (a) and descends. The lower end of the screw (F) is connected with a square vertical slider (H), which is fitted into a socket (I) fixed to the upright part (D) of the frame, and the slider (H) is thereby confined to move up or down, with an exactly vertical motion, when it is actuated by the screw, without deviation from the vertical.

Thus far the machine is an ordinary screw press, such as is commonly used for cutting and compressing metals for various purposes.

The tools with which the press is furnished for the purpose of this new process, consist of a hollow mould (e e) formed of steel, the interior cavity of the mould being the exact size of the article which is to be moulded. The mould (e e) is firmly fixed on the base (B) of the frame, so as to be exactly beneath the lower end of a piston or plug (f), which is fastened to the lower end of the square slider (H), and the plug (f) is adapted to descend into the hollow of the mould (e E) when the slider (H) is forced downwards by action of the screw (F), the plug (f) being very exactly fitted to the interior of the mould (e e).

The bottom of the mould (e e) is a moveable piece (n), which is exactly fitted into the interior of the mould, but which lies at rest in the bottom of the mould (e e) during the operation of moulding the article therein; but afterwards the moveable bottom (n) can be raised up, by pressing one foot upon one end (R) of a pedal lever (R S), the fulcrum of which is a centre pin (r) supported in a standard resting upon the floor, and the end (S) of the lever operation on an upright rod (m), which is attached at its upper end to the moveable bottom (n) of the mould (e e).

A small horizontal table (T T) is fixed around the mould (e e), and on that table a quantity of powdered clay is laid in a heap in readiness for filling the mould.

The two detached figures, marked Figures 2 and 3, are sections of the mould (e e) and the plug (f), on a larger scale than Figure 1, in order to exhibit their action more completely.

The operation is extremely simple; the operation, holding the handle (h) with his right hand, puts it back from him, so as to turn back the screw (F), and raise the slider (H) and the plug (f) quite out of the mould (e e), and clear above the orifice of the mould, as shewn in Figure 1.

Then, with a spatula of bone, held in the left hand, a small quantity of the powder is moved laterally from the heap, along the surface of the table (T T), towards the mould (e e), and gathered into the hollow of the mould with a quiet motion, so as to fill that hollow very completely; and by scraping the spatula evenly across over the top of the mould (e ), the superfluous powder will be removed, leaving the hollow cavity of the mould exactly filled with the powder in a loose state, and neither more nor less than filled.

Then the handle (h) being drawn forwards, with a gentle movement of the right hand, it runs the screw (F) so as to bring down the slider (H) and the plug (f), which thereby descends into the mould (e e) upon the loose powder wherewith the mould has been filled, and begins to press down that powder, which must be done with a gentle motion, without any jerk, in order to allow the air that is contained in the loose powder to make its escape; but the pressure, after having been commenced gradually, is continued and augmented to a great force, by pulling the handle strongly at the last, so as to compress the earthy material down upon the bottom (n) of the mould, into about one-third of the space it has occupied when it was in the state of loose powder. The section (Figure 2) shews this state of the mould (e e) and the plug (f) and the compressed material.

Then the handle (h) is put backwards again, so as to turn back the screw (F), and raise up the slider (H) and the plug (f) until the latter is drawn up out of the mould (e e), and clear above the orifice of the mould as in Figure 1, and immediately afterwards by pressure of one foot upon the pedal (R) of the pedal lever (R S), and by action of the upright rod (m), the moveable bottom (n) of the mould is raised upwards in the mould (e e), so as to elevate the compressed material which is resting upon the bottom (n), and carry the same upwards, quite out of the mould (e e), and above the orifice of the mould, as is shewn in Figure 3, and then the compressed material can be removed by the finger and thumb.

The compressed material which is so withdrawn is a solid body, retaining the exact shape and size of the interior cavity of the mould, and possessing sufficient coherence to enable it to endure as much handling as is requisite for putting a number of them into an earthenware case or pan, called a sagger, in which they are to be enclosed, according to the usual practice of potters, in preparation for putting them into the potter's kiln for firing. The enclosure within the saggers during the firing protects the articles from discolouration from smoke, and from partial action of the flame, which, if a number of small articles were exposed thereto without being so enclosed, might operate more strongly upon some than upon others of those articles; but by means of the saggers the heat is caused to operate with cleanliness, uniformity, and certainty, upon a number of small articles at once.

After the firing is over, the articles being removed from the saggers, are in the state of what is termed biscuit, and are ready for use, unless they are required to be glazed, in which case they may be dipped into a semi-liquid composition of silicious and other matters, ground in water to the consistency of cream, and the surface of the articles which are so dipped, becomes covered with a thin coating of the glazing composition, and then the articles are again put into saggers, and subjected to a second operation of firing in another kiln; the heat whereof vitrifies the composition and gives a glassy surface to the articles, all which is the usual course of making glazed earthenware or porcelain; but for articles formed by the new process, a suitable glazing composition is more usually applied within the saggers, into which the articles are put for the first firing, and the glazing is performed at the same time with the first burning, without any other burning being required. Or, in other cases, the composition of earthy materials which is chosen for the articles may be such as will become partially vitrified by the heat to which they are exposed in the kiln, and thereby external glazing is rendered unnecessary.

The advantages of Mr. Prosser's new mode of operating upon the earthy material or clay, in the state of powder, are very great, both as regards perfection of the articles and the economy of their production.

The great contraction which must take place in drying articles which have been moulded from clay in the moist state, is altogether avoided, and consequently all uncertainty in the extent of that contraction is avoided.

The loss of time required for slow drying is avoided; and the space occupied in workshops for keeping the articles under suitable conditions for very slow

drying (without the risk or rapid drying), during all that time, is economised, as well as the loss of articles from accidental damage, which they may sustain before and during the progress of drying: also the discolouration of the surface from deposition of dust and smoke is avoided.

Any number of articles which may be formed by the new process, from the same lot of powdered material, and in the same moulds, will be alike in every respect: that is, they will be of the same size and shape, and with uniformity of density in the substance of any number which may be made in succession, as well as with uniformity throughout every part of each individual article. Also, they will be dry throughout all their parts, and in their interior substance, when they are submitted for firing, which can be done without necessity for any delay after they are formed; and if they are enclosed in saggers immediately after they are formed, all discolouration from dust and smoke is avoided.

The above are conditions which are essential for the highest perfection of earthenware or porcelain; they are attained with certainty and without increase (but even with diminution) of expense by the new process; whereas, in the ordinary mode of moulding articles in plastic clay, and drying them afterwards, uniformity of density and of dryness cannot be attained, either in a number of articles, or in the different parts of the same article; neither can uniformity of size, or of form, be attained with precision. The consequences are, that in the burning of articles formed in the common way, they are liable to contract irregularly, and to change their form, and to vary in hardness, and also in the shade of colour. On the contrary, articles moulded by the new process, from the same lot of powdered material, being uniform in every respect, are not liable to variation of form, or size, or hardness, or colour, in the burning; and in case of using different qualities of powdered materials, for making a great number of articles which require to be exactly of the same size, after having been burned, any difference in the contraction which will take place in burning such different qualities of materials, may be provided for, by using moulds of different, but suitable sizes for the different qualities of powdered materials.

The new process admits of the employment of earthy materials which could not be used with advantage in the common way, because they cannot be rendered sufficiently plastic for moulding; and more advantageous mixtures of earthy materials than have been hitherto commonly used by potters, can be made, when the new process is substituted for the ordinary way of moulding in a plastic state.

Pure clay, or alumina, must enter largely into the composition of all plastic earth which can be moulded in the ordinary way of potters. The disposition of alumina to absorb water, give the particles a tendency to cohere, when mixed or tempered with water in a suitable proportion, and plasticity is the result of that tendency to cohere; but alumina is not, in other respects, the most desirable ingredient in earthenware, because it is so very infusible that its particles cannot be rendered strongly coherent by firing, with the usual heat of the potters' kilns; hence it does not produce a strong ware, also it contracts considerably in firing, and to an uncertain extent. The pottery ware made from it is porous, and very absorbent of moisture, so as to be unfit for use without glazing; but the glazing upon such ware is subject to become what is termed crazed, that is cracked with innumerable small cracks, owing to unequal rates of expansibility of the glazing, and of the substance of the earthenware.

Pure silex, which is a preferable ingredient to alumina, is inimical to a plastic quality; the particles, however fine, and however they may be mixed or tempered with water, have but little tendency to cohere; and when flint or silex is used by potters, it is only inasmuch as alumina is mixed with the silex, that a plastic quality can be obtained; but silex is in other respects a most desirable ingredient in earthenware; it is so far fusible as to acquire great strength and hardness by burning, and it does not contract greatly.

Alumina and silex are the two great ingredients in the earthy materials used by potters, but the proportions in which they (as well as other ingredients) can be mixed for use, has hitherto been limited by the necessity of giving a plastic quality to the composition. The new process by superseding the necessity for that quality, enabled mixtures to be used in any proportions which will produce the best results in the firing of the articles.

The small articles which have been hitherto manufactured by Mr. Prosser's new process are chiefly buttons, which are substitutes for buttons of horn, bone, ivory, pearl, or metal. The process is particularly applicable for manufacturing tesserae, which be afterwards cemented together, in the form of tessellated pavements, resembling those left by the ancient Romans; also by the Venetians, and by the Moors in Spain, in the middle ages. The revival of the extinct art of making such tessellated pavements is rendered easy, by the facility with which tesserae of any required shape and colour can be produced, by the aid of this new process, and with uniformity of size and of colour, and in very superior materials to those formerly used. The perfection of the modern Roman cement, enables such tesserae to be held together very closely, and with great firmness and durability.

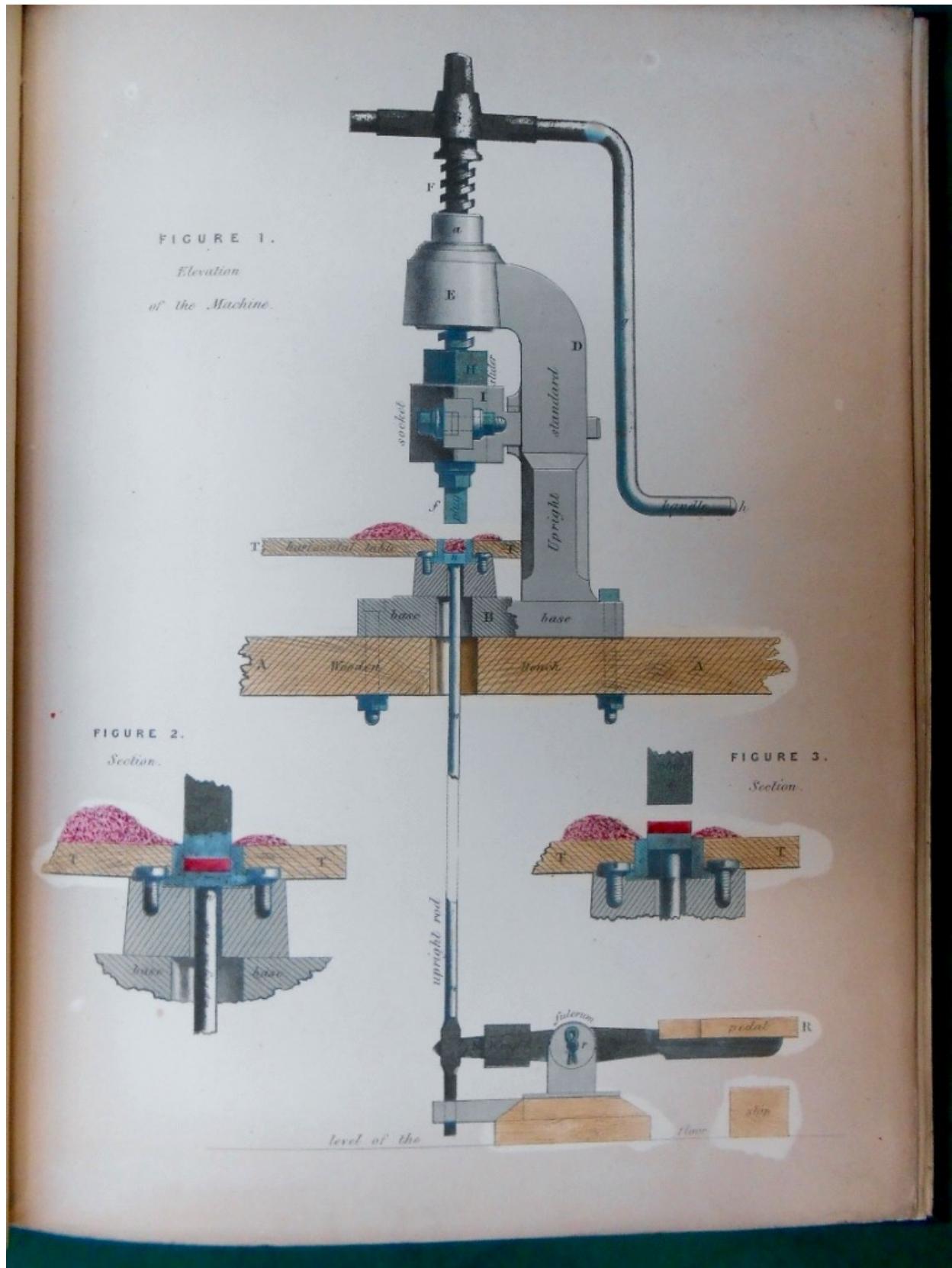
The substance of the tesserae which are made by Messrs. Minton and Co., by the new process, is very similar to the celebrated Jaspar Ware, invented and introduced many years ago into use by Mr. Wedgwood, the earthy material being a composition of alumina, silex, and barytes, with some suitable metallic oxide for colouring matter. The tesserae are coloured throughout their whole substance, and with perfect uniformity of tint of the same colours, in any number which can be required, and all colours or tints of colours can be produced. The tesserae are very hard, so as to endure wearing under foot, and are but very slightly absorbent of water; the burning being carried to the extent of semi-vitrification only. The process as already explained ensures that all which are made of the same material, in the same mould, will be of the same size and shape, and density, and under those conditions, by adapting the size of the mould to the quality of the material, uniformity of size and of hardness, and of tint of colours, is easily attained in the burning. Moulds can be made of any shape or size which the tessellated pavement may require.

In the composition of the earthy material for forming tesserae by the new process, and also in the management of firing in the kiln, great care is taken to avoid carrying the vitrification of the tesserae beyond the stage of semi-vitrification, in order that tessellated pavement, composed of such tesserae, may not be slippery to the feet. But in case of similar tesserae being expressly made for the purpose of ornamenting walls with tessellated work, then the vitrification of the tesserae may be carried further, or they may be glazed, whereby greater brilliance may be given to the colours than would be consistent with the condition of obtaining a firm footing on pavement; because, if the surface were highly polished, so as to exhibit the colours to their fullest, advantage, such surface would of necessity be slippery to the feet.

For forming large paving tiles, of square or hexagonal figures, similar moulds to those above described are used, but a very powerful machine must be employed to produce the requisite pressure on large surfaces; and the machine termed a hydraulic or Bramah press, is used in such cases in preference to a screw press, as above described, although the latter is most convenient for all small articles.

Holland Street, Blackfriars, London  
March 15, 1843

*(Drawing of Press on following page - image © Hans van Lemmen)*



Those readers looking for an index will not find one - for which I make no apology. This electronic format should be searchable on most devices; an essential aid in my own researches.