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des chemins de fer*

Mike Chrimes



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Introduction

- 1 Sir William Tite (1798-1873) (fig. 1) was one of the leading British architects of the second quarter of the nineteenth century, serving as President of the (Royal) Institute of British Architects¹. Knighted in 1869, he served as a Member of Parliament (MP) for Bath from 1855 until his death, and was active on a range of public bodies, company boards, and learned societies. He established an office in the City of London around 1823, and his practice prospered with commercial clients into the 1830s, when he first became involved with railways. Railway work, not only involving the design of buildings but also the surveying and acquisition of land, involved commissions across the UK, and also in France, with associated subsidiary offices. Perhaps Tite's can be described as the first international architectural practice. It was one which continued through his partner Edward Norton Clifton into the last quarter of the nineteenth century, while his influence on station design can be seen even longer. It was also a practice which brought Tite vast wealth, as he was the richest British architect practicing in the nineteenth century.

Figure 1. Sir William Tite.



ICE archives, carte de-visite collection, Hennah & Kent, 1860s.

Background

- 2 Tite began his career when the boundaries between the architectural, civil engineering and surveying professions were in flux, with many practising across all three disciplines. Pupillage as a route into professions had only recently become established, and specialist tertiary education unknown². There was considerable career flexibility with builders, masons, and carpenters carrying out architectural work, and also working as civil engineers and surveyors³. Early eighteenth century architects had assistants, or clerks, and there are few examples of fee-paying pupils before the mid-century⁴. The general office picture can be seen in the career of John Carr (1723-1807), who sometimes had pupils, but generally had a “clerk”, and employed assistants on particular jobs. These were sometimes former pupils, but also architects or surveyors with their own practice⁵. There was little continuity of practice, with small offices generally combined with the home⁶.
- 3 On a large scale, around 1800, was the practice of John Soane (1753-1837), who took on a pupil every two years, including George Bailey and David Mocatta, as well as employing draughtsmen like Joseph Michael Gandy and clerks like George Allen Underwood. His success enabled him to acquire adjacent properties in Lincoln’s Inn Fields, which provide extraordinary insight into an architectural practice when Tite began his career. Soane and his contemporaries made their income up of salaries, often for sinecures, supplemented by fees on 5 % of the value of works, prize money, as well as fees for property valuation and the like. Despite the efforts of the leaders of the

profession, there was some variation in fees and it was common to charge a daily rate plus a flat fee for drawings, etc.

- 4 As the profession sought to make a distinction from the building trades, emphasis on pupillage grew, and it was reckoned by the second quarter of the nineteenth century that you needed an annual income of £ 200 to start out in the profession⁷. That, and other aspects of the London architectural profession in Tite's time are ably caricatured in Dickens' *Martin Chuzzlewit*. The small size of most home-based practices meant there was also a living to be made as a jobbing draughtsman, surveyor, or clerk of works.
- 5 Recent work for a history of consulting engineers gives some idea of the size of practices in the late eighteenth and early nineteenth century (Table 1)⁸. At the beginning of the nineteenth century, they were generally small and based in the homes of the head of the practice. Partnerships were family based and rare before 1850. His own career ran parallel to that of many leading engineers, moving to separate the business from the home as the business grew. There was also an aspiration to move family life to the more fashionable parts of the West End of London, if it could be afforded, or the better-to-do suburbs, and take up purpose-built commercial office space as it became increasingly available from the 1850s.

Table 1. Growth in size and number of consulting engineering practices 1760-1870⁹.

Year	Number of consultant engineers' practices	Largest number of partners in a consultant practice	Number of engineers employed in the largest firm
1760	6	1	4
1770	8	1	6
1780	12	1	6
1790	15	1	8
1800	15	1	7
1810	20	1	8
1820	25	2	10
1830	50	2	10
1840	180	3	50
1850	180	3	50
1860	250	3	30
1870	400	3	70

- 6 Most practices remained small despite the impact of railways, which drove increasing specialisation among the civil engineering, architectural and surveying as well as the legal and accountancy professions¹⁰.

How important an architect was Tite?

- 7 Tite was the only son of Arthur Tite, a London merchant. Tite's sister, Ann, married his father's business partner, William Green of Fenchurch Street, with whom Tite had warehouses and premises in that area of the City. These commercial links enabled Tite to make a successful start to his career as an architect. In due course, Green's elder sons, Arthur John (1820-1856)¹¹ and William (b. 1826), became Tite's pupils. Tite was married in 1832 to a widow, Emily Hundleby, who was also from a prosperous family¹². As Tite himself remarked: "I inherited a fortune, I married a fortune, and I have made a fortune¹³". His family wealth provided Tite with ready access to commercial patronage. This was recognised by a contemporary architectural magazine at the time of his knighthood:
- East of Temple Bar, in the very stronghold of British commerce and industry, no name is more respected than that of William Tite not only in his professional capacity, but as the chief and 'head centre' of more than one financial enterprise¹⁴.
- 8 The result was that he was the most financially successful British architect of the nineteenth century (Table 2). It was a fortune on par with leading engineers of the railway age like Robert Stephenson (1803-1859, £ 400,000) and Joseph Locke (1805-1860, £ 350,000)¹⁵. This wealth makes his business practice worthy of further study.

Table 2. Relative wealth of leading architects at death¹⁶.

Name	Date of death	Estate £ sterling
Robert Taylor	1788	160000
John Carr	1807	35000 [or >150000]
Robert Mylne	1811	?50000
John Soane	1833	?100000
Thomas Telford	1834	34000
John Nash	1835	Debts of 15000
Charles Robert Cockerell	1863	35000
Robert Smirks	1867	90000
Philip Hardwick	1870	120000
James Pennethorne	1871	25000
William Tite	1873	400000
Sydney Smirke	1877	80000
George Gilbert Scott	1878	120000

Alfred Waterhouse	1905	163000
Thomas Worthington	1909	14000

- 9 Details of his early buildings were published, and his railway stations were featured in both British and French engineering literature. Most recent studies have concentrated on his railway work, to the exclusion of his other achievements¹⁷. For example, his banking hall for the London and Westminster Bank (fig. 2) was the model for most banks of the nineteenth century¹⁸. His nephew and associate, Arthur Green, designed one of London's first commercial office developments in Mincing Lane in the City¹⁹.
- 10 In the 1860s he was still designing large office and warehouse developments. At the heart of the architectural establishment for 40 years, he thought hard about architecture, along with its historic and contemporary development in the UK and internationally²⁰. He favoured a Neo-classical or Italianate style, but used gothic where he felt it was appropriate. His concern was that it was being used unthinkingly and inappropriately.

Figure 2. Tite's preliminary sketch of Interior London and Westminster Bank.



Cockerill collection, Royal Institute of British Architects.

- 11 His presence on public bodies like the Metropolitan Board of Works, as an MP, and on the City of London boards gave him influence denied to most other architects of the time²¹. His physical architectural oeuvre therefore shows only part of the man and the business of his office.
- 12 Tite set up in business around 1823²², following a typical early career in terms of his training. After attending schools locally, and the Philippinum Gymnasium at Marburg²³, he became a pupil of David Laing, and attended Soane's lectures at the Royal

Academy²⁴. At that time he was living at his father's home at 80 Fenchurch Street. In early 1817, Laing was given the commission for work at St Dunstan in the East and delegated the work to Tite. Soon after its successful completion in 1821, Tite went on a continental tour. His first office was at 56 Jewry Street, Aldgate, however his principal office remained on the east side of the City throughout his career, close to commercial clients. He probably took out the Jewry Street lease soon after the time of his majority. His father's death in 1826 would have given him financial security.

Arrangement of the office and Office staff

- 13 Nothing is known about Tite's premises at 56 and later 29 Jewry Street. One can imagine a reception room for clients on the ground floor, as well as a consulting room and a drawing office perhaps on the floor above. There was presumably living accommodation, and possibly a room for a servant. Alternatively, it is possible Tite continued to live at his parents' home until his marriage. If he had pupils in the 1820s, they are unknown; and it is likely his clerk and draughtsman, if any, were day workers.

Figure 3. St Helen's Place, London.



Unknown photographer, late nineteenth century.

- 14 When he moved to St Helen's Place c. 1831 (fig. 3), possibly in anticipation of marriage, Tite was on firmer ground, as no. 17 provided sufficient accommodation for a thriving business for 30 years²⁵. It was a street of Georgian houses similar to those occupied by consulting engineers in the Great George Street area. Upon his marriage in 1832, Tite had also taken a home in Upper Bedford Place, Bloomsbury, supplanted from c. 1850 by the even more fashionable address of 42 Lowndes Square, close to his business friends the civil engineers Joseph Locke and Thomas Brassey.

- 15 As a comparator, the civil engineer Robert Stephenson occupied premises in Great George Street. Like Tite, he had a separate home for his domestic life. The distribution of rooms at 24 Great George Street is well known²⁶. On the ground floor was the office of G. P. Bidder, his associate. On the first floor was Stephenson's "private room", his consulting room, and his secretary's office. On the second floor were the accommodation for G. R. Stephenson and the drawing office, with two or three assistants. To them could be added somebody dealing with the engineering business of Robert Stephenson & Co., whose practice was the largest of the time, demonstrating that a major business could be organised with relatively few office staff.
- 16 St Helens Place would similarly have accommodated the staff required for Tite's work, even if we do not know the precise layout. From directories, it is known that he shared his premises with the counting house of a city merchant, presumably occupying the ground floor. Above on the first, second, and third floors it would have been necessary to find himself space with a consulting room, a drawing office, place for his senior clerks/partners, as well as his pupils.
- 17 Given the extent of his wealth, Tite must have employed a business secretary, possibly as soon as his father's death, as well as the services of an accountant and lawyer²⁷. His obituaries suggest he had few pupils, but on the Soane model of one every two years, which might suggest there were about 15 pupils from 1824-1854, perhaps even two or three at one time. A sufficient number of these are known, in order to make this a credible figure: Charles Baily²⁸ c. 1830-1845²⁹; Arthur John Green c. 1834-1840; Horace Jones c. 1838-1840; Thomas Hayter Lewis c. 1838-1840); J. H. Steinmetz c. 1840-³⁰; Arthur J. Baker³¹; William Green c. 1841- , and Henry Simpson Legg c. 1850-1865³². His nephew-in-law, Edward Henry Burnell (1819-1892), was another clerk and possibly a pupil. These, however, would not have been sufficient to supply all his drawings and correspondence, and Tite is known to have employed several clerks, including former pupils, but mostly other qualified architects, surveyors and valuers³³. These included Samuel³⁴ and William John Gant c. 1843-1845, a pupil of T. L. Donaldson, and Charles Arthur Legg c. 1853-1860, William Alexander Longmore, c. 1850s³⁵, and Charles Ferdinand Porden certainly on his railway work, for at least 10 years c. 1838-1850³⁶. Before December 1856, his key collaborator was Arthur Green, whose early death was a blow to Tite. Once he had completed his pupillage and continental tour, c. 1842, Green had his own office in Piccadilly, but Tite later stated, "Green from the age of 14 was always with me³⁷".
- 18 Another long-term associate of over 20 years was Ebenezer Trotman (1809-1865)³⁸. Trotman was a talented young exponent of the gothic style, who also had his own office in Furnival's Inn. It is not clear how many staff were ever working out of St Helen's Place at the same time, but there were perhaps a dozen when he was working on the Royal Exchange and the French and British railways c. 1844.
- 19 While one can see Trotman's possible influence on his Gothic work, it is not known who provided the calculations for the buildings with which Tite was involved at a time when cast and wrought iron were being more broadly used³⁹. He obviously expected architects to be capable of such work⁴⁰. At Mill Hill School, he used T section, rolled iron joists in combination with Yorkshire landings and roman cement to create a fireproof floor⁴¹. At the Royal Exchange he made extensive use of cast iron⁴². Interestingly, in shareholder discussions over the use of iron on the London & Blackwall Railway, Stephenson made it clear that it was his team and not Tite who had made the design

decisions. In discussing Nine Elms Station, when Tite gave parliamentary evidence in favour of extensions to the London and South Western Railway, he stated:

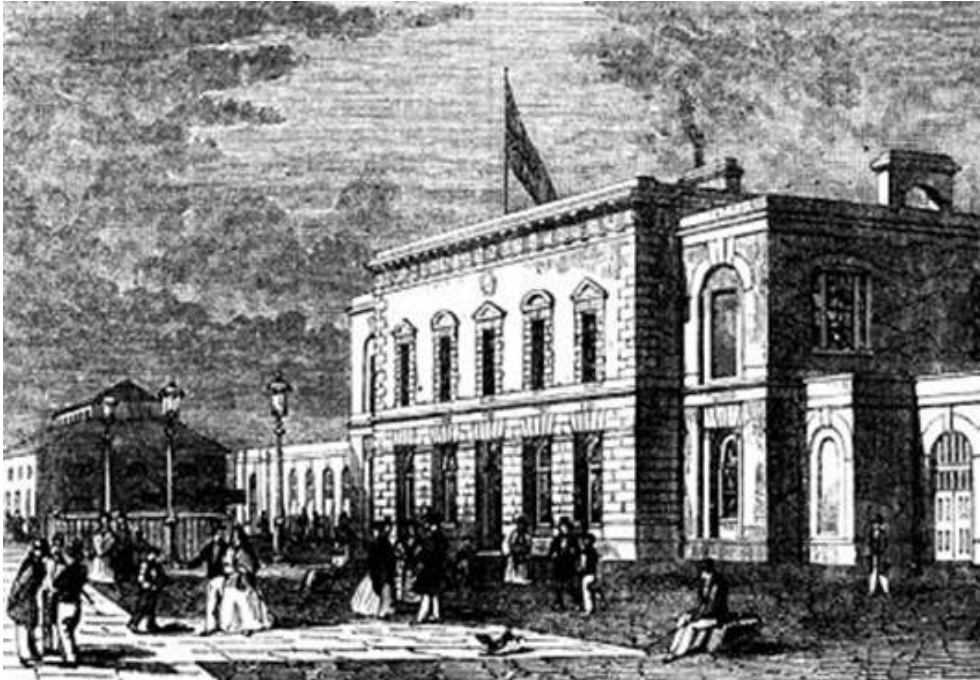
As architect he had only erected the main building, containing the offices, waiting rooms for passengers, board, secretary, and engineer, and that of this he knew the cost but that the great arrival shed, smithy, coach houses and locomotive sheds were constructed under the direction of the engineer Mr Locke, by workmen employed by the company upon the general works upon the line⁴³.

- 20 This was typical of architects of the time, who were generally employed to design station buildings, with the train sheds and platform layouts left up to the engineers. It was a demarcation between the civil engineer and architect that was typical of the stations of the third quarter of the nineteenth century, and seen at Liverpool⁴⁴ and Perth⁴⁵. The only clue as to who might have provided external advice on the design of the ironwork of his buildings is that one of his proposers for membership of the Institution of Civil Engineers was the iron founder George Cottam. Tite himself regretted this separation of the professions⁴⁶. After 1840, Tite actively sought other professional support to help with his growing professional commitments, partly to manage more distant projects. Otherwise, it would seem that he encouraged his pupils and assistants to cultivate their own practice, and nurture young talent⁴⁷.

The Impact of Railways⁴⁸

- 21 In the mid 1830s, Tite probably only had a couple of clerks and a pupil to handle his work. By 1840, however, that had changed dramatically. The financial success of the Liverpool and Manchester Railway caused a mini railway mania. Like many in his business circle, Tite was an active investor from the start, an activity overshadowed by his later work as a railway architect.
- 22 His work of the early 1830s included the design of the Golden Cross Hotel⁴⁹ for Benjamin Worthy Horne, one of the leading coach and goods carriers, who in partnership with William James Chaplin became the best known of the railway company agents. Chaplin was a key figure in the London and Southampton Railway and must have encouraged Tite's involvement with that company as architect from some time in 1837, following the installation of Joseph Locke as Engineer⁵⁰. Before then, Tite had been a member of the provisional Board of the Eastern Counties Railway⁵¹. The Chair, Henry Bosanquet, was a long-time director of The London and Westminster Bank, for which Tite designed the interior at much the same time (fig. 2)⁵². Tite introduced the Bank to the promoters⁵³. Once the line obtained its Act, Tite stepped down to enable him to act as 'Surveyor' to the company⁵⁴. It was a similar tale with the London and Blackwall Railway⁵⁵, where Tite acted again as surveyor or property valuer for the company, giving evidence for its Act⁵⁶. It provided a successful business model for Tite to follow, because even on the basis of fees of 1 % of the valuation, with urban property values, it was likely to be more lucrative business than architectural design fees⁵⁷. He was paid at least £ 9000 in surveying fees on the original line⁵⁸. Tite developed a long term relationship with the company, generally as surveyor⁵⁹. His role as the architect was widely known through the technical and architectural press (fig. 4)⁶⁰.

Figure 4. Blackwall station.

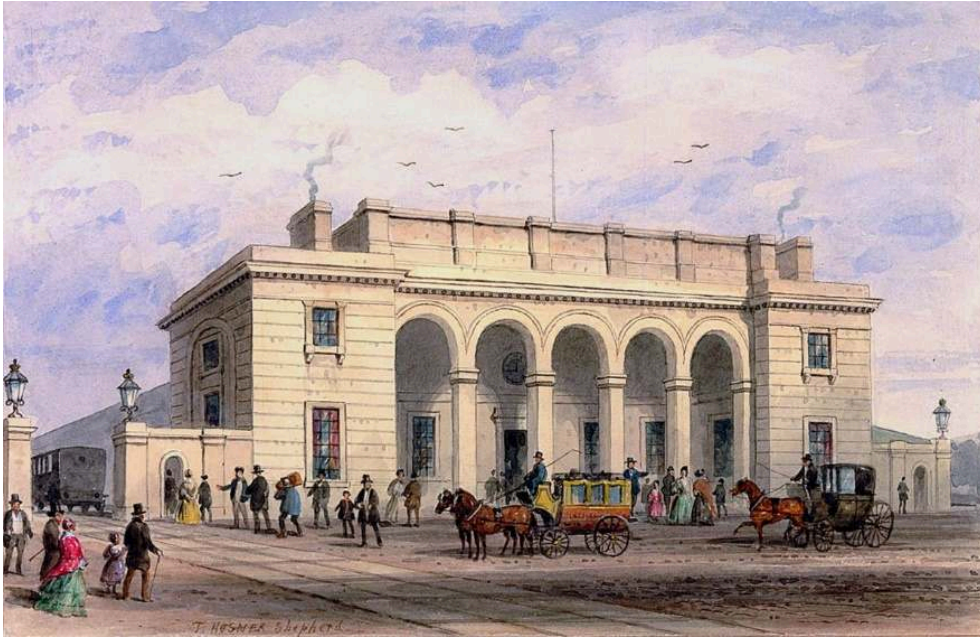


Engraving, c. 1845.

- 23 His influence continued into the 1850s when, at the suggestion of the Engineer George Berkley, he provided a sketch for the new Fenchurch Street Station which followed⁶¹. He was also involved with the linked London, Tilbury and Southend Railway from c. 1852, designing a number of large warehouses for the London & Blackwall for the use of other railway companies around the Minories⁶². It was the only line with which he was still officially associated in the mid 1860s⁶³. The railway engineers generally found him to be “an admirable man of business⁶⁴”.
- 24 In the case of the London and Blackwall and the London end of the Eastern Counties, Tite had barely to step out of the office to be on site, and it is likely he did the property valuation himself, perhaps accompanied by a pupil or junior assistant. The stations were broadly similar and probably worked up from sketches in the office⁶⁵, the terminus at Blackwall (fig. 4) being the only one of significant size at that time⁶⁶. The likely volume of drafting work – perhaps 30 drawings, plus some artistic views – would have required perhaps two months’ work, again manageable with existing office staff.

The London and South Western Railway (LSWR) and the need to delegate

Figure 5. Nine Elms Station, London.



J. Weale, c. 1845.

- 25 Tite was not involved in the land valuation and preparation for the first Act for the London and Southampton Railway, soon to become the London and South Western Railway. He was, however, asked to design the termini at Nine Elms (London) and Southampton on the recommendation of London Directors familiar with his work. He probably provided templates for the more important intermediate stations, but work was routinely done by Joseph Locke and the engineering staff on the minor buildings⁶⁷. His Italianate loggia design (fig. 5) was widely published, with the Southampton and Blackwall following a similar layout, although the exterior designs differed⁶⁸.
- 26 The stations at Southampton, as well as Gosport (fig. 6) which soon followed, were managed by a local clerk of works or the engineering staff, with drawings prepared in London and Tite visiting occasionally. Gosport gave Tite something of a headache, as the line potentially breached the defences around the naval base and consequently involved him in torturous negotiations with the military engineers which led him to modify his original design⁶⁹.

Figure 6. Gosport station today.



Wikicommons.

Subsidiary offices

- 27 The LSWR required supplying drawings at distance from the London office and was not the first such client. From the early 1830s, Tite was involved with the “Irish Society” and visited Ulster to carry out property valuations and provide some designs⁷⁰. Later, he sent Green there on business (which is where he died), but the Society presumably used their agents to carry out any recommendations from Tite. Likewise, his work for the Ramsden Trustees in Huddersfield (fig. 7), curtailed by ill health in the early 1850s, was managed through the local estate agents and personal visits. However, his growing railway work required long term commitments of time, involving site surveys, architectural commissions, the provision of drawings and some level of local supervision on site.

Figure 7. Tite Building, Huddersfield (1851).



Similar in style to Tite's later London office blocks, such as the East India House.
Oliver Chrimes, 2020.

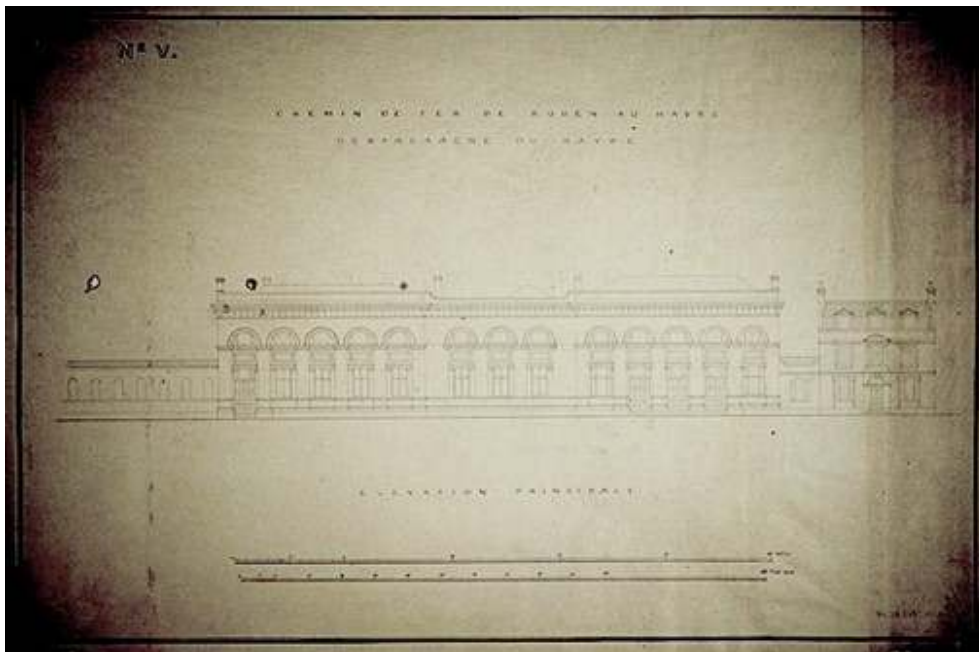
- 28 This was particularly the case with the Lancaster and Carlisle line (1844-1848), and the Liverpool Lime Street Station in northern England, the Caledonian and associated lines in Scotland (1845-1852), as well as the Paris Rouen, and Rouen Le Havre lines in France (c. 1842-1848).
- 29 The London office was perhaps at its busiest, and needed to be supplemented by some local offices, probably first in France. As they emerged, these offices were able to deal with clients on Tite's behalf locally, but the business itself was generated by Tite, often in negotiation with the Engineer (Locke) who had the primary relationship with the client. The staff were led by people Tite trusted, generally a relative. Designs displayed a commonality of approach which may have been Tite's or a leading associates' like Green, Trotman or later Clifton.

An office in France?

- 30 Overseas commissions were rare before the railway age, and for UK based architects one probably has to look to G. G. Scott's work at the Nikolaikirche (1845-1874) in Hamburg, and in Mumbai to find significant examples⁷¹. Tite's work in France, and how it was managed, therefore assumes a great significance in the history of British architects. Work in France stemmed from the LSWR, with Locke as engineer to railways from Paris to Le Havre. The contracting consortium of Mackenzie and Brassey started on site in January 1841⁷². Tite was asked to design the stations, possibly as late as 1842. William Mackenzie's diary records the station buildings were barely finished when the line from Paris to Rouen was nearly ready to open. Tite's diaries do not survive but his

talks suggest a familiarity with Normandy architecture based on regular stays⁷³. It would have taken two days journeying to get to Rouen and beyond from London; he needed somebody he could trust with the building work as there were major stations in Rouen⁷⁴ and Le Havre (fig. 8), as well as intermediate stations on to Paris. This was almost certainly his wife's cousin George Rowden Burnell⁷⁵, the son of a builder. He joined the engineering team in France around 1842, when the stations were being built in earnest, and remained until most buildings had been completed. Mackenzie first met Tite in France in June 1842, when going over the route with Brassey, and mentioned going over the stations with Burnell, and Tite, the following March⁷⁶.

Figure 8. Le Havre Station.



Drawing from Tite's French office, Mackenzie collection, ICE.

- 31 Another British architect, John Hay (1810-1861) was also employed in the early 1840s, and was possibly known to Tite through his Scotch church connections, or Locke through his work in Liverpool⁷⁷.
- 32 It has been suggested on the Paris Rouen line that a French architect-engineer was involved⁷⁸, but there is clear evidence Tite drew up designs for both lines⁷⁹ suggested by similarities in design between stations in Normandy, and in Britain, along with surviving drawings⁸⁰. To produce all the drawings required in a timely manner, probably alongside the engineers, Tite must have had a drawing office capacity in France.

The Royal Exchange

- 33 While negotiations for the French railways were falling into place, Tite remarkably won the competition to design the new Royal Exchange in the City of London, by far the most prestigious building with which he had so far been entrusted. The project provides some insight into how work was managed in the office at the time. Tite had

studied the subject of exchanges in some detail as he formulated his design.⁸¹ Samuel Gant gave due credit to Trotman for his contribution: “The design was in a very incomplete state when I first joined the office; and while I was there the working drawings and details were prepared with the able assistance of the late Mr. Trotman⁸².”

- 34 Perhaps uniquely in terms of Tite’s practice, he paid for a number of models (fig. 9) not originally required for the competition⁸³. He also made use of specialist designers like the Munich artist Frederick Sang and the sculptor Richard Westmacott to supplement his own office talents.

Figure 9. Queen Victoria being shown a model of the Royal Exchange.



Tite also paid for a meticulous catalogue of the antiquities uncovered in the excavations for the Exchange, indicating his practice was not just about making money from property development. The clerk of works was probably Porden, who moved on to the London stations of the LSWR.

Illustrated London News, 9 November 1844.

Work in the Railway mania years 1843-1848

- 35 Tite’s knowledge of the London property market meant that he was employed to carry out valuations for the lines of the London area and was frequently being called on to give Parliamentary evidence⁸⁴. He also organised property surveys using local surveyors as well as himself⁸⁵.
- 36 The imperative was to prepare the bills for parliament, and station design was clearly secondary, as on occasion he produced plans in the committee room that had not been seen by Locke, the engineer. One must assume the office carried out his instructions with preliminary sketches informing detailed drawings for submission within a day or so⁸⁶. Despite being described as the LSWR architect⁸⁷, the design of intermediate stations on the lines, like much of the surveying work, was carried out by other architectural practices⁸⁸. Exceptions were prestige stations like that at Windsor of 1851 (fig. 10).

Figure 10. Windsor & Eton Riverside station today.



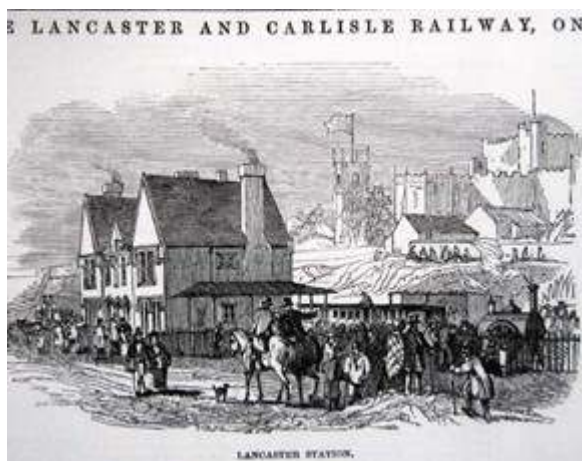
Wikimedia commons, Hugh Llewelyn.

- 37 Through the 1850s he was frequently mentioned as a director or shareholder in the railway press for lines associated with the LSWR⁸⁹. Some kind of insurmountable barrier would have been required to avoid a conflict of interest between his director interests and any award of work to his office of station designs. On the Yeovil & Exeter line stations, Tite not only provided the designs but also arranged the supervision⁹⁰.
- 38 This was probably through his associate, Clifton, although fees were paid to Tite⁹¹. This was more or less contemporary with the Portsmouth Direct, and Salisbury & Yeovil where designs were very similar⁹².

Offices in Northern England and Scotland

- 39 The Lancaster and Carlisle Railway got its Act in June 1844, with construction contracts already in place, Tite likely having already been approached about the stations beforehand. Tite delegated the work to Green, who set up an office in Carlisle, the largest station. Tite resolved to use gothic designs (fig. 11), in keeping with the proximity to castles at Lancaster, Penrith, and Carlisle.

Figure 11. Lancaster Castle Station.



Illustrated London News, 19 December 1846.

- 40 By October 1845, station designs had been prepared⁹³. The line opened in December 1846, although work continued at Carlisle. In early 1847, the newly qualified architect Thomas Worthington was sent to join Green there, possibly to enable Trotman to go further north, as work was well advanced on the Caledonian lines. From Worthington, we know that Tite rarely visited, sending sketches from London with Trotman for the drawing office to prepare for the contractors⁹⁴. The Carlisle office was closed in early 1848 because of the financial crisis, with Tite in dispute about his fees⁹⁵.
- 41 On the Caledonian lines, most of the intermediate stations were again gothic Tudor with Scottish influence. The termini in Glasgow and Edinburgh, however, were intended to be in Tite's favoured Italianate style. Some design work on these was evidently done by Tite in his London office, and was published in 1847⁹⁶. Work began on setting the station out in Edinburgh⁹⁷, supervised by Trotman, who must have set up a site office there.

Figure 12. Perth Station.



From a late 1870s photograph, courtesy W.S. Grigg.

- 42 It was he who was responsible for presenting Tite's designs for the large stations at Perth and Stirling to the Board of the Scottish Central Railway in 1847 (fig. 12)⁹⁸.
- 43 Perth was closely modelled on Carlisle. After the work further south was over, Trotman continued an office in Perth into the early 1850s while stations were completed. He worked with the Perth architects Andrew (d. 1858) & Andrew Heiton Jnr (1823-1894). Trotman's subsequent ill health, and the death of Green meant that Tite could not hope to offer a service to clients north of the border after 1856.

The office after 1850

- 44 Tite's heavy work load led to a collapse in his health in 1851, and he went on a second continental tour, leaving his affairs in Green's hands. However, Green's death in December 1856, and Trotman's ill health, meant that Tite had to find a new business partner, somebody of some competence and experience, because his election as an MP for Bath in 1855 left him no time for office management. From 1853, he was involved in redeveloping the site of the former Excise office in Old Broad Street, as part of the Gresham House Estate Company⁹⁹. One of the existing tenants was Edward Norton Clifton, an experienced architect and valuer, who would have also been known to his clerk Porden¹⁰⁰.
- 45 Tite persuaded him to act as architect for the development, which was the City's largest office block for a decade or more¹⁰¹. From around 1857, he joined Tite at St Helens Place, together with James Henry Rowley (c. 1830-1887)¹⁰². One can imagine the arrangement would have been similar to that between Stephenson and Bidder, with Tite bringing in business and passing it on to his associates, initially Green and Trotman, but now Clifton, who brought his own client base. Like Green before him, Clifton took on Tite's commercial clients.

Figure 13. East India House, 1866, developed by Tite and Clifton, where Tite had his office at the time of his death.



Illustrated London News.

- 46 In the early 1860s, another major property investment came up, and Clifton acted in a similar capacity for the development of the East India House Estate, consolidating a large area of property vacated by the former East India Company and other warehouse property around Leadenhall Street owned by Tite and his investment partners, including Thomas Brassey. In 1866, Tite and Clifton were thus able to move to 7 East India Avenue to purpose-built premises with a new partner, Alexander Wilson (fig. 13).

It is unclear how much time Tite spent there, as little work is associated with him thereafter.

The Drawing office practice

- 47 Beyond the people and Tite's myriad business activity, what would have been found in his office? There is no Tite collection, and so one has to speculate about the scale of the drawing office. He was fully abreast with best practice, submitting drawings to the RA exhibitions from 1817¹⁰³. He must have seen the value of promotion of his work through publication and his drawings were engraved from until the late 1840s¹⁰⁴.
- 48 Improvements in reprography were driven by the need to produce a large number of plans for parliamentary deadlines, and to ensure contract drawings were produced in a timely manner. Tite would therefore have been familiar with the use of pin pricking, tracing, lithography and engraving to copy and reproduce drawings. There are surviving examples of all of these from his office. Although the use of blue print technology did not become common until late in his career, Tite was an early member of the Architectural Photographic Society, employing photographers and likely understanding the technology¹⁰⁵. He also endorsed a drawing board which was evidently designed to meet the speed required for railway work¹⁰⁶. That said, there is nothing in his office practice to suggest it was on the scale of George Gilbert Scott's factory scale in the 1860s¹⁰⁷. Tite often only supplied a sketch from which his assistants or others prepared the final drawings. William Mackenzie noted that Tite was himself preparing drawings for a replacement for the Barentin viaduct when it failed in 1846¹⁰⁸.
- 49 If one were to estimate the number of drawings stored in the office, given around upwards of 100 known building projects, one might imagine 3 000 drawings, including unexecuted designs, prints, and drawings illustrative of other architects' works, along with sketches of antiquities. Today it is unlikely more than c. 100 Tite survive. The RIBA collection of Waterhouse drawings, covering a later period, with 160 commissions and 9000 drawings, was the product of a number of teams of draughtsman¹⁰⁹. They were capable handling 30 jobs at a time¹¹⁰. Even at the height of the railway mania, Tite's team would hardly have had more than 10 jobs on the go. They were also working before the period of blue prints and dyelines.
- 50 Additionally, the surveying business would have brought extensive documentation. The near contemporary Fairbank collection at Sheffield contains 4 650 plans plus 311 survey books¹¹¹. One cannot imagine that scale for Tite, but he must have had several dozen field notebooks to support his work. Beyond that, however, the jury is out.

Conclusion

- 51 The Tite office must have been a challenging place to work. Through frequent meetings with businessmen, he built up a thriving commercial practice that made a swift transition into the railway age. That very success meant he spent more and more time in committee rooms and surveying property, frequently providing office staff with little more than sketches to work up. The scale of his work from 1840-1848 meant he had to not only expand his office staff, but employ other surveyors and architects, and staff offices in northern France, Carlisle, Edinburgh, and Perth. It was a large enterprise

for the time, although not as large as that of the railway engineers with whom he was working.

- 52 Andrew Saint is somewhat dismissive of the way in which his architectural work jostled with directorships, surveying and politics, but perhaps instead it reflects his capacity for hard work¹¹². Anachronistic assumptions of what might be expected of an architectural practice make it difficult to fairly assess all that was going on in Tite's office. His blend of property valuation and architectural design was not unusual in the era before the divergence of the building professions.
- 53 On Saturday the 20th of August, 1853, at the first sod ceremony for the North Devon Railway's Bideford extension, "Amidst the banqueting and toasts, John G. Maxwell Esq. spoke of progress having been delayed by two years due to the illness of a certain Mr. Tite, through whose efforts the railway had not been abandoned, and who was now thankfully with them¹¹³".
- 54 Minnis and Brown have highlighted the problem presented by historians of railway architecture studying the structures of individual lines in isolation, making it difficult to recognise the significance of the work of the designer across several lines¹¹⁴. In Tite's case, where he was involved in up to 1000 miles of railway in a variety of ways, how can one distinguish his influence on architectural design from that of his assistants, as well as the engineers and other architects involved, without a signed drawing emanating from his office?
- 55 We lack details of everybody involved and their roles in delivering the business. Tite's commercial associations, originating in his family background, provided him with a range of opportunities that extended far beyond the aristocratic patronage of the eighteenth-century architect. His offices, in turn, would have been organized to manage that workload. It may not have been typical, but it was a remarkably successful practice.
- 56 As noted in his obituary:
- He was known as a very skilful constructor, an admirable man of business, and of untiring energy, and was thus naturally associated with the Stephensons, Locke, Brassey and the other distinguished men connected with railway works then going on rapidly in all parts of the country.

BIBLIOGRAPHY

A full bibliography of sources on Tite is available from the author.

In the absence of a collection of Tite's papers, the principal repositories are the national archives for England, Scotland, Wales, and Northern Ireland, which contain preserved government papers, and also the records of railway companies which came under public ownership in the twentieth century ; although some operational records, largely drawings, remain with the current asset managers, notably Network Rail. In addition, local authorities have a statutory duty to maintain local government records, which include previous bodies, and have taken on the curation of local business records. These will include some deposited plans for railways, and land

and property surveys. In the context of Tite's career, the most important collection is that of the London Metropolitan Archives. The British Library has a large collection of manuscripts, including records of the former East India Company, and India Office, with which Tite had dealings. Professional bodies with archives relevant to Tite are the collections of the Royal Institute of British Architects, the Institution of Civil Engineers, and the Society of Antiquaries.

Most published sources will be available in the British Library, and where relevant in the libraries of the Institution of Civil Engineers and Royal Institute of British Architects, whose catalogues are available online. It should be noted that the evidence presented to Parliament for Railway Bills etc. can be found in the House of Lords Records Office, at ICE, and sometimes at the relevant national archive.

NOTES

1. M. S. Briggs, "Sir William Tite, his life and works", *Builder*, 13 and 20 January 1950, pp. 30-42 and 95.
2. H. M. Colvin and others, *History of the King's Works*, 1963-1982.
3. The term "civil engineer" came into use in the 1760s, and approximates to an "ingénieur des ponts et chaussées", although it was not a legally registered term, and in the period prior to the 1870s many practised in mechanical engineering. The term surveyor was used to describe both civil engineers and architects. A County Surveyor, or Bridgemaster, often looked after public buildings and bridges in local counties or "départements", but without a national administrative basis before the 1880s. A surveyor (generally "mesureur") might also be a "leveller" (niveleur), "land surveyor" (arpenteur), "quantity surveyor" (mètreur), or "valuer" (évaluateur); civil engineers and architects including Tite undertook many of these roles, and it is evident the valuation element was an important source of Tite's railway work. With the establishment of professional bodies for surveyors around 1870 more clarity developed over the roles.
4. H. M. Colvin, "Introduction", in *A Biographical dictionary of British architects*, London, 1954-2008 (4 eds).
5. B. Wragg, *The Life and works of John Carr of York*, 2000, p. 55.
6. J. Summerson, *Architecture in Britain 1530-1830*, 1991 (8th ed).
7. J. M. Crook, "The Pre-Victorian Architect: Professionalism & Patronage", *Architectural History*, vol. 12, 1969, pp. 62-78.
8. H. Ferguson and M. Chrimes, *The Consultants*, 2020, pp. 8-10.
9. Based on research for reference 8, and A. W. Skempton *et al*, *Biographical Dictionary of civil engineers of Great Britain and Ireland 1500-1920*, 3 vols. London, ICE Publishing, 2002-2014.
10. T. R. Gourvish, "The rise of the professions", in Gourvish and O'Day (eds.), *Later Victorian Britain, 1867-1900*, 1988, pp. 13-35.
11. *Builder*, vol. 13, 1855, p. 620.
12. The fifth daughter of John Curtis and Frances Burnell, *Gentleman's magazine*, vol. 93, 1824, p. 645.
13. *The Builder*, vol. 21, 3 May 1873 p. 337.
14. *The Architect*, vol. 2, 17 July 1869, pp. 27-28.
15. M. Chrimes, "British civil engineering biography, part 2: 1790-1830", *Civil engineering*, vol. 157, p. 144.
16. Value of estate as established from probate records, in The National Archives, and elsewhere, and standard biographical sources cited elsewhere.
17. G. Biddle, "Sir William Tite and railways", *Backtrack*, 9, Sept. 2008, pp. 530-536; 10, October 2008, pp. 630-635; J. and P. A. Brown, "Following the tracks of architects, engineers and

contractors: a re-appraisal of aspects of 19th century railway architecture,” in M. Chrimes (ed), *Early main line railways 2*, pp. 327-352.

18. F. M Locker, *The evolution of Victorian and early twentieth century office buildings in Britain*, PhD, University of Edinburgh, 1984, *passim*.

19. E. l’Anson, “Some notice of offices buildings in the City of London”, *[Royal] Institute of British Architects, Journal and transactions*, 1864-1865, pp. 25-36.

20. W. Tite, “On the progress and present state of architecture and its future prospects”, *CEAJ*, vol. 22, pp. 389-396.

21. Unlike many of his engineering contemporaries who served as Members of Parliament, Tite was an active MP and, according to Hansard, spoke 306 times during his tenure. Examples of his influence can be seen in M. Beaumont, *Sir John Hawkshaw: The life and work of an eminent Victorian engineer*, 2015, p. 66, and on the design of public buildings around South Kensington, *Survey of London: vol. 38, South Kensington Museums*, 1975, *passim*; *Builder*, 21 July 1866, p. 550. Most famous was his intervention in the design of public offices in Whitehall.

22. He submitted a drawing for rebuilding London Bridge to the Royal Academy in 1823, suggesting he was back from his tour and in business. See [on line] <https://www.royalacademy.org.uk/art-artists/exhibition-catalogue/ra-sec-vol55-1823>, p. 39.

23. *The Architect*, vol. 2, p. 28; Marburg University has been unable to trace Tite in its register.

24. D. Laing, *Plans... of original designs of buildings, public and private, ...including the Custom House*, London, 1818; for his discussion of Soane’s lectures see *The builder*, vol. 6, 1848. pp. 193-195; 577-578.

25. The earliest mention of an office in the street is on a drawing of 1831. He was briefly based at number 20.

26. M. R. Bailey (Ed.), *Robert Stephenson - the eminent engineer*, 2003, pp. 137-138.

27. According to the 1851 census a Mr Jago, lawyer, was at the Tite household.

28. *Builder*, 12 October 1878.

29. Dates are indicative of their association with Tite.

30. *CEAJ*, 1840.

31. Later partner of James Foster Wadmore (1822-1903).

32. Together with Charles Arthur (1832-1906), sons of George Legg, a well-known local government surveyor/engineer.

33. Tite refers to clerks in *Trans. Society of Arts*, vol. 53, 1840, pp. 12-13.

34. *Builder*, 10 May 1873; sons of Lt. Col. John Castle Gant, Commissioner of Sewers for Tower Hamlets.

35. *Builder*, vol. 93, 1907, p. 591.

36. Porden (1790-1863) designed St Matthews, Brixton in 1824, contributed to architectural publications and carried out work for H. W. Inwood.

37. Quoted in “Obituary: The late Sir William Tite”, *The Builder*, vol. 21, 3 May 1873, p. 337.

38. Trotman was born in Tewksbury and trained by the surveyor William Wallen, as was Horace Jones. He joined Tite’s practice as a junior clerk as ‘an excellent draughtsman and had obtained a mastery of the details of gothic architecture’, *Builder*, vol. 23, 14 January 1865, p. 31. He was a nephew of Sir John Easthope, banker and leading shareholder in the London and South Western Railway. Thereafter he worked on the Royal Exchange (*CEAJ*, 1844 p. 422).

39. R. Thorne (Ed.), *The iron revolution: architects, engineers and structural innovation 1780-1880*, London, Heinz Gallery, 1990.

40. “Discussion at IBA on E. Cowper on Britannia and Conway bridges”, *CEAJ*, 18 Jan. 1851, p. 39; *The Builder*, 9 Nov. 1861, p. 766.

41. H. H. Burnell, “Description of the French method of constructing iron floors”, *RIBA Transactions*, Session 1853-1854, pp. 48-49; *CEAJ*, vol. 17, 1854, p. 93.

42. J. Clarke, *Early structural steel in London buildings*, London English Heritage, 2014, p. 64-65.

43. Metropolitan Railways Commission, *Minutes of Evidence 1846*, London, 1846, pp. 33-39.
44. R. Turner, "Description of the iron roof over the Railway station, Lime-Street, Liverpool", *Min of Procs ICE*, vol. 9, 1850, pp. 204-214; E. J. Diestelkamp, "Richard Turner and the Palm House at Kew Gardens", *Newcomen Society Transactions*, vol. 54, 1982-1983, pp. 1-26.
45. A. Saint, *Architect and engineer: a study in sibling rivalry*, New Haven, Yale University Press, 2007, pp. 106-131; *CEAJ*, 18 Jan. 1851, p. 39.
46. W. Tite, "Opening address", [*Royal*] *Institute of British Architects, Journal and transactions*, 1861-1862 pp. 1-16.
47. A. J. Pass, *Thomas Worthington: Victorian architecture and society*, Manchester, 1988, pp. 25-26.
48. Britain's railways, and indeed most of its civil engineering infrastructure was privately financed c. 1700-1900. Because this generally affected existing property rights and businesses it required a private bill in parliament. As a result of the volume of business occasioned by the demand for railway bills in the 1830s and 1840s, processes were streamlined, but essentially the promoters of a scheme had to ensure they had properly prepared estimates, genuine promises of shareholder/financial support, details of routes, traffic and property ownership before they could begin the parliamentary process. This provided work for lawyers, engineers, valuers, land surveyors etc., before work could even begin. The leading such professionals would then be called upon to give evidence in support of the bill and their route, or alternatively to oppose such a bill. Thus, talented individuals like Tite had the prospect of work whether a scheme proceeded or not, and surveying and valuation fees could readily outweigh fees associated with architectural design work. This was not clear at the outset of Tite's career.
49. According to the railway contractor William Mackenzie this was the hotel where he met railway business colleagues like Thomas Brassey, Joseph Locke, Albinus Martin and William Reed, D. Brooke (Ed.) *The Diary of William Mackenzie: the first international railway contractor*, 2000, *passim*.
50. TNA RAIL 412/1, Minutes of Court of Directors of London and Southampton Railway 14 April 1837.
51. TNA RAIL 186/1-7 Eastern Counties Railway, Board of (Provisional) Directors Minutes 1835-44; notes supplied by Peter Kay.
52. *CEAJ*, vol. 3, March 1840, p. 84 and plate 8.
53. *Hyde Clarke's Railway Register*, vol. 5, 1846, pp. 214-221.
54. Eastern Counties Railway, Annual report, 26 Sept. 1836, *American Railroad Journal*, vol. 6, p. 22.
55. TNA RAIL 385/1-20, London & Blackwall Railway Minutes 1836-1859.
56. *Minutes of evidence taken before the Committee on the Commercial (Blackwall) Railway Bill*, May 1837.
57. He was described as 'surveyor in *Hyde Clarke's Railway register*, vol. 4, 1846, pp. 201-206.
58. *Railway Times*, vol. 6, 1843, pp. 629-633.
59. *Railway Times*, vol. 6, 1843, p. 580 and 614; *Railway Times*, vol. 5, 1842, p. 683-68 and 1021; *Herapath's railway journal*, vol. 7, 11 Jan. 1845, p. 28.
60. G. Drysdale Dempsey, *The Practical railway engineer*, London, Weale, 1855 (4th ed).
61. P. Kay, "Who designed the 1854 Fenchurch Street Station", *Great Eastern railway journal*, 80, 26 Feb. 1994, quoting from TNA RAIL 385, 6 July 1852 and 24 August 1852.
62. P. Kay, *The London Tilbury & Southend railway*, vol. 1, Wivelhoe, P. Kay, 1996.
63. As "Surveyor", *Bradshaw's Railway manual, shareholders' guide and directory*, 1866-69.
64. *Builder*, 3 May 1873 pp. 337-9.
65. P. Kay, "The Original L&BR Viaduct stations", *London's railway heritage*, vol. 1 "East", 2012, pp. 26-27.
66. J. E. Cooper, *London's disused railway stations: the East End*, London, Capital Transport, 2018, pp. 103-107.
67. The London and Southampton/South Western Railway minutes give some evidence of this demarcation: RAIL 412/3 Traffic and General Purposes Committee 1839-1845: 23 Feb. 1839 Plans

of Tite, approved by Locke for Southampton terminus, were agreed upon by The Committee; 25 May 1839 Committee agreed Locke is to construct coal pens at the station and (21 June): for cattle landing; On the same day it was agreed Tite is to prepare passenger accommodation for the river landing at Nine Elms; and Tite is to prepare plans and specs for Gosport Branch as soon as possible; 6 September The district engineer to design the station at Warren Farm [later Micheldver] as the committee agreed it was of minor importance.

68. F. Whishaw, *The Railways of Great Britain and Ireland Practically Described and Illustrated*, London, J. Weale, 1842 (2nd ed).

69. TNA WO44/281 Board of Ordnance correspondence 1840-1841; P. Eley, *The Battle of Gosport Railway Station 1840-1841*.

70. London Metropolitan Archives CLA/049/EM/01/015 and CLA/049/PL/03/006.

71. M. Chrimes, "Architectural dilettantes: construction professionals in British India Part 2 1860-1910: the advent of the professional", *Construction history*, vol. 31, 1, 2016, pp. 99-139.

72. M. Chrimes *et al*, *William Mackenzie, giant of the railways*, London, ICE, 1994; V. Marechal, "La construction des chemins de fer de Paris à Rouen, étude Rouen au Havre, 1839-1847", *Revue d'histoire des Chemins de fer*, 14, 1996; Dominique Hervier (dir.), *Inventaire général du patrimoine culturel de la France, régions Île-de-France et Haute-Normandie : De Paris à la mer, la ligne de chemin de fer Paris-Rouen-Le Havre*, 2005.

73. For example *CEAJ*, vol. 13, 1850, p. 161 and 220.

74. *Builder*, vol. 7, 2 Feb. 1850 p. 52.

75. Burnell's grandfather Thomas (1724-1824) was also a London mason. G.R.'s younger brother Edward Henry (1819-1892) worked closely with Tite (*Builder*, vol. 56, 1889, p. 73).

76. D. Brooke (Ed.) *The diary of William Mackenzie, op. cit.*

77. Brooke, *idem*, p. 161, 1-4 January 1843; p. 183: 12 May 1843 might suggest Burnell is replacing him; p. 206, 6 October 1843; Hay was the son of a joiner from Coldstream who was seemingly self-taught as an architect and went from Edinburgh to Liverpool in the late 1830s, and was seemingly joined by his younger brothers William and James in Liverpool c. 1847, possibly to work on Lime Street Station? (*Dictionary of Scottish Architects*, [on line] http://www.scottisharchitects.org.uk/architect_full.php?id=201648, viewed August 2020.

78. F. Steiner, *French Iron architecture*, Ann Arbor, 1984.

79. J. Minnis and P. A. Brown, "Following the tracks of architects, engineers and contractors: a re-appraisal of aspects of 19th century railway architecture", in M. Chrimes (ed), *Early main line railways 2*, York, pp. 327-352.

80. A. Perdonnet and C. Polonceau, *Portefeuille de l'ingénieur des chemins de fer*, 1846, Planches Series K, Pl. 1 Gare de Southampton, Fig. 4-6; Pl. 7 Stations intermédiaires, Londres-Southampton, fig. 5-8 Ditton March & Woking; Pl. 25 Mantes et Vernon; Rouen (Paris-Rouen); 27-28 Batignoles & Sotteville; Plates and descriptions also in S. C. Brees, *Railway practice 4th series*, 1847.

81. "On Exchanges", *CEAJ*, vol. 3 1840, pp. 222-224.

82. *Builder*, 10 May 1873.

83. *CEAJ* vol. 5, 1842, p. 232; M. J. Wells, "Relations and Reflections to the Eye and Understanding: Architectural Models and the Rebuilding of the Royal Exchange, 1839-1844", *Architectural history*, vol. 60, 2017, pp. 219-241; Anne Hultzsch, "To the great public': The Architectural Image in the Early Illustrated London News", *Architectural Histories*, 5, 10.5334/ah.268.

84. Metropolitan Railways Commission, *Minutes of Evidence 1846*, London, 1846, pp. 33-39, 55 and 68-69.

85. *Minutes of Evidence Given Before the Select Committee on Railway Bills, 1845. North Kent Line*, pp. 411-419; *Railway chronicle*, 1848, pp. 837-838.

86. Metropolitan Railways Commission, *Minutes of Evidence 1846*, p. 55: "I had this morning also a drawing, showing the character of the terminus of this railway at London Bridge", pp. 68-69. Mr Locke has not seen that drawing of the terminus'. The Waterloo terminus, which was built,

was described as a 'a mean and poor affair' in P. Waterhouse, "London railway stations", *Building news*, 27 Feb. 1914, p. 289.

87. *Herapath's Railway journal*, vol. 7, 7 June 1845 p. 902

88. These included Samuel Beazley, a former associate of the LSWR engineer Albinus Martin, and John Thomas Emmett. See P. Kay, "Barnes (and the Richmond Railway stations)", *London Railway Record*, 95, April 2018, pp. 42-58; P. Kay, "Mortlake", *London Railway Record*, 103, pp. 362-374; *Rail* 584/2, 3 March 1846.

89. *Railway times*, vol. 15, 1852 p. 835-840; p. 1206.

90. TNA RAIL 411/5, LSWR minute 229, 24 Dec. 1858.

91. Tite requests payment of £ 800, TNA RAIL 411/5, LSWR minute 2390: 28 March 1861.

92. J. Minnis and P.A. Brown, "Following the tracks of architects, engineers and contractors: a re-appraisal of aspects of 19th century railway architecture", in M. Chrimes (Ed.), *Early main line railways 2*, 2019, pp. 327-352.

93. *Bradshaw's Railway Gazette*, vol. 2, 18 Oct. 1845, p. 188.

94. A. J. Pass, *Thomas Worthington: Victorian architecture and society*, Manchester, 1988, pp. 12, 16-17.

95. Obituary of John Dick Peddie (1824-1891), *The Builder*, 21 March 1891; *Scotsman*, 13 March 1891.

96. W. Lizars, *Plan of Caledonian Railway from Edinburgh and Glasgow to Carlisle to accompany Guide to the Caledonian Railway*, Edinburgh, Lizars, 1848; Vignettes by Tite, of Edinburgh and Glasgow termini, Dumfries, Beattock Station, Carlisle Citadel.

97. D. Ross, *The Caledonian: Scotland's Imperial Railway*, 2013.

98. Peter Marshall, *The Scottish Central Railway*, Usk, Oakwood Press, 1998, pp. 121-142.

99. London Metropolitan Archives LMA CLC/B/106, Records of Gresham House Estate Company, 1853.

100. For Clifton, see *The Builder* vol. 56, Jan-June 1889, pp. 22, 52-53, 73, 94. A pupil (1834-1837) of Henry William Inwood, he may have met Porden at that time. He set up in practice on his own in c. 1838, and was appointed District Surveyor for Bethnal Green. In that position he would likely have met Tite professionally over the railway schemes in the neighbourhood. He later took his son William Edward into practice, and William Elliot Hope, as Clifton Son & Hope. Hope had joined his staff c. 1855.

101. F. M Locker, *The evolution of Victorian and early twentieth century office buildings in Britain*, PhD, University of Edinburgh, 1984.

102. Rowley may have joined formally as partner around 1860.

103. A drawing of an arch at Eastbourne church.

104. *The Royal Institution, Albemarle Street: the laboratory*, Engraving by J. Basire, 1818, after W. Tite.

105. *CEAJ*, vol. 15, 1852, pp. 251-256.

106. George Yeldham, "Drawing Board", *Trans. Society of Arts*, vol. 53, 1840, pp. 12-13.

107. N. Jackson (Ed.), *Recollections of Thomas Graham Jackson*, Oxford, University Press, 1950, pp. 58-59.

108. W. Mackenzie, Diary, 13 Jan. 1846, ICE archives, notes "I found Mr Tite making the drawing".

109. C. Cunningham, "The Waterhouse Collection of the RIBA and the Working of a Nineteenth-Century Office", *Architectural history*, vol. 49, 2006, pp. 287-316.

110. C. And P. Cunningham, *Alfred Waterhouse, 1830-1905: Biography of a Practice*, Oxford, Clarendonn 1992.

111. <https://discovery.nationalarchives.gov.uk/details/r/f7902156-400d-4524-aa4b-63befcd81186>, viewed 28 April 2020.

112. A. Saint, *op. cit.*, 2007, p. 113.

113. <http://thewharves.org/history/the-railway/>, visited 28 April 2020.

114. J. Minnis and P. A. Brown, "Following the tracks of architects, engineers and contractors: a re-appraisal of aspects of 19th century railway architecture", in *Early main line railways 2*, pp. 327-352.

ABSTRACTS

This article looks at how William Tite's office practice developed in the context of the financial and professional world in which he lived and worked. The office supported Tite's activities for 50 years from c. 1823 until his death in 1873. He was one of the most successful English architects of the nineteenth century in terms of wealth and general reputation. His principal office was located in the City of London, close to his commercial clients. With the arrival of the railway age, these clients enabled Tite to become a well-known figure in the provision of professional architectural and valuation services to railway companies. Like most practices of the time, his office staff was small and he was only able to provide services by delegating or passing on work to other architects and surveyors, and by establishing sub-offices where necessary. Thus, in the 1840s, he had offices of some form in France, Carlisle, Edinburgh and Perth. His busy schedule meant he frequently provided sketches whilst in the midst of site visits, and he therefore relied on his office staff to provide finished drawings. Ultimately, he had a number of partners who carried on his practice for a further generation.

Résumé en français

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Mots-clés: Mot clef en francais

Keywords: Mots clefs en anglais

AUTHOR

MIKE CHRIMES

Mike Chrimes (BA MLS MBE FICE) worked for the Institution of Civil Engineers for 37 years, retiring as Director of Engineering Policy and Innovation in 2014. He was in charge of the Library and Archives for nearly 30 years, writing a number of articles and books on librarianship and engineering history, contributing to the three volumes of *Biographical dictionary of Civil engineers of Great Britain and Ireland, 1500-1920* (2002-2014). Since retirement he has continued to be active in construction history and is Vice Chair of ICE's Panel for Historical Engineering Works.

Recent publications include: M. Chrimes, "Jesse Hartley in 1797: evidence on the making of the Liverpool Docks Engineer", in James W. P. Campbell *et al.* (eds.), *Iron, Steel and Buildings: the Proceedings of the Seventh Conference of the Construction History Society; Construction History Society*, Cambridge, 2020, [on line] <https://www.arct.cam.ac.uk/research/history-theory/building-histories/the-seventh-annual-conference-of-the-construction-history-society/conference->

proceedings/eighteenth-century; *Early main line railways 2: Proceedings of the conference, York, 2018*, CPI, 2019; H. Ferguson and M. Chrimes *The Consultants*, London, ICE Publishing, 2019.