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The Grand Trunk Standard Stations of 1856 and their architect, Francis Thompson

by David L Jeanes

Abstract: In 1856 the Grand Trunk Railway from Toronto to Montreal, (and its 1859 Detroit extension), included a large number of standardized stone or brick wayside stations. Many of the 150-year old stations survive as designated stations, national historic sites or museums. Francis Thompson, a prolific pioneer of British railway architecture, created the first Italianate stations, the first roundhouses, major bridges (with Robert Stephenson), railway hotels, railway worker housing, and the first known book on railway station architecture. Thompson's formative years had also included important work in 1830's Montreal.

The Grand Trunk Railway of Canada was established in 1852 to link the Atlantic to the Great Lakes, and on 27 October 1856 it joined Montreal with Toronto. The contractors for this segment were the leading British railway builders Thomas Brassey, Samuel Morton Peto, Edward Ladd Betts, and their associate William Mather Jackson. The Grand Trunk continued west of Toronto to Sarnia and then in Michigan from Port Huron to Detroit, built by the leading Canadian railway engineering brothers, Walter and Francis Shanly, for contractor Sir Casimir Gzowski. Francis Shanly also built the Grand Trunk Toronto station and shops, as well as work for other railways.

Francis Thompson as he appeared about 1873. J.W. Thomas; Canadian Centre for Architecture

The stations, bridges, and engine houses, however, were built to standard patterns by both contractors, and their designs were largely the responsibility of the noted British railway architect Francis Thompson and the civil engineer Alexander Mackenzie Ross. Both came to Canada in 1854 and stayed with the Grand Trunk until the completion of the great Victoria Bridge in 1859, designed by Thompson and Ross in collaboration with the famed railway engineer Robert Stephenson. Thompson and Ross then both disappeared from the scene, Thompson returning to England and Ross dying from exhaustion. Neither has a published biography, yet Thompson's architecture survives in many important heritage stations along the Grand Trunk's Ontario and Michigan route.

The wayside or 2nd class stations on the Grand Trunk were possibly the first large-scale pattern stations. They provided a large column-free interior under a low-pitched Italianate-style roof with broad eaves to shelter the platforms. All had an arcaded front and back of round-arched full-height doors and windows, with a regular 9-foot spacing. This permitted great flexibility in configuring the interiors to meet local needs. The stations came in three sizes: Type A with seven arches, Type B with six, and Type C, the most common, with five. The building depth was the same for all, except for a smaller version used in Michigan. Initially none of the stations had projecting bay windows. Kingston, unlike the others, had an attic storey with five dormer windows on each side of a Gambrel roof.

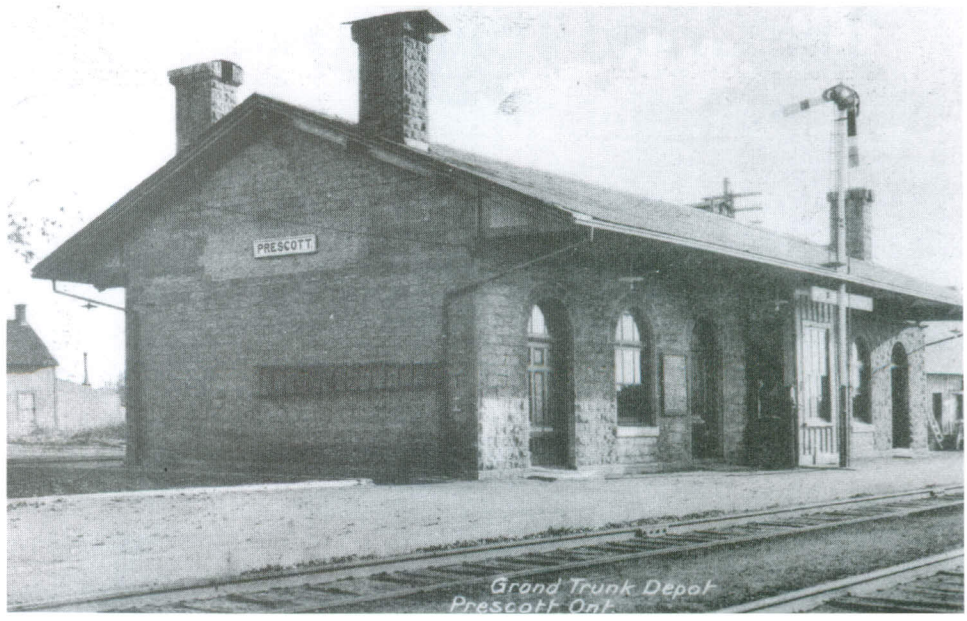
The building materials for the stations varied along the line. Most were of locally quarried stone, and the treatment of the stone around the arches and the quoins at the building corners varied. Some were built entirely of brick, but with brick detailing of arches and quoins similar to the stone stations. Only one of the standard pattern stations is known to have been built of wood, and remarkably it survives, in Port Huron MI, together with thirteen brick or stone stations along the line. The walls were all massively built with great thickness to support the wooden clear span roof trusses. Over the years most of the full-height arches were changed to windows with sills, operator bays were added, and new roofs or other alterations were made to a few of the stations.

Accounts vary of the actual number of these stations, but there seem to have been as many as 35 brick and stone stations between Toronto and Montreal, at least 5 west of Toronto, and 7 in Michigan. There are two National Historic Sites, (Prescott and Belleville), 7 designated heritage railway stations. (Prescott, Kingston, Ernestown, Belleville, Port Hope, Georgetown, and St. Mary's Jct.), and five museums, (Brighton, Port Huron MI, Mt. Clemens MI, New Haven MI, and Smiths Creek, relocated to Dearborn MI).

The 7-bay Type A stations were built only at the most important towns along the line, Prescott (the junction for Ottawa), Cornwall, Kingston, and Port Huron. Only Cornwall has been demolished, Prescott is to be leased to the Glengarry Historic Society, and Kingston is derelict and under threat. 6-bay Type B stations were used at junctions: Belleville, Cobourg, Port Hope, and St. Mary's (for London). The 5-bay Type C buildings served most other stations from

the Ontario/Quebec border to Detroit, but three in Michigan were narrower than the standard, (at Smiths Creek, New Haven, and Fraser).

There were standard outbuildings at the stations: a raised wooden platform typically 200 or 300 feet long, a stone or brick 2-story water tank building, a wood frame men's privy, and one or more long woodsheds. Numerous stations had engine sheds, which were also to a standard design with rectangular or cruciform shape, indoor turntable, and from three to twenty tracks radiating into the wings. The engine sheds were stone or brick with column-free interiors and regular arcades of round-arched windows along the side walls. At least one, at Brockville, survived for over 100 years, but none are still standing. The largest in Ontario were 12-track sheds at Brockville, Kingston, and Toronto. Point St. Charles in Montreal had two cruciform engine houses, later extended to 20 tracks each.



Prescott station is a fine example of a type "A" (7 bay) station. This photo was likely taken in the early 20th century, after the operator's bay window was added. There is no sign of the usual circular attic window.
National Archives of Canada, photo No. PA-112557.

The Midland Hotel in Derby, built in 1841 and still a first-class hotel today. Queen Victoria stayed there in the 1840s. David Jeanes

The architect to the Grand Trunk from 1854 to 1859 was Francis Thompson (1808-1895). He was born in Woodbridge, Suffolk, England where his father George Thompson and uncle Mark Graystoke Thompson were both architects, with several churches to their credit. After initial training as an architect and possible contact with the leading exponents of Italianate style, Sir Charles Barry and Charles Cockerell, Thompson moved to Montreal where he partnered with another East Anglia architect, John Wells. In 1832 they designed a large Italianate style arcaded building for St. Anne's market in Place d'Youville. Its upper storeys were adapted in 1845 for the two chambers and library of Canada's first parliament. Unfortunately it was gutted by fire during the infamous riots in 1849. However, it may well have been the model for Thompson's later railway stations in England and North America.

Also with John Wells, Thompson designed houses, a Presbyterian church, a synagogue, and a jail, all in the Italianate style. He then returned to Britain about 1835. John Wells continued as one of Montreal's leading Italianate architects, designing the grand classical porticoed head office of the Bank of Montreal in Place d'Armes. In Britain, Thompson joined railway builders George and Robert Stephenson as their preferred architect. Thompson's first commission was for the entire railway centre of the North Midland Railway in Derby. It included the enormous one-sided Trijunct station, shared with the Midland Counties and Birmingham & Derby railways. He designed Britain's oldest surviving railway hotel, the first locomotive roundhouse, recently restored worker housing, and a pub for railway employees.

Other North Midland work for Thompson included 24 wayside stations, city stations in Leeds and Sheffield, another roundhouse in Leeds, and tunnel portals along the railway. He turned this work to advantage by publishing his station designs in the first known book on railway station architecture. He also adapted these designs for cottages in the 1853 edition of Loudon's monumental "Encyclopedia of Cottage, Farm and Villa Architecture". Thompson was listed as an illustrator on the first edition, published in 1833. It included a groundbreaking chapter on English Italianate architecture, with contributions from Sir Charles Barry, who was bringing the style to London's clubland. Barry sketched

an Italianate circular stable and carriage house, which has a strong resemblance to Thompson's later full-circle railway roundhouses. The encyclopedia was widely used, also in the United States and Canada, and Thompson's designs are linked to the first American Italianate railway stations. Grand Trunk contractor Sir Casimir Gzowski owned a copy, which he donated to the Institute of Civil Engineers in Canada.

After Thompson's Derby work ended in 1842, Robert Stephenson selected him for the new workshops of the London and Birmingham Railway in London, including the now famous Chalk Farm roundhouse, very similar to his Derby roundhouse. It later became the scene of famous rock music concerts and has now been redeveloped as a theatre. Thompson then was Stephenson's architect for his major bridge projects: the High-Level Bridge at Newcastle, Royal Border Bridge at Berwick, and the Conway and Britannia tubular bridges in North Wales. On these projects he would have worked with Stephenson's assistant engineer, Alexander Mackenzie Ross. Francis Thompson returned to Montreal in 1854 at the same time as Ross, who became chief engineer of the Grand Trunk. Both of them had leading roles in designing the great Victoria Bridge at Montreal.

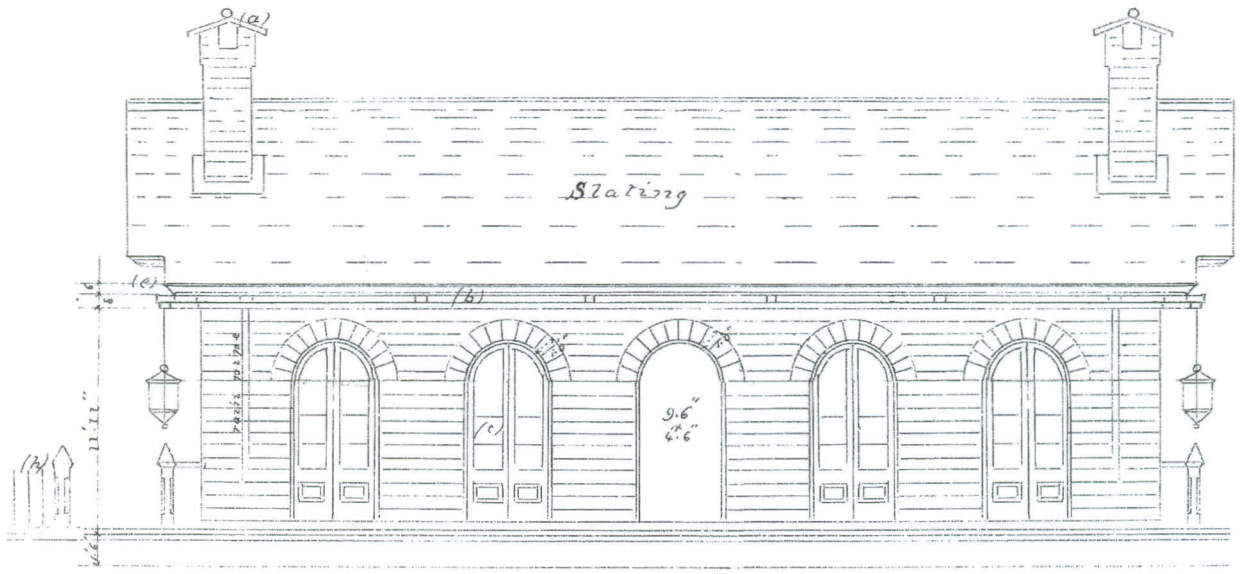
Thompson's roundhouse at Derby as it appears today. David Jeanes

Cambridge station, designed by Thompson. The multiple arches foreshadowed his later design used for the Grand Trunk. David Jeanes

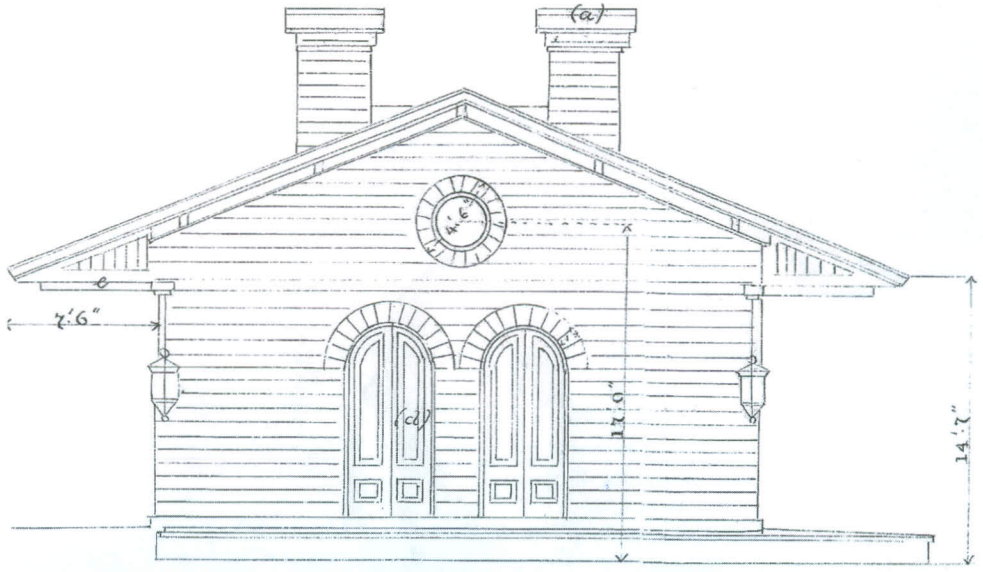
In the meantime Thompson had also worked for the leading contractors Samuel Morton Peto, for whom he designed Italianate stations in east Anglia including Audley End and Cambridge's long single-sided arcaded station. In North Wales he designed the stations along the Chester to Holyhead railway, for which Edward Ladd Betts was a contractor. In Chester, he designed his masterpiece Italianate city station, built by the greatest of railway contractors, Thomas Brassey. A decade later, all these contractors were to play a major part in the construction of the Grand Trunk. It is likely that before 1854 Thompson designed up to about a dozen more enclosed circular roundhouses that appeared on various railways connected with the Stephensons or with Peto and Betts. Thompson may also have worked on Stephenson overseas projects including the tubular bridges over the river Nile, a grand Italianate railway station in Alexandria, Egypt, and stations in Italy.

In Montreal, Thompson's St. Anne's Market had been destroyed five years before, but rebuilt by another architect. He reprised its arcaded Italianate style all along the Grand Trunk Railway, remaining architect to the railway until 1859. His largest station was one of the first, in 1854 at Portland Maine. His trademark single-sided station had a long 19-bay two-storey arcaded headhouse under the overall trainshed roof. It has been called the largest U.S. station of its day, designed to handle the many passengers disembarking from Brunel's ill-fated (economically) steamship *Great Eastern*. But this traffic never materialized. A very similar station was designed in 1855 for the Esplanade in Toronto, almost certainly by Thompson. Though never built, it was clearly the inspiration for the 1873 high Italianate Toronto Union Station, with its three added towers.

Chester station, on the Chester & Holyhead Railway, was also designed by Thompson. The multiple arches are also very prominent in this structure. This is the oldest surviving Italianate-style station in Britain. David Jeanes



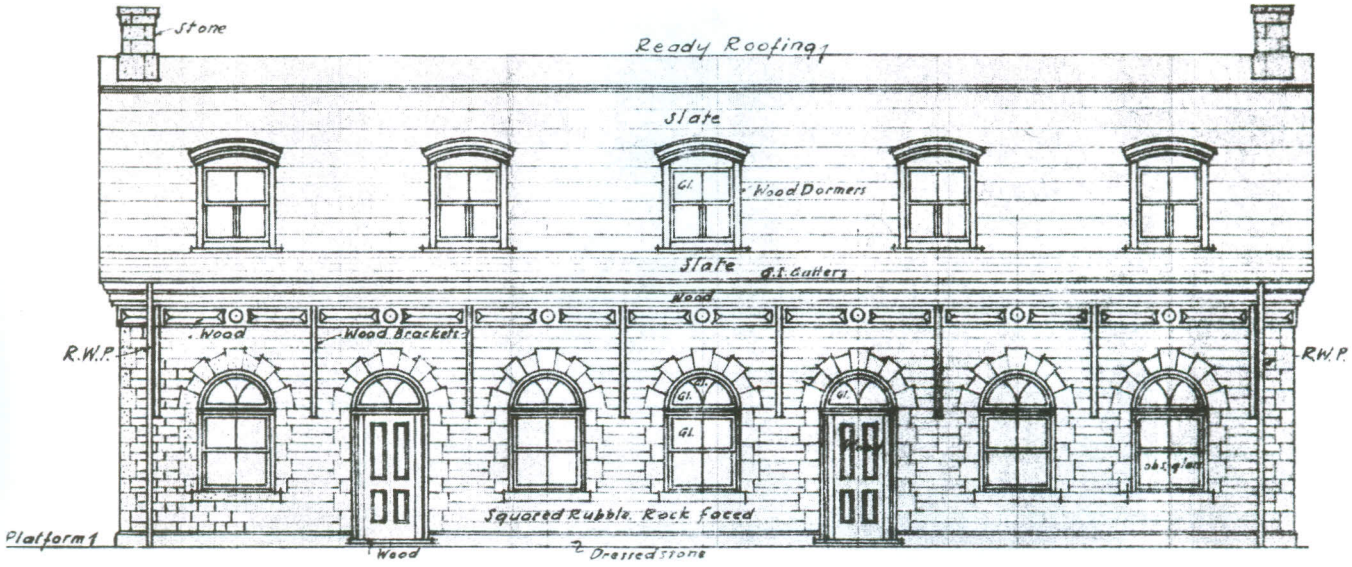
RAILWAY ELEVATION



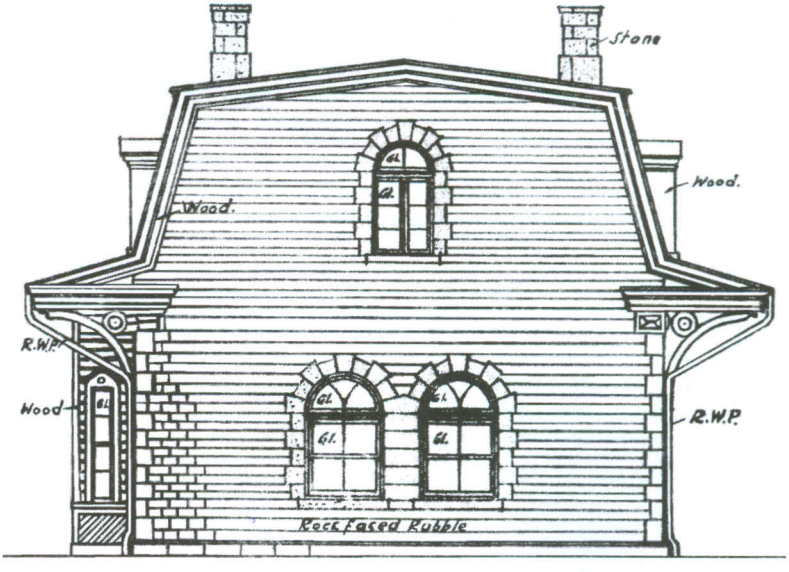
END ELEVATION

ABOVE: Grand Trunk plans of the 1850s, showing the basic dimensions of a standard five-bay station as built in 1856. National Map Collection, Library and Archives Canada

LEFT: Ernestown station is a rare surviving example of a five-bay station that never had an operator's bay window added. No longer used by the railway, it is here shown as it is in 2006. David Jeanes



SOUTH ELEVATION.



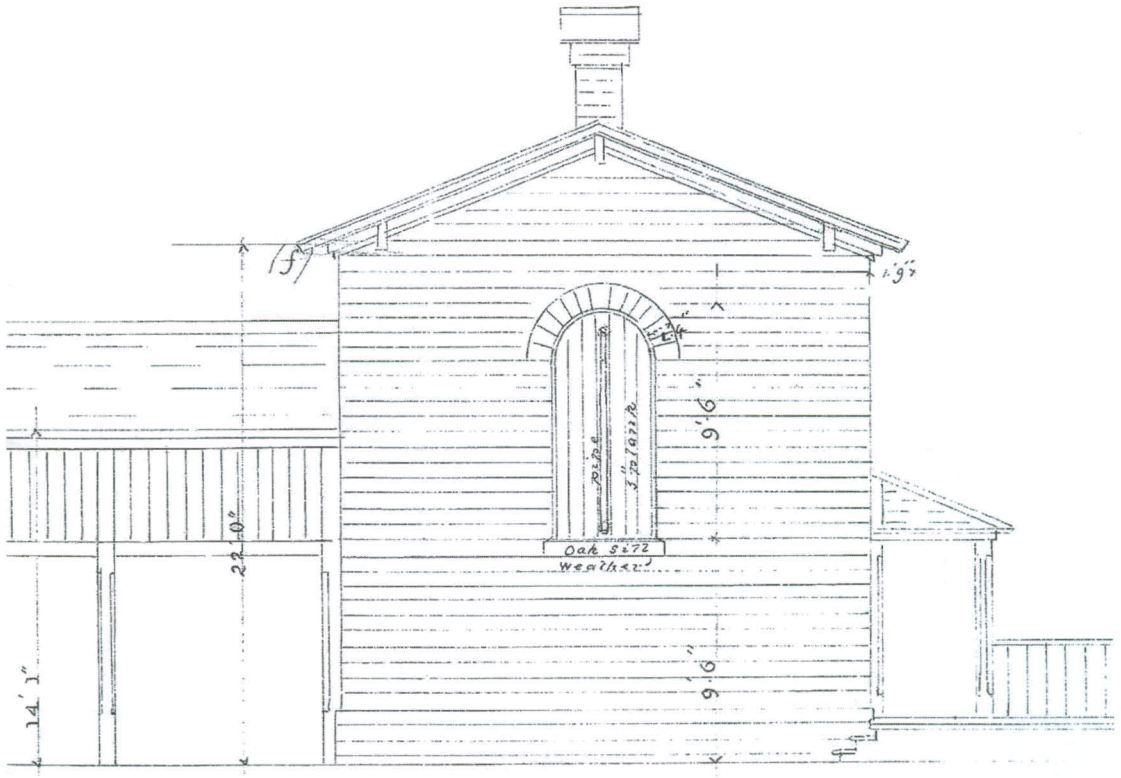
EAST ELEVATION.

Kingston station in a 1925 plan, made by Canadian National Railways two years after they took over the Grand Trunk. C. Robert Craig Memorial Library, Ottawa, Ontario

The wayside stations were built west from Montreal, though all the known stations as far as the Canada West (Ontario) border were wood frame. Once across the border the stone stations started at Lancaster and continued every few miles to Brockville. The central section of the line was commenced at Kingston, where the resident engineer for the contractors, Frederick James Rowan built the 7-bay Type A wayside station with an attic and five dormer windows each side under a gambrel roof. Census records and a Canadian National 1925 drawing showthat it was living accommodation, probably originally for the female staff of the restaurant. Kingston also still has a row of stone workers' terrace houses (see page 239), designed by Thompson and similar to his 1839 Derby terrace houses. There once was a large 12-stall cruciform engine house north of the station. East and west from Kingston, the stations were built from the same Kingston limestone, except at Brighton and Colborne where locally manufactured brick was substituted.

Thompson probably assisted Alexander Ross with the design of the tubular bridge at St. Anne de Bellevue with which Stephenson was not involved, as well as stonework for the various tubular deck bridges along the route, including the very tall stone piers at Kingston Mills. All the bridges were assembled from prefabricated and pre-drilled cast iron segments from Peto, Brassey and Betts' Canada Works, in Birkenhead, England. In 1855 Alexander Ross directed that construction west of Toronto should meet the same standard for bridges and stations. Gzowski's chief engineer, Walter Shanly, was summoned to Point St. Charles where he was very impressed by the station and workshops with their "new style" roofs. In July 1855, station drawings approved by Alexander Ross were received by the resident engineer, Frank Shanly, in Toronto.

Thompson's standard wayside stations then appeared in rapid succession at Brampton (brick), Georgetown, Guelph, Berlin (Kitchener, also brick), perhaps Stratford, and St. Mary's Junction. Tubular iron deck bridges manufactured at Birkenhead also appeared west of Toronto at Georgetown and Guelph. Standard engine houses, approved by Ross, were built along the line, including a 3-stall version at Guelph and later a larger one at Point Edward (Sarnia). Walter Shanly was certainly impressed with the Grand Trunk's station and engine house architecture, according to letters to his brother Frank, after visiting Point St. Charles and Prescott. Frank reused elements of these designs, particularly the engine houses and the water tank buildings, on projects that he undertook in 1858 and 1859 as contractor for the Grand Trunk along Toronto's Esplanade and the Northern Railway from Toronto to Allandale, and possibly the Welland Railway for which he was chief engineer from 1856.



A drawing of one of Thompson's outbuildings of the 1850s on the Grand Trunk. These would include an enclosed water tank, a woodshed and a privy. None of these structures has survived. National Map Collection, Library and Archives Canada

Thompson's full-circle domed roundhouses also appeared in Portland, Sherbrooke, and in 1860 in Toronto. Similar ones appear in early views of Brantford, Detroit, and even Brockville's waterfront, and may have been influenced by him. The enclosed circular design ceased to be used in Britain about the time that Thomson left for Canada. The most extensive use on American Railways was by Benjamin Latrobe Jr. on the Baltimore & Ohio, where one post-civil war rebuild survives at Martinsburg WV (the other was destroyed by vandalism in the 1990s). Latrobe had worked in England and was closely associated with Frank Shanly, who built the Toronto domed roundhouse, probably to Thompson's design.

A view of the original Kingston station as it appears today, fire-ravaged and deteriorated, but still standing. Here, on October 27, 1856, occurred the first meet between the Montreal-Toronto passenger trains. Fred Angus

But the masterpiece in Canada was the Victoria Bridge. It was built between 1854 and 1859 by Peto, Brassey and Betts' chief engineer, James Hodges, with whom Thompson had previously worked on railway projects in East Anglia. Though Hodges' account of the bridge does not mention Thompson, who was not on his staff, a book by Hodges' assistant engineer Charles Legge, "A Glance at the Victoria Bridge and the Men who Built It", lists "Francis Thompson, Esquire, Architect" together with "Robert Stephenson, Alexander M. Ross, Esquires, Associated Chief Engineers of the Victoria Bridge" separately from Peto, Brassey and Betts' employees and subcontractors. The tubular bridge stonework included 24 massive piers and two partially enclosed abutments. It was the longest bridge in the world when completed, at 9184 feet long (over 2.8 km) with 3 million cubic feet (nearly 90,000 cubic meters) of masonry.

CONSTRUCTION OF THE GREAT VICTORIA BRIDGE, IN CANADA.

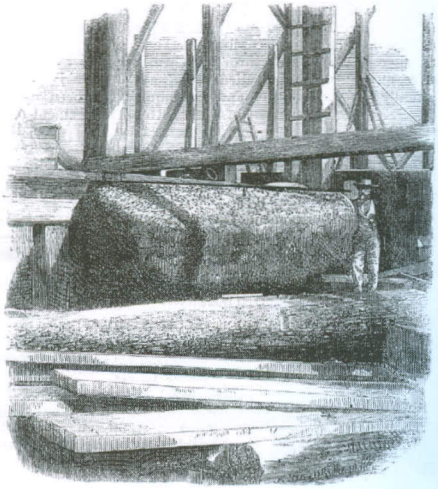


Fig. 2. *A Boulder in the way.*

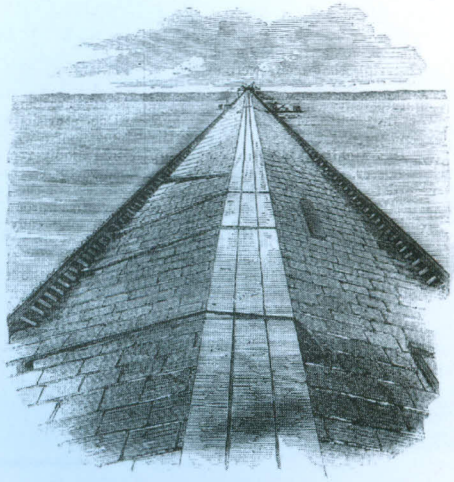


Fig. 3. *Roof of Tube.*

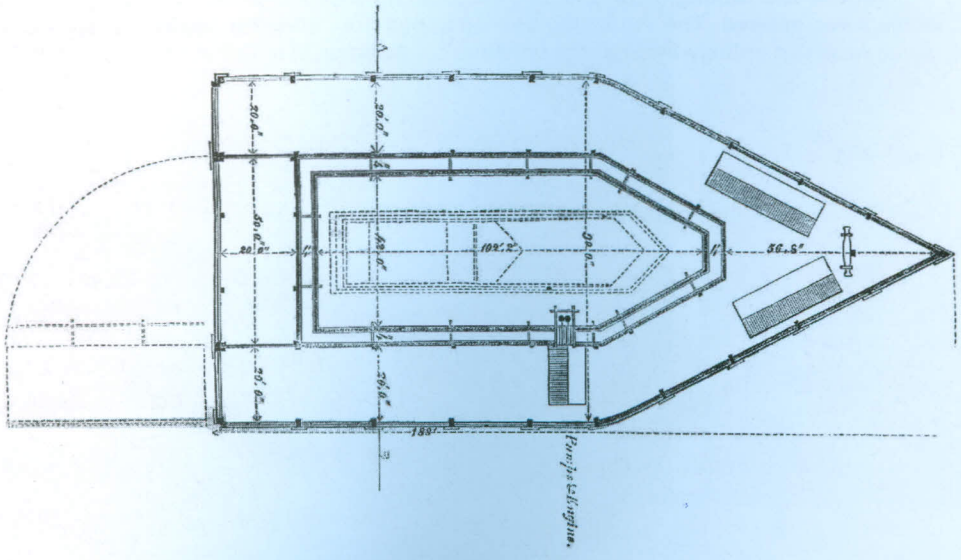


Fig. 1. *Floating Dam, or Caisson, for Piers,*

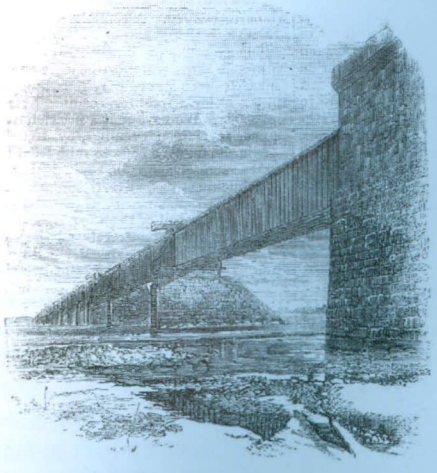


Fig. 4. *External View.*

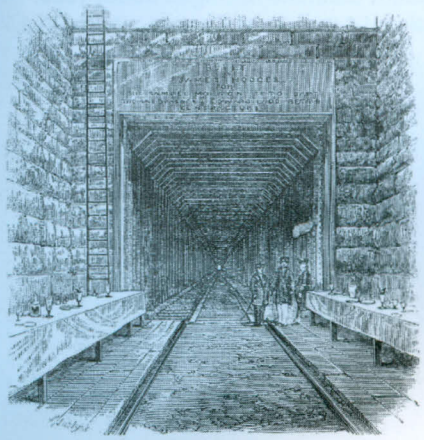
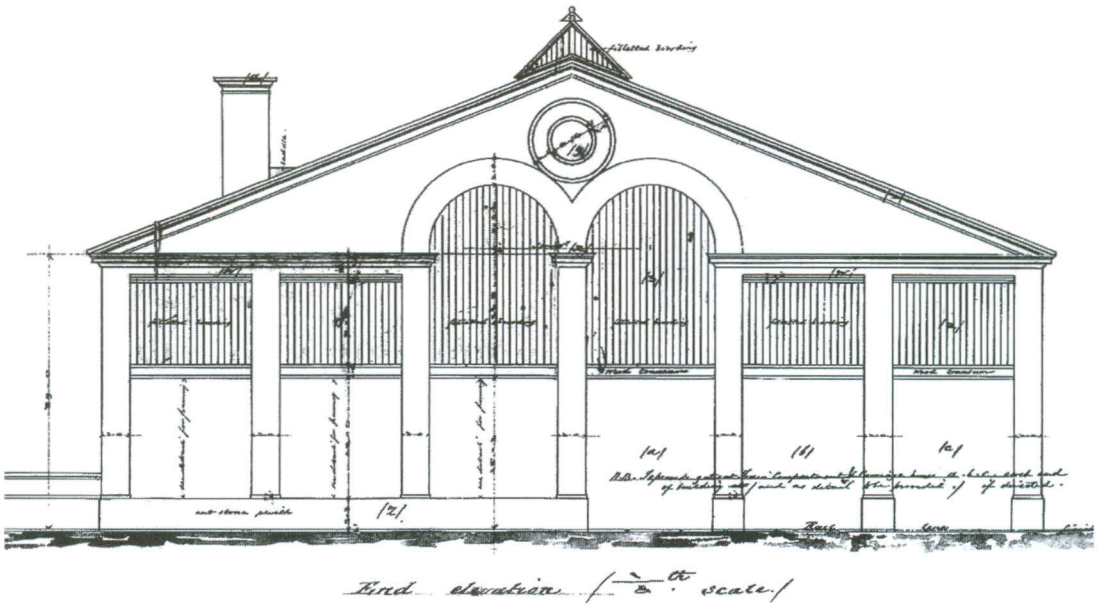


Fig. 5. *View down the Tube.*

In 1860, the English magazine *The Builder* published these five illustrations of aspects of the construction of Victoria Bridge. Note the dinner tables set up in the abutment - either for the 1859 or 1860 celebration. Collection of Fred Angus



Francis Thompson's 1855 plan for the large station at Toronto. This structure was never built. From the left, the first two openings are for the head house and waiting room, the next (large arch) is for the platform, and the next (also a large arch) is where the trains would have entered. The remaining two openings are "stabling tracks" where extra equipment was kept. Only one track would have run entirely through the building. National Map Collection, Library and Archives Canada

A lively scene at Mount Clemens Michigan about 1860. The station is a brick type "C" structure with five bays. This station is still standing. National Archives of Canada, photo PA-138693.

Another surviving brick station is Brighton, now a railway museum. David Jeanes

The Grand Trunk between Toronto and Montreal had opened on 27 October 1856, with all its stations, and had already been completed west of Toronto, for example to Berlin (Kitchener) by 1 July. The Victoria Bridge and the extension beyond the train ferry at Point Edward (Sarnia) to Detroit would not be completed until 1859. But then the work was done for the railway builders who had come from England in 1854. James Hodges and Francis Thompson both returned to England where Thompson had retired by 1881 to his birthplace, where he died in 1895. Alexander M Ross retired and died of exhaustion in 1862, but James Hodges returned to Canada to try to establish a locomotive peat fuel business

Some recent photos of the 1856 station at Port Hope, still in use by VIA today.

RIGHT: Exterior view. David Jeanes

BELOW: Interior view. The wood-work likely does not date back to 1856, but it is certainly very old. Fred Angus

BELOW RIGHT: A 19th century light fixture, now electrified, still performing its original function. Fred Angus

BOTTOM: Looking west from Port Hope. Near here the locomotive started on its first run across the Albert Viaduct, completing the track from Montreal to Toronto on October 13, 1856. Around the curve begins the downgrade to Port Britain, three miles away, where locomotives and supplies were landed during construction. Note the brick bay window; a later addition. Fred Angus

with Walter Shanly and other former Grand Trunk associates. He went to Peru to build seaport facilities in 1874 before retiring to England.

Francis Thompson's legacy survives in many Grand Trunk wayside stations built from 1854 to 1859. Belleville (with an added Mansard roof), and Port Hope are still active VIA Rail stations. Georgetown, heavily altered, serves VIA Rail and GO Transit. Napanee has its original waiting room at one end, though it is owned by the town. Prescott, Kingston (outer station), Ernestown, and St. Mary's are still in CN ownership with some doubt about their futures, though Prescott will be

ABOVE LEFT: Prescott station as it appears in October 2006. Fred Angus

ABOVE: An example of first rate masonry work is this arch in Prescott station, still true after more than 150 years. Fred Angus

Historical society to lease train station

By Derek Abma

PRESCOTT — A new use for the old Prescott train station is just down the track. Town council has approved a deal to lease the station building on Railway Avenue to the Grenville County Historical Society for $1 a year for 50 years. However, the town still has to wait for Canadian National (CN) Railway to officially turn over ownership of the station to the municipality, as promised. Various authorities need to sign off on the donated-land transfer, such as the federal and provincial governments, said Robert Haller, Prescott's chief administrative officer. He said it will likely be another three months before everything is finalized. The historical society is looking to turn the old station into its resource centre. The current one is located on Edward Street. It's a place where people can access records to research things like genealogy and the history of the area. Valerie Schulz, vice-president of the historical society, said the train station will serve the same function as the current resource centre and more. "I think it will be an attraction just on its own, just to have the train station opened to the public," she said. "Hopefully, we'll be able to show some of our artifacts, which we're not able to do (at the Edward Street location)." Schulz added that the owner of the Edward Street building, the Knights of Columbus, is looking to sell the property. She said the society would not be able to afford the heating costs at that site, known as the Crane Building. The train station was built in 1855. It ceased functioning as a full-service train station in the 1970s though passengers were still picked up and dropped off there until 2001.

Schulz said the historical society hopes to move its operations to the train station by May or June. In the meantime, there's much work to do. She said the priority is to fix the roof. More works needs to be done on the inside ceilings and walls and one of the two washrooms there is to be converted into storage space. Schulz added that the exterior of the building will be turned back to its original green, though this work might be ongoing after it opens as the historical society's new resource centre. Haller said the town is working with CN to allow the historical society access to the building before the ownership change so that work can begin on fixing the roof. Schulz said it would be desirable for the roof work to be done before winter. She would not disclose the anticipated cost of the renovations planned for the train station, but she did say some fundraising would be taking place for it.

Brockville Recorder & Times, September 20, 2006.

leased to the Glengarry Historical Society. Brighton's station is now privately owned as an indoor and outdoor museum of railway memorabilia. Known as Memories Junction, it is well worth a visit, but its long-term future is also in doubt.

In Michigan, the surviving Thompson-designed stations are in much better health. One is a fine museum in the wooden 7-bay station under the Blue Water bridge at Port Huron. Mount Clemens Station is also a museum, and Smiths Creek station has been relocated to Greenfield Village museum at Dearborn MI. New Haven's station has also been beautifully restored with the hope of creating a transit museum. The largest station on Michigan's original Grand Trunk line was at West Detroit and was 10 bays long, but no pictures seem to have survived.

Note: The only substantial account of the work of Francis Thompson appeared in Oliver Carter, "Francis Thompson 1808-95 - an architectural mystery solved", Backtrack Magazine, Volume 9, Number 4, April 1995, pp 213-216. Carter had intended to publish a biography, but it never materialized. The article mentions but does not focus on the Canadian buildings. There is no comprehensive published list of Thompson's buildings.

David L. Jeanes, a professional engineer, recently retired from 31 years in high-tech and telecommunications research. He is now president of Transport 2000 Canada, a volunteer advocacy group

In stark contrast to the Thompson stations in Canada West, the GTR station at Riviere du Loup, here seen about 1860, is of a completely different design, as were all those in Canada East. It was part of the 1858 contract, and was designed by Pierre Gauvreau. The engine house in the background is typical of those in both Canada East and Canada West. National Archives of Canada, photo PA-164654.

Another Thompson-designed structure, still in very good condition, is the "Grand Trunk Terrace" in Kingston. Located near the old station, these houses were built about 1854 to accommodate railway employees at this important point. The houses are much like those designed by Francis Thompson for Derby in 1839. During construction they were probably used by the contractors. To the right is the structure as it appears today, and above is the historical plaque affixed to the building. Photos by Fred Angus

for public transport, and vice-president of Heritage Ottawa, dedicated to preserving built heritage. He is also a member of several model railway and railway history associations. With his son Andrew, who is studying railway station heritage, he presented the history and architecture of Ottawa's former Union Station at NMRA Capital Express in 2001 and Maple Leaf in 2003, and at CRHA/CARM in 2004, and this work at CRHA/CARM in 2006, plus other talks on bridges, trainsheds, and grand railway stations. He has organized and led Doors Open tours of Ottawa's 1912 and 1966 stations, and has assisted with tours of Toronto Union Station for which he sits on the City of Toronto Public Advisory Group.

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