

The Engineers' Engineer: Sir John Kennedy and the Port of Montreal

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Résumé de l'article

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RICHARD WHITE¹

Résumé : Cet article dresse le portrait et analyse la carrière de l'ingénieur civil canadien Sir John Kennedy (1838–1921) et discute les aspects de sa carrière qui révèlent les valeurs professionnelles des ingénieurs du début du vingtième siècle. Kennedy était un ingénieur réputé à son époque. Il siégea à la présidence de la Canadian Society of Civil Engineers (CSCE) en 1892, et il est l'un des rares ingénieurs à avoir été fait chevalier. Kennedy passa une grande partie de sa carrière comme ingénieur en chef de la Commission du port de Montréal, en qualité de quoi il supervisa le draguage du fleuve Saint-Laurent et la reconstruction complète du port de Montréal – deux projets qui débouchèrent essentiellement sur le port moderne de Montréal. Cette étude détaille ces travaux de construction et le rôle de Kennedy dans les travaux. Kennedy était tellement adulé par ses pairs que, à la suite de son décès, la CSCE baptisa sa distinction professionnelle la plus élevée de son nom, le transformant littéralement en icône professionnelle. L'auteur tient compte de ce fait pour montrer que le style et les valeurs professionnelles de Kennedy – sympathie, pragmatisme et civisme – incorporent évidemment l'idéal des valeurs professionnelles de l'époque.

Abstract: This article gives an overview and analysis of the career of Canadian civil engineer Sir John Kennedy (1838–1921), and comments on what Kennedy's career reveals of the professional ideals of early twentieth century engineering. Kennedy was a highly regarded engineer in his day. He served as an early President of the Canadian Society of Civil Engineers (CSCE) in 1892 and is one of the few Canadian engineers to have been knighted. Kennedy spent most of his working life as Chief Engineer of the Montreal Harbour Commission, in which capacity he oversaw the deepening of the St Lawrence River channel from Quebec to Montreal and a complete reconstruction of the Montreal harbour – two projects that essentially made the modern Port of Montreal. The study provides details of these construction jobs and of Kennedy's role in the work. So well regarded was Kennedy by his peers that shortly after his death the CSCE named its highest professional award after him, making him literally a professional icon. The author takes this to indicate that Kennedy's professional style and values – congenial, practical, and public-spirited – evidently embodied the professional ideals of the time.

Historians of English Canadian engineering must contend with a persistent, and at times rather frustrating, historiographical dichotomy. On the one hand are decidedly unsympathetic studies of professionalization, with its monopolistic and status-seeking functions, and on the other celebratory histories of the profession's great practitioners and

¹ This paper is based on the author's historical assessment of John Kennedy's career, done under contract for Parks Canada. The author would like to thank Parks Canada historian Robert Passfield for guidance in the work, and Parks Canada generally for permission to use the project research base for subsequent scholarly publication. The generous assistance of Denise Duguay, archivist at the Montreal Port Authority, was essential, and much appreciated, as were the comments of the paper's anonymous reviewers.

grand contributions. Thus we have Rod Millard's well known *The Master Spirit of the Age*,² as well as works such as Andrew Wilson's collection *From Steam to Space: Contributions of Mechanical Engineering to Canadian Development* and Lorne Greene, *Chief Engineer: Life of a Nation Builder – Sandford Fleming*, but little in between.³

Some might say this historiographical polarity reflects just a scarcity of published work – of too few shots to fill the target, as it were. While there might be some truth in this, it is not a sufficient explanation. The phenomenon in fact reflects a deeper polarity of motives, and sympathies, found to a degree in the study of other professions too. Analysts who study professionalization seem generally to be motivated by a wish to expose the profession's exclusionary tactics and abuse of regulatory power; they also tend to be professional outsiders, often academics, with little affinity for the professions they study. Those of the other school, who concentrate on professional accomplishments, seem to have little but affinity for their subjects; they are generally professional insiders, disinclined to see flaws or mistakes, who are spurred by a need to rectify what they perceive as a public under-appreciation of their profession.⁴ Few historians seem to study the professions with broader motives and those who do, interestingly enough, tend to be historians or sociologists of *the professions* rather than of *a profession*.⁵ Whatever the cause of this, the result is that subjects having little to offer either of the two poles remain comparatively unexplored. Thus in Canadian

2J. Rodney Millard, *The Master Spirit of the Age: Canadian Engineers and the Politics of Professionalization* (Toronto: University of Toronto Press, 1988), a book once described by an engineer, in informal conversation with the author, as a book by someone who "does not like engineers".

3Andrew Wilson, ed., *From Steam to Space: Contributions of Mechanical Engineering to Canadian Development* (Ottawa: Canadian Society of Mechanical Engineers, 1996); Lorne Greene, *Chief Engineer: Life of a Nation Builder – Sandford Fleming* (Toronto and Oxford: Dundurn, 1993); see also reviews of Wilson by Jean-Francois Auger, *Scientia Canadensis*, 49, Vol. XX (1996) and of Greene by Norman Ball, *Canadian Historical Review*, Vol. 77 (4), 1996 in which scholarly reviewers take on the internalist, uncritical history.

4English-language engineering history outside Canada is not so limited. Such English historians as R.A. Buchanan and Mike Chrimes have consistently produced work that is both informed and critical, while American authors like Edwin T. Layton, Terry Reynolds, and Bruce Seeley, to name only a few, have built up an essential body of work on the profession. The American literature might be criticized for concentrating more on rhetoric than reality, at least in its early days, but it makes an invaluable contribution nonetheless. One is thus tempted to look at Canadian circumstances to explain this phenomenon, and when one does one sees two factors – the lack of institutional home for the history of professions, and the continuing preponderance of the 1970s "conflict" model in academic history.

5R.D. Gidney and W.J.P. Millar, *Professional Gentlemen: The Professions in Nineteenth Century Ontario* (Toronto: University of Toronto Press, 1994); Andrew Abbott, *The System of Professions: An Essay on the Division of Expert Labour* (Chicago: University of Chicago Press, 1988); Eliot Friedson, *Professionalism: The Third Logic* (Cambridge, U.K.: Polity Press, 2001) – this last book is a splendid and highly original work that takes professionalism very seriously, going beyond the "conflict" model of analysis.



Portrait of John Kennedy
Source: *Transactions of the Canadian
Society of Civil Engineers*

engineering history one finds plenty about nation-building and gate-keeping but little about more neutral matters like professional apprenticeships, the day to day work of professional practice, or the values and customs of the profession's own culture.⁶

It is with such thoughts in mind that one can approach the history of Canadian civil engineer John Kennedy (1838–1921), Sir John Kennedy as of New Years Day 1916. Kennedy is an unusual and quite illuminating case. Within the engineering profession he was and still

⁶ At the recent symposium on professional education, "Learning To Practice", held at the Congress of Humanities and Social Sciences in Halifax, 28 May 2003, the need to learn more about professional apprenticeships was discussed at length. Especially notable was Bob Gidney, "'Madame How' and 'Lady Why': Learning to Practice in Historical Perspective"; publication of the papers is still in process.

is a celebrated name – one of only six Canadian engineers to be knighted⁷ – and his name lives on in the Engineering Institute of Canada's Sir John Kennedy medal, awarded for the highest level of professional engineering achievement. As Chief Engineer of the Montreal Harbour Commission for over thirty years, Kennedy oversaw a complete reconstruction and modernization of the port of Montreal and the St Lawrence shipping channel, and for this accomplishment he is roundly admired. Yet outside the engineering world Kennedy is unknown. One can search high and low in Canadian historical literature, popular and academic, without finding his name.⁸ Perhaps this combination of accomplishment and obscurity would, on its own, justify a study of his life and work. But the greater value of Kennedy as a subject of historical analysis is that, having been so deeply admired by his own professional confreres – indeed after his death his career was declared the epitome of professional excellence – his methods and values surely must reflect the professional ideals of his time. What we have in Kennedy, in other words, is a thoroughly documented example of the early 20th century Canadian engineering profession's idea of its own greatness – an unusually clean and limpid window into a profession's past.

One further point of interest is that Kennedy's history has come to light through the efforts of Parks Canada and the Historic Sites and Monuments Board of Canada, which in turn were led to him through the urging of the history committee of the Engineering Institute of Canada. This latter point is telling. Parks Canada, having decided to commemorate Canadian engineers and engineering sites of national historic significance, turned for advice not to academic historians but to the historically minded members of the engineering profession.⁹ Only by reaching beyond the historical profession into the engineering world – where engineering accomplishment is still admired – did it come upon

⁷This number, for which there is no official source, was provided to the author by Andrew Wilson, at the time Chair of the History Committee, Engineering Institute of Canada.

⁸This, at least, was the author's experience when embarking on a study of him. For example, Robert Lewis, *Manufacturing Montreal: The Making of an Industrial Landscape, 1850–1930* (Baltimore and London: Johns Hopkins University Press, 2000), 39–40 and 60–63; Jean-Claude Marsan, *Montreal in Evolution*, (Montreal: McGill-Queen's University Press, 1981), 170 and Paul-Andre Linteau, "Le Développement du Port du Montréal au Début du 20^e Siècle", Canadian Historical Association, *Historical Papers*, 1972 all cover Kennedy's world of work but make no mention of Kennedy himself.

⁹In their efforts to identify possible engineers, engineering events, and engineering landmarks for commemoration, Parks Canada worked closely with the history committees of the Canadian Society for Civil Engineering and the Engineering Institute of Canada and surveyed Canadian engineering societies and provincial heritage agencies; academic historians were, quite deliberately, almost totally ignored. See Commonwealth Historic Resource Management Ltd., "Historic Engineering Landmarks Project, Framework Study" (Parks Canada, November 1997), Appendix, 9–12.

John Kennedy, reminding us of the historiographical solitudes described above, and – need one say it – that professional historians do not have a monopoly on knowledge of the past.¹⁰

Early Life and Apprenticeship

John Kennedy – he never used a middle name or initial – was born in the Grenville County village of Spencerville, Upper Canada, in 1838, the first son of William Kennedy, a Scottish millwright who had immigrated to Canada in 1832, and his wife Agnes (née Stark) of Quebec.¹¹ The Kennedy family was evidently of a respectable social position, and reasonably well off, for young John was educated first at home by private tutors and then at the Bytown Grammar School. At the age of fifteen, with his academic education completed, Kennedy elected to pursue engineering. The profession was in the Canadian air in the late 1840s, and many a young man was drawn into it as Kennedy was. The high profile of the first Canadian railways, along with a general enthusiasm for things technological and the willingness of the Canadian Board of Works to spend public money on physical infrastructure, made engineering an attractive and sensible choice for a well-educated lad with mechanical and mathematical aptitude.

The first step in engineering education at the time, after gaining secondary academic credentials at a grammar school or private academy, was to obtain a junior position with an established engineer, and this Kennedy did with T.C. Keefer in his Montreal office in 1853.¹² Keefer was at the time engaged on the design and construction of Montreal's new waterworks (completed in 1856).¹³ Kennedy thus began an apprenticeship of sorts with Keefer. That is not to say that any formal arrangement was made, as was the custom in England, or that Keefer accepted responsibility for his pupil. There is no sign of either,

¹⁰ Sir John Kennedy was designated a person of national historic significance by the Minister of Canadian Heritage in December 2000. A bronze plaque will be erected in the Port of Montreal to commemorate his achievements.

¹¹ Biographical material is drawn primarily from Henry James Morgan, *The Canadian Men and Women of the Time* (Toronto: W. Briggs, 1898), 527–28; Charles G.D. Roberts and Arthur L. Tunnell, *A Standard Dictionary of Canadian Biography* (Toronto: Trans-Canada Press, 1934), 287–89; “Appointment of Montreal Harbor Engineer”, *The Canadian Engineer*, 15 Feb. 1907, 19–20; “Sir John Kennedy, K.B., Hon.M.E.I.C.”, *Journal of the Engineering Institute of Canada*, 1921, 581–82.

¹² Richard White, “Professionals Before Professionalization: The Pre-Confederation Civil Engineers”, *Scientia Canadensis*, 52 (2000).

¹³ Christopher Armstrong and H.V. Nelles, *Monopoly's Moment: The Organization and Regulation of Canadian Utilities 1830–1930* (Philadelphia: Temple University Press, 1986), 15–17; Letty Anderson, “Water Supply” in Norman R. Ball, ed., *Building Canada: A History of Public Works* (Toronto: University of Toronto Press, 1988), 203.

although from what we know of nineteenth-century engineering apprenticeships in Canada and the United States this was not unusual.¹⁴ Kennedy worked for Keefer off and on until 1861, assisting him in his work deepening the St Lawrence ship channel and building the Hamilton waterworks; he also apparently attended Keefer's engineering lectures in the short-lived civil engineering program at McGill University in the late 1850s.¹⁵

In 1863, after ten years of study and short-term work, he was appointed Assistant City Surveyor for the City of Montreal, and with this, his first independent professional job, the twenty-five year old Kennedy became a recognized professional engineer. By the convention of the time the rank assistant engineer carried with it an informal professional certification¹⁶ and the same almost certainly would have applied to the rank of assistant city surveyor. There were no official bodies in British North America to certify professional engineering competence; recognition in the form of being hired to an "assistantship" by one's senior peers was the only certification possible, or that mattered. Such recognition, though it appears informal to us now, was not casually or hastily granted; Kennedy's long ten-year apprenticeship was probably not unusual.

Kennedy stayed for just four years with the City of Montreal, resigning in 1867 to take on the job of managing the mines and smelting works of the Hull Iron and Manufacturing Company in Ironside, Quebec. Soon disenchanted with this, he left to join his family's foundry and machine shop business in Owen Sound, Ontario. But the move west brought Kennedy to a region hot with railway fever, and in 1870, shortly after arriving, he was hired by the Great Western Railway as

¹⁴ Kennedy worked for Keefer's successor on the Montreal waterworks, Robert Forsyth, as well, so he was not bound to work exclusively for Keefer. Daniel Covey Calhoun, *The American Civil Engineer: Origins and Conflict* (Cambridge, Mass.: The Technology Press, 1960) writes (p. 48) that in the US in these years apprenticeship "meant little more than that the younger [engineer] began his career working under the older on some major project." For the apprenticeships of two Canadian engineers in the 1840s see Richard White, *Gentlemen Engineers: The Working Lives of Frank and Walter Shanly*, (Toronto: University of Toronto Press, 1999), Chapter 2. For a brief description of the more formal British system, see R.A. Buchanan, *The Engineers: A History of the Engineering Profession in Britain, 1750-1914* (London: Jessica Kingsley, 1989), Chapter 9.

¹⁵ Kennedy's attendance at McGill is mentioned in several obituaries, but there is no record of his registration at the university in the McGill University Archives; Keefer's course was likely not officially part of the university's offerings. Stanley Brice Frost, *McGill University: For the Advancement of Learning*, Volume 1, 1801-1895 (Montreal: McGill-Queen's University Press, 1980), 188; T.C. Keefer, "Extracts from Lectures on Civil Engineering", in H.V. Nelles, ed., *The Philosophy of Railroads* (Toronto: University of Toronto Press, 1972), 93-103. For the dates of his years with Keefer, I.C.E. Library (London, England), Candidate's Circular, John Kennedy (elected 7 Dec. 1875).

¹⁶ This is the author's general impression gained reading a range of primary material from the period.

resident engineer in charge of building that company's new extension from Guelph north-west through Wellington, Grey and Bruce Counties to Owen Sound. The Great Western's Chief Engineer, George Lowe Reid, must have been elated at finding such a capable and experienced engineer in what was then the remote hinterland of west-central Ontario. Quickly recognizing Kennedy's abilities, Reid brought him to the chief engineer's office in Hamilton in 1872 to supervise construction of the railway's further expansion in southern Ontario.¹⁷ Then, upon Reid's return to England later that year, Kennedy was appointed the railway's Chief Engineer – an exceptionally fast rise through the ranks of a major railway company.¹⁸

With several years of expansion now completed, and the company about to change its entire management structure, Kennedy soon moved on. In 1875 he accepted an offer from the Montreal Harbour Commission to fill their newly created position of chief engineer, in which capacity he would oversee a long-term expansion of their shipping and port facilities. This was the critical event of Kennedy's career. He would never be employed anywhere else. Now a fully proven civil engineer, Kennedy joined the professional establishment by being elected, on the recommendation of the Great Western's George Lowe Reid, to the Institution of Civil Engineers in England.¹⁹

The Saint Lawrence Ship Canal

Deepening the ship channel in the St Lawrence River from Quebec to Montreal, and thus increasing the river's commercial capacity, had long tantalized the commercial interests of Montreal.²⁰ The allure is not hard to understand. With the river in its natural state, large ocean-going ships bound for Montreal had to dock at Quebec to off-load part of their cargo to smaller river craft (lightening their load lessened their draught)

¹⁷ His correspondence as Chief Engineer is well represented in Archives of Ontario, Frank Shanly Papers, MU2671, Correspondence files, various letters from Kennedy to Frank Shanly in 1873; for more on this project from the contractor's perspective see Richard White, "Losing Ventures: The Railway Construction Contracts of Frank Shanly, 1860–1875", *Canadian Historical Review*, 79, 2, June 1998, 237–60.

¹⁸ Reid would likely have known Kennedy by reputation prior to appointing him on the Great Western; if so, this would help explain his rapid promotion.

¹⁹ I.C.E. Library (London, England), Candidate's Circular, John Kennedy (elected 7 Dec. 1875).

²⁰ Early work on the channel is covered in William Henry Atherton, *History of the Harbour Front of Montreal* (Montreal, 1935), 5–9; Laurence Chalmers Tombs, *The Port of Montreal* (Montreal, 1926), 18–24; Gerald J.J. Tulchinsky, *The River Barons: Montreal Businessmen and the Growth of Industry and Transportation 1837–53* (Toronto and Buffalo: University of Toronto Press, 1977), 81–87; "Sir John Kennedy", Harbour Commissioners of Montreal (hereafter HCM), Annual Report for 1915, 37–39; Canada, *Sessional Papers*, Vol.16, 452–63, "General Report of the Minister of Public Works from 30 June 1867 to 1 July 1882", Appendices 10 and 11.

before passing upstream into shallower waters. A ship channel deep enough to allow large vessels to sail right through to Montreal offered obvious advantages in both time and money to Montreal's importers and exporters.

The Department of Public Works of the Province of Canada made the first attempt, in 1840, by trying to cut a straight, new channel irrespective of the river bottom contours, but finding the work too costly they abandoned it in 1847. In 1850, the Montreal Harbour Trust Commissioners (legally constituted in 1830) took on the task, and by 1852, using as much of the natural deep water as possible, had managed to establish a channel between the two cities with a minimum depth of 15 feet. T.C. Keefer (with Kennedy assisting) was then hired by the Harbour Commission to oversee further deepening, to 18 feet, which was accomplished by 1858. Then in 1860 the Department of Public Works again took over the work, and by 1865 had deepened the channel to 20 feet.

This was not yet deep enough. Ocean-going steamships on the trans-Atlantic trade still often had to lighten their loads at Quebec, and steamships were being employed more and more on this trade. By the late 1860s the portion of tonnage carried by steam was nearing half the overall tonnage handled at the port, and rising fast. With Canada's population and trade volume steadily rising, the inconvenience had become severe by the 1870s.²¹ Further deepening was required, but the Harbour Commission was not itself prepared to bear the heavy cost of the work, and made repeated calls on the new Canadian government for assistance. Finally, in May 1873, the Harbour Commission – through the efforts of its head, Montreal merchant John Young – procured a \$1.5 million loan from the Canadian government to deepen the entire Quebec-Montreal channel to twenty-five feet. Work began in July 1874, and after one disappointing construction season the commissioners hired Kennedy to take charge.²²

Dredging any river channel – like most construction – is no doubt harder than non-experts imagine, but this work in the St Lawrence truly was exceptionally difficult. The depth of the water, the swift currents over the shoals, and the hard rock and huge boulders of the river bottom all made this job a hydraulic engineering challenge unprecedented in Canada. But Kennedy took to it with alacrity, hastening on work already underway by immediately devising improved dredges and hiring

²¹ "Sir John Kennedy", HCM, Annual Report for 1915, 37; Canada, *Sessional Papers*, Vol.11, No.1, 219–21; Paul-Andre Linteau, "Le Développement du Port du Montréal au Début du 20e Siècle", Canadian Historical Association, *Historical Papers*, 1972.

²² Tombs, *The Port of Montreal*, 24; Canada, *Sessional Papers*, Vol.16, "General Report of the Minister of Public Works from 30 June 1867 to 1 July 1882", Appendix 10, 454.

additional contractors. He also concocted a scheme of doing the work in two stages, first to twenty-two feet and then to the full twenty-five. The Harbour Commission initially opposed this, believing that going over the whole channel twice would make the work more costly. But Kennedy convinced the commissioners that the two-stage cut would allow at least a partial increase in revenue at an intermediate stage, and that this would more than offset the higher cost. Like most good engineers, Kennedy had dollar signs in his equations.²³

By today's standards work progressed slowly. The season was short, earth-moving capacity was nothing close to what it is today, and Kennedy had plenty of other routine dredging and construction to keep the port facilities in order. But it did steadily advance. The 22-foot depth was confirmed in November 1878 and, excepting a few places needing additional examination and cutting, the 25-foot depth was reached in the fall of 1882. Even this was deemed not quite sufficient, with ocean-going vessels still increasing in size. So although expenditures had already exceeded the original \$1.5 million by nearly \$300,000, the government opted to continue deepening the channel further, to 27.5 feet, and authorized a further \$900,000 loan to the Harbour Commission in June 1883 to finance this additional work. The new depth was not achieved for five more years, but at last, in late 1888, the largest ocean ships of the day could penetrate inland to Montreal.²⁴

The job was not over – channel dredging is never finished – but the work certainly had reached an important milestone. Kennedy had overseen deepening the entire channel from 20 feet to 27.5 feet in thirteen years.²⁵ In carrying out the work, he had contended with problems of deep-water dredging in fast flowing water that nobody in Canada, and perhaps anywhere, had yet faced on this scale. He had ensured that the necessary dredging equipment was in place and in good working order, and had even developed his own design of a large dipper dredge that was later employed in deep-water dredging in the Nile River.²⁶ He had monitored and co-ordinated the work of numerous contractors, control-

²³ Canada, *Sessional Papers*, Vol.10, No.6; Vol.11, No.7, Appx.23, 197–98; “Sir John Kennedy”, Harbour Commissioners of Montreal (HCM), Annual Report for 1915, 38–39.

²⁴ “Sir John Kennedy”, HCM, Annual Report for 1915, 38–39; Canada, *Sessional Papers*, Vol.10, No.6; Vol.11, No.7, Appendix.23, 197–98; Vol.13, No.11, Appx.11, 57; Vol.16, No.10, Appx.10, 456; Vol.18, No.10, Appendix 10, 135; Roberts and Tunnell, *A Standard Dictionary of Canadian Biography*, 288.

²⁵ The channel had been widened in places too. A very thorough 1883 report, describing the work done to achieve the 25-foot depth in 1882, shows that 39.3 miles of river bottom had actually been excavated. Much of the river, of course, had sufficient natural depth – Canada, *Sessional Papers*, Vol.16, No.10, Appendix.10, 456.

²⁶ Roberts and Tunnell, *A Standard Dictionary of Canadian Biography*, 288. There is no mention of these novel dredges anywhere else, but such technical matters were not always deemed important for non-technical readers.

led expenditures of some \$150,000 per year,²⁷ and reported regularly to the commissioners and the Minister of Public Works. Through it all, there was no sign that anything went wrong. It was routine engineering work, perhaps, but a substantial achievement nonetheless.

The Port of Montreal

This was only part of the job. Bringing large ocean-going steamships into Montreal harbour was going to yield little commercial benefit if the ships had to dock at old wooden wharves built for nineteenth-century sailing ships. Increasing the capacity of the port itself was Kennedy's next engineering challenge.

The port's inadequacy had been well known when Kennedy was first engaged in 1875, but the Harbour Commission had no funds to improve it. The government loan was just for deepening the channel between the two cities, and the Harbour Commission's revenue from harbour fees was taken up completely with operation and maintenance costs, as well as, later, servicing the growing government debt. So there could be no capital improvements to the port without further loans. The Harbour Commission did, however, take an early step in *planning* a major port expansion. In the very year Kennedy was hired, it engaged three internationally respected engineers – Robert Bruce Bell of Glasgow, Major-General John Newton of the U.S. Corps of Engineers, and the well-known Canadian engineer Sandford Fleming – to design what it called a “comprehensive plan” for expanding the port facilities. Bell, Newton, and Fleming responded in 1877 with a grand scheme that included a trunk pier, branch piers, a new ship channel through the harbour, a massive breakwater, and a new raised river-front street.²⁸ They gave no cost estimates, but clearly their scheme would have been expensive. The commissioners made no move to build it.

But in 1888, with the ship channel completed, circumstances changed. The Canadian government took over full responsibility for the channel as a Dominion Public Work, and in doing so assumed the debt that the Harbour Commission had incurred to make it. The interest payments on this enormous debt, which at 5% of principal now exceeded \$70,000 *per annum*, had become a great financial burden to the Harbour Commission. But with the stroke of a pen this burden was lifted and expansion of the port immediately became feasible.²⁹ The commissioners turned to chief engineer Kennedy.

²⁷ Canada, *Sessional Papers*, Vol.15, No.7, Appendix.15, 137.

²⁸ Bell, Newton, and Fleming, *Report on a General Scheme of Improvements for the Harbour of Montreal* (Montreal, 1877), 4–5.

²⁹ “Sir John Kennedy”, HCM, Annual Report for 1915, 39; HCM, Annual Reports for 1886,

In the meantime a new concern had arisen. The lower land on the island of Montreal had always been prone to flooding – unpredictably in the winter when loose ice jammed in the river narrows, blocking and backing up the river, and more predictably in the late spring when run-off from the Great Lakes’ watershed peaked.³⁰ The winter floods were usually higher, and more destructive, since the water carried great chunks of ice that did untold damage. In April 1886, the city experienced one of its worst winter floods on record – devastating the low-lying working-class areas around the Lachine Canal – and civic authorities resolved to take action. So critical was the problem that the Canadian government called together a special flood commission to propose solutions. Kennedy, as the Montreal Harbour Commission’s chief engineer, was one of four engineers named to the commission; the others were T.C. Keefer, Henry Perley, and Montreal City Surveyor Percival W. St George. After a careful review, they recommended building a large dike along the riverbank upstream of the Victoria Bridge, and inland through the industrial area of Point St Charles to the mouth of the Lachine Canal. Most of this dike was promptly built. But for the area downstream of the Lachine Canal, basically the city’s harbour front, the engineers offered no solution, noting that it would be “a work of much greater magnitude, involving as it does, almost the entire reconstruction of the revetment wall.” A temporary extension was added atop the harbour wall in this central area, but a permanent solution remained to be found.³¹ There matters stood in 1888 when Kennedy was called upon to prepare his plan for the port. Flood protection was, therefore, expected to be part of any new scheme.

Kennedy must have been thinking about this for years, because almost immediately, in two brief memos, he presented the commissioners with a plan.³² Although this can now be seen as something of a landmark event in Canadian engineering history, it was done without the slightest fanfare. There was no formal unveiling, or any sort of presentation to win over the leading citizens or civic authorities. There appears to have been not a single drawing or map – just two memos describing, briefly but clearly, what should be built.

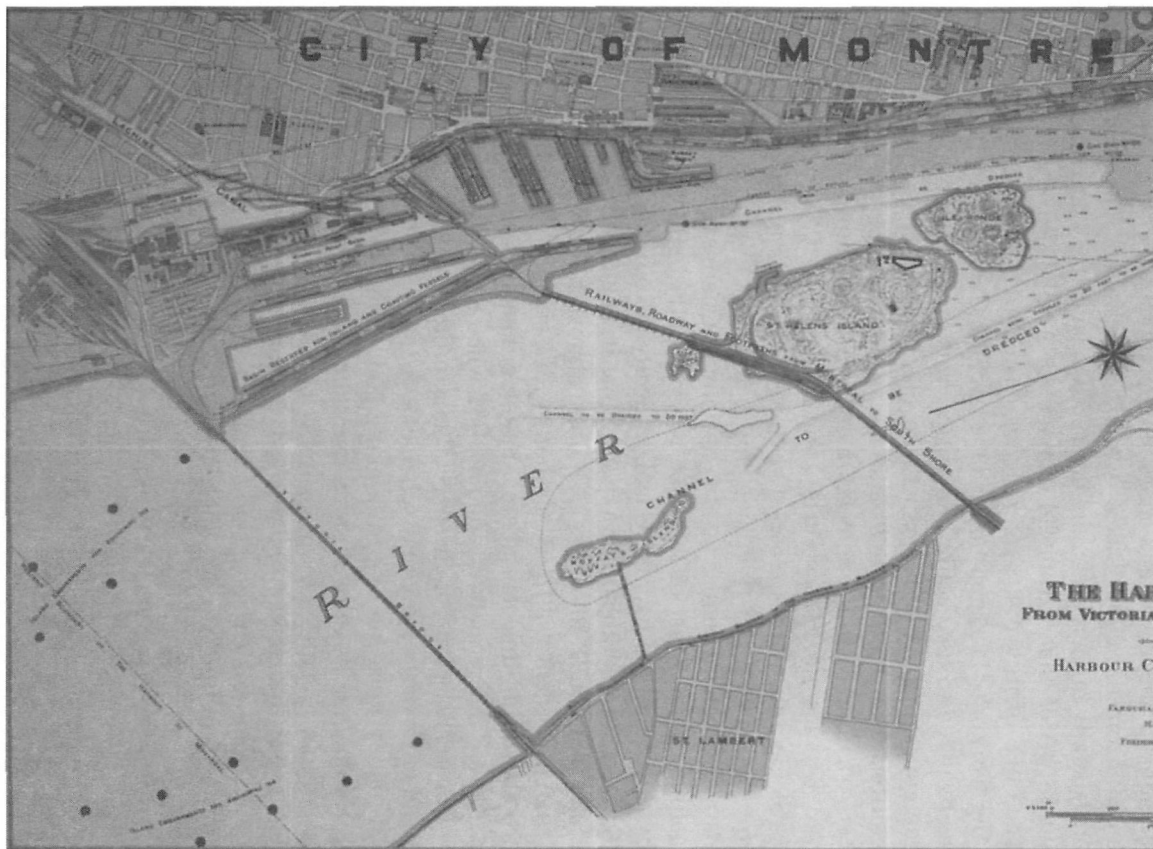
There were five separate elements. First, Kennedy called for a long embankment (later called the “guard pier”) extending downstream from

1887, and 1888, Chairman’s Statements; Canada, *Sessional Papers*, Vol.23, No.18, 130.

³⁰ The best contemporary source for the flooding, among many, is “Sir John Kennedy”, HCM, Annual Report for 1915, 41–42; also Paul-Andre Linteau, « Le Développement du Port du Montréal au Début du 20e Siècle », Canadian Historical Association, *Historical Papers*, 1972, 194–95.

³¹ HCM, Annual Report, 1886, 10–12 (letter of 31 July 1886, Montreal Flood Commission to Harbour Commission of Montreal).

³² HCM, Annual Report, 1888, 20–29 (letters from Kennedy to Harbour Commission, 19 Jan. and 25 Feb. 1888).



Section of Map, Port of Montreal, c. 1912 (several years after Kennedy's retirement)
Source: *Annual Report of the Harbour Commissioners of Montreal for the Year 1914*

the Victoria Bridge abutment to protect the harbour from currents and ice flows.³³ Second, he proposed widening Commissioners Street and the shore wharves out into the harbour with fill, and raising them to a level that would stay clear of spring (but not winter) floods. The reconstructed shore wharves would necessitate a new revetment wall at the water's edge, which was to be "surmounted by a water-tight parapet wall" with openings that could be sealed tight when winter floods threatened. Third, in the harbour, there would be four long piers angling out from the new shore wharves; these piers (like the shore wharves) would be only high enough to keep clear of normal spring floods, and thus would be submerged during winter floods, but Kennedy claimed this would cause little damage with the guard pier keeping out ice and strong currents. Fourth, downstream at Hochelaga there would be a new shore-wharf with a series of piers extending out to natural deep water. And fifth, in the Windmill Point area between the new outer embankment and the Lachine Canal, Kennedy proposed a high-level basin and dock, safe from the highest winter floods.

It was not all original. The long guard pier had been proposed in the 1877 report. Everyone knew the flood wall was needed; and the commissioners had been planning the development at Hochelaga for some time. But assembled as it was into a clear coherent whole his plan became so comprehensible and so appealing that it found favour immediately.

There was still work to be done to draw the various interested parties together and to determine the precise design. First, the City of Montreal had to be brought into the planning, for it was contributing money towards widening Commissioners Street and erecting the flood protection wall. So the City Surveyor, Percival St George, and Kennedy were, together, called upon to develop and present to the Harbour Commission and the City a range of schemes with a corresponding range of prices, which they did in January 1889. All included the essential parts of Kennedy's early plan but differed from one another in certain details.³⁴ The cheapest of five schemes was chosen. It was still going to be a major investment – estimated at some \$2.8 million – but the cost of the scheme was kept low by extending the street and wharf outward with fill into the river (rather than inland on expensive commercial property), by allowing the shore wharf and piers to be inundated by winter floods (the wisdom of this had been questioned, and some of the more expensive schemes called for piers high enough to avoid all flooding), as well as by widen-

³³ This guard pier was not intended for flood protection, nor could it have served that purpose; a biographical sketch for a forthcoming *Dictionary of Canadian Biography*, which this author read in draft in 2000, states that it was so intended.

³⁴ John Kennedy and Percival W. St George, "Report on the Proposed Harbour Improvement and Flood Protection for the Central Portion of Montreal" (Montreal, 1889).

ing the street to only seventy-five feet.³⁵ The various authorities involved – Harbour Commission, City of Montreal, Canadian Department of Public Works – quickly endorsed the plan, and construction soon began.

It was to be another lengthy project, taking a further fifteen years to complete. Work on the downstream wharf and piers at Hochelaga began almost immediately, the first pier there being completed by 1891. The task of building up the guard pier began promptly too, but so great was the amount of fill required that it remained Kennedy's main concern for several years and was not completed until 1898. Expansion of the basin and facilities at Windmill Point started in 1894. A second pier at Hochelaga was built from 1894–95.³⁶

Not for a few years, however, did reconstruction of the main port facilities begin. Despite general approval, finding consensus among the various parties on the number and the size of piers proved difficult.³⁷ Money was another sticking point, as the commissioners were holding out for \$1 million from the Dominion Government as compensation for years of interest paid on the channel-deepening debt.³⁸ But by 1898 all had agreed to a detailed plan: to accommodate larger ships, there would be three, not four, piers (Public Works had earlier wanted only two), and they would be at most 1000 feet long, not 1300 feet as Kennedy had originally proposed.³⁹

Kennedy's original idea for the flood protection wall had been superseded by a plan for a separate, much more substantial wall of stone, rubble and cement – six feet wide at ground level narrowing to three feet at the top – built between the shore wharf and the street, protecting the city but not the wharf. The wharf and piers would be built one foot above the average spring high-water level, but nearly nine feet below the level of the record 1886 flood.⁴⁰

The new plan was then realized in a flurry of work. The Jacques Cartier Pier was built 1898–99, the Alexandra Pier 1899–1901, and the King Edward 1901–02. All consisted of stone-filled cribs, further filled with gravel and earth, and paved with stone and concrete.⁴¹ The flood wall was built from 1899 to 1901. Once completed, it stood about seven

³⁵ HCM, Annual Report, 1894, Report by L.E. Morin.

³⁶ HCM, Annual Reports, various years; "Montreal Harbour Improvements", *Railway and Shipping World*, Sept., 1903, 322–24.

³⁷ HCM, Annual Reports, 1894, Report by L.E. Morin; 1895, 13; 1898, 86.

³⁸ HCM, Annual Report, 1896, Chairman's Report.

³⁹ HCM, Annual Report, 1898, 86; "Sir John Kennedy", HCM, Annual Report for 1915, 42.

⁴⁰ HCM, Annual Report, 1898, 86; HCM, Annual Report, 1900, 61; HCM, Annual Report, 1901, 57–59.

⁴¹ Paul-Andre Linteau, « Le Développement du Port du Montréal au Début du 20e Siècle », Canadian Historical Association, *Historical Papers*, 1972, 195; HCM, Annual Report, 1899, 52–67; HCM, Annual Report, 1900, 57–61; HCM, Annual Report, 1901, 51–60.

feet high – its top being twenty-two inches above the record flood of 1886 – and 5123 feet long. Fourteen forty-foot openings, which could be closed with water-tight panels of wood planks and steel braces, provided access to and from the harbour.⁴² The work of widening the river-front street, and constructing the new, higher shore wharf from which the new piers extended, occurred concurrently. The old wooden wharves with their underwater cribs and piles were excavated away, and an entirely new and deeper crib foundation was extended out into the river and filled with dredging wastes. The retaining wall of the new shore wharf, even above the water line, was faced with concrete rather than masonry – fairly novel for the time. The entire shore wharf was finished and paved with granite blocks by 1904.⁴³

While work proceeded on the new piers and flood wall, the port was enhanced in other ways. Since the new piers extended out beyond the old river channel, a new deep-water channel had to be dredged in the harbour. The Windmill Point basin was extended with blasting and dredging, and its wharves raised and re-built. New railway lines were laid through the harbour and out onto the piers; Kennedy had, years before, ensured that these lines were owned by the commission in order to prohibit a single private railway company from controlling use of the port. Steel-framed storage sheds were added, as was a large grain elevator, a conveyor system, and other special-purpose equipment. By the early years of the twentieth century a modern, efficient port had come into being, and with it came a vast increase in the volume of cargo passing through the harbour – exactly what the commissioners had expected.⁴⁴

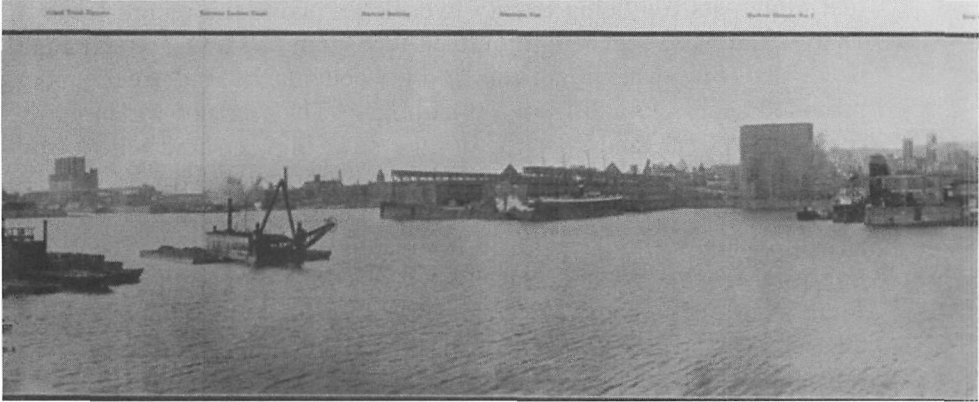
In 1907, with the bulk of the work completed and his eyesight failing, John Kennedy retired. His sight had begun deteriorating in 1899, as had his father's long before. After coping with the condition for several years – trying various treatments but finding no relief – he reached the point where he felt he could no longer handle the duties of the position. He was, in fact, already sixty-eight years old, and most of the port expansion had been realized, so his retirement was not entirely unexpected, but he would have stayed on at least a few more years were it not for his failing sight.⁴⁵ To the commissioners, however, a man like

⁴² These details did not appear on the annual reports until the wall was nearly completed; evidently, such specifics were decided in the course of construction.

⁴³ HCM, Annual Reports, 1900, 59; 1901, 53; 1904, 27; 1915, 43; for the use of concrete above the water line, see C.R. Young's review of Canadian bridge building in *Engineering Journal*, 20 (1937), 478–99.

⁴⁴ Canada, *Sessional Papers*, Vol.11, No.1, 219–21; Paul-Andre Linteau, « Le Développement du Port du Montréal au Début du 20e Siècle », Canadian Historical Association, *Historical Papers*, 1972, 187; Jean-Claude Marsan, *Montreal in Evolution*, (Montreal: McGill-Queen's University Press 1981), 170.

⁴⁵ *The Canadian Engineer*, 15 Feb. 1907, 19–20.



Panoramic Photograph of Montreal Harbour, c. 1912 – part a

Kennedy could not be let go. He knew the river and the port better than any man before or since, for he had overseen the dredging of miles of river-bottom and personally supervised the construction of nearly every man-made thing in the harbour. Immediately upon accepting his retirement, the Commission appointed him their consultant, a position he held until his death in 1921.⁴⁶

The Economic Significance of the Works

There can be no denying the importance of the work accomplished under Kennedy's authority. In 1875, the year of his appointment, the St Lawrence shipping channel was too shallow for ocean steamships, and the port of Montreal consisted of timber shore-wharves built in the mid-nineteenth century for small, shallow-draft sailing ships. By 1906, Kennedy's final year, ocean-going steamships had been steaming directly up to Montreal since 1888, and Montreal had a complex, modern port with large, extensive piers, year-round storage, and equipment to handle a vastly increased quantity of cargo.

The impact of these improvements can be seen in the port's growing capacity. From 1875 to 1892, during the ship channel deepening, tonnage handled by the port (inland and ocean) rose from 1.2 million to 2.2 million; from 1896 to 1906, when the port itself was expanded, cargo handled more than doubled from 2.2 million to 5.1 million tons (and further to 9 million by 1914).⁴⁷ Most striking is the increase in grain

⁴⁶ "Sir John Kennedy", HCM, Annual Report, 1915; "Obituary", HCM, Annual Report, 1921, 84; "Appointment of Montreal Harbour Engineer", *The Canadian Engineer*, 15 Feb. 1907, 19–20.

⁴⁷ Canada, *Sessional Papers*, Vol. 11, No. 1, 219–21; Paul-Andre Linteau, « Le Développement



Panoramic Photograph of Montreal Harbour, c. 1912 – part b
 Source: *Annual Report of the HCM for the Year 1914*

handling. Before the new elevator was built in 1903–04, trans-shipment from river craft to ocean vessels was done in the harbour by small, floating elevators, the capacities of which are not recorded. The new permanent elevator had an initial capacity of one million bushels, a great improvement on its own, but with the conveyor system begun by Kennedy (but extended to all three piers after his retirement), the volume of grain going through the elevators rose to 28.5 million bushels by 1914.⁴⁸

Clearly Kennedy's work was critical to the economic development of Montreal. So too was it important to the development of the national economy during these boom years – a point often overlooked by historians. As Paul-Andre Linteau argued some years ago, it was probably as important as the Canadian Pacific Railway to the growth of the country's wheat export economy.⁴⁹ The Canadian government certainly knew this, as their financing of the work shows. The whole endeavour can best be best understood, in fact, as one of the several “national policies” of the Macdonald government in the 1870s and 80s, and it shows the close connections with private industry on which these national policies were based.

John Kennedy: From Engineer to Icon

What of Kennedy himself, and his role in the work? What exactly were his personal accomplishments? First, it must be established that the

du Port du Montréal au Début du 20e Siècle », Canadian Historical Association, *Historical Papers*, 1972, 187.

⁴⁸ *Ibid.*, 196–97.

⁴⁹ *Ibid.*

works in the port and river were not in any way Kennedy's vision. It is simply not true, as a rather grandiloquent Montreal editorial stated after Kennedy's death, that "to him more than to any other man, the country owes its great national harbour."⁵⁰ Here is the great fallacy of the "great man" theory of history. It was the commercial interests of Montreal and their intimate partner the Canadian government, within the context of a growing population and an expanding economy, that conceived both the channel deepening and the port expansion. Nor was he, strictly speaking, the project's designer. Admittedly, when one walks the wide shore wharf and three large piers of Montreal's Old Port today, one is walking on Kennedy's plan, but most of its key elements had been proposed by others – the guard pier by Bell-Newton-Fleming and the flood wall by the earlier commission. (Only the arrangement of the new piers – extending from the shore rather than from a trunk pier – can be said to be Kennedy's design.) Kennedy's contribution was essential nonetheless, for it was he who put the pieces together into a practicable, coordinated plan, and then, most important of all, made that plan come real.

A few details from his work on the port offer a glimpse into his successful methods. First, less than four months passed between Kennedy's general proposal to the commissioners in 1888 and his development, with the City Surveyor, of specific schemes; following this, approval of the chosen scheme and commencement of work took place in short order. One can contrast this with the inaction that followed the 1877 report by the famous outside experts. Kennedy, unlike the three high-profile consultants, knew the physical and financial limitations well, and shaped his scheme into a perfect fit – thus avoiding what could have been years of delay. Then, upon receiving approval to begin, Kennedy immediately set to work building up the long guard pier. Perhaps it was the obvious place to begin, for moving such a great quantity of fill was going to take years, but Kennedy had another, less obvious reason. He planned to economize by making the pier entirely from material dredged up elsewhere in the harbour and channel, so the sooner he had the pier site receiving dredging waste the better off he was.⁵¹ Kennedy also had a knack for keeping the overall scheme in mind as he went about his work. In 1901, when foundation cribs were being prepared for the shore wharf on which the commissioners planned a future grain elevator, he had the forethought to make the cribs such that they could later accommodate the elevator foundation. And finally, in order to disturb the ongoing operations of the harbour as little as

⁵⁰ American Society of Civil Engineers, *Transactions*, 85 (1922): 1695–96.

⁵¹ HCM, Annual Report, 1893, 77–90.

possible, Kennedy used (and temporarily enlarged) the old Island Wharf (between King Edward and Alexandra Piers) for the duration of the work, holding off until last re-building the shore wharf adjacent it.⁵²

Such was the day to day work of a gifted chief engineer on a large public work, and here is the essence of his achievement and the foundation of his professional reputation. John Kennedy did not devise or promote the scheme. Nor did he develop any daring, novel technological solutions – this was no Victoria Bridge. He simply did his job well, carrying out the work efficiently and with no sign of the corruption or scandal that plagued so many nineteenth-century public works. As one of his obituarists worded it, Kennedy “had a very remarkable power to get things done.”⁵³

Kennedy, it is important to note, was not among the professional vanguard. If anything, he was a little old-fashioned. Having served his apprenticeship in the 1850s, at the very beginning of Canada’s age of steam and well before the advent of formal engineering education, he was occasionally out of step with his younger colleagues, many of whom were graduates of new university engineering programs.⁵⁴ Kennedy was by no means an uneducated man, or a practical tradesman; as a grammar school graduate he was among the educated elite. But having learned his engineering on the job rather than at school, he was not familiar with the mathematical and scientific methods increasingly being employed in engineering practice.

He made no effort to hide this traditionalism. He rarely presented papers at the meetings of the Canadian Society of Civil Engineers, preferring to leave that to his scientifically educated younger colleagues, but he was not afraid to speak his mind.⁵⁵ At a CSCE meeting in 1904, when the large grain elevator being built under his authority in the harbour was the subject of a discussion, a critic claimed that assumptions being made by the contractor about pressures inside the grain bins – and thus the required thickness of the walls – were risky. The critic argued that, since there was nothing in any of the engineering textbooks that gave a definitive statement on how to calculate pressures in such deep grain bins, one had to assume that the pressure exerted by a large confined pile of grain would be the same as a similar column of liquid. In which case the proposed elevator walls were too thin. To John Kennedy such a statement was blatantly absurd: “It was guessing at something which should and could have been accurately ascertained by a few

⁵² HCM, Annual Report, 1897, 93; HCM, Annual Report, 1901, 54.

⁵³ “Sir John Kennedy”, *The McMaster University Monthly*, Dec. 1921, 108.

⁵⁴ J. Rodney Millard, *The Master Spirit of the Age: Canadian Engineers and the Politics of Professionalism, 1887–1922* (Toronto: University of Toronto Press, 1988), 30–31, 37.

⁵⁵ Canadian Society of Civil Engineering, *Transactions* (hereafter *TCSCE*), various years.

hours” experiment and a few dollars of expenditure, in any of the grain elevators in the city.” Experience, observation, and good common sense – not textbooks – were the basis of Kennedy’s engineering knowledge.⁵⁶

Through the course of his career, not surprisingly, Kennedy’s reputation steadily grew. Already an established engineer in 1875, his successful work with the Harbour Commission further raised his stature. He played a central role in establishing the Canadian engineering profession in the 1880s, being one of nineteen founding members of the Canadian Society of Civil Engineering in 1887. Such was his reputation that he was elected one of the Society’s vice-presidents that first year, and its president in 1892. Clearly, by this time, he had become a member of the Canadian engineering profession’s inner circle, and there he stayed for the rest of his career.

Retirement by no means ended Kennedy’s active life. He was named an honorary member of the Canadian Society of Civil Engineers in 1907, and he continued to attend meetings and offer his views.⁵⁷ He also remained a valued consultant to the Montreal Harbour Commission and the Department of Public Works. In 1918, at the age of 80 and by then quite blind, Kennedy was appointed chairman of a new committee on Canadian engineering standards; evidently his judgment was still valued by his younger peers. Retirement also gave him an opportunity to devote more time to religious and social activities, a world in which he had long taken part. For years he had been a stalwart at the Olivet Baptist church in Montreal, at times serving as a Deacon, and after his retirement he took a lead in establishing a Sunday School at the church.⁵⁸ He also worked on behalf of the YMCA, served as a governor of McMaster Baptist College, and assisted in founding the Montreal School for the Blind.

Nor did his professional reputation decline after his formal working life ended. If anything, it rose. To such heights it climbed that, upon the recommendation of Sir Robert Borden, he was awarded the honour of Knight Bachelor by King George V on New Year’s Day 1916.⁵⁹ Other honours followed, including LLDs from McGill University in 1917 and McMaster University in 1921. By the time of his death in 1921, Kennedy stood at the pinnacle of his profession – “the Dean of Canadian engineering” he was called by the President and council of the Engi-

⁵⁶*Railway and Shipping World*, Feb. 1904, 37; *TCSCE*, Vol. XVII (1903), 636–37.

⁵⁷“Appointment of Montreal Harbour Engineer”, *The Canadian Engineer*, 15 Feb. 1907, 19–20; for examples of his views, *TCSCE*, Vol. XXII (1908), 560; and Vol. XXVI (1912), 308–10.

⁵⁸“Sir John Kennedy”, *The McMaster University Monthly*, Dec. 1921, 108.

⁵⁹Admittedly, Kennedy did have a personal connection: his daughter Marion was the wife of Herbert Ames, a close confidant of Prime Minister Robert Borden, but surely the knighthood would not have been awarded without the wide support of the engineering profession.

neering Institute of Canada.⁶⁰ And after his death Kennedy became, almost literally, an icon when in 1927 the Engineering Institute of Canada established the Sir John Kennedy medal for outstanding professional achievement, the institute's most senior award.

But why John Kennedy? He was, unquestionably, a skilled engineer, but were there not others with a "remarkable power to get things done"? To help understand Kennedy's iconic stature one needs to look, not only at his engineering accomplishments, but also at his character and at how it was perceived by his peers. For this, there is nothing more revealing than the words of praise he received from professional confreres late in life and after his death. In awarding his honorary degree in 1917, McGill University extolled his distinguished work on the port of Montreal, but also "the fidelity with which he has always upheld the highest ideals of the engineering profession".⁶¹ The Engineering Institute of Canada described "his readiness to exert himself for the public good" and noted that "his lifetime was a living monument to the service which engineers may render humanity."⁶² Just as important as his professional style was his exceptional personal character – his perseverance in the face of personal hardship, his humanitarian and religious commitments, and his noble yet unpretentious ways: "As a citizen he was beyond criticism", and "his Christian character is without reproach".⁶³ He was "loyal and trusty and true", and "gentle and kind so that children felt at home with him."⁶⁴ His pressing on through advancing blindness was nothing short of heroic: "Even this terrible ordeal [his blindness] failed to break his indomitable spirit", a biographer later wrote.⁶⁵ His working associates at the Port recalled how it was "always a delight to meet him on the Harbour Works and listen to his genial talk and observe the unabated interest ... in harbour matters."⁶⁶ As a younger man who had worked under Kennedy at the Harbour Commission put it, Kennedy had a "greatness of mind and simplicity of character" that was admired by all.⁶⁷

Perhaps these words are not so surprising. They point to an "ideology of service", long recognized (but often overlooked by recent scholars)

⁶⁰ "Sir John Kennedy, K.B., Hon. M.E.I.C.", *Journal of the Engineering Institute of Canada*, 1921, 581–82.

⁶¹ McGill Archives, Corporation Minute Book, 14 Feb. 1917, Recommendations for the degree of Doctor of Laws.

⁶² "Sir John Kennedy, K.B., Hon. M.E.I.C.", *Journal of the Engineering Institute of Canada*, 1921, 581.

⁶³ F.W. Cowie, "Sir John Kennedy, M. Am. Soc. C.E", *American Society of Civil Engineers, Transactions*, 85 (1922), 1695.

⁶⁴ "Sir John Kennedy", *The McMaster University Monthly*, Dec. 1921, 108.

⁶⁵ Charles G.D. Roberts and Arthur L. Tunnell, *A Standard Dictionary of Canadian Biography* (Toronto, 1934), 288; nearly all biographical sketches refer to this.

⁶⁶ *Archives du Port de Montreal*, 1921, 84.

⁶⁷ F.W. Cowie, "Sir John Kennedy, M. Am. Soc. C.E", *American Society of Civil Engineers, Transactions*, 85 (1922), 1695.

as a central tenet of professionalism. They also ring true with Eliot Friedson's sober-minded insight that the ideology of professionalism claims "devotion to a transcendent value which infuses its specialization with a larger and putatively higher goal" that helps to elevate professionals above those they serve and thus to maintain autonomy.⁶⁸ This in turn brings to mind that the engineering profession was struggling to define its professional identity in the 1920s, and in doing so was keen to keep itself allied with higher goals.⁶⁹ Even so, is it not striking, even startling, that a new generation of scientifically trained engineers should choose John Kennedy – not a scientist or an innovator, but a humble humanitarian of wide experience who simply did his public service job exceptionally well – as its paragon by putting his name to their professional body's highest award?⁷⁰ Yet they did. Kennedy was not a great man, but an outstanding ordinary man. Here, evidently, is the early twentieth-century Canadian engineer's own ideal.

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⁶⁸Eliot Friedson, *Professionalism: The Third Logic* (Cambridge, U.K.: Polity Press, 2001), 122.

⁶⁹This is widely recognized and discussed. Perhaps the seminal work on the subject is Edwin T. Layton, Jr., *The Revolt of the Engineers: Social Responsibility and the American Engineering Profession* (Baltimore and London: Johns Hopkins University Press, 1986), chapters 4 and 5. The key source is William E. Wickenden, *A Comparative Study of Engineering Education in the United States and Europe* (New York: Society for the Promotion of Engineering Education, 1929).

⁷⁰The establishment of the Kennedy medal, six years after his death, somewhat confuses the matter. The medal was to be awarded for "great services rendered to the development of Canada, to engineering science, and to the profession" *The Engineering Journal*, March 1929, 163). Evidently nationalism and science had become attached to Kennedy by the late 1920s even though neither had been an especially important part of his reputation at the time of his death. The most celebrated aspects of the careers of the first few recipients, however, related mostly to the third, and somewhat to the first, of the three official criteria (*The Engineering Journal*, March 1929, 163; March 1934, 147; and March 1936, 175). There are some references in the award citations to the first, and none to the second. The award's first recipient was R.W. Leonard, later infamous for his race-restricted scholarship – see Bruce Ziff, *Unforeseen Legacies: Reuben Wells Leonard and the Leonard Foundation Trust* (Toronto: University of Toronto Press, 2000).