

TIME AND TRANSPORTATION

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Introduction

In the 21st century, most people don't ponder the implications of jumping out of bed at the command of an electric alarm clock, glancing at their quartz wristwatch every few minutes to be on time for their meetings, or travelling to work at 80 km an hour. This appears to be the only natural way to live. Yet less than a hundred and fifty years ago, many Canadians were waking when the sun rose, listening for the village bells to determine when to pray, work and rest, and journeying to the workplace at whatever speed the horse felt up to that morning. Clearly, the way we think about time is fundamentally connected to the way we move about in space. Both were profoundly affected by the industrial revolution.

Pre-Industrial Time: Bells and Clocks

In an early pre-industrial setting, the rhythm of time was determined by solar or tidal cycles. Tellingly, the Anglo-Saxon word *tid*, meaning season or hour, gave rise to both modern English terms "time" and "tide." Work performed in this mediaeval period, consisting of small-scale agricultural or artisanal labour, was necessarily performed in harmony with the natural world. Days were not divided into hours, but into tasks, such as milking, knitting, eating, sowing, praying and sleeping. Likewise, years were not partitioned into months, but into cycles of environmental seasons and religious holidays.

Bells, the most important early technology for regulating time, reflected society's emphasis on environmental cycles. These instruments began to be used extensively in the 12th and 13th centuries to regulate labourers' days. During this period, they were rung in accordance with "solar time." For example, in the summer, work began earlier and ended later than in the winter, since the days had more hours of sunlight. Bells could be heard in the surrounding countryside for several miles, allowing for a coordination of people's work and rest patterns. Labour in this lumber camp¹ would have been performed in harmony with natural, "solar time."

These instruments were more than simple regulators of the community's work. The ringing of bells signalled myriad other events, such as births, marriages, deaths, market hours, curfews, church services, festivals and fires. A village's bells, located in the tower of the local church, also served as a focal point for the residents' identity as a Christian community. In 18th century France, many peasants successfully prevented the secular, post-Revolution government from removing bells from their church towers. North American Christians were equally proud of their bells. In the 19th century, it was common to perform elaborate "baptismal" ceremonies, in which the bells were sprinkled with holy water, blessed with sacred oil, and given names and several godparents. This account relates the baptism of Notre-Dame of Montreal's largest bell, the bourdon named Jean Baptiste:

Après la bénédiction, et pendant que les fidèles chantaient *le Te Deum*, on revêtit la cloche d'abord d'une immense tunique blanche de toile fine, puis d'une robe de velours cramoisie, garnie de galons d'or et d'argent. Enfin,

¹ See Museum Artifact: Lumbering on the Upper Ottawa River, ON-QC, 1871, I-63216

comme c'est l'usage, l'Evêque fit tinte le bourdon, les parrains et marraines à sa suite...

Evidently, for people in pre-industrial society, bells were important as regulators of their activity and symbols of their identity.

Bells were not immediately supplanted by clocks when the latter appeared between the 10th and 14th centuries. Initially, these two instruments were mutually enforcing symbols of the authority and prestige of Christianity.² Because early clocks were cumbersome and costly, they were exclusively found on church belfries until the 16th or 17th century. For instance, this picture³ shows the oldest clock in North America, which was built in 1701 at the entrance of Montreal's St. Sulpice Seminary. The close tie between bells, clocks and time is further demonstrated by the fact that the Irish word for bell, clog, produced the English term "clock" and the French word cloche.

As commerce increased and technology improved, clocks became smaller, cheaper and more accurate, and gradually superseded bells in importance. Large clocks were placed on prominent, secular buildings like town halls.⁴ Wealthy individuals bought their own clocks, such as the grandfather clock, which was invented in England in 1658. Pocket watches,⁵ seen in the 18th century as a luxury, began to be mass-produced cheaply in 1806 and were thereafter considered a necessity. As this photo⁶ of a Montreal parlour demonstrates, clocks became a standard feature of upper-class furnishings. For middle- and lower-class people, the clock was the household's most prized possession. In some American states in the 1820s, clocks even replaced money as a way to make purchases! Pre-industrial developments in horological technology reflected the way time was becoming detached from nature and Christianity, and was on its way to becoming a measurement controlled by society.

Pre-Industrial Space: Animals and Boats

Pre-industrial developments in understandings of time were accompanied by a dramatic change in the way people moved about their world. Before the industrial revolution, walking was the principal way many people traveled. Most people who owned shoes would not have been able to afford these elegant silk high heels,⁷ but would have worn practical and durable footwear like moccasins and snowshoes.⁸ This equipment, invented by Canadian aboriginal peoples, was popular among settlers and fur traders. Another ingenious wintertime mode of transportation borrowed from First Nations was the dogsled,⁹ which allowed people to carry heavy loads through the countryside. In the city, dogs were also hitched to carts,

² See Museum Artifact: Église paroissiale épiscopale protestante de Montréal, achevée en 1821, M1242

³ See Museum Artifact: Old Seminary and clock, Notre Dame Street, Montreal, QC, about 1890, VIEW-2568.1

⁴ See Museum Artifact: Town Hall clock, Halifax, NS, 1901, VIEW-3425.0

⁵ See Museum Artifact: Montre, M9776

⁶ See Museum Artifact: Entrance hall for Mrs. Fleet, Montréal, QC, 1926-27, VIEW-23808

⁷ See Museum Artifact: Chaussures, M972.53.1.1-2

⁸ See Museum Artifact: Raquettes, ACC1148

⁹ See Museum Artifact: Dog trains loaded, starting for the North, AB, 1898, MP-0000.3305

as Robert Sproule's painting¹⁰ demonstrates. The most important animal involved in pre-industrial transportation, however, was the horse. These cowboys¹¹ on the prairies were dependent on this animal for their livelihood. Horse-drawn carriages, like those¹² in Montreal's Place d'Armes, also provided Europe with its first postal system in the 1780s, when Britain introduced the mail-coach service.

As well as these terrestrial modes of locomotion, marine travel was very important in the pre-industrial era. Algonquian-speaking native peoples made birchbark canoes,¹³ Iroquoians constructed pine dug-out canoes, and the Inuit built sealskin kayaks. These aboriginal vessels were the principal ones used by fur traders, since west of the Great Lakes, the waters were too narrow and shallow for sailing vessels. This anonymous artist¹⁴ had clearly never canoed before - the paddlers are facing each other! Larger craft such as sloops and schooners were used by Europeans for cross-Atlantic and Great Lakes voyages. These large, wind-powered ships¹⁵ were the only way Europeans could reach North America for over 300 years, until steamboats were invented at the turn of the 18th century. This painting¹⁶ contains examples of all three types of boats discussed above.

Except for the sailors, explorers and traders who manned these ships, the majority of pre-industrial society was unaccustomed to travelling very often, or over very great distances. Most people's space was restricted to their local village, and travel was highly dependent on forces in the natural world such as animals and water.

Industrial Space: Trains

This changed drastically with the construction of railways in the mid-19th century. In 1836, Canada's first steam train ran a distance of 23 km from La Prairie to Saint-Jean, Quebec. One of the most important early railroads was the Grand Trunk Railway which, when it was completed in 1860, connected Sarnia, Ontario, with Portland, Maine. The sumptuous interior of a Grand Trunk car is shown here.¹⁷ In 1876, the intercolonial railroad which linked the Maritimes with Ontario and Quebec was completed. A decade later, the Canadian Pacific Railway was finished, connecting British Columbia with the rest of Canada. This railway covered nearly 6,000 km of track! The construction of these last two railways ensured that the Maritimes, and later British Columbia and Prince Edward Island, would join Confederation. This photo¹⁸ shows the arrival of the first train to reach the Pacific Ocean.

In addition to passengers, trains transported goods. Perishable foods, such as British Columbia

¹⁰ See Museum Artifact: Monument Nelson, Montréal, et prolongement ouest de la rue Notre-Dame, M302

¹¹ See Museum Artifact: Ranching in the Canadian West. Group of cowboys, AB(?), about 1900, MP-1985.34

¹² See Museum Artifact: Place d'Armes, Montreal, QC, watercolour by Richard Dillon, 1804, copied for Robert Glasgow, VIEW-14815

¹³ See Museum Artifact: Wigwam dans le Bas-Canada, M19893

¹⁴ See Museum Artifact: Montréal, M972.81.3

¹⁵ See Museum Artifact: Shipping, St. John harbour, NB, 1870, I-48461.1

¹⁶ See Museum Artifact: Le port de Montréal, M303

¹⁷ See Museum Artifact: G.T.R. sleeping car, Montreal, QC, about 1890, VIEW-2517

¹⁸ See Museum Artifact: Arrival of first through train at seaboard, BC, 1886, MP-0000.298.3

salmon,¹⁹ could be delivered to regions in which they had never previously been found. Mail could also be delivered via trains. Before railway mail service letters were sent by foot,²⁰ on snowshoes, by canoe, by dogsled, or on horseback; all of which were slow and unpredictable. This changed in 1886, when the Canadian Pacific Railway allowed Canada to set up a publicly funded, daily postal system. Post offices like this one²¹ in Ottawa were constructed all over Canada.

Railroads, making it possible to travel, send goods, or communicate across an entire continent in a matter of days, drastically compressed people's sense of space. The American Cleveland Abbe enthused in 1866, "Every year the world seems to me to be growing smaller and smaller: steamliners across the oceans, Atlantic and Pacific and Mediterranean; railroads across America and Europe..." This globe-shaped snuffbox epitomizes the space compression which occurred in the nineteenth century.²²

Industrial Time: Standards and Factories

The construction of railroads also affected people's understanding of time by introducing the idea of "standard time." Before people could travel vast distances very quickly, it was not important for each city to show the exact same time. For example, an early 19th century clock in Quebec City, since it was further east, would have been a few minutes ahead of one in Toronto. However, once railways were constructed, this situation caused a plethora of difficulties. Railroads needed to adhere to a strict schedule for reasons of efficiency and safety. Mistakes of a few minutes could be devastating, as this picture²³ demonstrates. Complicating the situation further were the different "railroad times" used by various companies. Each corporation used the official time from the city in which its head office was located. Therefore, stations were required to display several clocks, usually only a few minutes apart, corresponding to the various "railroad times." Early train schedules must have been nearly impossible to decipher! The American engineer Charles Dowd was understandably frustrated with "clocks at stations staring each other in the face defiant of harmony either with one another or with surrounding local time and all wildly at variance with the traveler's watch, baffl[ing] all intelligent interpretation."

Dowd proceeded to seek a solution to this temporal chaos, and struck upon the idea of dividing North America into four time zones measuring 15 degrees of longitude, each corresponding to a time differential of one hour. Sandford Fleming, the Scottish-born chief engineer of the Canadian Pacific Railway and designer of Canada's first postage stamp, went further in 1876 when he proposed the division of the entire world into twenty-four time zones.

Fleming's suggestion was met with indignation by farmers, who resented this detachment of their temporal schedule from nature's rhythms. They saw no reason to deviate from "solar time." Others

¹⁹ See Museum Artifact: Train load of salmon, New Westminster, BC, 1887, VIEW-1787

²⁰ See Museum Artifact: A. Walmsley, postal worker, Montreal, QC, 1867, I-29183.1

²¹ See Museum Artifact: Bureau de poste, Ottawa, Ont., vers 1890, MP-0000.25.168

²² See Museum Artifact: Tabatière, M15909

²³ See Museum Artifact: Collision between two engines, Bay of Quinte Railway, ON, 1892, MP-0000.2265

objected to standardization on the grounds that it interfered in the realm of God. These people believed that tampering with time would be sacrilegious. Despite these objections, time was standardized according to Fleming's proposals. Rail transportation thus furthered the process of the denaturalization and desacralization of time that had already begun with clocks in pre-industrial society.

The rise of the factory completed this process. The smooth running of a factory depended on its workers' punctuality, efficiency and precision. Employees needed to be disciplined to fulfil these time-related requirements. An important theoretician behind the new "time discipline" of the factory was the American Frederick W. Taylor. His principle of "scientific management" gauged the amount of time required for individual motions in a work process, and sought to maximize each motion's efficiency. When it was applied to industry, scientific management resulted in the subdivision of work into simple, repeated processes. This early 20th century factory²⁴ gives an impression of high organization and task division. One of Taylor's most famous supporters was Henry Ford, a watchmaker who eventually became the world's first mass producer of affordable automobiles.²⁵ Factories like this one²⁶ in Montreal became the normal place of work for many people.

²⁴ See Museum Artifact: Women at tables, International Manufacturing Co., Montréal, QC, 1914-8, MP-0000.2082.6

²⁵ See Museum Artifact: H.D. Reid's automobile, St. John's, NF, 1908, II-170800

²⁶ See Museum Artifact: Dominion Blanket Company, Beauharnois, QC, 1893, II-103069

Conclusion

As this discussion of time and transportation demonstrates, society's temporal and spatial understandings changed dramatically during the Industrial Revolution. Time and space are not objective, independent constants, but subjective, dependent variables. These variables are best understood as "social constructs" - ideas which different societies define in their own way. Thus, much can be learned about a society by analyzing its understandings of time and its modes of transportation.