

ANIMAL METROPOLIS: HISTORIES OF HUMAN-ANIMAL RELATIONS IN URBAN CANADA
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The Urban Horse and the Shaping of Montreal, 1840–1914

SHERRY OLSON

And when did you last meet a horse on the streets of Montreal? In Mount Royal Park, next to the antenna at the summit, a small modern stable houses the eight black horses the police use to patrol the park; and close to the St Lawrence riverfront, an old wooden “horse palace” shelters several of the horses who drive tourists along the cobbled streets of the old centre. In the core of the city today, however, between the mountain and the river, horses are scarce, despite the fact that from 1840, when the city was incorporated, to the First World War, the city depended on several thousand horses.

Dependence on horses, I shall argue, shaped the urban landscape and our interpretation of city living. The phantom thousands still cast their shadows on the layout of the town, and our sensitivity to plans for tomorrow’s habitats will benefit from an appreciation of that long and intense collaboration of humans and horses. First, to get acquainted with the phantom population, let us consider their numbers and their various roles in building the city and making it work. That will lead to a second set of questions, about the design of the city: How did the city accommodate its horses? In what parts of town were their homes and workplaces? In the third section, from diaries and contracts of the horse-dependent decades I extract clues to the behaviours of horses and people as close neighbours. The fourth section considers their interdependence as a factor in the emergence of modern medicine.

The Horse at Work in the City

Painters and novelists have glamorized the warhorse; agricultural economists have interrogated the plowhorse; specialized farmers and gamblers continue to compile elaborate breeding records for racehorses; but in the historiography of cities the heavy-duty draft horse is given short shrift. Daniel Roche and his students have compiled rich sources on the “culture” of horsemanship in France as a model for elite upbringing over centuries. Francis M.L. Thompson has shown that toward the end of the nineteenth century the numbers of horses in British cities were constrained by the demands they made on space and feed.¹ Essays on the omnibus and horse railway report limited ridership and a persistent exploitation of the labour of both horses and humans.² For US cities, Clay McShane and Joel Tarr have explored mechanical applications of horsepower and environmental aspects,³ and Ann Norton Greene expands their perspective by asserting “historical agency” for the horse, through production of power that shaped material and social arrangements.⁴

Trends were similar in all the big cities of eastern North America, with rapid substitution after 1890 of the “horsepowers” of electric and gasoline engines. The Canadian story is nuanced by the rigours of climate, and Montreal in particular by its metropolitan scale of demand for equine services and its mix of cultural preferences in the breeding and management of its horses.⁵

Despite the perennial efforts of cities to discipline drivers and regulate the weights and wheel widths of vehicles, historians have despaired of counting, and precise estimates of the numbers of horses in Montreal are open to question. The coachman or hackman was usually an individual entrepreneur with just one horse, while livery stables might maintain a dozen to provide carriages for business, pleasure trips, and special occasions. The doctor, the pharmacist, and the priest required a horse and carriage (Figure 1); and most of the city’s nineteenth-century butchers, bakers, grocers, and milkmen had their own horse and cart. “Carters,” whose full-time business was hauling, usually had two horses or three, and operated family enterprises in which sons and nephews were associated, not specified in the records. In the 1840s and ’50s, horse-and-cart had to be able to access every dwelling in town, in order to perform vital services: emptying the pit privies, and delivering water from the river and firewood from rafts at the riverside.



2.1 Public carriage, Montreal, ca. 1875. Courtesy of McCord Museum, VIEW-1063.1.

If we estimate from the household heads registered and taxed for horses (Table 2.1), from the 1860s their numbers rose more slowly than total households, much more slowly than metal workers or railway personnel; and their median rent did not rise as much, remaining just a little higher

Table 2.1 Economic status in the horsey trades

NUMBER OF HOUSEHOLDS HEADS

| | 1848 | 1861 | 1881 | 1901 |
|----------------|------|-------|-------|-------|
| Carters | 287 | 716 | 1075 | 1429 |
| Drivers | 10 | 34 | 580 | 874 |
| Labourers | 563 | 2046 | 5174 | 9221 |
| All households | 5320 | 12330 | 33350 | 65434 |
| Machinists | 46 | 49 | 372 | 1243 |

MEDIAN HOUSEHOLD RENT (\$/YEAR)

| | 1848 | 1861 | 1881 | 1901 |
|----------------|------|------|------|------|
| Carters | 40 | 48 | 50 | 70 |
| Drivers | - | 48 | 40 | 70 |
| Labourers | 40 | 36 | 40 | 60 |
| All households | 64 | 48 | 50 | 80 |
| Machinists | 62 | 48 | 60 | 80 |

PER CENT WHO OWN HOUSE

| | 1848 | 1861 | 1881 |
|----------------|------|------|------|
| Carters | 31 | 24 | 21 |
| Drivers | 30 | 9 | 6 |
| Labourers | 17 | 6 | 4 |
| All households | 31 | 19 | 14 |
| Machinists | 20 | 10 | 12 |

Source: Ville de Montréal, Rental taxrolls, City and suburbs

Table 2.2 Horsesdrawn equipment registered, Montreal, 1865-1895

FOUR-WHEELED VEHICLES

| | 1 horse | 2 horses | Total | % 2 horses |
|------|---------|----------|-------|------------|
| | (a) | (b) | (a+b) | (b)/(a+b) |
| 1865 | 738 | 44 | 826 | 5.3 |
| 1870 | 1531 | 210 | 1741 | 12.1 |
| 1875 | | | | |
| 1880 | 1634 | 227 | 1861 | 12.2 |
| 1885 | 2168 | 378 | 2546 | 14.8 |
| 1890 | 2964 | 612 | 3576 | 17.1 |
| 1895 | 3225 | 733 | 3958 | 18.5 |

Source: Ville de Montréal, Annual Reports of Police Chief

than the base-level “labourers.” The numbers of “master carters” were declining, that is, the independent entrepreneurs who owned their own animals and equipment. By 1880, about one third of the tradesmen are reported as mere “drivers,” that is, waged employees of a livery stable or street railway. By 1901 the wage-earning share amounted to more than half, and their wages were low, a dollar a day.⁶

Can we count the vehicles? To operate year round, even the loner with a single horse needed a variety of equipment: a wheeled vehicle for seven or eight months, a vehicle on runners for four or five, a spare set of wheels in his yard, and harness and housing for animal and gear. Records compiled in Table 2.2 show a trend toward vehicles built for heavier loads, drawn by two-horse teams, and the trend accelerated in the 1890s.

Horses were still delivering all building materials: stone, gravel, and sand from the quarries, brick by the thousands from the brickyards, lumber from the planing mills. The handsome four-horse teams of the breweries attracted attention, as did impressive rigs such as the forty two-horse sleighs that conveyed a trainload of Mexican hemp from the Canadian

Pacific Railway station in the east end (at Dalhousie Square) to the rope and plaster mills at Point St. Charles. "On top of each sleigh were lads with horns from which they blew blasts at frequent intervals."⁷ Horses drew the firefighters' steam pumps, and their exertion was doubled by the urgent pace. Exceptional manoeuvres are described much earlier, such as the slow and risky transport of the seven-ton "monster bell" in 1843 from the docks to Notre-Dame Church four blocks away.⁸ The bell had to be raised to the top of the 213-foot tower, and this kind of work, too, relied on the muscle-power of horses.

In addition to the resident animals, horses towed the first generation of canal boats, and powered the passenger coaches that fanned out from the city and the farm wagons that supplied the public markets. From the south shore, much of the farm produce crossed the St. Lawrence at Longueuil. From 1819, when primitive steamboats were already plying the St. Lawrence between Montreal and Quebec City, the wagons crossed on a horse boat, that is, a ferry powered by pairs of horses who turned the paddle wheels by walking a treadmill on the deck.⁹ The horse boats were replaced by steam ferries in the 1840s, but all the boats were laid up for winter, November through March, and the horses, dependable in all seasons, followed a track laid out on the ice, closely monitored and marked by fir trees (Figure 2.2). In spring and fall, during the two- or three-week spells when the ice was perilous, Montrealers felt the shortages of butter and eggs and poultry, and the horses themselves felt the shortages of feed and clean bedding.

The horse-drawn City Passenger Railway, operating between 1861 and 1893, used three different types of vehicles, for three seasons: open-air summer cars on the rails, closed cars on runners for winter, and wheeled vehicles (the omnibus) for the shoulder seasons when mud and ruts demanded the most strenuous efforts from the horses. The service opened with eight vehicles and six miles of track; by 1889 it was operating thirty miles of line with 150 cars, 104 sleighs, 49 omnibuses, and a thousand horses. The eight million rides a year produced an attractive profit but in fact satisfied only a small share of the daily back-and-forth of the working population. The luxury nature of the service is apparent in the description of a new closed car purchased in 1886 for the line on Saint Catherine Street, with its seven windows on each side, "seats of perforated wood, backs covered with handsome and removable crimson carpet." It featured



2.2 Drawing hay to market across the St. Lawrence River, 1903. Courtesy of McCord Museum, VIEW-3618, Wm. Notman & Son.

three lamps, brass fittings, and a guardrail at each end “to prevent going over a horse if one stumbles.”¹⁰

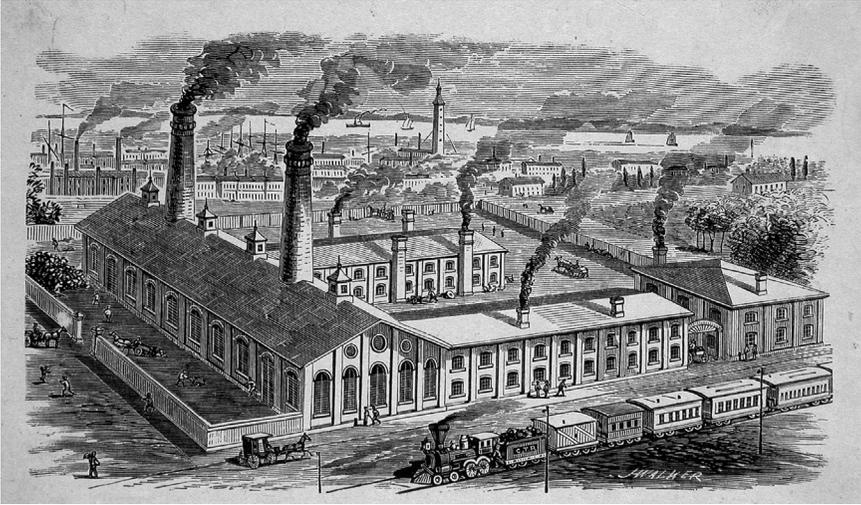
Although one might suspect steam power of supplanting muscle power (Figure 2.3), all the evidence suggests that the horse and the steam engine were complementary. Horsepower delivered coal from the docks to the industrial boiler plants, and horses drew the logs out of the snowed-in forest to the steam sawmills. “High-tech” construction for the Victoria Bridge (1853–60) employed steam engines for dredge, crane, and pumps but nevertheless employed 144 horses throughout the project for skidding timber, hauling stone, and some of the pile driving. The post office created a railway mail service and in the summer season used steamboats for the heavy-traffic axis of the St. Lawrence River, but the filigree of postal services to every hamlet depended on contracts by stagecoach or horseback, “with a good and sufficient bearskin or oil cloth covering for the mail



2.3 Horse and rider at railway crossing, “Look out for the Engine,” drawing by John Henry Walker. Courtesy of McCord Museum, M991X.5727. The railway crossing at grade still tempts the reckless driver. Nineteenth-century Montrealers amused themselves at considerable risk to their horses as well as themselves. Carrying their prejudices with them, British editors criticized the spirited *Canadien* rider and his spirited horse (pictured here), while the *Canadiens* protested the “fast driving” of the offspring of Scottish and English wealth as they showed off their sleighs on a Sunday afternoon; and the older generation of Irish Catholics tolerated the determination of their young people to beg, borrow, or steal a horse for the St Patrick’s Day parade.

pouch.”¹¹ At all the transfer points for freight and passengers, the horse ensured the intermodal link: between railway stations in the city, between opposite banks of the river, between the docks and the depot, or the mill and the freight station.

Hydraulics and steam, by concentration of mechanical power, fostered larger enterprises, apparent in Montreal in the 1850s for working iron, building locomotives, and making nails (Figure 2.4),¹² and horse-powered



2.4 W. M. Mooney & Co., Horse Shoe Nail Works, Montreal. Wood engraving by John Henry Walker. Courtesy of McCord Museum, M930.50.3.249. Mooney utilized hydraulic power at a canal lock close to the port. At least two larger nail works were already using steam power. The artist points out the presence of horse-drawn traffic and steam carriage through the same streets, sail and steam vessels in the harbour, and coal smoke as the powerful image of industrialization.

enterprises expanded in parallel. The Commissariat, for example, the logistic arm of the British army, awarded a single contract each year to cover all their hauling needs in the Montreal region; they practised competitive bidding but chose always an entrepreneur of relatively large scale and financial worth.¹³ In passenger transport, omnibus and rail companies branched out to burgeoning suburbs as independent lines but subsequently regrouped in successive bids for control of the market, reinforced by political alliances.

Concentration of express cartage was generated in 1864 when the Grand Trunk Railway made John Shedden its sole agent for transfer of goods from the point of shipment to the station in Montreal, and from the station to the point of delivery. Inclusion of the wagon express trip in the railway freight rate gave Shedden a unique advantage. At that moment he had 64 horses (the largest stable in town), by the end of the century 400, and expansion continued in 1903 when the firm bought a \$100,000 property for development of new stables close to the union stockyards for

handling transfer of cattle between railway platforms, steamships, and slaughterhouses.¹⁴

The horsepower oligopolists, like Shedden and City Passenger Railway, possessed an overwhelming bargaining position relative to their drivers. Shedden's agreement in 1864 provoked a major crisis of labour when the carters resisted the Grand Trunk imposition of a monopoly. All tactics failed - the carters' week-long strike, intervention of the Board of Trade, an appeal to the mayor and city council, and a lawsuit. The result, as Margaret Heap has argued, was proletarianization of the horsey trades.¹⁵ The next year City Passenger Railway reduced wages of its conductors and stifled a strike of conductors and stablemen. (Conveniently for the company, their former manager had become the city's chief of police.) The lagging wages of carters and drivers, the larger proportion of waged drivers, and the decline in their rate of home ownership (as shown in Table 2.1) are all indications of what is now known as "de-skilling": small-scale artisans or entrepreneurs with a degree of independence were being replaced by wage workers with little control over their working conditions.¹⁶

The shift away from the "walking city" - people and horses - began in earnest with electrification of the street railway in 1892, and by the First World War motorized trucks were replacing the teams of horses. The pressures were complex, and a decisive squeeze came from the rising value of urban land. Thanks to the traffic and trade handled by horses, Montreal had grown in radius to four kilometres along the lines of horsecars, and in height to eight-storey buildings at the centre. Horse traffic was taking up more and more of the ground floor of the city, with a peak of 400 horses per hour on Craig street. Congestion was becoming intolerable. More horses required more calories, more storage capacity for feed and hay, more horses to deliver it, and a longer supply line. For their rations of hay and oats, the horses of Montreal were competing with the horses of New York City.

Horsepower metabolism generated waste products in due proportion, demanding more ground for short-term storage and more steady labour of horses to haul it away. A horse produced on the order of 22 pounds per day of manure, or eleven times the solid waste of a full-grown human male. What value did it command? In the 1840s innkeeper Bartholomew O'Brien was keeping a horse and a cow in the very centre of town, and about once a month Charles Bowman's coachman picked up a cartload of manure

from O'Brien's stable and delivered it to Bowman's elegant greenhouse in Côte Saint-Antoine on the slope of Mount Royal. Both parties benefited, but no money changed hands. In the 1850s, gardener Joseph Beauchamp, preparing to sell his two-acre garden on the same sunny slope, contracted with his buyer to share the hauling of 150 cartloads of manure, a critical annual input for forcing their roses and lilies and salads for the early spring market. They probably paid nothing for the manure itself. By the 1880s, however, as the town was producing more manure and the market gardens had moved farther out of town (Beauchamp to Sault-au-Récollet), such mutual arrangements no longer covered the cost of transport, and the municipal government was faced with problems of disposal of the mix of manure, ashes, snow, and refuse they referred to as "street dirt." In 1891 the health inspector reported that there were still 3,000 horse stables in the city, "in general a nuisance, not drained or ventilated, and . . . almost always too close to houses."¹⁷

In other words, convenience was accompanied by nuisance, and the urban horses, long before they were evicted, were perceived as obsolete. Both Tarr and Greene argue that the nuisance was exaggerated, and the more important factor was an enthusiasm for "progress," which tended to demote the horse and, by 1911, to idealize a "horseless city."¹⁸ The appearance of the "horseless carriage" on the streets of Montreal in 1899 inspired optimism, but as late as the 1940s, farms in the region relied on horses, and Montreal still had 3,000 in service for home delivery of ice, bread, and milk. Both horses and drivers were increasingly marginalized, and their disappearance is now so complete that to discover the impact of the horses on urban design, we shall have to contend with their ghosts.

The Shadow of the Horse on the Design of the city

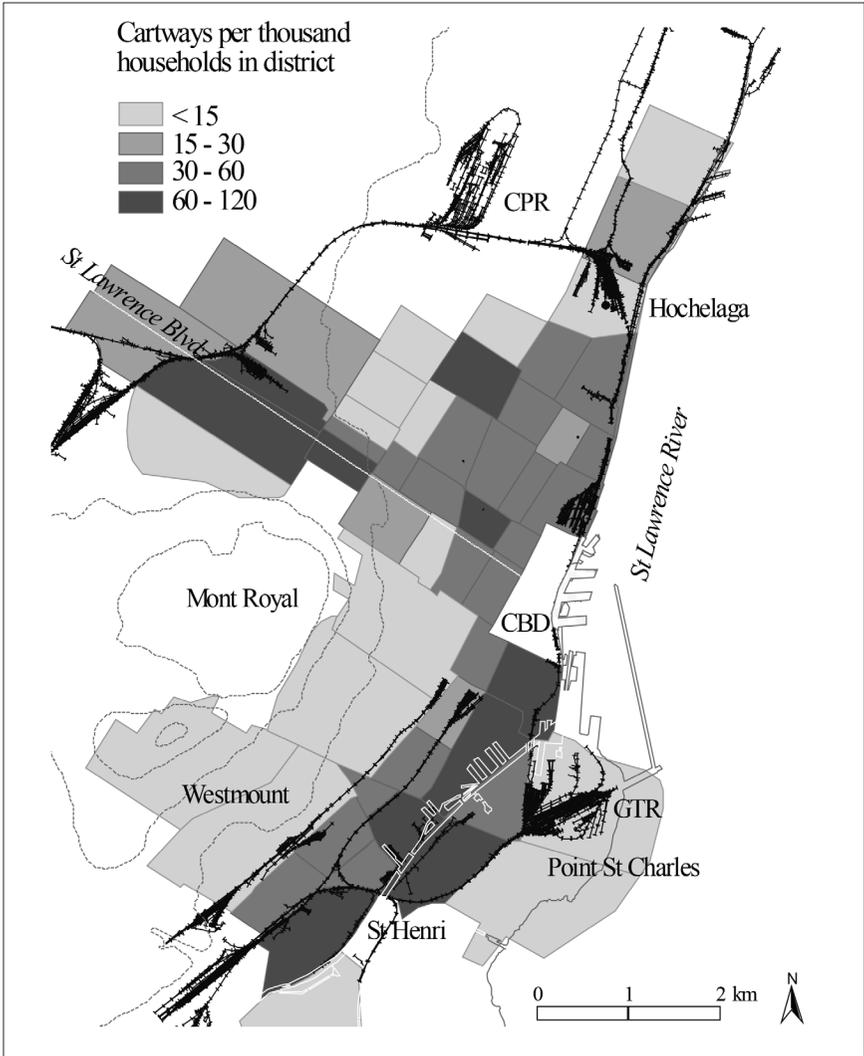
So long as the city depended on horses, it had to accommodate them. What parts of the city did they occupy? To identify equine habitat, a good indicator is the presence of cartways or passages through a row of houses such as shown in Figure 2.5. Emergence of this feature is evidence of the rise in value of urban land. In the 1840s the horse could use narrow lanes between buildings to reach the yards in the interior of the block, but in the building boom of 1871–72 it was worthwhile for a property owner to build



2.5 Cart entrance under a terrace of houses built ca 1871 on Mountain Street near Wellington. Courtesy of Jason Gilliland.

rooms over any such passage. Plates of Goad's Atlas show 1,100 covered passages in 1881, 2,800 in 1912, most of them 8 to 10 feet wide, adequate for a team of two horses with wagon or carriage. In many cases the owners of adjoining lots had signed an agreement to share and maintain the passage, and the legal servitude itself is a key to the persistence of demand for horsepower and the residential choices of its suppliers.

In Figure 2.6, the extent of covered cartways and of rail yards is further evidence of the complementarity of steam power and horsepower. The two types of transport reached their peak about this time (1912), and every industrial enterprise now needed its rail spur for the boxcar, just as every home half a century earlier had depended on the lane for the horse-drawn cartload of wood or water. The city had grown in great surges, urban population had doubled and doubled again (recall Table 2.1). As new neighbourhoods developed, many workers moved farther from the docks: roofers and painters followed the building frontier, railway employees followed the tracks and locomotive shops, quarriers and stonecutters moved closer to new quarries in Mile End. But the carters and drivers, as late as 1912, were still concentrated in neighbourhoods they had occupied in the 1840s.



2.6 Cartways per thousand households by district, Montreal, 1912. Re-created in MAP layers after Atlas of C.E. Goad 1912 and Census of 1901 population estimates. Map by Sherry Olson.

The map suggests several classic elements of explanation: topography, centrality, and land values. The topographic constraints can be observed in many other cities, founded on a waterfront, and extending gradually

onto higher ground. As businesses demanded cartage of larger volumes and heavier goods, the uphill run was a severe limitation, especially under winter conditions and for the fast travel of firefighters. The carters therefore stayed on the flats nearest river and canal, to take advantage of traffic-generating docks, railway stations, and public markets. A block from the peak traffic intersection (Craig and St. Lawrence streets), the street railway company built its stable for 400 horses. Most carters, however, could not afford high-value land; they did not stable their horses in high-status residential areas, nor in the high-rent business streets near the docks, where they produced daytime congestion stressful to the horses with its stop-and-go demands.¹⁹

The rise in land values affected also the sizes and shapes of the lots. The oldest blocks, where carters were numerous, were a tinderbox of small houses and smaller stables, sheds and privies, all walled in wood plank, floored with timber, roofed with wood shingle, stuffed with flammables like hay, and separated by board fences 5 to 10 feet high. After the conflagration of July 1852, which destroyed one fifth of the city's housing stock, the all-wood buildings were made illegal for human occupancy, but they were still used for housing horses and carpenter shops. The more resistant brick-clad rows of 1871, two or three storeys high, with their covered passageways into wide, deep lots, would survive longer, but layouts of the 1880s and 1890s featured smaller lots whose narrow frontage and shallow depth eliminated the option for a row of stables at the back of the lot.²⁰

The older deep lots were sometimes trimmed. In 1891, when capital was being raised for the electric street railway, city council proposed to accommodate it by widening major arteries like St. Lawrence Main and Notre-Dame East. To shave off a 30-foot (10-metre) strip of frontage from all the lots on one side required tearing everything down and rebuilding on the shortened lots. Compensation hearings record conflicting opinions about the values built into the old horsey layout of yards and "dependencies" convenient for horse-drawn vehicles. The owner of one lot was explicit about the importance of the turning radius of the cart, 16 to 18 feet. The most substantial grocer, resident since the 1830s, argued that his large yard (60 by 47 feet), allowed him to offer parking to south-shore farmers who crossed by the steam ferry and took this route to the downtown markets. "I've often seen 30 or even 40 vehicles in his yard," his agent testified, "It's essential." Mr. Chivé the pharmacist demanded, "With no room

for a stable, where will I put my delivery horse?” and the exasperated city lawyer replied, “Let him put it where he wants . . . He can rent a stall in a livery stable for \$1.50 a month.” At that rate, the cost of housing a horse was approaching the cost of a room in the family dwelling, or the average rent per person citywide.²¹

Horses and people living together

The high-density mix of homes and stables is enough to spark the imagination: at night the sounds of the horses chewing and moving in their stalls, in the morning the jingle and rattle and stomp as the horses were led out, and the scents of hay and leather and piss and manure. Requiring at least minimal care twenty-four hours a day, the horse was part of the household. Horses had names, of course, and faces and personalities. Like those eight black police horses, chosen from the “Canadian” breed, trained to endure brass bands and shouting, and specially shod for traction on ice, each horse was accustomed to a particular person.

Journals and contracts provide further clues to the intimacy between horses and people. Bartholomew O’Brien, the innkeeper, refers to his animals: In May 1843, “Put the colt on grass at 10 shillings a month”; in August, “Got the stable cleansed”; in September, “Brought the horse from grass.” “Bought a cow; she calved; saw the calf”; in February, “Horse evacuated white worm 6 inches long.” That spring O’Brien sold his horse, gig, and harness, and after that for a Sunday drive he borrowed horse and carriage from his butcher neighbour McShane. But notations in the journal show a continued dependence on hired horsepower: “Took away 7 loads snow.” Two days later, “Nine loads.” His wife’s purchases for operating the small inn (six guestrooms) included a barrel of hops, in the fall eleven cords of birch and maple firewood, two pigs ready for salting, a barrel of apples, a barrel of mineral water, a barrel of oysters . . .²² Each transaction involved a few shillings for delivery and, in the case of the grain dealer’s regular driver, a glass of warmth.

Tracing particular families suggests that over the first half of the nineteenth century, some carters were climbing a recognized ladder of social status, but the strike of 1864 was indeed a turning point, and their contracts confirm a narrowing of opportunities in the following decade. The five children of Pierre and Thérèse Beauchamp came into Montreal in the

wake of the great fire of 1852, when reconstruction generated enormous demands for hauling brick and lime and timber. The four sons were carters, and the daughter married another. Each of the five couples was equipped with a kit of horse, harness, cab, and water barrel. Léon, for example, in 1862 rented out his red horse, full harness, three-seat sleigh (brown with red runners), buffalo robes and pillows stuffed in grey cashmere, a large cart, and the feed, all for \$5 a month. Each of the five couples managed to obtain a building lot in the same street, built a small wood double-duplex, and improved it with fire-resistant brick cladding. The family occupied a ground floor unit and rented out the twin dwelling and the two little apartments in the attic storey to smaller households (two or three persons), newcomers to the city. The Beauchamp families were financially a little more secure than average, thanks to the houses they had acquired, but they had reached a limit: the spaces they occupied were below the city-wide median in floor area and value. In 1872 Léon's brother Joseph sold his four-wheeled Rockaway of local manufacture, with harness, for \$412, about one third less than what he had paid for the house; and when Léon died (about the same time), all the furnishings of the house and stable amounted to \$100, just enough to cover legal costs and funeral. His widow Mathilde's inventory encapsulated their modest lifestyle: she noted "a bucket for the house and a bucket for the horse."²³

Irish-born Arthur Ryan and his wife, after the strike of 1864, ran a little hotel on Wellington street for a few years. In 1871 he sold it to a saloon keeper, but kept his harness and carriage gear and partnered with his father-in-law, John Mulhern, to buy and sell cattle. Ryan had a lease on two one-storey houses with yard, shed, and stables near the St. Antoine market, but a fire on an adjoining lumberyard destroyed everything (19 July 1873), and the landlord's delay in rebuilding, he complained, was forcing him to keep his horses at a livery stable and buy them hay by the bundle instead of by the cartload. When Ryan died (1889), his mother-in-law Mrs. Mulhern, now a widow, managed to pay off the building society; the house was "under order to be pulled down as a danger," and the list of people present at the after-death inventory makes it clear that their social network was still centred on horses. Arthur's brother and eldest son were horse dealers; a son-in-law was a driver, another a grocer, and two witnesses, friends of the family, were horseshoers.



2.7 Mr. Wray's horse and sleigh, Montreal, 1870. Courtesy of McCord Museum, I-44209.1, William Notman.

As the options narrowed, some carters concentrated their activities as wood or coal dealers, and some succeeded in niche markets with specialty vehicles. Charles Dumaine, from the moment of the 1864 strike, used his political connections to develop a business as undertaker: his location was convenient for carting bodies fished from the river and making them available for coroner's inquest. Joseph Wray, who appears in Figure 2.7, obtained in 1883 the contract to operate the new horse-drawn ambulance for the Montreal General Hospital. Wray and Dumaine were among the first to take advantage of the telephone. A few years later Dumaine was questioned about a lucrative racket in funeral ornaments, with associates in Ontario and the United States, and in 1903 he still held his municipal privilege of transporting unclaimed bodies. A reporter described how the horses drawing a flower-strewn wedding carriage, the white-ribboned vehicle for a baptism, the crepe-decked hearse, and the hideous morgue wagon all found their way home to the same stable door, "where they're grooming the horses and talking politics."²⁴

In such close everyday proximity, horses and their masters – the “dominant animal” – shared their moments of ill temper, the horseflies, and the fleas; and the families dependent on the horse shared their anxiety about the health of the animal. How serious was the limp, the drooping head, the dripping nose, or the refusal of food?

Pathology and Progress

The great concentrations of hospital patients in nineteenth-century cities made possible new clinical observations in medicine, a new conception of clinical teaching, and integration of laboratory work with scalpel and microscope. Lost sometimes from sight is the intense interaction between observations of humans and of other species – interactions that historians of veterinary medicine argue contributed to the spectacular breakthroughs of the late nineteenth century in the use of antiseptics, surgical techniques, identification of disease vectors, and development of vaccines.²⁵ Horses in particular, so heavily concentrated in cities, were perceived as valuable enough to merit medical care and scientific research, so that veterinary science emerged as an urban profession. Important centres of innovation in comparative anatomy, comparative physiology, and comparative pathology were Berlin, Paris (Alfort), Vienna, Edinburgh, and Brussels, where the stables of omnibus and horsecar lines provided clinical and experimental opportunities on a scale comparable to the urban lying-in hospitals and institutions of *l'Assistance publique*. In this context, Montreal, with its fast growth, its crossroads location in the transport network of the continent, and its bilingual access to transatlantic networks of science, was large enough to attract in the 1870s a red-hot cluster of young scientists who paid attention to both human and equine disease.

Duncan McEachran and William Osler resettled in Montreal at about the same time (1870) and became close friends and collaborators. McEachran had trained in Edinburgh, started practice in Toronto, and founded a veterinary college in Montreal. He arranged to have his students attend lectures with the medical students at McGill University, and take the same examinations, while the medical students took their classes in pathology and anatomy at the veterinary college. Osler, meanwhile, had done undergraduate work in Toronto and graduate work in medicine at McGill. In his postgraduate work in Berlin, he was deeply impressed with Rudolph

Virchow's comparative method and demonstrations of delicate techniques of dissection that made autopsy the prime tool for research into parasites, malformations, and the body's chemical and cellular responses to infection and injury. In his years in Montreal (1870–72 and 1874–84), Osler mentored students of both institutions and involved them in the one thousand (human) autopsies he directed at the Montreal General Hospital. Taking the same interest in post-mortem examination of other species, Osler published reports on parasites (trichinosis) in the pork supply of the markets, made an examination of the lungs of a horse that died of pneumonia in the flu epidemic, and, with the help of the veterinary students, investigated a bronchitis of dogs at the Montreal Hunt Club; the autopsies showed that a worm was the cause of the fatal "epidemic cough."

The students of the veterinary college obtained clinical experience by daily rounds, visiting 400 horses every morning, patients in their own "horse hospital" and in the stables of Shedden, the street railway, the ice company, and the omnibus company – clients who paid a monthly fee for routine care and diagnostics. Since horses amounted to a large share of their working capital, stable owners recognized the economic value of keeping them healthy. Horses were usually about five years old and fully trained, when they were purchased for urban service, and might work five to ten years before they were sold off to marginal farmers. The street railway drivers (easier to replace than the animals), worked a 12-hour schedule, handling two relays of horses to cover the morning, noon, and evening rush hours, with additional crews of stablemen to handle the feeding and grooming.²⁶

Companies dependent on horsepower were interested also in getting the greatest return from that biochemical engine. The applied scientists in Europe provided evidence that the efficiency of the horse as a "living motor" was far greater than the efficiency of the steam engine. A rapid digestion allows the animal to increase oxygen consumption in a spectacular way, and enables heavy work for 4 to 6 hours, on condition of alternate days of rest, adequate fodder (hay), and an appropriate ration of fuels higher in protein, usually oats.²⁷ The Paris omnibus company, proprietor of ten thousand horses, weighed them regularly to verify that nutrition was keeping pace with energy expended.²⁸ By the 1870s, agricultural chemists were proposing new combinations of feed; carriage makers were competing to re-engineer harnesses and springs; cities were experimenting with

new paving materials to improve traction and reduce the noise of horses' hooves. In Europe, military applications (for supply trains as well as cavalry) justified the creation of national research stables where collaborations occurred similar to that between McEachran and Osler. At Alfort, for example, Étienne-Jules Marey, in connection with his analyses of circulation of blood, created instruments for recording the pulse and heartbeat of the horse, and photographing the shadow of his movements at a walk, a trot, a canter, or a gallop.

Having learned that the trot required twice the energy of the walking pace, and that the limitations were rates of digestion, feeding, and thickness of muscle, research establishments began "tailoring" the horse, by breeding trotters for the hacks and cabs, and heavyweights for hauling at a walk.²⁹ "Improvement" strategies stimulated international trade in stallions. Meanwhile, the enormous demand for horses during the Civil War in the United States had depleted the Canadian market and come close to ending the tradition of the "all-purpose" Canadian breed descended from the gifts of Louis XIV and appreciated for its combination of docility and spirit. Reconstruction and renewal of the breed, with debate over ideal size and weight, justified the creation of breeding societies, stud books, a research station, and a herd of government mares. Among the enthusiastic horse breeders in Montreal in the 1880s were the veterinarian McEachran, five or six of the city's millionaires, and Osborn Morton, a "fearless jockey" born a slave in Kentucky.³⁰

Settlement of the prairies of Canada and the United States demanded import of thousands of horses from Britain, France, and Belgium, while Britain was importing horses from Belgium, France, and Germany for its urban omnibus fleet, and the breeding ventures produced further cross-currents, making Montreal a centre for syndicates for the international market (some more trustworthy than others). At the time of the Boer War (1899–1901) several thousand horses were selected in western Canada and shipped through Montreal to South Africa, thousands more for the First World War.³¹ All of these movements – by steamboat and railway, or by a trot across the border – spread diseases, and outbreaks were aggravated by collection of army horses in dense herds, under stressful conditions.

The increase of international traffic in horses therefore required a new level of regulation for testing, quarantine, and disposal of dead animals. Students of the Montreal Veterinary College (MVC) – few but highly

selected – founded a suite of veterinary schools in Montreal, both English and French. Joseph-Alphonse Couture became the first inspector at the animal quarantine at Lévis, and organized breeding records for both the *cheval canadien* and the *vache canadienne*. MVC graduates organized provincial and federal laboratories for production of drugs and vaccines, and they spearheaded efforts to obtain inspection of horses for export from Canada (1896), inclusion of horses in the federal Animal Contagious Diseases Act, and the testing of imported horses (1908).³² All maintained the philosophy of comparative medicine articulated by Osler in a public lecture to the veterinary college in 1876: he used skeletons of a horse, a fish, a goat, and a man to demonstrate the similarity of structure and to impress upon his audience “that similarity in animal structure is accompanied by a community of disease, and that the ‘ills which flesh is heir to’ are not wholly monopolized by the ‘lords of creation.’”³³

There are, of course, additional reasons why horses and human beings shared their ills. Because of the intimacy among domestic animals (as described earlier), horses suffered from tuberculosis (bovine or human), rabies, and the various tapeworms, roundworms, and pinworms that stunted the growth of human children in nineteenth-century Montreal. Because humans and horses shared the same messy, high-density urban environment, they were subject also to traffic accidents, tetanus (lockjaw), heat exhaustion, slips on the ice, drowning, septicemia, and stress-induced nervous and compulsive behaviours. Despite customary law, municipal bylaws, and sentences as severe as six months in jail, animals were subject to abuse – pranks, beatings, and hard driving. When “Murphy turned out a horse to die” on an unfenced vacant lot, it attracted “vicious boys who pelted the poor animal.”³⁴

But the vulnerability of the horse to such ills as heart disease, anemia, cirrhosis of the liver, tumours, tooth decay, and sexually transmitted diseases arose in large measure from the commonality of structure Osler and McEachran emphasized. Horses and humans have similar vulnerabilities because they share the fundamental genetic building blocks conserved in a long process of mammalian evolution. Some of the intersections of economic pressures and scientific advance can be glimpsed from two diseases in which horses were centrally involved: an inconvenient epidemic of “horse flu” and the recurrent outbreaks of a more deadly disease known as glanders.

The week-long carters' strike in 1864 had made Montrealers acutely aware of their dependence on horses, and they were further sensitized by a two-week siege of a "catarrh of horses" in October 1872. First observed near Toronto (in Markham and York townships), the disease moved rapidly along rail lines, westward to Chicago, St. Louis, and Omaha; eastward to Montreal (15 October), from there to Halifax and south to New York City and Charleston. By early December the malady reached Santa Fe and Havana. In each city, within two or three days virtually every animal in a stable developed the hacking cough and running nose and eyes. On 18 October all the cab horses in Montreal were reported sick, and at the races at Côte Sainte-Catherine, several contestants (reduced in numbers) were taken with such fits of sneezing that they couldn't run. A week later thirty-nine horses had died. Like flu epidemics among humans, epizootic outbreaks (among animals) had occurred for centuries. Referred to as "the zooty," the disease was rarely fatal, but life-threatening complications like pneumonia would set in if the animals were not allowed to rest. As a result, city health officers ordered the passenger railway and express services to stop running. Until 2 November, human beings had to pull wagons, walk when they preferred to ride, and postpone their weddings. The stablemen, meanwhile, burned sulphur and tar, and dosed the sick horses with patent cough medicines and beer. As caricatured in Figure 2.8, "The stables presented the appearance of hospitals, in each compartment was an equine patient on his bed of straw, while up and down went the hostlers with lights, medicines, and blankets."³⁵

Recent concern about influenza in human populations has led to re-discovery of the 1872 horse flu and recognition of the simultaneous appearance of a "chicky flu" that decimated flocks along precisely the same routes.³⁶ The "avian flu" is just one cluster in a vast array of viral infections, bacteria, and parasites exchanged among people and animals. When transmission occurs between species, it affects each in a different way, and is sometimes accompanied by modifications of the virus which make it more virulent or more easily transmitted among humans. Despite the rarity of transmission between species, the mobility of urban horses made them a high-risk vector. Most were raised on farms and were accompanied by dogs; they transported forest products with all their insect pests, and they were themselves exposed to all seasons and habitats.³⁷ As we have seen, horses ensured the critical links between other modes of transport,



2.8 “The Doctor’s Visit” is drawn from a set of four titled “Les chevaux malades,” reporting an outbreak of equine flu, but it points to the importance of clinical experience with urban horses in the development of veterinary medicine. Originally published in *L’Opinion publique*, 7 November 1872. Courtesy of McCord Museum, M985.230.5073.2.

between small towns and large, between rural and urban populations, and across international borders.

Glanders, also a disease known since ancient times, was far more devastating than the flu. No vaccine or cure was known, and a painful death was near-certain. Much like the flu, the infection was transmitted among horses by mucous and respiratory secretions, when horses shared troughs, nuzzled, groomed, and snorted. (Since they do not breathe through their mouths, horses snort to clear nasal passages.) When this “loathsome and fatal” infection was occasionally transmitted to humans (often stablemen or farriers), it caused them also great pain, with lesions of the lymph, “breakdown and liquefaction” in many organs. Obstacles to control were the variability of symptoms and incubation times. Infection might go undetected for months, even years, before symptoms were recognized. In 1889, for example, a court ordered Montreal street railways to compensate a farmer for the pair he had purchased from their pool of “cast-off horses.”

The horses looked healthy when he closed the deal but were obviously ill when they arrived at the Compton railway station two days later.³⁸ A sufficiently specific diagnostic test was developed in Europe in 1890 (a skin patch like the tuberculin test). Canada pioneered systematic testing and in 1902 adopted the strategy of destroying every animal that tested positive. To ensure reporting, the federal government provided some compensation to the owner. By such drastic means, control of glanders was achieved in Canada, Britain, and the United States in the 1930s.³⁹

As a vector of disease, the horse is no longer seen as an everyday threat. The masses of urban horses no longer exist; the racehorses are pampered; riding stables and breeders are able to vaccinate their horses against glanders, tetanus, rabies, and anthrax; and some horses are raised for their contribution to vaccines for human diseases. The experience of a century ago is nevertheless pertinent to the growing populations of pets in cities today and the commensals – the mice and rats and pigeons that share our stores and leftovers. Veterinary medicine has again become an urban profession, and scientists have applied new tools to affirm the extent to which humans and other mammals share their genome (about 98 per cent) and therefore their vulnerabilities. As a modern heart specialist argues, “Why *don't* we human doctors routinely cooperate with animal experts?”⁴⁰ This has renewed interest in the practice of comparative medicine and comparative pathology, the recognition of a concept of “One Medicine,” and the exchange of ideas that McEachran, Osler, and Couture introduced in Montreal in the 1870s.

Conclusion

Our tour of Montreal, between Mount Royal and the St Lawrence River, has pointed out features of urban design that reflect the presence of the horse in the past: the overall layout of the city into streets, blocks, and lots, the surfacing of yards and docks. Spaces were adapted to the gait of a horse, the grades and loads and turns a horse could handle. Surviving lanes and passageways retain the dimensions that satisfied horse and driver, those two large animals that together constituted a formidable instrument for remaking landscapes. Today, in the absence of the horse, there may be good reason for holding fast to the scale of the beast, so close to the scale of the human being; for conserving habitats organized with

front-and-back, upstairs-and-downstairs; and for preserving a ground-level city at the scale and pace of the 1890s.

As the city grew, servicing the horses demanded more space and energy. The squeeze experienced by the horses 1900–1920 sheds some light on what happened to the railways half a century later – the land was coveted and converted. The same squeeze is now affecting the automobile, since motor vehicles occupy over one third of the city’s ground floor and compete for high-rise and underground spaces as well. Their requirements for smooth paving and compaction of land, by reducing the percolation of water, have aggravated flooding, and their massive waste disposal into the atmosphere is a local health hazard as well as a sizable component of global climate change. The century-old question reappears: What degree of congestion will we tolerate?

Exploring the lives of Montreal’s once-upon-a-time horses leaves us with yet larger questions that go deeper into the past: questions about the evolution of species, about our own animal nature and our life-and-death intimacy with other animals. For the city dweller today, any encounter with a horse is an excursion into the past. So next time you meet a horse on the street, you may find yourself face to face with questions the young Charles Darwin, expert in dissection and horsemanship, was asking himself in 1837:

If we choose to let conjecture run wild then animals our fellow brethren in pain, disease death & suffering & famine; our slaves in the most laborious work, our companion in our amusements. They may partake, from our origin in one common ancestor we may all be netted together.⁴¹

Notes

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municipal archives: http://ville.montreal.qc.ca/portal/page?_page-id=5677,32261565&_dad=portal&_schema=PORTAL “Grandes rues de Montréal,” in collaboration with the Laboratoire d’histoire et de patrimoine de l’Université du Québec à Montréal.

- 1 Francis M.L. Thompson, *Victorian England: The Horse-Drawn Society: An Inaugural Lecture* (London: Bedford College, 1970); Francis M.L. Thompson, ed., *Horses in European Economic History: A Preliminary Canter* (British Agricultural History Society, 1983); Ralph Turvey, "Horse Traction in Victorian London," *Journal of Transport History* 26, no. 2 (2005): 38–59; Daniel Roche, *La culture équestre occidentale, XVI^e–XIX^e siècle: l'ombre du cheval* (Paris: Fayard, 2008), and the sequel, *La gloire et la puissance*, 2011.
- 2 Norman Beattie, "Cab Trade in Winnipeg, 1871–1910," *Urban History Review* 27, no. 1 (1998): 36–52.
- 3 Clay McShane, "Transforming the Use of Urban Space: A Look at the Revolution in Street Pavements, 1880–1924," *Journal of Urban History* 5 (1979): 279–307; Clay McShane and Joel A. Tarr, *The Horse in the City: Living Machines in the Nineteenth Century* (Baltimore: Johns Hopkins University Press, 2007).
- 4 Ann Norton Greene, *Horses at Work: Harnessing Power in Industrial America*. (Cambridge, MA: Harvard University Press, 2009), 58 and xi.
- 5 Useful for the Canadian historiography are Leah M. Grandy, "The Era of the Urban Horse: Saint John, New Brunswick, 1871–1901" (Master's thesis, University of New Brunswick, 2004); Norman Beattie, "Cab Trade in Winnipeg, 1871–1910," *Urban History Review* 27, no. 1 (1998): 36–52; Darcy Ingram, "Horses, Hedges, and Hegemony," in *Metropolitan Natures, Environmental Histories of Montreal*, ed. Stéphane Castonguay and Michèle Dagenais (Pittsburgh, PA: University of Pittsburgh Press, 2011), 211–27; on urban design and streeting in Montreal, Jean-Claude Robert, *Atlas historique de Montréal* (Montréal: Art global, 1994); Jean-Claude Robert, "Réseau routier et développement urbain dans l'île de Montréal au XIX^e siècle," in *Barcelona-Montréal, Développement urbain comparé*, ed. Horacio Capel et Paul-André Linteau (Barcelona: Universitat de Barcelona, 1998), 99–116.
- 6 The dollar-a-day labourer with a family reported to the Census of 1901 the year's income at \$300, and the city's tax assessor estimated his four-room flat at a rental of \$60 or \$70 a year, excluding heat and the tax for water.
- 7 *Montreal Star*, 7 February 1885.
- 8 Cast by Mears & Co. in England, a first bell arrived 21 October 1843; underweight, it failed, and a second bell, heavier still, comparable to that of Notre-Dame of Paris, arrived 19 September 1847. For a drawing, see *Illustrated London News* of 19 August 1843; for details, Louis Adolphe Huguet-Latour, *Annuaire de Ville-Marie* (Montréal, 1872), 410–16.
- 9 Kevin J. Crisman and Arthur B. Cohn, *When Horses Walked on Water: Horse-powered Ferries in Nineteenth-Century America* (Washington, DC: Smithsonian Institution Press, 1998); local contracts, BANQ, Notarial archives, Acts of T.-B. Doucet, 21 June and 16 December 1820, 3 November 1827.
- 10 *Montreal Star*, 27 May 1886.

- 11 BAnQ, Act of Griffin, 11 December 1829, between Emery Cushing and Andrew Porteous, Post Master at Montreal.
- 12 Larry McNally, "Technical Advance and Stagnation: The Case of Nail Production in Nineteenth-Century Montreal," *Material History Review* 36 (Fall 1992): 38–48.
- 13 For example, BAnQ, Act of Gibb, 29 April 1857.
- 14 *La Patrie*, 8 October 1903, a site bounded by Notre Dame, Richmond, and William streets in St Ann's ward. Shedden's railway privileges extended to numerous other cities, notably in Ontario. Similar shifts toward oligopolistic practice are documented for Paris and London in Nicholas Papayanis, "Un secteur des transports parisiens: Le Fiacre, de la libre entreprise au monopole (1790–1855)," *Histoire, économie et société* (1986): 55–72; Nicholas Papayanis, "The Development of the Paris Cab Trade, 1855–1914," *Journal of Transport History* 8, no. 1 (1987): 52–65.
- 15 Margaret Heap, "La grève des charretiers à Montréal, 1864," *Revue d'histoire de l'Amérique française* 31, no. 3 (December 1977): 371–95
- 16 See also Christopher Armstrong and H.V. Nelles, *Monopoly's Moment: The Organization and Regulation of Canadian Utilities, 1830–1930* (Philadelphia: Temple University Press, 1986), and http://stm.info/fr/a_propos/decouvrez_la_STM_et_son_histoire/histoire.
- 17 City of Montreal, *Annual Report of the Health Department for 1899*.
- 18 Greene, *Horses at Work*; Clay McShane and Joel A. Tarr, "The Decline of the Urban Horse in American Cities," *Journal of Transport History* 24 (2003): 177–99; Joel A. Tarr, "The Horse: Polluter of the City," in *The Search for the Ultimate Sink: Urban Pollution in Historical Perspective*, ed. Joel A. Tarr (Akron, OH: University of Akron Press, 1996), 323–34.
- 19 At the core (what we now call "Old Montreal"), 200 cartways remained in 1880, 100 in 1912, but in those blocks there were few private homes, no resident carters, and no stables. The old courtyards had been rebuilt four to eight storeys high, and vestigial "public lanes" functioned as narrow loading docks, accessible only through privately owned passages under buildings.
- 20 A regulation of 1865, conceived also as a firefighting measure, called for a bearing wall at intervals no greater than 25 feet, and this rule crystallized the practice of laying out building lots 25 feet wide, rather than the 40-foot frontages common in earlier times. On the transition which displaced the load from walls at front and back to the side walls, see Jules Auger, *Mémoire de bâtisseurs, Répertoire illustré des systèmes de construction du 18e siècle à nos jours* (Montréal: Méridien, 1998); on rear dwellings and lot sizes, Luc Carey, "Le déclin de la maison de fond de cour à Montréal, 1880–1920," *Urban History Review* 31, no. 1 (2002): 19–36; on the increase in floor area of working-class dwellings, Jason Gilliland and Sherry Olson, "Claims on Housing Space in Nineteenth-Century Montreal," *Urban*

- History Review* 26, no. 2 (March 1993): 3–16.
- 21 BAnQ, Superior Court, Expropriations, dossier 184, Notre-Dame Street East.
- 22 McCord Museum, Papers of Bartholomew O'Brien, Day Book.
- 23 Along with many other carters and carpenters, they bought from the Logan estate, at Dorchester and Durham, today Plessis and René-Lévesque boulevard, just north of RadioCanada. The smallest lot was 36 by 75 feet, the largest 40 by 85, typical of the older layouts carters preferred. For details of this family see Sherry Olson and Patricia A. Thornton, *Peopling the North American City, Montréal 1840–1900* (Montreal: McGill-Queen's University Press, 2011); possessions of other carters, Olson, "Feathering Her Nest in Nineteenth-Century Montreal," *Social History / Histoire sociale* 33, no. 65 (May 2000): 1–35.
- 24 Canada, Royal Commission on Capital and Labor (Ottawa: Government Printer, 1889), vol. 5 Quebec Testimony, witnesses Halpin, Girard, and Murphy. "Voitures de mariage fleuries . . ." *La Patrie*, 5, 9, and 21 October 1903, 10 July 1905, and 26 October 1908.
- 25 Thomas W. Dukes, "That Other Branch of Medicine: An Historiography of Veterinary Medicine from a Canadian Perspective," *CBMH (Canadian Bulletin of Medical History)* 17 (2000): 229–43; Leon Z. Saunders, "From Osler to Olafson: The Evolution of Veterinary Pathology in North America," *Canadian Journal of Veterinary Research* 51 (1987): 1–26; P.M. Teigen, "Nineteenth-Century Veterinary Medicine as an Urban Profession," *Veterinary Heritage* 23 (2000): 1–5; P.M. Teigen, "William Osler and Comparative Medicine," *Canadian Veterinary Journal* 25 (1984): 400–405.
- 26 It is likely that the workhorse population of the city was renewed every three years; smaller marginal enterprises like those of Léon Beauchamp and Arthur Ryan were especially vulnerable, seasonally undernourished, and overworked. Rest and nourishment were the prescription for many injuries and ailments, but the workhorses, like their human partners and owners, couldn't afford to rest; cf. Mary Ann Poutanen et al., "Tuberculosis in Town: Mobility of Patients in Montreal, 1925–1950," *Social History / Histoire sociale* 42, no. 83 (May 2009): 69–106.
- 27 During the War of 1812, Montreal's "Government Horses" were provided with 16 pounds of timothy hay per day, oats (undetermined), and 6 pounds of clean straw weekly. During the Civil War, the Union Army ordered daily rations for wagon trains at 14 pounds of hay and 12 pounds of grain per animal; in terms of the load they could pull under optimal conditions, the team consumed about 6 per cent per day and was underfed (Greene, *Horses at Work*, ch. 4). To complete the European antecedents to Greene's discussion of the "animal motor," see André Sanson, *Traité de Zootechnie* (Orléans: Pigelet, 1901), vol. 3, 295–360. The Paris omnibus company recommended 8 kg of oats per day and had to ensure access to 30 to 50 litres of water.
- 28 A. Sanson, "Moteurs animés," 304–71, in H. Bouley, J.J. Reynal et al., *Nouveau dictionnaire de*

- médecine, de chirurgie et d'hygiène vétérinaires*, vol. 13 (Paris: Asselin & Houzzet, 1885); H. Bouley, J.J. Reynal, et al., "Ration," vol. 18, 545–83; "Relations nutritives," vol. 19, 189–94. See also Ghislaine Bouchet, "La traction hippomobile dans les transports publics parisiens (1855–1914)," *Revue historique* 271, no. 549 (January–March 1984): 125–34.
- 29 In Montreal, McEachran took a special interest in raising Clydesdales from England; Louis Beaubien purchased Percheron stock from France, and Couture focused on improving the smaller Canadian breed, about 1,100 pounds. Paul Bernier, *Le cheval Canadien* (Sillery, QC: Éditions du Septentrion, 1992). For a broader view of trends in animal breeding and international trade, see Margaret E. Derry, *Horses in Society: A Story of Animal Breeding and Marketing Culture, 1800–1920* (Toronto: University of Toronto Press, 2006).
- 30 After being sold together with a fine horse to a man in St. Louis, Morton escaped to Canada. Employed initially as a servant by members of the wealthy Stephens and Allan families in Montreal, he travelled as a steward on Allan Line ships, managed John Shedden's horse breeding farm in the suburb of Lachine, and developed his own breeding operation at Bluebonnets. At the time of his death – thrown and trampled in a race at the hackmen's summer picnic – he was reported the owner of "the finest thoroughbred stallion in the country" (*Montreal Star* and *La Patrie*, 5 and 6 August 1887).
- 31 A Canadian regiment, 500 strong, was astonished at the losses in transit despite care in selection and transport: see *Strathcona's Horse: South Africa, 1900–1901* (Edmonton, AB: Lord Strathcona's Horse Regimental Society, 2000); R.J. Moore-Colyer, "Aspects of the Trade in British Pedigree Draught Horses with the United States and Canada c. 1850–1920," *Agricultural History Review* 48, no. 1 (2000): 42–59; and James Robert Johnston, *Riding into War: The Memoir of a Horse Transport Driver, 1916–1919* (Fredericton, NB: Goose Lane Editions, 2004)
- 32 While programs of veterinary education have since been relocated in agricultural colleges, the suite of three small, pioneering institutions in Montreal left a major imprint on the profession. For details, see Marcel Pépin, *Histoire et petites histoires des vétérinaires du Québec* (Montreal: F. Lubrina, 1986); the online *Dictionary of Canadian Biography*, www.biographi.ca, for the founders: Joseph-Alphonse Couture, by Denis Goulet and Frédéric Jean; William Osler, by Charles G. Roland; Duncan McEachran, by Goulet and Jean; Wyatt Galt Johnston, by Denis Goulet and Othmar Keel; Orphyr Bruneau; Victor-Théodule Daubigny, by Louis-Philippe Phaneuf; the classic Harvey Cushing, *The Life of Sir William Osler* (Oxford: Clarendon Press, 1925); and, at the international level, Louis Pasteur.
- 33 William Osler, "The Relations of Animals to Man," Inaugural Lecture to the Montreal Veterinary College 4 October 1876, *Veterinary Journal and Annals of Comparative Pathology*, December 1876, 465–66.
- 34 *Montreal Pilot*, 25 August 1859. See also the *Montreal Witness* of

- 5 March 1873 on cruel practices of the passenger railway; and the *Witness* of 6 August 1887; numerous early incidents in BANQ, TL36, S37, procès-verbaux des juges des sessions de la paix, Montréal, 1833–1842, such as “maltraité à outrance un cheval attelé” (February 1833).
- 35 *Montreal Witness*, 17 October 1872.
- 36 David M. Morens and Jeffery K. Taubenberger, “An Avian Outbreak Associated with Panzootic Equine Influenza in 1872,” *Influenza and Other Respiratory Viruses* 4, no. 6 (2010): 373–77; and by the same authors in the same journal issue, “Historical Thoughts on Influenza Viral Ecosystems,” 327–37. The origin in Ontario has never been explained, but the events coincide with unique refugee movements from rural Alsace and Lorraine, as reported in *Montreal (La Minerve)*, 19 September, 2 and 3 October 1872).
- 37 United States Department of Agriculture, *Special Report on Diseases of the Horse* (Washington, DC: US Govt. Printing Office, 1942); Nigel Morgan, “Infant Mortality, Flies and Horses in Later-Nineteenth-Century Towns: A Case Study of Preston,” *Continuity and Change* 17, no. 1 (2002): 97–130; Denis Goulet and André Paradis, *Trois siècles d’histoire médicale au Québec* (Montréal: vlb éditeur, 1992).
- 38 Montreal Street Railway Co (appellants) & Percival K. Lindsay (respondent), *The Montreal Law Reports: Court of Queen’s Bench*, vol. 6, ed. James Kirby, 125–30.
- 39 The terms *farcy* and *la morve* refer to the same disease. J. Brian Derbyshire, “The Eradication of Glanders in Canada,” *Canadian Veterinary Journal* 43 (2002): 722–26; Lise Wilkinson, “Glanders: Medicine and Veterinary Medicine in Common Pursuit of a Contagious Disease,” *Medical History* 25 (1981): 363–84; George Dougal Robins, “A Study of Chronic Glanders in Man,” *Studies in the Royal Victoria Hospital Montreal* 2, no. 1 (1906): 1–98. In the 1940s eight workers in a US military laboratory were accidentally infected, and concern resurfaced with respect to its potential for biological warfare. Bridget Carr Gregory and David M. Waag, “Glanders,” in *Medical Aspects of Biological Warfare*, ed. Zygmunt F. Dembek (Washington DC: Government Printing Office, 2007), 121–46.
- 40 Barbara Natterson-Horowitz and Kathryn Bowers, *Zoobiquity: What Animals Can Teach Us About Health and the Science of Healing* (New York: Alfred A. Knopf, 2012), 7, 18; see also Lise Wilkinson, *Animals and Disease: An Introduction to the History of Comparative Medicine* (Cambridge, UK: Cambridge University Press, 1992). On the continuing shared evolution of bacterial and viral infections among humans and their domestic animals, see Ellen K. Silbergeld, *Chickenizing Farms and Food* (Baltimore: Johns Hopkins University Press, 2016).
- 41 Charles Darwin, Notebook B, p. 232, as cited by A. Desmond & J. Moore, *Darwin, The Life of a Tormented Evolutionist* (New York: W.W. Norton), 238ff.