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Harnessing (and Yoking) Ox Power in Canada: A Historical Overview

Abstract

Cet article démontre que l'usage des bœufs s'est poursuivi postérieurement à l'ère des pionniers au Canada, non seulement dans les régions agricoles les plus marginales, mais aussi dans les Prairies de l'Ouest et dans l'industrie forestière. Il montre également que l'emblématique joug artisanal n'était pas le seul moyen d'utiliser la force des bœufs, car on employait des harnais de cuir dans les Prairies, des jougs de garrot achetés dans le commerce en Colombie-Britannique et un joug de corne (ou de tête) particulier en Nouvelle-Écosse.

Abstract

This article demonstrates that the use of oxen continued past the pioneer era in Canada, not only in the more marginal agricultural areas but also on the western Prairies and in the forest industry. It also shows that the iconic hand-crafted neck yoke was not the only means used to exploit ox power, as leather harnesses were used on the prairies, commercially-produced neck yokes in British Columbia, and the distinctive head yoke in Nova Scotia.

Symbolizing the settler's mastery over the wilderness environment, the use of oxen fitted with a hand-crafted yoke is generally associated with what has been referred to as America's wooden age (Hindle 1975). As a result, oxen have been largely ignored by historians as a short-lived and primitive stage in the narrative of North American agricultural development. The most significant exception is a brief article by Jonathan Liebowitz (1992) which shows that ox power persisted in certain regions and economic sectors of the United States, as in Europe, well into the industrial era.¹ In this study we will demonstrate that the same was true for Canada where the ratio of working oxen to all draft animals in 1890 was still 7.8 percent, as compared to only 6.4 per cent in the United States (Canada Census Reports 1891; Liebowitz 1992: 32, table 3).²

While the greater speed and stamina of horses gave them a marked advantage when agriculture became more market oriented, and in turn more mechanized, oxen continued to be recommended as complementary sources of farm labour. Because they are adult male cattle that have been castrated before they mature (though cows have also been used for draft purposes), oxen are not only less aggressive than bulls of the same breed, they are also larger and therefore stronger, and they develop longer legs that make them faster. In addition to being generally more docile than horses, and more capable of pulling heavy dead weights, the lower feed cost and greater hardiness of oxen ensured their prolonged persistence on more marginal farms in eastern Canada (Greene 2008).

The fact that wooden yokes are stronger and more durable than leather harnesses was also an advantage as far as working oxen were concerned.

Contrary to the standard image, however, not all yokes were designed for the ox's neck, for the head yoke was used during the French Regime and has persisted in Nova Scotia. Nor were all yokes hand carved, as many were mass-produced for the large ox teams used in the West-coast forest industry. Furthermore, despite the weaker strength of leather harness, it was used by the Métis for their ox-driven Red River carts and factory-produced for the large numbers of oxen that laboured on the Canadian prairies in the late 19th and early 20th centuries. In short, cattle were more versatile and persistent as draft animals than is generally assumed, and contributing to that versatility and persistence was the various material means by which their power could be exploited.³

Oxen as Power Source across Rural Canada

Prior to the introduction of agricultural machinery in the latter half of the 19th century, oxen provided much of the draft power used on Canadian farms. In fact, agricultural progress in early 19th-century Lower Canada is associated with ownership of oxen rather than horses (Dessureault and Dickinson 1992: 119).⁴ Horses were relatively small at that time, and the lower center of gravity and superior traction of the ox made it more suitable for heavy-duty tasks such as pulling the wheeled wooden plows needed to turn the heavy soils of the Montréal plain (Olmstead and Rhode 2008: 363; Dechêne 1986: 196). As for Upper Canada, agriculture was still at a pioneering stage in the early 19th century, and the reports of eighteen of Colonel Talbot's Irish settlers in London Township in 1823 reveal that, as a group, they owned nineteen yoke of oxen but only three horses among them (Davin 1877: 251-52). One advantage of oxen in clearing land—apart from their great pulling strength—was that the whiffletree (pivoted crossbar) required to connect a horse's harness to the load was likely to get entangled in the stumps and stones (Van Wagenen 2010 [1953]). Furthermore, unlike horses, oxen are ruminates and therefore can digest leaves and twigs, giving them an advantage when fodder is scarce. Thus, from Upper Canada came the statement that oxen were “the main stay and aid of all bush work; they

can bear nearly any roughness and hardship, and live on a great deal less and commoner food [than horses]; can scramble over all sorts of logs, brush heaps, and stumps, and be driven through fire and smoke without alarm, and comparatively without injury” (qtd. in Guillet 1963: 75).

Cost was also an advantage for oxen, even beyond the pioneering era. A report from Upper Canada's Haldimand County in 1860 claimed that while a single horse was worth \$120, a good yoke of oxen could be purchased for only \$90 (*Canadian Agriculturist*, February 16, 1861: 126). The main reason for the marked price difference was simply that cows had to give birth annually for the manufacture of butter and cheese, and up to half their offspring would become replacement cows, leaving the males as a cheap source of draft power before being fattened for beef. In contrast to England, where the use of oxen was associated with agricultural improvement in the mid-19th century, there is no evidence that Canadian farmers purchased or raised specific breeds such as the North Devon for use as oxen.⁵ The priority for cattle raising in Canada was for the production of milk and beef, not for draft power.

Apart from their ready supply on Canadian farms, the ability of oxen to work on a diet of grass also made them considerably less expensive to feed than horses (Liebowitz 1992: 29-30, 34-35). A letter titled “Oxen versus Horses” published in the March 01, 1864 edition of *The Canada Farmer* claimed that a team of medium-sized oxen “can be kept at hard work as cheaply as you can keep one horse, counting the wear and tear of harnessing and the extra feed the horse runs you in debt for” (54). Furthermore, when a horse became too old for labour he was “worse than a dead loss to his owners,” but “a few months' rest in a good pasture with a little extra feeding of turnips in the fall, and your ox is nearly as valuable as ever. His beef and tallow will always sell him” (54). Finally, the letter noted, horses were much more prone to disease than oxen, “and especially to affections of the joints and bones” (54).

Despite these many attributes, by the middle decades of the 19th century, oxen were overshadowed by horses. Not only could horses work one or two hours longer each day because of their ability to metabolize grain efficiently,⁶ but they became larger in size after the all-purpose breeds began to be crossed with heavy draft

breeds such as the Clydesdale and Percheron. As a result, horses grew increasingly stronger and more efficient, producing 50 per cent more foot-pounds per second in energy than oxen, thereby facilitating an increase of production for the market (Little 2016: 66-80; Skeoch 1982: 160). As British travel writer James F.W. Johnston observed while in New Brunswick in 1851, oxen made more economic sense in England where labourers were relatively plentiful than in North America where wages were high “and quick work is therefore desirable” (1851: 101).⁷

Even on Lower Canada’s increasingly overcrowded seigneuries oxen began to give way to horses during the first half of the 19th century. There were 1.4 oxen for every horse in the colony in 1784,⁸ but nearly as many horses as oxen were listed in the census of 1827. By 1852 horses outnumbered bulls, oxen, and steers in Lower Canada by a ratio of 1.6 to 1.0 (Canada Census Reports 1851-1852).⁹ Many of the horses would obviously be found in the growing towns, nevertheless, the fact that there were only 1.2 oxen per farm (defined as occupier in the census), as compared to 1.9 horses per farm, suggests that many farmers had switched from the heavy wooden plow to the more efficient iron plow that horses could pull, and that they were now relying exclusively upon their horses for agricultural work (Little 2016: 71, table 3.5). Oxen and locally made wheeled plows with iron tips were, however, still in use in Quebec’s northern Saguenay region as late as the 1920s (Bouchard 1990: 361, 366, 370).

As for Upper Canada, by 1851 horses outnumbered oxen by 263,300 to 103,282 (*Journal and Transactions of the Board of Agriculture of Upper Canada* [hereafter *JTBAUC*], vol. 1, 1856: 419).¹⁰ The settlement frontier, not surprisingly, had the lowest ratios of horses to oxen (Lewis and Urquhart 1999: 155). For example, the assessment rolls for Simcoe County recorded a nearly equal ratio at 2,526 oxen to 2,565 horses in 1848. In Grey County the same year there were 994 oxen to only 146 horses (*JTBAUC*, vol.1, 1856: 375; vol. 2, 1858: 40). But some Upper Canadian farms in the older agricultural zones had both horses and oxen, as in Essex County in 1851 when the ratio was 729 farms of 1,966 (Clarke 2010: 223). The reasons for doing so were articulated in 1854 by the secretary of the Welland County Agricultural

Society who reported that although “[f]arm labour is generally performed by horses, . . . for some operations, even in the older parts of the county, oxen are preferred, as being more easily fed and more readily yoked” (*JTBAUC*, vol. 1, 1856: 449). That same year the report for Grey County’s agricultural society stated that even though farmers no longer relied upon oxen to transport their surplus to market because their operations “are yearly becoming more extended,” they still “retain their oxen at home for the more legitimate employment of ploughing and logging” (*JTBAUC*, vol. 1, 1856: 523). Similarly, the 1864 *Canada Farmer* article cited above argued that horses might be preferable for “mowing and reaping, raking hay, working among field crops, etc. [however] [f]or hauling wood and lumber, moving stone and manure, and the like, where great strength but not rapid motion is required, no team equals an ox team.” For farmers needing more than one team, therefore, “a team of horses and one of oxen would be far more profitable than two horse teams.” Furthermore, the president of the Upper Canada Board of Agriculture claimed that “a span of horses and yoke of oxen” made an “excellent plough-team” for breaking summer fallows or clover sod (*JTBAUC* vol. 1, 1856: 575).¹¹ Finally, farmers could exchange oxen for horses on a temporary basis, as recorded in the diary of William Sunter of Wellington County on May 20, 1857 when he wrote: “I finished harrowing the oats today. Jamie [?] did it with Edward McDiarmid’s mare, we have had her now 3 days. Edward has my oxen today logging a piece for Potatoes.”

Oxen were not associated with agricultural progress, however, and they were becoming objects of nostalgic curiosity in the older counties of Upper Canada by the early 1860s when the competition at agricultural exhibitions was no longer between individual oxen owners but between townships, with the only category being teams of ten.¹² Judging from the fact that a reporter for the 1860 exhibition in Hamilton complained that the animals exhibited were too fat, it seems likely that for the farmers who joined forces to create these teams, the oxen were raised less as a source of power than as a hobby. Certainly, the reporter felt that it was “absurd to show as working-oxen animals which would have enough to do to carry their own weight, and which would

be utterly useless either in the bush or in the field” (*Canadian Agriculturist*, November 01, 1860: 563). The transition to draft horses was sufficiently advanced in Ontario’s agricultural heartland by 1868 that the appearance of an ox team in harness at Brooklin’s Dominion plowing match that year attracted a crowd so large that, according to one newspaper report, the animals became “somewhat frightened” (*Canada Farmer*, June 01, 1868: 170).

The transition to horses was increasingly driven by mechanization, beginning with the growing popularity in 1860s Ontario of the mechanical reaper that revolutionized the harvesting of grain.¹³ The reaper depended upon speed to drive the ground wheel that operated the cutting mechanism, and even though it and other farm machinery could have been geared to fit the slower pace of oxen this would obviously have been less efficient than using horses (Greene 2008: 199; Liebowitz 1992: 35).¹⁴ In addition, the shift to horses reflected the intensification of agriculture, for—as already noted—horses could be fed more effectively on field crops such as oats than could oxen (Clarke: 2010: 222; Langdon 1986: 281). As Liebowitz points out, the price of oats declined with improvements in transportation to distant western markets and “cattle became more valuable as steers for fattening than as working oxen which were no longer desirable as beef at the end of their working

lives” (Liebowitz 1992: 36). Though oxen were in decline, they had not almost disappeared from the records of Ontario farms by 1871, as claimed by Douglas McCalla in his authoritative agricultural history of the province (1993: 222). For example, Peter Musselman of York County had published a pamphlet on breaking oxen and making yokes and bows only four years earlier, in 1867, and there were still three oxen for every ten Ontario farms listed in the 1871 census. Furthermore, there were four oxen for every ten farms in Quebec and New Brunswick, and seven for every ten in Nova Scotia. In fact, there was the equivalent of a pair of oxen for 20 per cent of Canada’s farms as late as 1891, when they remained particularly popular in the Prairie provinces (see Table 1).

On the prairies, oxen had originally been used to pull Red River carts during the fur trade era, replacing First Nations horses in this role after the arrival of the Selkirk settlers with their cattle in 1812 (Fig. 1). Oxen had the distinct advantage over horses having cloven hooves that spread their weight more evenly in swampy areas; they were also less likely to be stolen by Native warriors.¹⁵ Oxen were also favoured for breaking tough prairie sod, as in the American West (Liebowitz 1992: 32), and once the pioneering stage had passed the demand for horses kept their prices too high for many farmers. Historian Lyle Dick’s rough estimate is that purchasing a team

Fig. 1.
Ox-drawn cart,
Innisfail, Alberta, ca.
1898. Source: Glenbow
Archives, NA-1709-35.
Note the mouth bit and
reins, and that the cart
appears to be hitched
only to the mid-girth
and not the neck collar.



Table 1. Number of Oxen per Farm (Occupier) in Canada’s Provinces and Territories, 1871-91.

	1871	1881	1891
PEI	—	0	0
NS	0.7	0.6	0.4
NB	0.4	0.2	0.2
QC	0.4	0.4	0.3
ON	0.3	0.1	0
MB	—	1.4	0.9
NWT	—	3.3	0.8
BC	—	0.8	0.4
Can.	0.4	0.3	0.2

Source: Canada Census Reports 1871, 1881, 1891.

of draft horses in the Prairie provinces during the late 19th century would have cost between \$150 and \$300, as compared to between \$100 and \$130 for a team of oxen (Dick 2008: 57). Dick writes that “[t]he usual practice was to purchase a yoke of oxen for the purpose of prairie breaking and to exchange them for more expensive horses a year or two later” (2008: 58). Judging from the number of oxen enumerated in the 1891 Canadian census reports, however, Dick and other historians have exaggerated the rapidity of the transition from oxen to horses on Prairie farms.

Even though the average number of horses was 3.8 per Manitoba farm in 1891, and still higher at 6.6 per farm in the future provinces of Saskatchewan and Alberta (Little 2016: 71, table 3.4), there was still close to a pair of oxen for half the Prairie farms in that same census year. These oxen were not simply pulling plows, as late-19th-century Prairie photographs show teams of them hitched to agricultural machines (Fig. 2). The agricultural historian Paul Gates was not entirely correct, then, when he wrote that oxen were “of no use with mowing machines and reapers, which required fast-stepping horses, were too slow and awkward to use with light plows and rakes, and could not easily be used in power devices to run the thresher, the corn grinder, the cotton gin, or the hay baler” (1960: 227-28).¹⁶ According to Sarah Ellen Robertson’s memoir of Alberta homesteading between 1906 and 1912, the solution to the leisurely pace of the oxen when operating her family’s binder was to have a second driver “urge the oxen on, waving the whip over them whenever it was necessary” (1968: 220).

While grain farmers acquired draft horses as soon as they could afford to do so, the Department of Indian Affairs continued to supply oxen to First Nations reserves during the 1890s, presumably as part of its policy of discouraging Indigenous farmers from participating in the broader market. In 1891, for example, Indian agents expressed considerable satisfaction that ox yokes and bows were being produced on First Nations reserves,¹⁷ but the result of the peasant-farming policy was to keep Natives dependent upon the federal government (Russell 2012: 220-28).

Despite their relatively slow speed, oxen clearly had certain advantages as far as freighting goods was concerned. The Canadian Minister of



Fig. 2

Oxen with binder, Scott, Saskatchewan. Date unknown. Source: Library and Archives Canada, C-017573. Note the long whip and the nose bag on the left-side ox to prevent him from attempting to graze on the grain. Note as well the lack of horns on two of the animals, something that would not have been practicable for yokes when going downhill.

Fig. 3

Freight team using oxen leaving Ashcroft for the Cariboo. Date unknown. Source: Royal BC Museum and Archives, C-08236. Largely hidden from view, except for his head, there is a rider to the left of the lead pair of oxen whose role was clearly to guide the team.



Public Works, Hector-Louis Langevin, reported to the House of Commons in 1872 that on the Cariboo Road in British Columbia there were “about 20 ox-trains, of 16 head of cattle each, 25 to 30 horse or mule trains, of 10 head of cattle each, and at least 400 horses or mules without vehicles, all engaged in conveying goods and merchandise” (*British Columbia 1872*: 47). Photographs reveal that ox teams continued to be relied upon in the



Fig. 4
 Logging with oxen on a corduroy road; the Brunette Sawmill Company's logging team on the Nicomikl River, ca. 1870. Source: Royal BC Museum and Archives, C00570. The two large logs are about to be rolled into the river where others can be seen at the edge of the photograph.

British Columbia interior in the late 19th century, presumably because of their dependability on steep mountain trails and the fact that they did not have to be fed grain (Fig. 3).

The long-term persistence of oxen in British Columbia as in most of the rest of Canada was, however, largely due to their usefulness in the logging industry, and for much the same reasons as they had been preferred by settlers for land clearing. Thus, in recalling his days working as a logger on southern Vancouver Island, Ray Elford claimed that with oxen “[t]he pressure was more even on the pull. The horses get excited and they give a jerk and it don’t come and they give a see-saw, and then they jerk again and they come with a rush” (3). A horse’s leather harness would obviously not last as long as oxen’s wooden yokes under such conditions, and horses were more prone to breaking their legs on rugged terrain (Garrett 1998: 231). Not only did oxen retain their niche as draft animals in eastern logging regions such as Maine and northern New York long after they were excluded from the 1890 census of the United States, as noted by Greene,¹⁸ but the Elford interview reveals that large teams were still being used to skid the giant logs of the West-coast forests at the turn of the 20th century (Fig. 4).

Horses in British Columbia did outnumber oxen in the woods by that time, however, as equine speed was an advantage for hauling supplies to the distant logging camps and pulling double sleighs loaded with logs to river banks or frozen lakes (see Hardy and Séguin 1984: 103-105; Radforth 1987: 57-62 and Rajala 1998: 12-14, 128-30). Even for skidding logs, speed and stamina were advantages. As Charles H. Grant recalled from his days as a logger on Vancouver Island at the turn of the 20th century, “[t]he horse would make two extra trips a day as compared to oxen.” Not only could an ox not be forced to walk faster, Grant noted, he would also “take a notion to swing off and eat a salmon berry bush or something, and hold up the whole works. Then you would have to poke him in the ribs with a goad stick to get him to go” (14). Not surprisingly, then, the average number of horses per British Columbia farm in 1891 (4.3) was much greater than the average number of oxen (0.4). Furthermore, the coastal forest industry would soon turn to steam donkeys and logging locomotives to replace animal power altogether (Rajala 1998: 16). The fact remains, however, that oxen remained an essential source of power in large parts of western Canada, as well as in the more marginal agricultural zones and logging camps in the East, long after they had become objects of nostalgia for the fertile agricultural belt of central Canada.

The Material Culture of Ox Power

Ox power was exploited by pioneer settlers not only because of the strength, docility, and affordability of the animals, but also because that power could be harnessed by a durable material object—the yoke—fashioned with rudimentary tools from deciduous trees that were readily at hand. Most ox yokes were designed for two animals because oxen are more easily trained to work in pairs than alone, but carts were commonly pulled by single oxen as illustrated by photographs for the tourist market in Quebec’s Gaspé Peninsula during the early 20th century (Fig. 6). Probably because of their heavy weight and simplicity of design, neck yokes appear to have rarely been mass produced, at least until the late 19th century, which was decades after the Blanchard lathe was being used to produce

wooden objects of many shapes (Rosenberg 1975: 51-53). A good description of how the neck yoke was crafted can be found in the Upper Canadian pioneer memoir of Samuel Strickland:

The ox-yoke is made of a piece of wood, four feet in length, and nine inches deep in the centre, to which a staple is fitted, and from which an iron ring depends . . . [The yoke] is hollowed out, so as to fit the top of the oxen's necks. A hole is bored, two inches in diameter, on each side of the hollow, through which the bow is passed, and fastened on the upper side of the yoke by a wooden pin. The bow is bent in the shape of a horse-shoe, the upper, or narrow ends being passed through the yoke. If the yoke and bows are properly made and fit the cattle, there is no fear of galling the beast. The bows are made of hickory, white or rock elm, in this way. Cut a piece of elm, five feet and a half long, large enough to split into quarters, each of which will dress to two inches in diameter; put them in a steam-box for an hour at least; take them out hot, and bend on a mould made on purpose; tie the two bent-up ends together until dry. (1853: 40-41)

The heavy pulling chain was fastened to the pole ring, its loose end prevented from slipping simply by dropping it into the keyhole-shaped smaller ring known as the chain hook (Fig. 5). These iron fittings as well as the chain were the only purchases required for a yoke, unlike leather harnesses which included padded collars, bridles, reins, wooden hames, and traces, all linked by rings and connected to the whiffletree(s) (Knapp-Peck 2011-2012; Roosenberg 1997). In contrast to harnesses, ox yokes were generally more artifact than commodity, and none are listed in the many Upper Canada store inventories examined by McCalla.¹⁹ This does not mean, however, that yokes had no monetary value. In his report for 1860, the secretary of the Haldimand County Agricultural Society wrote that "a yoke and bows are worth \$5, while a set of harness is worth \$30" (*Canadian Agriculturist*, February 16, 1861: 126). Furthermore, some rural artisans did produce custom-made ox yokes in 19th-century Quebec. Robert-Lionel Séguin's historical study identifies several men who made them for local farmers, generally from maple or oak (1967: 609-10). Also,

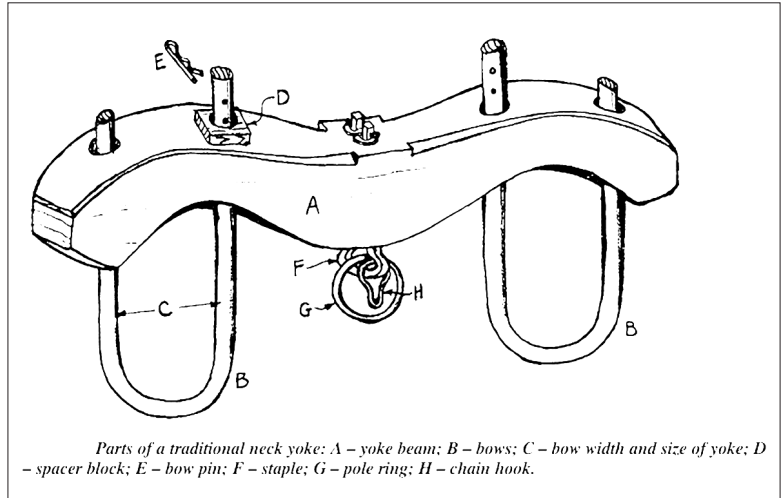


Fig. 5
Parts of a traditional ox yoke. Source: David Kramer, "Building an Ox Yoke," *Tiller's International*, 1997. Available from: www.tillersinternational.org/oxen/resources.../BuildinganOxYokeTechGuide.pdf.

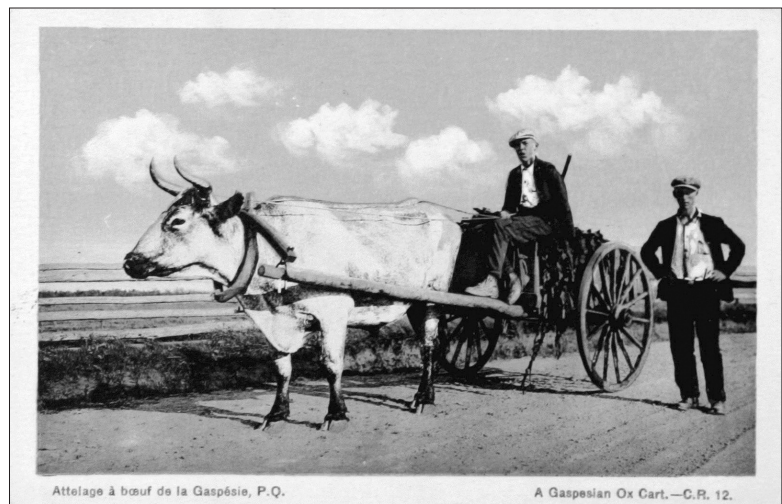


Fig. 6
A Gaspesian ox cart. Date unknown. Source: *Bibliothèque et Archives Nationales du Québec*, CP 10761 CON. This coloured post card illustrates how oxen came to be viewed as features of a backward folk culture.

during the latter half of the century, ads began to appear in the American farm press for neck yokes with patented improvements such as a sliding mechanism which allowed for more independent movement in turning corners.²⁰ It seems unlikely that many slide yokes were used in Canada, but the large teams of oxen working in the West-coast forests clearly did require commodity production of neck yokes in the early 20th century, as revealed by the illustrations in the catalogue printed for



Lumber Gauges.



No. 00.—All steel, nickel plated, length 2½ inches, measures ¾, 1, 1¼, 1½, 2 inch boards, weight per dozen 2½ lbs., per doz. \$7.20

Specialty useful for lumber graders, inspectors and scalers, for quickly ascertaining the thickness of a board.
One in a box.

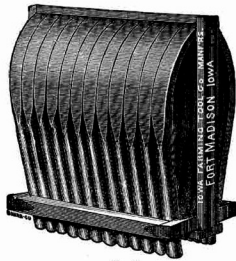
Timber Scribes.



No. 3343.—Extra quality polished steel points, rosewood handle, brass ferrule, length 6½ inches, will mark 1½ inch circle, weight per dozen 4 lbs., per doz. \$12.00

Used for marking logs and lumber by inspectors, graders and scalers.
One dozen in a box.

Ox Bows and Pins.



No. 61.



No. 72.



No. 82.

No. 61.—Lumberman's ox bows, 2 inch second growth hickory, hand shaved, smoothly sand papered, weight per pair 10 lbs., per pair \$2.50
Six pairs in a rack.

No. 72.—Ox bow pins, 2 inch malleable iron, weight per dozen 2½ lbs., per doz. 1.50

No. 82.—Ox bow pins, 2 inches, all steel, weight per dozen 2½ lbs., " 1.50

One sixth gross in a box.

Ox Yokes.



No. 1.—For loggers and lumbermen's use, extra heavy, width of bows about 9½ inches, distance between the bows 24 inches, complete with 2 bows, weight each 60 lbs., each \$15.00

Open stock.

Fig. 7 (above)

Page from McLennan, McFeely and Co. Catalogue, 1908-14. Vancouver, BC. Source: City of Vancouver Archives. Available from: <http://former.vancouver.ca/ctyclerk/archives/digitized/McMcHTML/06Lumbering07.htm>.

Vancouver's McLennan and McFeely hardware store (Fig. 7).

However iconic the neck yoke may be in North America, it was the head yoke that was used in Canada during the French Regime, and that continues to be favoured in Nova Scotia (Fig. 8), where recent figures estimate there are 1,000 ox teams today (compared with only 3,000 in the whole of the United States) (Conroy 2004: 4, 31).²¹ Though generally associated with the Lunenburg area—originally settled by Germans in the mid-18th century—head yokes (referred to by New Englanders as “Canadian” yokes) were also traditionally used by French-speaking Acadians,

as revealed by journalist Bruce Hutchison's observation in 1942:

All along this shore you see no horses, only the innumerable Herefords, with yokes on their foreheads, hauling the little logs out of the woods to the three-man sawmills, hauling the rough lumber to the wharves. The ox team is the greatest pride of the owner's life, to be pampered, to be decorated with brass ornament and tooled leather, to be entered in the annual fair so that it may prove it can haul a heavier load of rocks on a sleigh than the oxen from the next farm. An Acadian farmer, it is said, will take longer and use more care in choosing an ox whip than a wife, and on an ox the whip is mostly used as a gesture only. (1943: 187-88)

Contrary to Hutchison's reference to the yokes being on foreheads, in Nova Scotia they rest behind the oxen's horns, to which they are attached with long leather straps. Those straps also cross the forehead enabling the oxen to push with their heads (Figs. 8, 9, and 10). Even though the hitch point for the pulling chain or chains is higher on the head yoke than on the neck yoke, one of the head yoke's advantages when linked to a wagon shaft is that it is more effective than the neck yoke for braking or reversing because the oxen are attached directly to the load. It also enables the ox to make his own adjustments in the hitching angle by moving his head up or down, which can be advantageous for pulling a heavy load for a short distance. The neck yoke may provide a larger surface area, allowing oxen to push with their shoulders, neck, and chest, but the head yoke avoids the problem of the animal developing sores on his neck or shoulders. A disadvantage of the head yoke, on the other hand, is that it requires a more careful fit for comfort than the neck yoke. Furthermore, it cannot be used for training animals when they are young and tractable because of their lack of horns (Ford and Kreutzer 2015: 11, 13, 15, 23). Finally, the looser fit of the neck yoke allows more freedom of individual movement, making corners easier to turn than with a head yoke (Kramer 1997: 1-2, 4; Conroy 2004: 3; Ox Yokes and Collars 2017).

Whichever style is used, the training and use of oxen with a yoke requires intimate knowledge of their behaviour. An animal fitted with a harness

is controlled through negative reinforcement with bridle, bit, and reins by a driver located to the rear, but the lead ox in a team fitted with one or more yokes is generally directed by voice, body movements, and the short whip or goad wielded by the driver (drover) positioned to his immediate left. In 1856 one Upper Canadian observer claimed that “[t]he oxen soon come to understand every word and motion of their master, and will do his bidding, upon the slightest sign, with far more alacrity and cheerfulness and, apparently, with a better understanding of the subject, than many servants of the human family. Their docility is only equalled by their patience and endurance” (*JTBAUC* 1856, vol. 1: 650).

Associated as oxen are with wooden yokes, they have never been the sole means of harnessing ox power in Canada, as French Regime farmers used collars specifically designed for oxen. Unlike one-piece horse collars, the padded wooden hames of ox collars are connected by a strap on top and chain or strap under the throat, thereby solving the problem of restricting the animal’s breathing.²² One advantage of collars and leather harness is that they greatly increase the pulling surface; another is that head bridles and reins reduce the reliance on voice commands and eliminate the necessity of a drover to guide the lead ox. Ox collars continued to be made by some farmers in Quebec until the second half of the 19th century (Séguin 1967: 611-12), and photographs reveal that such collars were still being used in the lower St Lawrence region of the province in the early 20th century (Fig. 11).

Furthermore, it appears that oxen were rarely fitted with yokes in the prairie West. Figure 1 illustrates how rudimentary leather harness made from bison hides was used for the oxen hitched to Red River carts.²³ More surprisingly, teams of oxen breaking prairie sod also wore leather harness (MacEwan 1980: 69, 108), as did those that pulled modern agricultural machinery in the late 19th and early 20th centuries (Fig. 2). Yokes could presumably have been purchased in large quantities, as they were in British Columbia, but because the wide-open prairie offered ample space to hitch several oxen to a plough or heavy machine, leather harness would have been sufficiently strong. Furthermore, yokes would have been impractical because the animals were hitched as many as six abreast, presumably



Fig. 8
Oxen ploughing by W.R. MacAskill. Date unknown. Source: Nova Scotia Archives, accession no. 2560. Note the decorated leather forehead pieces of the head yokes, and the balls on the tips of the horns of this well-matched pair of Hereford-cross oxen. The absence of a drover indicates that the oxen were well trained to obey voice commands.



Fig. 9
Red single head ox yoke. Source: Desbrisay Museum and Exhibition Centre, Bridgewater, NS, Accession number 328;66.62. Date: before 1966. This brightly painted yoke was carefully hand carved to fit comfortably behind the ox’s horns. The wooden peg served to hold the looped end of the straps (see Figure 10) that fastened the yoke to the ox’s forehead and horns.



Fig. 10
 Triangular shaped leather ox head pad. Source: Desbrisay Museum and Exhibition Centre, Bridgewater, NS, Accession number 84.7.11B. Date: before 1984. The head pad prevented the straps connecting the yoke to the horns and forehead from digging into the ox's forehead when it was pulling a heavy load or plowing, as shown in Figure 8. Teamsters would polish the brass decorations in preparation for county exhibitions.

Fig. 11
 Oxen ploughing in harness near Murray Bay, Quebec. Source: Library and Archives Canada, MIKAN no. 3360670. Note that the farmer is unable to hold the reins because his hands must remain on the plough handles.



because double-file would have compacted the soil more, and for greater ease of turning at the end of each row. As late as 1919, when tractors were about to begin replacing horses on Prairie farms, Eaton's Fall and Winter catalogue carried "western ox harness," including "well-stuffed" collars at a total cost of \$21.00 for a pair (531).

The debate about the relative efficiency, versatility, and physical comfort of collar and harness versus yoke dates to the late 18th century in England, and has continued into the recent

past (Powell 1989: 46-47). In Canada, however, the choice of one or the other was largely dictated by the physical environment. Heavy wooden yokes were more practicable for bringing forested land into agricultural production, as well as for plowing on stony hillside farms and working in the woods. They were even used for the lengthy ox teams hauling freight into the arid and mountainous interior of British Columbia (Fig. 3). Leather harnesses were well suited, however, for hitching oxen to carts and for the flat and treeless western prairies. Finally, in addition to the physical environment, culture has played a role in the means by which ox power has been exploited, as the regionally distinctive head yoke with its decorated head pad persists in Nova Scotia, where most of this country's remaining oxen are to be found.

Conclusion

From a global perspective, working cattle still outnumber horses used for draft purposes by approximately four to one (van Ord 2013). While the era when ox power dominated has long passed in Canada, it is important to emphasize that oxen were once the major source of animal power in this country, and that their use persisted in certain regions and in certain sectors of the economy long after the pioneering era of self-sufficiency. Census records and photographs, among other sources, reveal that there was a substantial reliance upon oxen by western freighters, commercially-oriented grain farmers, and industrial logging operations until after the turn of the 20th century. Contributing to the practicality of oxen was the fact that, unlike horses, their heads and necks were so constituted that they could support wooden yokes that were considerably more durable and less expensive than leather collars and harnesses. Yet oxen could also be harnessed much like horses, especially where the appropriate trees were not readily available for making yokes, as on the Canadian prairies. In short, the history of ox power in Canada is also the history of the agricultural economy, the forest industry, human-animal interaction, and material culture.

Notes

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1. In referring to the wooden age, Brooke Hindle does stress that it extended into the industrial era (1975: 3-12).
2. The ratio in the United States includes mules whose numbers were insignificant in Canada.
3. On the use of oxen versus horses in Canada's pre-industrial era, see Little 2016: 60-66.
4. Similarly, in reference to Prince Edward Island, geographer Andrew Hill Clark claims that the early dominance of horses over oxen was "no indication of an advanced stage of farming, rather the contrary" (1959: 77).
5. E.J.T. Collins claims that the "genetic lynchpin" of the oxen revival in England was the creation of new or improved breeds, with the speedy North Devon being particularly popular (2010: 205-58).
6. Collins notes that both "[h]orses and oxen could exert a force equal to about an eighth of their respective body weights," but, unlike cattle, horses are able to consume and metabolize small volumes of high-energy foods such as oats at frequent intervals, and thereby work harder and more continuously (2010: 210-12).
7. The use of oxen had experienced a relatively short revival in England at the turn of the 19th century, in large part because of the shortage of horses as a result of the Napoleonic Wars. See Collins 2010: 192, 195, 197, 200-201, 203.
8. Oxen and bulls also far outnumbered adult horses in the average post-mortem inventory drafted in the Montreal and Quebec Districts between 1807 and 1812. For the Montréal District the averages were 4.76 oxen and bulls and 2.31 horses per inventory, and for the Quebec District the averages were 2.79 and 1.51, respectively (Paquet and Wallot 1983: 36). The situation was different in the seigneurie of Saint-Hyacinthe where there was no mention of oxen in more than half the post-mortem inventories (48 of 87) in 1795-1804, and the great majority (72 of 87) included horses (Dessureault 1983: 133, table 6).
9. For the 1827 census, see *Canada Census Reports* 1871, vol. 4. The steers with which oxen are categorized in the 1852 census were obviously younger animals.
10. The census for 1851-1852 reveals that there was an average of two horses per farm (Little 2016: 71, table 3.5).
11. Mixed plow teams had been a common practice in England during the 12th and 13th centuries, and again in the southwestern part of the country at the turn of the 19th century (Langdon 1986: 267, 291; Collins 2010: 194).
12. The same was true in Lower Canada's beef-raising Eastern Townships. See *Canadian Agriculturist*, October 16, 1862: 627; June, 1863: 223.
13. There were 36,874 reapers and mowers in Ontario in 1871, but only 5,149 in Quebec, 1,312 in Nova Scotia, and 869 in New Brunswick. *Canada Census Reports*, 1871.
14. It has been argued that today's motorized hay balers and other farm machines could be pulled by oxen, resulting in a major saving on gas consumption (Taylor 2011).
15. On the First Nations practice of stealing settler horses, see MacEwan 1991: 3 and Binnema 2001: 141-42.
16. Oxen were, in fact, used on treadmills to power threshing machines, but according to MacEwan they were "commonly excused from the sweeps because of a prevailing view that travelling in circles made them dizzy" (1980: 84, 87).
17. See, for example, the reports in *Canada Sessional Papers* 1891, no. 18: Red Pheasant's Reserve (no. 108); Sweet Grass Reserve (no. 113); and Thunder Child's Reserve (no. 115).
18. Greene adds that oxen "remained in wide use on New England farms into the 20th century" (2008: 40-41).
19. The only related items were two purchases of a pair of ox bows as well as ox nobs (placed on the tips of sharp horns) in 1861. The use of the ox ball, purchased singly, is less clear (McCalla 2015: 215; personal communication by email, October 25, 2015).
20. For example, Vose's ox yoke, patented in 1853, was advertised in 1855 as being manufactured by Peering and Dickson in Albany, and sold by Paschall Morris and Co. See "Vose's Patent Ox Yoke," 1855. See also "Hammon's Improved Ox Yoke," 1855 and "Lakin's Patent Ox Yoke," 1864.
21. According to Séguin, it was the British who introduced neck yokes to the St. Lawrence valley (1967: 609-17).
22. Even when inverted, horse collars are not appropriate for oxen because their prominent, highly mobile shoulders cause the collar to be

lifted and pushed forward with each step, thereby constricting their windpipes (Conroy 2004).
23. Instead of padded collars, rounded pieces of wood were used to fasten the tugs at the animals' necks, as shown in Figure 1. On the Red River cart, see Knox 1942. See also Gerry Barker (2011).

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