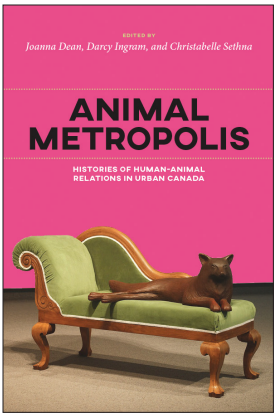

ANIMAL METROPOLIS: HISTORIES OF HUMAN-ANIMAL RELATIONS IN URBAN CANADA

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Fish out of Water: Fish Exhibition in Late Nineteenth-Century Canada

William Knight

In the nineteenth century, animal display proliferated. People peered at a myriad of animals – living and dead – in museums, international exhibitions, circuses, and zoos. Benefiting from collecting networks that extended across empires and nations, these spectacular sites exhibited animals to satisfy appetites for entertainment and science. While the growing literature on animal display documents this rich history, one class of creatures is routinely ignored: fish.[1] Remote, if not invisible to most people, fish were nonetheless the subject of intense interest in Europe and North America in the last half of the nineteenth century. Public aquariums, international fisheries exhibitions, and fish-culture displays reflected and sustained a pervasive exhibitionary interest in fish.

Curiosity about fish overlapped with their increasing commercial and recreational exploitation: it also coincided in North America with emerging regimes of state fisheries administration that harnessed fish reproduction through the technology of fish culture. Joseph Taylor called fisheries exhibitions (which presented fish-culture apparatus alongside mounted fish and fishing equipment) "didactic dioramas" that rationalized government fish culture and projected the state's mastery over fisheries and, by extension, nature.[2] In Canada, this rhetorical work is exemplified in the work of Samuel Wilmot. Wilmot was a private fish culturist appointed a federal Canadian fisheries officer in 1868 who integrated fish culture into the state's routine business, building a national fish-hatchery system

designed to sustain Canada's fisheries. In support of this project, Wilmot became an impresario of fisheries exhibits. He transformed his private hatchery into a public attraction and, as a government official, mounted successively more spectacular displays at local and international exhibitions. Wilmot's most notable successes were Canada's massive showing at the 1883 London International Fisheries Exhibition and its conversion afterward into a permanent exhibit, the Canadian Fisheries Museum in Ottawa, in 1884.

This chapter presents Wilmot's exhibitionary work as a case study in nineteenth-century animal exhibition, one that explores the material culture and challenges of fisheries exhibits. Wilmot and his successors, Edward Prince and Andrew Halkett, confronted, as one museum official termed it, the "question of fish exhibition," the critical problem of transforming live and dead fish into authoritative representations of state power.[3] Keeping fish alive in aquariums was difficult and expensive, as was creating lifelike models from dead fish. These Canadian fisheries officials also contended with inadequate museum buildings and exhibition spaces – which cast into doubt the Fisheries Museum's scientific legitimacy – and struggled to satisfy a growing demand for fish exhibits even as questions emerged about fish culture's efficacy. From Wilmot's first exhibits to Prince and Halkett's futile attempts to rescue the Canadian Fisheries Museum from demolition in 1918, fish exhibition in Canada proved to be a decidedly problematic enterprise.

Fish Exhibition

Animal exhibition expanded in the mid-nineteenth century. Zoos, circuses, and natural-history museums flourished along with networks of animal collectors. Fish exhibition was an element of this trend and drew currency from two developments: fish culture and aquariums, which revealed aquatic life for public inspection, education, and entertainment. Modern fish culture – the practice of raising fish from eggs under controlled conditions – originated in France in the 1840s when experimenters developed techniques for reproducing fish, particularly salmon and trout. While raising fish in ponds was an old practice, nineteenth-century fish culture was a new approach that extended control over reproduction. Fish culturists captured fish during spawning season and stripped them of eggs

and sperm, which they mixed to initiate fertilization. Hatchery workers then carefully nurtured the fertilized eggs. Once fish hatched, they were raised in hatchery buildings until ready for release. Proponents hailed fish culture as an improvement on nature because it increased the rate of fish survival by eliminating several risks for mortality, including predation.[4]

North Americans adopted the practice – widely disseminated through books, periodicals, and personal contacts – during the 1840s and 1850s, viewing fish culture as a solution to overfishing. Private fish-culture enthusiasts were in the vanguard. They proved, and promoted, the technology's efficacy, which attracted government officials who sought help establishing fish-hatchery programs. Samuel Wilmot was one such individual. Wilmot was a member of Upper Canada's middle-class elite who experimented with fish-culture methods to propagate Lake Ontario's Atlantic salmon in the 1860s. A staple of Native and settler fisheries, salmon had declined from the accumulated impacts of agriculture, dam building, deforestation, and invasive species. In the 1860s, Wilmot began building a hatchery on his rural property near Newcastle, east of Toronto. Enclosing a salmon stream, this property allowed Wilmot to capture salmon and attempt their restoration. On the strength of his efforts, Wilmot was appointed a federal fisheries officer in 1868.[5]

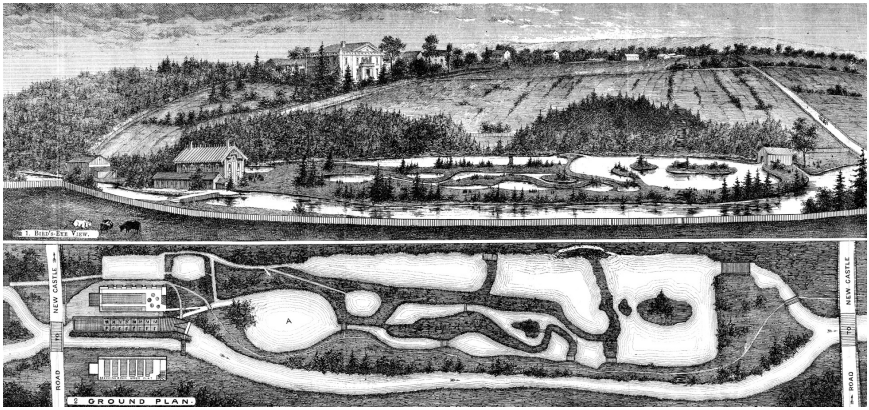
Wilmot was an adept entrepreneur. After his apparent (albeit short-lived) success in restoring Lake Ontario salmon, Wilmot was named Dominion Fish Culturist in 1876 and went on to construct a national fish-culture system that annually produced millions of fish. His entrepreneurial skills also extended to exhibitions. Wilmot, who gained substantial power within Canada's fisheries establishment, sought to promote and defend fish culture through public displays, borrowing techniques from other fish culturists. In England, for example, fish-culture advocate Frank Buckland drew throngs of curious observers with fish-culture displays. At a London dog show, Buckland's exhibit of hatching salmon – "pretty silver-coated little creatures" – attracted "many thousands of people who have certainly never seen a salmon alive before."[6] In 1865, Buckland established the "Museum of Economic Fish Culture," a large display of mounted fish alongside a working fish hatchery in London's South Kensington Museum.

Wilmot found similar opportunities to exhibit fish culture. In 1870, he exhibited his "breeding apparatus filled with salmon ova" at the Toronto Industrial Exhibition. The display, according to the Toronto *Globe*,

demonstrated Wilmot's technological capacity to reverse the clock of settlement and repopulate Canadian waters with a never-ending supply of fish. "In a few years all our rivers and streams may be stocked with fish," the newspaper reported, repeating Wilmot's own confident predictions, "and salmon become as cheap and abundant as they were in the days of the first settlers." The fish-culture demonstration was accompanied by aquarium displays that showed the development of fish "in their different stages" – a lesson that reinforced Wilmot's claim that fish culture was a scientific enterprise that deserved public support.[7]

Wilmot's use of aquarium displays shows how fish culture and aquariums converged in fish exhibits. Used initially by English zoologists to study shore-bound marine life, aquariums were popularized as a domestic pastime in Victorian England. Naturalists such as Philip Henry Gosse helped launch this pastime with books that offered practical advice about aquarium keeping and philosophized about it as a form of domestic nature study.[8] If "parlour oceans" relocated natural-history observation from the field into the domestic sphere, then public aquariums extended this experience to an even wider audience on a more spectacular scale. Within twenty years of the opening of the first public aquarium in London's Regent Park in 1853, aquariums had grown to "colossal proportions," as an author of a manual on aquarium management noted. The launch of oceanographic expeditions and biological stations in Europe and the United States in the 1870s also contributed to the transformation of aquariums into spectacular public sites. In cities such as Naples, Berlin, Paris, New York, and Boston, the mysteries of the deep were revealed for pleasure, education, and profit.[9]

Some aquariums offered circus-like entertainments. The Boston Aquarial Gardens, opened in 1859, enticed visitors with a beluga whale that had been trained to tow a young woman, perched Venus-like in an oversized shell, around a large tank.[10] In Canada, where permanent aquariums were not established until the early twentieth century, people might have been more familiar with aquariums in travelling circuses. Fish tanks appeared alongside wild-animal displays and other curiosities, promising views of exotic and unseen creatures from the watery depths. An itinerant circus stopping in Toronto promised a "Deep Sea Aquarium"; another boasted of an "Aquarium of Oceanic Marvels." Aquarium displays also help promoted business. A water-works manufacturer used aquariums at



4.1 Canada, *Report of Fish-Breeding in the Dominion of Canada 1877* (Ottawa: Queen's Printer, 1878). Digital image courtesy of Stephen Crawford.

the Toronto Industrial Exhibition to demonstrate that its equipment could produce water pure enough to sustain speckled trout, a fish with exacting requirements for water quality. A fish merchant during the Manitoba exhibition in Winnipeg used an aquarium, an object of "considerable interest," to attract visitors. A live sea lion and pelican, however, may have distracted people's attention: they were displayed beside the fish tank and caused a commotion when the sea lion attempted to eat the pelican.[11]

Wilmot likewise used aquariums to lure visitors to his fish hatchery near Newcastle, Ontario. The hatchery was the centerpiece of the federal hatchery system that Wilmot created during the last half of the nineteenth century. Easily accessible by rail from Toronto, the hatchery promoted fish culture, and Wilmot's mastery of the craft, through a variety of exhibit forms. Contemporary illustrations, commissioned by Wilmot in the late 1870s, depict the Newcastle hatchery as a hybrid of zoological garden, aquarium, and industrial exhibition – a thoroughly genteel and pastoral setting for "rational recreation." The hatchery was nestled amid landscaped grounds where visitors could observe adult salmon in the holding ponds, "dotted here and there with miniature islands." Visitors could also inspect the "Reception House" where Wilmot's patented egg-hatching apparatus nurtured new fish into life. Aquariums helped educate visitors. Some tanks displayed commonly misidentified fish species to clear up

confusion over species; another aquarium was kept cold to demonstrate how some fish became torpid during winter.[12]

Wilmot crowned his hatchery with a small natural-history museum. Upstairs from the hatching room, Wilmot offered an eclectic collection of spectacular taxidermied specimens. These included a 600-pound tuna, a 10-foot-long Greenland shark, and the "Pickering Ox," a locally famous prize bull. The museum added to the hatchery's exhibitionary appeal and reinforced Wilmot's identity as a natural-history expert. The complex also blurred the line separating Wilmot the private entrepreneur from Wilmot the state fisheries official. The hatchery's "handsome and commanding appearance" helped demonstrate that fish culture was, according to Wilmot, a "national enterprise." At the same time, the exhibition was a testament to Wilmot's own abilities, "proof throughout," he argued, "of the exercise of practical ingenuity and personal industry."[13]

Wilmot also continued to mount displays at the annual Toronto Industrial Exhibition. In 1879, Wilmot presented an ambitious display of "stuffed and live fish, along with the process of artificial breeding" that occupied almost an entire wing of the exhibition's main building. The *Globe* called the exhibit "by all odds the greatest attraction in the Main Building."[14] It included fourteen aquariums that displayed a variety of species, including Lake Ontario salmon and "California salmon," or chinook salmon from the Pacific, that Wilmot was then attempting to naturalize in Lake Ontario. These two salmon species, however, implicitly suggested the limits to fish culture, despite Wilmot's own optimistic promises.

By 1879, for example, salmon runs in Wilmot Creek were in decline. In 1881, only half a dozen adult fish returned despite Wilmot's efforts. "I fear that the time is now gone by," he admitted, "for the production and growth [of salmon] in the frontier streams of Ontario."[15] Some years earlier, Wilmot had obtained chinook salmon from the US Fish Commission, hoping that they could replace the disappearing Atlantic salmon. The tank of chinook in Toronto at once acknowledged both the reality of the decline in Atlantic salmon and Wilmot's evergreen belief that he could renew decimated fisheries through fish culture and exotic species.

However these displays were read, they built Wilmot's experience and reputation as an exhibition impresario. In 1882, the federal government appointed Wilmot as the organizer-in-chief of Canada's exhibit for the London International Fisheries Exhibition. Fisheries exhibitions had been

previously held in Netherlands, France, Norway, and Germany. Like "universal" fairs, these exhibitions celebrated progress and the nation-state, but through a fisheries lens. They indexed profound changes in fisheries, including industrialization and the expansion of fishing effort, state administration, and scientific investigation.[16] Steam technology extended the range and catching capacity of fishing fleets. Fishing gear changed: larger trawl nets, adapted for steam vessels, could capture more fish. State administration expanded through fish culture, inspection, and statistical investigation, while state commissions investigated specific problems, such as gear impacts. Fisheries research increased with scientific expeditions and biological stations investigating the dynamics of ocean life. In 1883, the London Fisheries Exhibition provided a nexus, a "centre of calculation," where new questions and technologies could be posed and tested.[17]

The London exhibition began in May 1883 and ran for six months. It marked Canada's debut on the international stage of fisheries exhibitions, and Wilmot produced a display equal to the moment. He shipped 500 tons of objects to London and arranged them into an arresting display that covered 10,000 square feet of space. Mounted fish appeared alongside boats and fishing gear, as well as fish commodities and an assortment of models, dioramas, and other objects. At the heart of the Canadian Court (as the space was called) stood a spectacular focal point: a towering trophy, a pyramid of tinned fish, fishing gear, and nets, surmounted with the flags of Canada and topped by a stuffed 50-pound beaver. A trope of Victorian exhibition and retail display, the trophy marked Canada's pride as a consumer and exporter nation, while symbolizing the state's power to organize and administer the fisheries.

Fish culture also featured prominently in Wilmot's display. Visitors entering the court's main entrance first encountered a working model of Wilmot's fish hatchery containing 50,000 salmon eggs that hatched before visitors' eyes. Beside it stood Wilmot's patented "Self-Picking and Self-Cleaning Canadian Fish Egg Incubator," a device that automated the tedious labour of sorting and cleaning fish eggs. The display also contained scale models of the hatchery buildings at Newcastle. The display drew such crowds that one official claimed it made the Canadian Court "impassable," and won the exhibition's gold medal for fish culture. The display represented not only Wilmot's ability to produce fish at an industrial scale but also his ability to stage fish exhibitions at ever more spectacular levels.[18]

4.2 "Canada Court, showing Stuffed Fishes, Refrigerators etc." The Great International Fisheries Exhibition, London, 1883. Mikan No. 4111986. Courtesy of Library and Archives Canada.

While the display presented a progressive picture of the Canadian fisheries administration – and Wilmot's centrality – it was a representation that was not universally accepted. W.F. Whitcher, the Canadian fisheries official who had originally supported Wilmot's appointment as a fisheries officer, raised uncomfortable questions about fish culture during the London exhibition. Writing in the American journal *Forest and Stream*, Whitcher compared hatchery production to commercial catches and concluded that fish culture made no contribution to catches. While acknowledging that fish culturists produced fish far exceeding "the produce of natural operations," Whitcher doubted that hatchery-reared fish "re-appeared in commercial and industrial channels as a commodity of trade and an article of supply." His critique was also a veiled attack on Wilmot's reliance on government support. Noting that fish culturists were then gathered in London, Whitcher hoped they would "give assurance to

the public tax-payer that we are reaping or shall sooner or later reap the fruits of so much zealous and expensive labor."[19]

This attack embarrassed Wilmot: it may have also sharpened his exhibitionary ambitions. After the London exhibition Wilmot lobbied to establish the Canadian exhibit as a permanent museum in Ottawa. In 1884, the museum opened in a former meeting hall, renamed the Fisheries Building for the occasion. Part of the late nineteenth-century boom in natural-history museums, the Canadian Fisheries Museum fixed a temporary exhibit into a permanent display that helped formalize Ottawa as the nation's repository of natural-history knowledge. More immediately, the museum marked the ascendancy of fish culture and Samuel Wilmot's position in Canadian fisheries administration. Although the museum could display only a fraction of the London exhibit, it drew thousands of annual visitors. The museum also served as a repository for international exhibitions, supplying material for the Colonial and Indian Exhibition in London in 1886 and the Columbian Exposition in Chicago in 1893.

For several years, the Fisheries Museum lacked a vital component – a live fish-culture demonstration. Wilmot rectified this in 1890 when he installed a fish hatchery in the museum's cellar. Wilmot had first proposed a hatchery in 1885 soon after the museum opened. Not content with a collection of inanimate objects, Wilmot wanted to unite "dead and living specimens of the products of the waters of Canada" in one place to create "a great National Fisheries Museum for the Dominion of Canada."[20] With the hatchery in place, Wilmot had reproduced all the elements of his Newcastle hatchery – an exhibitionary nexus of fish culture and natural history – in the heart of the national capital.

The hatchery, when it opened, was the fourteenth in Wilmot's national fish-culture system but differed from others in its explicit exhibitionary purpose. Wilmot used the hatchery to expose federal politicians to "both ocular and practical demonstrations of the *modus operandi* of propagating and rearing fish by the artificial methods."[21] Unlike other hatcheries, which secured eggs from wild fish, the Ottawa hatchery was supplied with eggs from other fish hatcheries. Spared the difficulties of egg collection, the Ottawa hatchery was thus free to focus on exhibition as well as the distribution of fish, including exotic game-fish species such as rainbow trout, to local fishing clubs.

The hatchery and its live fish may have overshadowed the museum's collection of taxidermied fish. An Ottawa tourist guide pointed out the museum but directed visitors to the hatchery. "What will most interest the many," the guide suggested, "is The Ottawa Fish Hatchery, especially if the 'many' come while the millions of little fish are busy getting ready for the rivers, brooks, and lakes of the Dominion."[22] The guide inadvertently touched a sore point – and ongoing challenge – for curators working on fish exhibitions: while live fish animated fish-culture displays and aquariums, mounted fish lacked "life-likeness," a problem framed as the "question of fish exhibition."

The "question of fish exhibition"

For curators and taxidermists, "life-likeness" was the gold standard of animal display. Taxidermists in the late nineteenth century used the same methods to mount fish as they did to mount birds and mammals: they removed the skins from dead animals and fitted them over moulds or models of their bodies. These techniques had been developed earlier in the nineteenth century, and by the 1880s museum and commercial taxidermists were constructing more vividly modelled mounted animals.[23] Although achieving "life-likeness" was a challenge common to all animal taxidermy, it was especially pertinent to fish. The aquatic origin of fish frustrated attempts by taxidermists to preserve them in the same way as terrestrial animals. Fish not only lost their vivid colours after death but their fins and scales were prone to shrivelling and fraying after mounting. "The great objection to mounted fish," wrote John Rowley, chief taxidermist at the American Museum of Natural History, "are the shrinkage and mummification of the fins and head in drying."[24]

Well-known taxidermist, museum administrator, and conservationist William T. Hornaday warned that fish were the most difficult animal of all to mount, and the most certain to disappoint. "In nearly every large zoological museum," advised Hornaday, "the stuffed fishes are the least attractive, and the least life like of all the vertebrates."[25] And certain fish were more difficult than others. Hornaday dreaded mounting cartilaginous fish such as sharks and rays. Rays, with their wing-like bodies and long tails, frustrated taxidermists in particular. "The rays are the meanest of all subjects that vex the soul of the taxidermist. Shun them as you would

the small-pox or the devil," Hornaday warned, advising budding taxidermists to avoid them altogether. "The best way to mount a ray is to make a nice plaster cast of it," suggested Hornaday, "paint it, and then bury the accursed ray in a compost heap."[26]

For Ray Miner, curator at the American Museum of Natural History (AMNH), the question of fish exhibition came down to this: fish were simply too "refractory and difficult to prepare effectively for exhibition."[27] Fish taxidermists nevertheless rose to the challenge. Many tried, as Hornaday had suggested for rays, to make casts. John Rowley specified a complex process of moulding and casting fish in plaster. A mould produced a "perfectly formed manikin" over which the taxidermist glued the fish's skin. Once dry, the fish could be painted and varnished. But as Michael Rossi notes, "casting could produce an incredibly *precise* mold . . . while nevertheless yielding a terribly *inaccurate* impression of the animal in life."[28] Plaster casts required considerable finishing, and taxidermists struggled to perfect methods that created the illusion of life. New York taxidermist Dwight Franklin claimed success in 1908 with plaster moulds to produce translucent wax models. Franklin then painted them in "vibrant and lifelike colours." Another museum taxidermist experimented with electroplating plaster-cast fish with copper and silver. This technique, he claimed, gave his models "the natural sheen" and reproduced what Ray Miner said was missing in most models: "the surface bloom of the living fish."[29]

This "bloom" was also lacking in alcohol-preserved wet specimens or "alcoholics." These were fish captured during collecting expeditions and preserved in jars containing alcohol or a formaldehyde solution. Wet preservation saved fish for close anatomical study and was the standard for museum-quality fish specimens. Some curators, however, blanched at exhibiting alcohol specimens. An American curator described them as "discolored, dead, ghastly, [and] of no general resemblance to nature." The cylindrical jars used to store alcohol specimens also caused visual distortion, "another serious disadvantage" to their exhibition. Alcohol specimens "must be replaced by something worthwhile," the curator declared, "something that is representative of life."[30]

This material problem was also a conceptual one. The failure to model "life-likeness" undermined the validity of both model and museum. A discoloured wet specimen or cracked mounted fish that failed to show the animal as it once lived undermined the museum's authority. A mount that

failed to look "real" satisfied neither the curatorial requirement for accuracy nor visitors' expectations of attractive exhibits. Specimens had to "be an exact copy, as if it were a cast of the animal as fashioned by nature's cunning hand," declared R.W. Shufeldt, who surveyed American museum taxidermy in 1892. A museum specimen not only had to withstand visual scrutiny but do so over time. Specimens that failed these tests, because they had the wrong eyes or were visibly decaying, diminished a museum's credibility.[31]

Such was the case with the Canadian Fisheries Museum by the end of the nineteenth century. The museum's collection of objects, particularly its collection of mounted fish, showed the accumulated wear-and-tear of seventeen years of exhibition in Ottawa and at various venues in Europe and the United States. After the collection returned from the 1893 Columbian Exhibition in Chicago, Samuel Wilmot described it as "lying about the room in the most confused state."[32] In 1901, Ottawa taxidermist W.J. Henry gave an unvarnished account of the museum's mounted fish. In a long litany, Henry observed how the specimens, amateurishly made, lacked verisimilitude and gave an overall impression of tiredness and decay. Specimens were "twisted and warped out of shape" because they had not first been properly cleaned. Others had been "stretched several inches longer than when they were in the flesh." Henry went on:

> The fins and tails were badly set and broken. The material used in mounting them is running out into the case. Many of them have bird's eyes instead of fish eyes. Some have plain transparent eyes, not colored at all, and what coloring is done is very bad. The grease and oil is running out of the specimens. The alcohol specimens were very badly done, and unless they are remedied soon, they will be lost.[33]

By 1901, however, the museum was no longer Samuel Wilmot's problem. He retired in 1895 and his successor, Edward Prince, assumed responsibility for it. Prince was an English fisheries scientist who had been recruited in 1892 to place the Canadian fisheries department on a "scientific footing." Prince was part of an emerging class of male middle-class zoologists in the late nineteenth century. He represented the professionalization of scientific expertise within government and the shift toward the "rule of

experts," a hallmark of the Progressive movement and state formation at that time.[34] Prince championed and established biological stations, which undertook fisheries-related research in the field and in labs. Prince sought to remake the Canadian Fisheries Museums into a scientific institution and plotted, even before Wilmot's retirement, its renewal. "The opportunity now occurs," Prince wrote in 1894, "for making such arrangements as will vastly increase the value and interest of the Fisheries Exhibit." The museum, Prince noted, had to be both "attractive and interesting," while having "real educational and scientific value."[35]

Prince later enumerated in more detail his frustrations with Wilmot's collection. "None of the stuffed fish in the Museum have ever been properly and scientifically labelled," wrote Prince. "The names are in many cases scientifically erroneous, and the localities which were placed on the cases some years ago are manifestly wrong."[36] A stuffed paddlefish, for example, was reported to have been captured near Sarnia on Lake Ontario, a geographical error that cast doubt on an unusual record of a fish found beyond its normal range. A specimen of a purported Atlantic salmon was labelled "Female, species doubtful; locality not stated." Such a collection could not, in Prince's eyes, "adequately represent the Fisheries of Canada." It lacked authority and "such educational and scientific utility as it ought to possess."[37]

Prince turned to another man, Andrew Halkett, to renew the collection and establish its scientific credibility. Born in Scotland in 1854, Halkett emigrated to Canada in 1872 and joined the fisheries department in 1878 as a clerk. In the late 1890s, Prince began assigning Halkett to curatorial and naturalist duties, an elevation that may have arisen out of their mutual acquaintance in Ottawa's natural-history society, the Ottawa Field Naturalists' Club. In 1903, Halkett was formally appointed curator of the Fisheries Museum and served in this capacity until the museum closed in 1918. Halkett collected and catalogued fish specimens, corresponded with collectors and other curators, and designed and supervised exhibits. And he had to contend with a collection of mounted fish that, as W.J. Henry had made clear, was visibly decaying before the public's eyes.[38]

From his confirmation as curator in 1903 to the museum's closure in 1918, Halkett confronted the material difficulties of managing an impermanent collection in an ostensibly permanent museum. During his tenure, Halkett struggled to renovate both the collection and the museum

space. His first efforts stalled when he was named naturalist to Canada's 1904 "Neptune" expedition to the Arctic. The journey afforded an important collecting opportunity, but the year-long expedition also delayed the museum's renewal. On his return, Halkett also had to deal with an unexpected problem: a growing demand from regional exhibitions for fisheries exhibits, particularly aquarium displays.

Since its opening, the Fisheries Museum had functioned as an exhibit repository, supplying materials for Canadian fisheries displays at international exhibitions. After the 1893 Columbian Exposition in Chicago – where the US Fish Commission had sponsored a massive aquarium – the volume of requests from regional exhibitions across Canada for fisheries exhibits and aquariums increased. The fisheries department initially tried to satisfy such demands. Although wary about loaning mounted fish from the museum, the department often provided a model hatchery or aquarium tanks. Aquarium displays satisfied exhibition officials, who sought to attract visitors, and the fisheries department, which continued to promote "the great benefits to be derived from the artificial propagation of fish."[39]

Once word circulated that the fisheries department was supplying such exhibits, however, exhibition organizers began importuning for them. The Saint John Exhibition Association, for example, lobbied the fisheries department for a live-fish display after it learned that the Toronto exhibition had been granted one. And when the Halifax exhibition learned that the New Brunswick fair had been successful, it asked for one too. Exhibition officials hoped that such exhibits would boost attendance; in British Columbia, officials from the New Westminster exhibition believed that an aquarium display would help their fair recover from a disastrous fire the previous year. The fisheries department could not meet the demand because tanks and equipment were expensive. Instead the department began to offer live fish, supplied from the closest federal fish hatchery, and left exhibition organizers to supply aquarium tanks.[40]

An exception made for the New Westminster exhibition caused conflict. In 1907, curator Halkett went to the New Westminster exhibition and mounted a display of the Fisheries Museum's mounted fish and an aquarium display, which he stocked with fish that he had collected in local waters. The exhibit proved so popular that New Westminster officials constructed a permanent fisheries hall, which opened in 1909. When the City of Vancouver launched its own fair in 1910, it sought a similar exhibit.

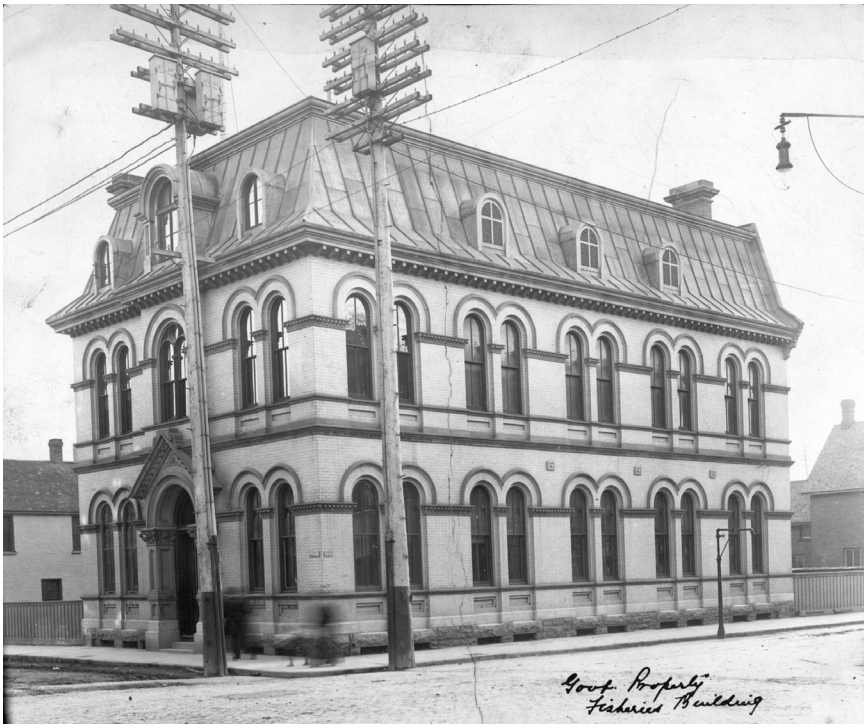
Vancouver exhibition officials promised, in contrast to the seasonal New Westminster fair, to provide a year-round attraction that would comprehensively display British Columbia's resources. The fisheries department refused. Since Vancouver was only 12 miles from New Westminster, it could not justify fisheries exhibits in both places.[41]

Despite the lack of support, the Vancouver Exhibition proceeded with its plans and opened what may have been the first purpose-built aquarium in Canada in 1913. The aquarium was modest, with two small rooms, but it remained unfinished and understocked. The fisheries department supplied taxidermied fish for display but refused further pleas for financial assistance to complete the project.[42] The fisheries department had also refused earlier requests. The Halifax exhibition, which had been lobbying for an aquarium for more than a decade, was turned down in 1910 and again in 1911. So was the Manitoba government, which sought one for its provincial exhibition. Even a private park operator in Montreal asked the government for an aquarium installation. The fisheries department recognized the educational value of such exhibits but claimed that it had no funds to support them. Granting one exhibition an aquarium "would form a precedent," department officials warned, "that would surely lead to difficulties."[43]

Impermanence at the Fisheries Museum

The growing demand for aquarium displays indicated a shift in exhibitionary expectations, one that the Fisheries Museum itself struggled to meet. In 1911, the museum hatchery suddenly closed. A typhoid epidemic in Ottawa forced municipal officials to chemically treat the city's water supply, which was drawn from the Ottawa River. This change proved fatal to hatching eggs and fry, and ultimately to the hatchery's viability.[44] Without live fish, the question of fish exhibition became pronounced: as Halkett noted, the museum lacked animation and suffered from an "immobile effect engendered by mounted and prepared objects." The closure also highlighted other issues with the museum's physical arrangements: the question of fish exhibition extended from the modelling of fish to the museum's space, all of which affected the museum's legitimacy.

Around the time of the hatchery's demise, Halkett publically aired his frustrations with the Fisheries Building. As Halkett noted, the building



4.3 "Fisheries Building at the corner of Queen and O'Connor Streets." Photograph. Public Works Department, PA-046882. Courtesy of Library and Archives Canada.

was originally a meeting hall and was "entirely unadapted for the purposes of a natural history museum." The museum lacked the "appurtenances" of science: "a proper laboratory" equipped with scientific instruments and a zoological library without which "no museum of natural history is complete." Halkett exclaimed "violently against the present condition of things," and proposed a solution: a purpose-built museum building to house "a national fisheries collection which would be in every way creditable to the department."[45]

Behind Halkett's proposal was another disappointment: the Fisheries Museum's exclusion from the newly constructed Victoria Memorial Museum in Ottawa. Proposed in 1901 and completed ten years later, the structure was only the second purpose-built museum constructed in Canada. The building's Scotch Baronial design wrapped its principal tenant, the

Geological Survey of Canada and its natural history collection, in a stately exterior that marked their national importance. Early in the museum's planning, officials had proposed to also accommodate, along with the Supreme Court and National Art Gallery, the Fisheries Museum.[46] This plan was never realized; one government minister doubted there were enough fish specimens to fill a display case, let alone a museum wing. In the new museum's modelling of Canada's dominion over nature, fish and fisheries had no place.[47]

The Victoria Memorial Museum nevertheless provided an opportunity to address the Fisheries Museum's challenges. The National Gallery of Canada, which had occupied the Fisheries Building since 1888, vacated the building's top floor when it moved to the new museum. The Fisheries Museum was permitted to expand into this space, a voluminous high-ceilinged room with abundant natural light. The fisheries department also increased the Fisheries Museum's budget, allowing for renovation of the building's interior and the museum collection.[48] While workers replaced wiring and display cases, Halkett burned the museum's old "worthless" specimens and commissioned an American taxidermist, Sherman Denton, to make new examples of mounted fish.

Denton came recommended by Frederic Lucas, the director of the American Museum of Natural History. Denton, like other taxidermists, had confronted the question of fish exhibition. "A 'stuffed' fish is perhaps the ugliest thing in the way of decoration one can find in a day's search," Denton exclaimed in an essay. "When gazing on the dried and wrinkled skin without beauty of form or color, how difficult it is to realize that this wretched object was once a graceful, glittering fish." He claimed to have answered the vexing question of fish exhibition by placing fish skins over *papier maché* forms or moulds. This method, the taxidermist claimed, preserved the specimens as "real fishes."[49]

Once engaged, Denton began shipping freshly mounted specimens to Halkett. In 1912, Denton went on a collecting expedition to British Columbia, gathering rare and unusual species of fish. Denton helped Halkett to renew the collection and to complete his longstanding project of publishing a complete list of Canadian fish. In 1913, after a decade of work, Halkett's *Check List of the Fishes of the Dominion of Canada and Newfoundland* appeared. In addition to new specimens, Halkett commissioned expensive scale models of fishing boats and fishing gear, which

provided authoritative representations of Canadian fisheries. Halkett also obtained a 50-foot whale skeleton that was hung in the museum's upper gallery. The skeleton placed the Fisheries Museum in a select company of grand metropolitan natural-history museums, including New York's American Museum of Natural History and London's Natural History Museum. Massive skeletal reconstructions of whales and dinosaurs attracted visitors fascinated by gigantic creatures – they also served museums as powerful emblems of scientific prestige.[50]

In 1914, the renovated Fisheries Museum reopened with new models, specimens, and exhibits. Halkett's work had renewed the museum and bolstered its status as a major scientific institution. Yet the museum still struggled to authoritatively answer the question of fish exhibition. Even though Denton's mounted fish represented the latest in model making, his mounted specimens suffered the same fate as the old collection: they decayed. In the spring of 1914, Halkett complained to Denton that a "Man-eating Shark" that the taxidermist had mounted "is becoming so cracked that it will soon be unfit for display." A specimen of an Ocean sunfish was also showing signs of collapse. Halkett was able "with the use of putty and paint" to conceal these defects, but a year later Halkett reported further damage:[51]

> I regret to advise you that some of the specimens supplied by you are seriously cracking. The two large Skates are cracking across the back. The green sturgeon is cracking practically all over. A large halibut is cracking close to the head, and the sword-fish is falling away from the board to which it is attached. The cast of the whale is cracking in several places and the maskinonge and blue shark are cracking about the head. Scales are falling off the two specimens of California herring, as well as off the shad.[52]

Denton repaired these specimens and continued to mount fish for the museum. Although Halkett had secured funding for the museum's renovation, and for a new collection of mounted fish, the Canadian Fisheries Museum did not long survive. Compounding the hatchery closure and ongoing problems with mounted fish was a shift in the fisheries department's exhibitionary strategy. Beginning in 1913, it started to mount consumer-themed exhibits at Toronto's Canadian National Exhibition. These

displays focused on promoting fresh fish as a consumer item, schooling retailers and consumers in its handling and cookery. While the Fisheries Museum provided mounted-fish exhibits, they were soon overshadowed by a model fish-retail shop and fish restaurant that the fisheries department first presented in 1914. Against these interactive exhibits, displays of mounted fish appeared stale and out of date. "The restaurant has proved an eminent success," advised a fisheries department memorandum, "and is possibly far more efficacious in advertising fish than the exhibit."[53] *The Canadian Fisherman* shared this view and extended it to the museum itself. "It is true many of us have never heard of [the Canadian Fisheries Museum]," the publication claimed, "and those few who have discovered its location have failed to find anything of educational value to fisheries in it."[54]

Such criticisms forecast the museum's demise. In February 1918, the federal public works department advised fisheries officials that "it will be necessary to remove the Fisheries Exhibit" as the Fisheries Building was to be demolished.[55] In its place, a modern office building and a new headquarters for the fisheries department would be constructed. Halkett and other fisheries officials initially believed the museum's closure was temporary. Halkett arranged to loan the museum's fish collection to the Victoria Memorial Museum, while he waited upon the time "when we shall have a proper Fisheries Museum." After it became apparent that the museum would not reopen, Halkett began to freely distribute the museum's mounted fish. They were "worthless for scientific purposes," Halkett admitted, but "might be serviceable as natural history object lessons for educational institutions." The museum's demolition appeared to have surprised Halkett, who packed up the collection amidst the ensuing confusion. "The work of pulling down the museum building was underway," Halkett reported, "even when the material was being removed."[56]

Between 1919 and 1922, the collection was moved several times from one storage location to another in Ottawa. In 1922 the fisheries department instructed Public Works to complete the "final disposal of the residue . . . of the Canadian Fisheries Museum."[57] The remaining objects were itemized for auction or destruction. Some objects – such as valuable ship models – were returned to the fisheries department for display in various government offices. A few rare specimens were saved for long-term

storage, including a "left-eyed Halibut." Others, including the prized whale skeleton, were thrown out.[58]

The demolition of the Canadian Fisheries Museum ended a chapter in Canadian fish exhibitions that began with Samuel Wilmot in the 1860s. Wilmot launched fish displays in Canada and became a successful impresario of them. Working to promote fish culture, he also promoted himself. But Wilmot's legacy did not last long. Curator Andrew Halkett inherited a decaying collection and problematic museum space, while also having to negotiate a changing exhibitionary landscape. Questions of permanency – and legitimacy – dogged the museum's modelling of fish and its existence. Its demise in 1918 dramatizes the multiple material challenges that fish exhibitions posed. Only in the 1950s were Canadians ready to reconsider and reinvest in this type of display. The Canadian fisheries department sponsored a sleek fisheries gallery in the Royal Ontario Museum in Toronto, while in Quebec City and Vancouver, civic officials established Canada's first large civic aquariums. The question of fish exhibition, however, continued to challenge curators and aquarium keepers as they sought, for a new generation of audiences, to reveal life below the waves.

Notes

1 The literature on animal display is growing: recent contributions include Samuel J. M. M. Alberti, ed., *The Afterlives of Animals* (Charlottesville and London: University of Virginia Press, 2011); Joan B. Landes, Paula Young Lee, and Paul Youngquist, eds., *Gorgeous Beasts: Animal Bodies in Historical Perspective*, (University Park: Pennsylvania State Press, 2012); and Rachel Poliquin, *The Breathless Zoo: Taxidermy and the Cultures of Longing* (University Park: Pennsylvania State Press, 2012).

2 Joseph E. Taylor III, *Making Salmon: An Environmental History of the Northwest Fisheries Crisis* (Seattle: University of Washington Press, 1999), 95.

3 R W. Miner, "A Plan for an Educational Exhibit of Fishes," in *Bulletin of the Bureau of Fisheries* (Washington: Government Printing Office, 1908), 1317.

4 Darin Kinsey, "'Seeding the Water as the Earth:' The Epicenter and Peripheries of a Western Aquacultural Revolution." *Environmental History* 11 (2006): 535–36.

5 William Knight, "Samuel Wilmot, Fish Culture, and Recreational Fisheries in Late 19th Century Ontario." *Scientia Canadensis* 30, no. 1 (2007): 75–90; A.B. McCullough, "Samuel Wilmot," in *Dictionary of Canadian Biography* (Toronto: University of Toronto Press, 1990),

1106–7, also online at http://www.biographi.ca/en/bio/wilmot_samuel_12E.html.

6 George C. Bompas, *Life of Frank Buckland* (London: Smith, Elder, & Co., 1885), 127; 103–4; see Bernard Lightman on "Frank Buckland and the Culture of Display," in Bernard Lightman, "Lecturing in the Spatial Economy of Science," in *Science in the Marketplace: Nineteenth-Century Sites and Experiences*, ed. Aileen Fyfe and Bernard Lightman (Chicago: University of Chicago Press, 2009), 110.

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8 See Philip Henry Gosse, *The Aquarium: An Unveiling of the Wonders of the Deep Sea*, 2nd ed. (London: John van Voorst, 1856); Bernd Brunner, *The Ocean at Home: An Illustrated History of the Aquarium* (Baltimore and London: Princeton Architectural Press, 2005); Rebecca Stott, "Through a Glass Darkly: Aquarium Colonies and Nineteenth-Century Narratives of Marine Monstrosity." *Gothic Studies* 2, no. 3 (2000): 305–27; Vernon N. Kisling, Jr., "Zoological Gardens of the United States," in *Zoo and Aquarium History: Ancient Animals Collections to Zoological Gardens*, ed. Vernon N. Kisling Jr. (Boca Raton, FL: CRC Press 2001), 155.

9 J.E. Taylor, *The Aquarium; Its Inhabitants, Structure, and Management*, 2nd ed. (London: David Bogue, 1881), 18. The Brighton Aquarium, for example, opened in 1872 and featured massive tanks, including one that held 110,000 gallons of sea water, "big enough for the evolutions of porpoises, full-grown sturgeons, sharks, sea-lions, turtles, and other large marine animals."

10 Jerry Ryan, *The Forgotten Aquariums of Boston* (Boston: Finley Aquatic Books, 2002), 41–43.

11 See circus advertisements in *The Globe*'s classified section for 2 June 1873; 21 August 1878; 21 May 1885; and 20 June 1885. "Exhibition Notices," *The Globe*, 24 September 1887, 13; "Annual Exhibition of Manitoba Agricultural and Industrial Society," *The Globe*, 13 October 1881, 7.

12 Canada, *Report of Fish-Breeding in the Dominion of Canada 1877* (Ottawa: Queen's Printer, 1878), 24–26; *The Globe*, Thursday, 15 December 1881, 5.

13 Canada, *Report of Fish Breeding*, 25.

14 "Dominion Exhibition," *The Globe*, 26 September 1879, 4.

15 Samuel Wilmot, "Introduction of California Salmon into Ontario," *Bulletin of the United States Fish Commission 1881* (Washington: Government Printing Office, 1882), 3.

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42 J.D. Hazen to H.H. Stevens, 30 March 1914, RG 23, vol. 1148, file 722-5-8, LAC; H.S. Ralston to H.H. Stevens, 24 February 1914, RG 23, vol. 1148, file 722-5-8, LAC; H.S. Ralston to J.D. Hazen, 17 July 1914, RG 23, vol. 1148, file 722-5-8, LAC. Rolston suspected that the fisheries department favoured the New Westminster exhibition because the chief federal fisheries inspector in British Columbia, F.H. Cunningham, sat on the New Westminster exhibition committee.

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