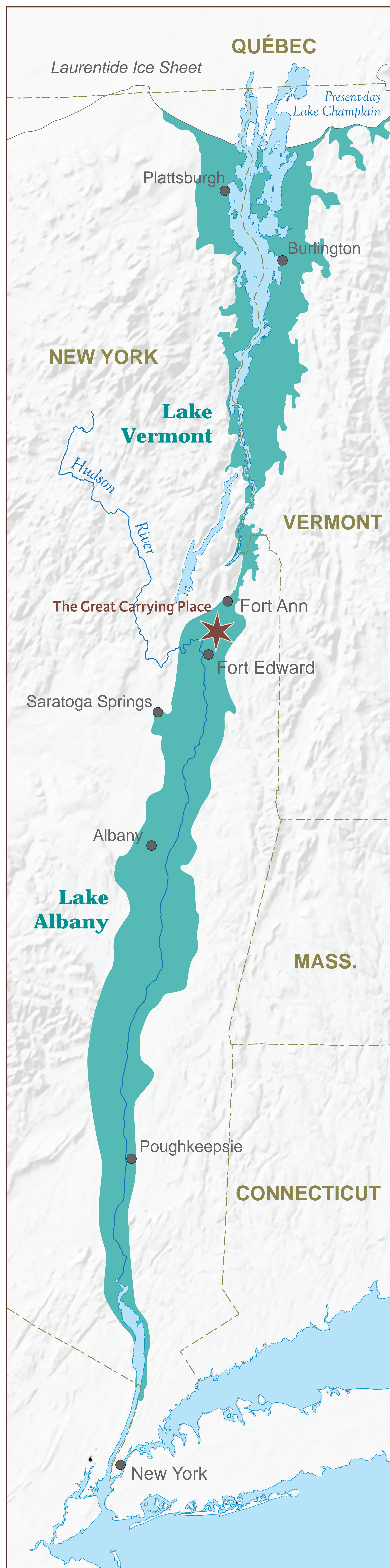




Musee McCord Stewart

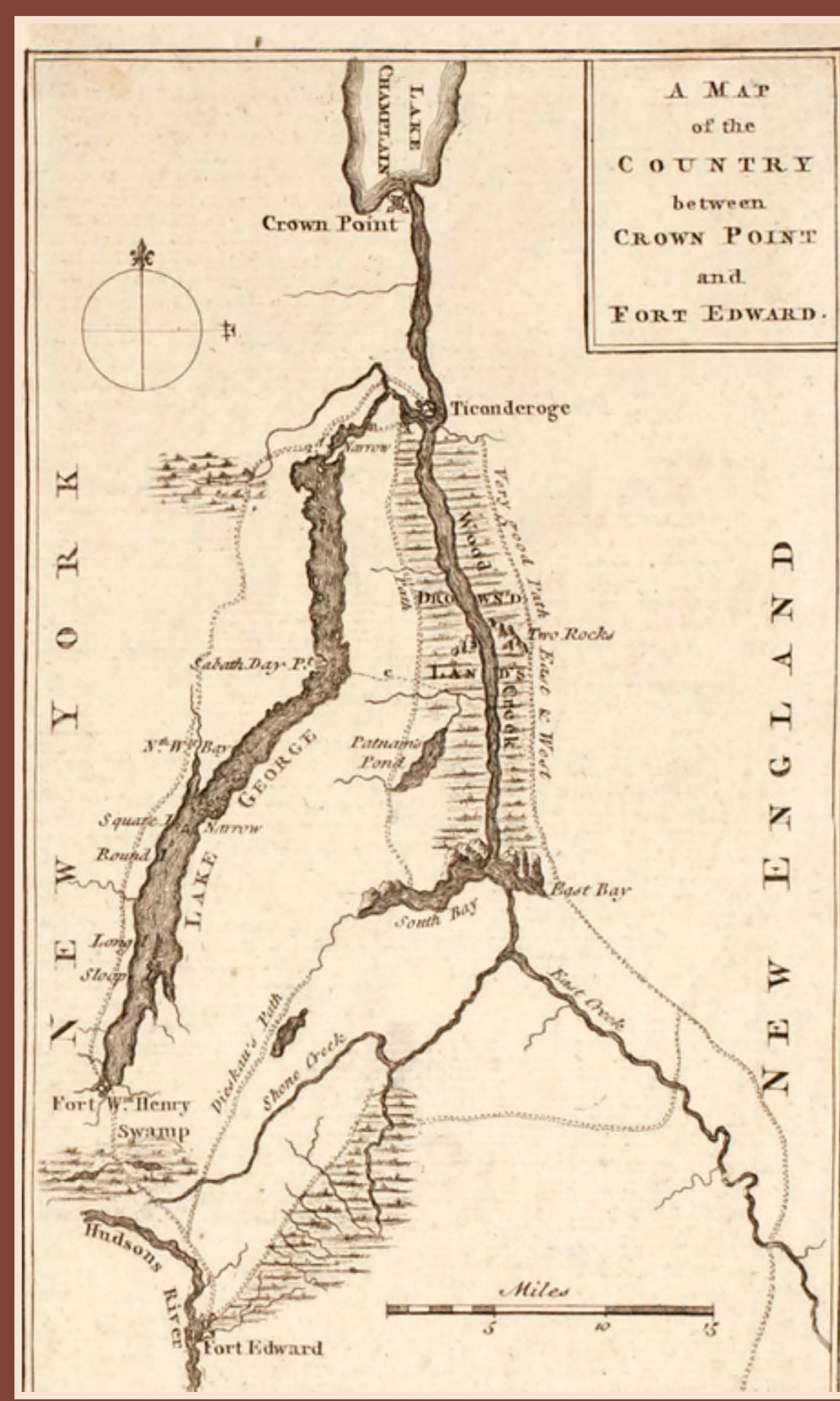
The Great Carrying Place



The north-south alignment of Lake Champlain and the Hudson River made it an important corridor for early indigenous peoples traveling between the St. Lawrence River and the Atlantic Ocean. Except for periods of drought, canoes could travel south along Wood Creek to present day Fort Ann, New York. The 12-mile stretch of land between Fort Ann and Fort Edward was known as Wahcolosencochaleva, "Great Carrying Place" by the Mohicans living here. Their neighbors included the Haudenosaunee (Iroquois) to the west and the Abenaki to the northeast.

A Strategic Corridor

European colonizers quickly understood the importance of the Great Carrying Place. The French settled in the Champlain Valley and the Netherlands established colonies along the Hudson River. The English later took control of the Dutch territory and constructed the first of many strongholds at present-day Fort Anne in 1693, during King William's War. The Queen's Fort—later named Fort Anne—was built in 1711 during Queen Anne's War. The southern end of the Great Carrying Place was guarded by Fort Nicholson, built in 1709. Fort Edward—originally called Fort Lyman—was built there in 1755 during the French and Indian War. American troops at Forts Anne and Edward were overwhelmed by British General John Burgoyne's 1777 campaign, which ended at his surrender at Saratoga.



Located at the base of falls on the Hudson River, Fort Edward was the gateway to roads leading to Lake Champlain and Lake George.

Glacial Origins

A mile-high glacier once covered this entire region, including the highest peaks of the Adirondack Mountains. As the climate began to warm 15,000 years ago and the glacier receded to the north, Lake Vermont was formed from its meltwater. This large, deep freshwater lake flowed south across the short connection between today's Whitehall and Fort Edward into Glacial Lake Albany.

With time, the glaciers retreated far to the north. Seawater from the St. Lawrence Valley rushed into the Champlain Basin, forming the Champlain Sea. Eventually, with the enormous weight of the glaciers removed, the earth's surface rebounded. What remained after these events were the waterways we know today. These processes left behind a low-lying, 12-mile stretch of land that separates the Hudson from the Lake Champlain headwaters.



After a rapid advancement down Lake Champlain and across the Great Carrying Place, General John Burgoyne's army was stalled and defeated at Saratoga, New York on October 13, 1777.





1820 "Map and Profile of the Champlain Canal".

Conflict Brings Change

Ancient Engineering and Modern Innovation

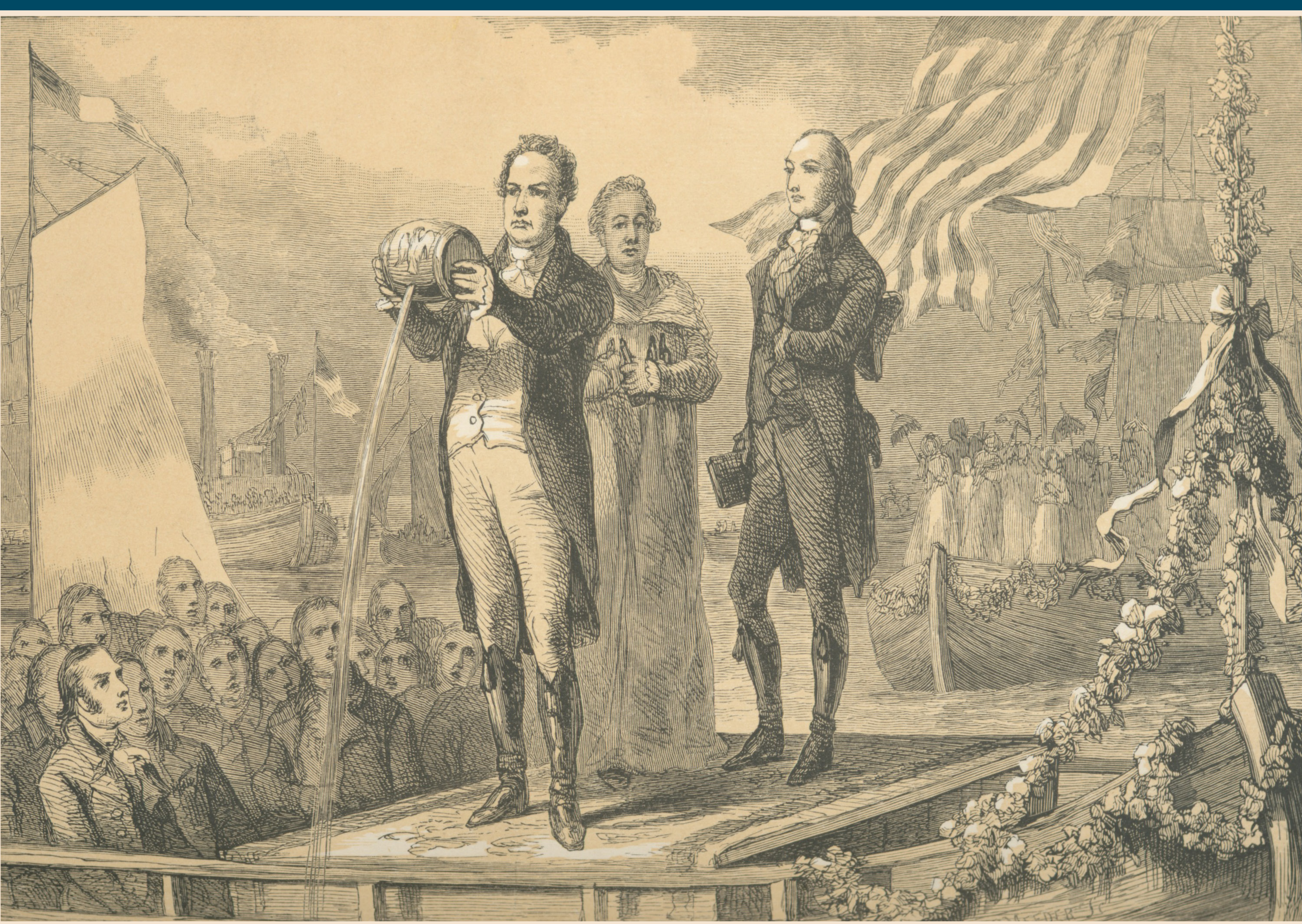


People have long used man-made waterways for transportation and agriculture.

The Chinese used simple canals for transportation 27,000 years ago. Mesopotamians dug the first irrigation canals 6,000 years ago. Ptolemy II is credited with first using locks for the Canal of the Pharaohs, which connected the Mediterranean and Red Seas via the Nile River, in the 3rd century BCE. The Canal Era in the U.S. began with the 1795 construction of the South Hadley Canal on the Connecticut River.

The pound lock—first used in China 1,000 years ago—was key to the nation’s early economic success. With gates at each end of a chamber, water levels in pound locks can be raised and lowered, allowing the vessel to change elevation as it travels along a canal.

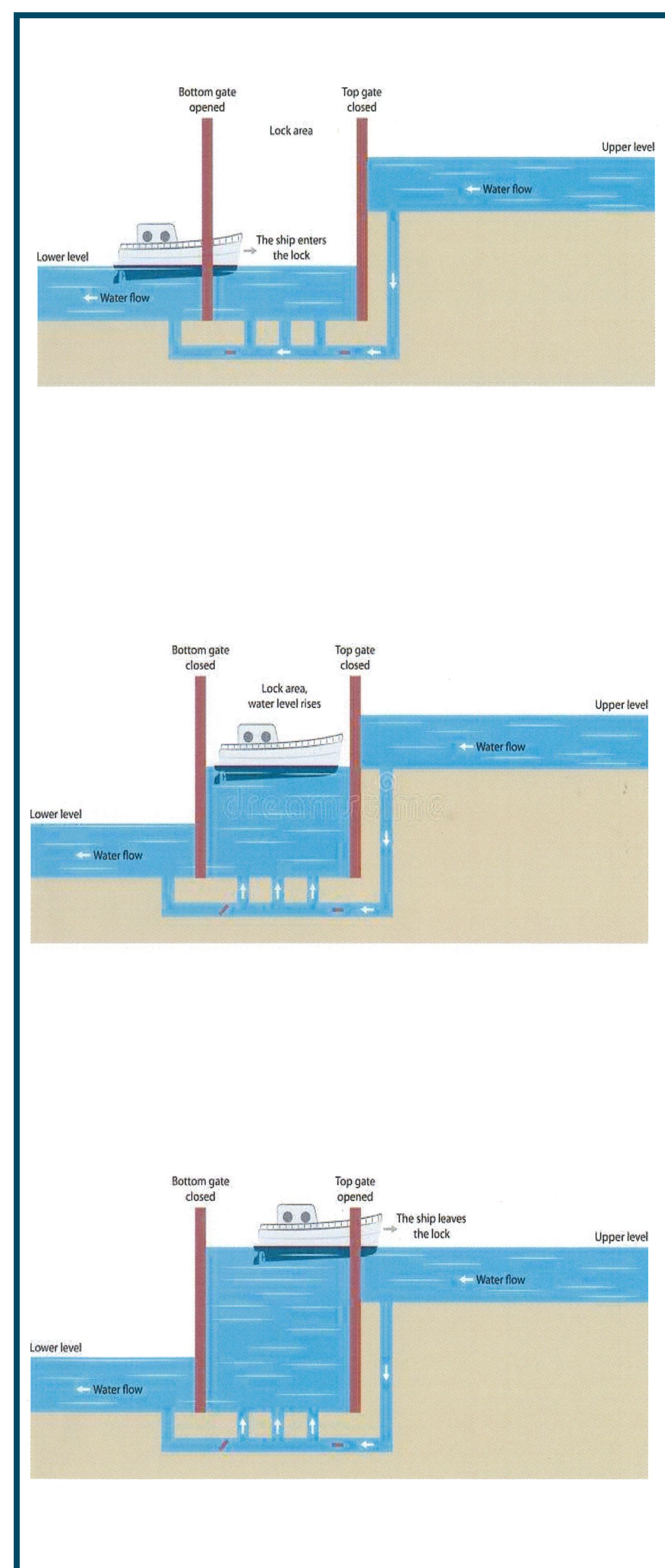
The Champlain Canal has 11 locks that allow it to climb from 15 feet above sea level (ASL) at Troy, NY, to 140 feet ASL at its highest, and back down to Lake Champlain at 98 feet ASL. A “feeder canal” (image above) brings water from the Hudson River at Glens Falls (344 ASL) to the highest point on the Champlain Canal. This water flows down the canal in both directions, allowing vessels to “climb” to the highpoint from either direction.

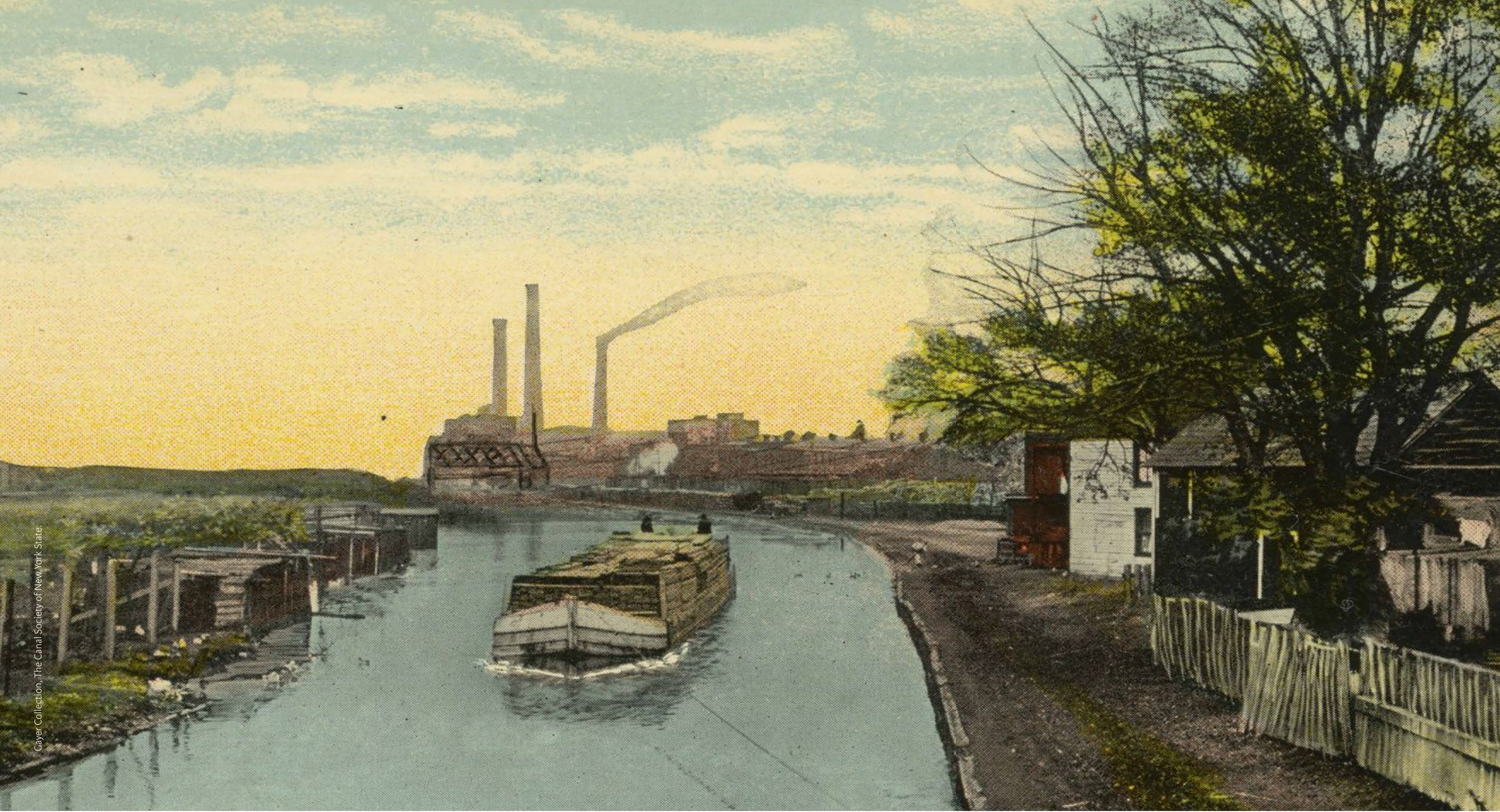


Governor Dewitt Clinton, who also served as a New York State assemblyman and senator, a U.S. senator, and mayor of New York City, conducted the “Mingling of the Waters” ceremony when construction of the Erie Canal was finished in 1825, two years after the Champlain Canal.

The War of 1812 not only tested the American resolve for independence from Great Britain, it also helped usher in an era of profound advances in transportation. Prior to the war, a lack of political and public support stymied proposals to build canals connecting the Hudson River to Lake Erie and Lake Champlain.

Difficulties associated with transporting troops, arms and supplies from the Hudson River to the Great Lakes and Lake Champlain during the war bolstered the case for building canals. New York statesman DeWitt Clinton recognized the strategic and commercial advantages canals could provide. He led the effort to convince the New York State Legislature to approve the construction of the Erie and Champlain canals in 1817. By November 24, 1819, the Great Carrying Place had a functioning canal, connecting Fort Edward with Fort Ann. Four years later, the entire 64-mile-long Champlain Canal from Troy to Fort Ann was complete.





The Champlain Canal North from Saratoga Avenue, Mechanicsville, NY.

A Corridor of Commerce

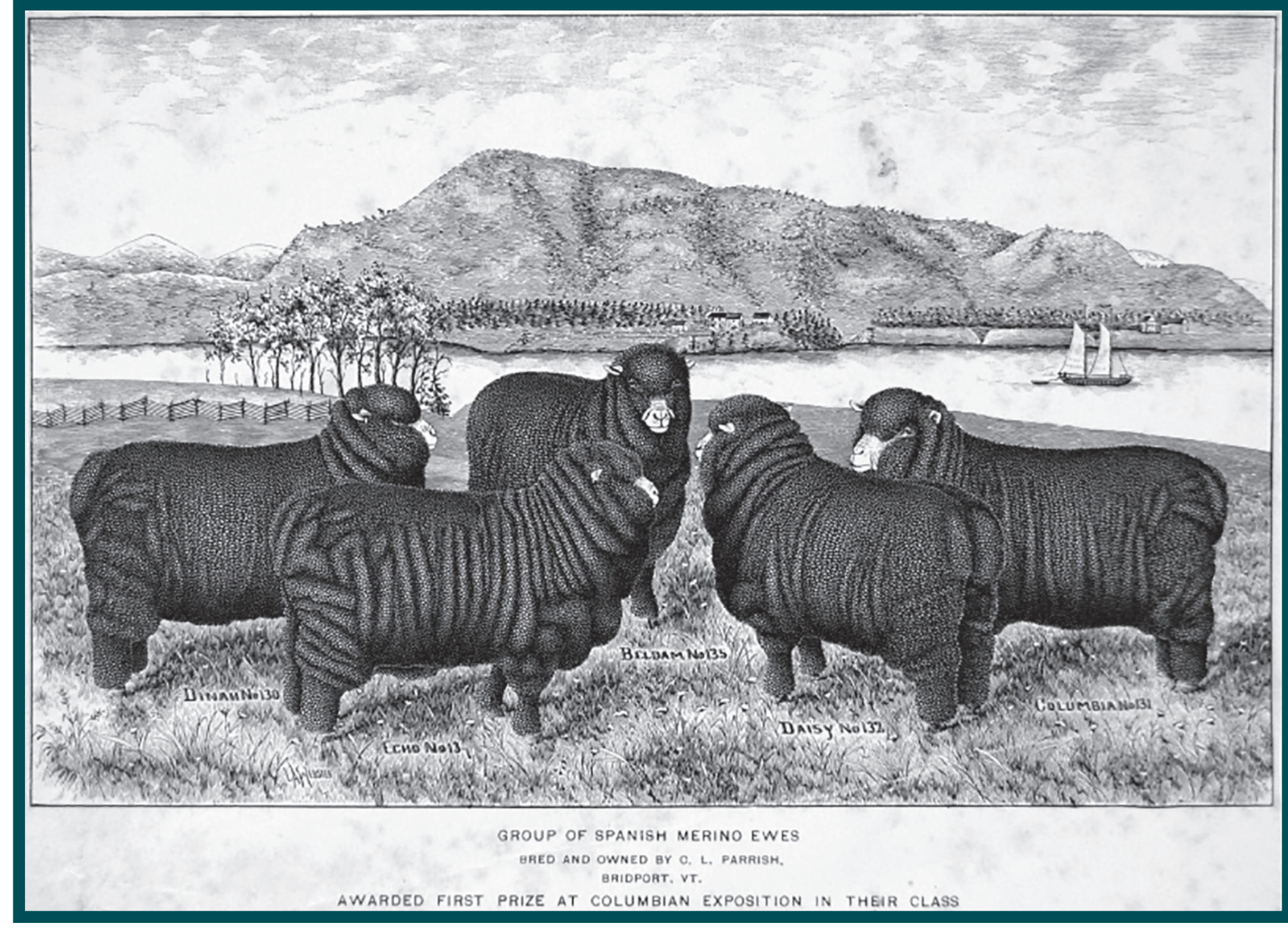
The Champlain Valley's natural resources were difficult to transport before the opening of the Champlain Canal. Most of the valley's trade went north to Lower Canada (now Québec) via the Richelieu River. But the Falls of Chambly hindered travel downstream to the St. Lawrence River. The falls to the north and the expanse of the Great Carrying Place to the south limited Lake Champlain communities' access to markets beyond the valley.

Trade exploded when the Champlain Canal opened in 1823. Soon after, canal boats carried food, wool, stone, iron ore, and lumber to Hudson River ports, New York City, and with the subsequent 1825 opening of the Erie Canal, the Great Lakes. Trade eventually expanded to the north with the 1843 opening of the Chambly Canal. The canal boats returned with finished goods and coal, spurring yet more commerce, communication, and innovation. Canal-side towns, like Mechanicville, New York, (map below) grew and thrived.



Birdseye view of Mechanicville, NY, circa 1885.

Sheep Dominate the Landscape



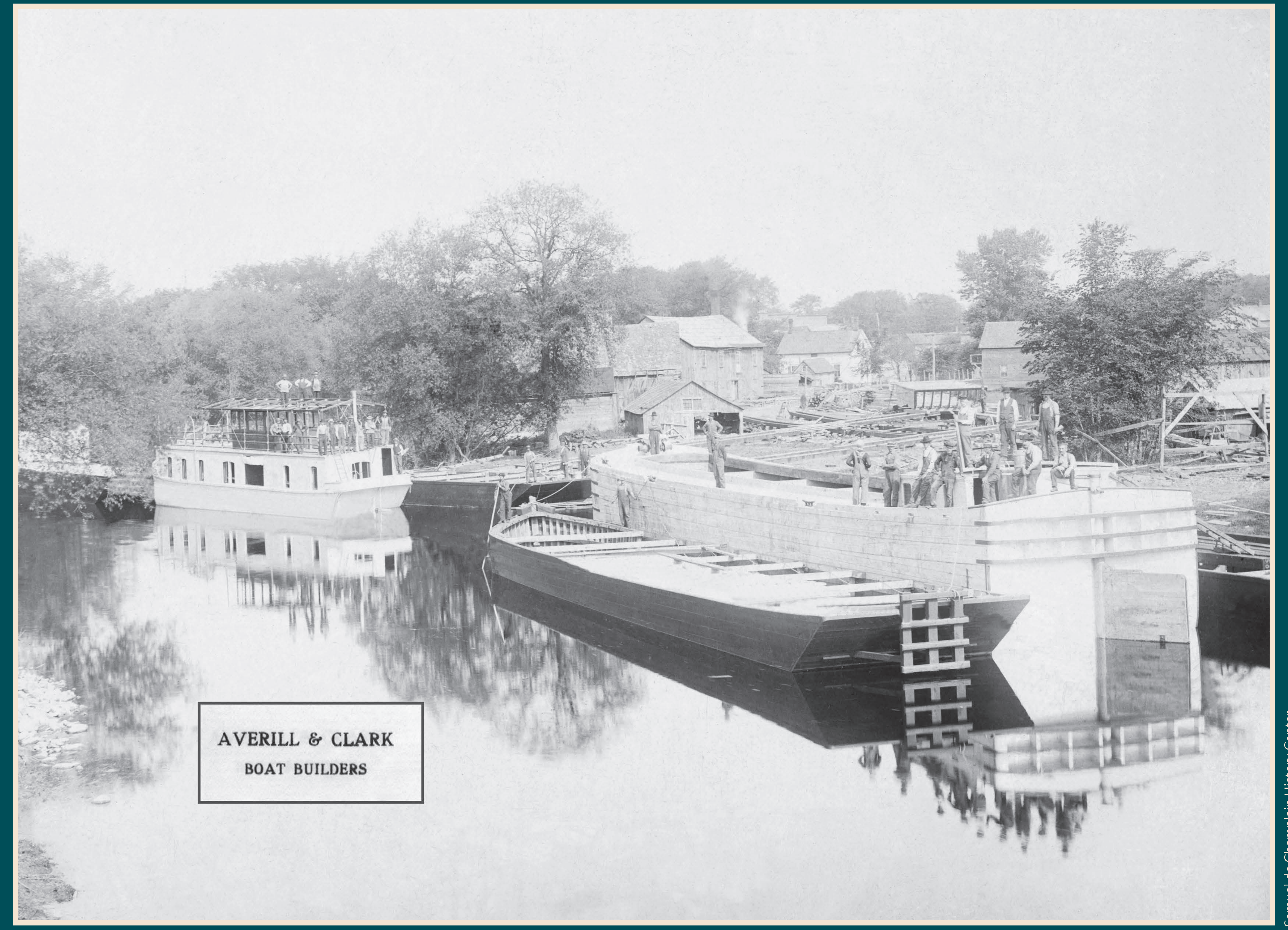
With access to new markets, merino wool quickly became a valuable commodity. The sheep population swelled to 1.7 million head in Vermont by 1840. Sheep outnumbered people by almost five-to-one that year! Competition with western states, tariff reductions, and the 1849 introduction of the railroad led to the wool industry's replacement by the dairy industry within a few decades.

Wind and Mules Power Commerce



In the early days of canal travel, many boats were towed on the lake by steamships. This was expensive and required operators to rely on others to complete their journeys. But Yankee ingenuity (and frugality) solved this problem. Built in St. Albans, Vermont, the *Gleaner* was the first sailing canal boat—and the first vessel—to travel the entire Champlain Canal. With masts that could be lowered and a centerboard that could be raised while in a shallow canal, the boat could be towed by horses or mules under the bridges along the waterway. Launched in 2004, the replica canal schooner *Lois McClure* (pictured here) was patterned after similar boats that sank in Burlington Harbor. This floating interpretive exhibit traveled to distant ports, including New York City, Buffalo, Ottawa, and Quebec City.

Boom Towns Big and Small



The Champlain Canal forever changed the communities it served. As commerce increased, populations grew. Troy, New York, at the canal's southern terminus, became a thriving port city. Nearby waterpower and sheltered bays spurred the growth of Burlington, Vermont, and Plattsburgh, New York. High-quality Adirondack iron ore and pig iron, which is used to make steel, was shipped out of Port Henry, New York—its population doubled to 1,742 between 1820 and 1830. Lake-side warehouses and businesses popped up along the canal and Lake Champlain. With freight to be shipped, boat building became a thriving industry on Lake Champlain. Averill & Clark Boat Yard in Champlain, New York (pictured above), produced not only canal boats, but other working craft and pleasure boats.



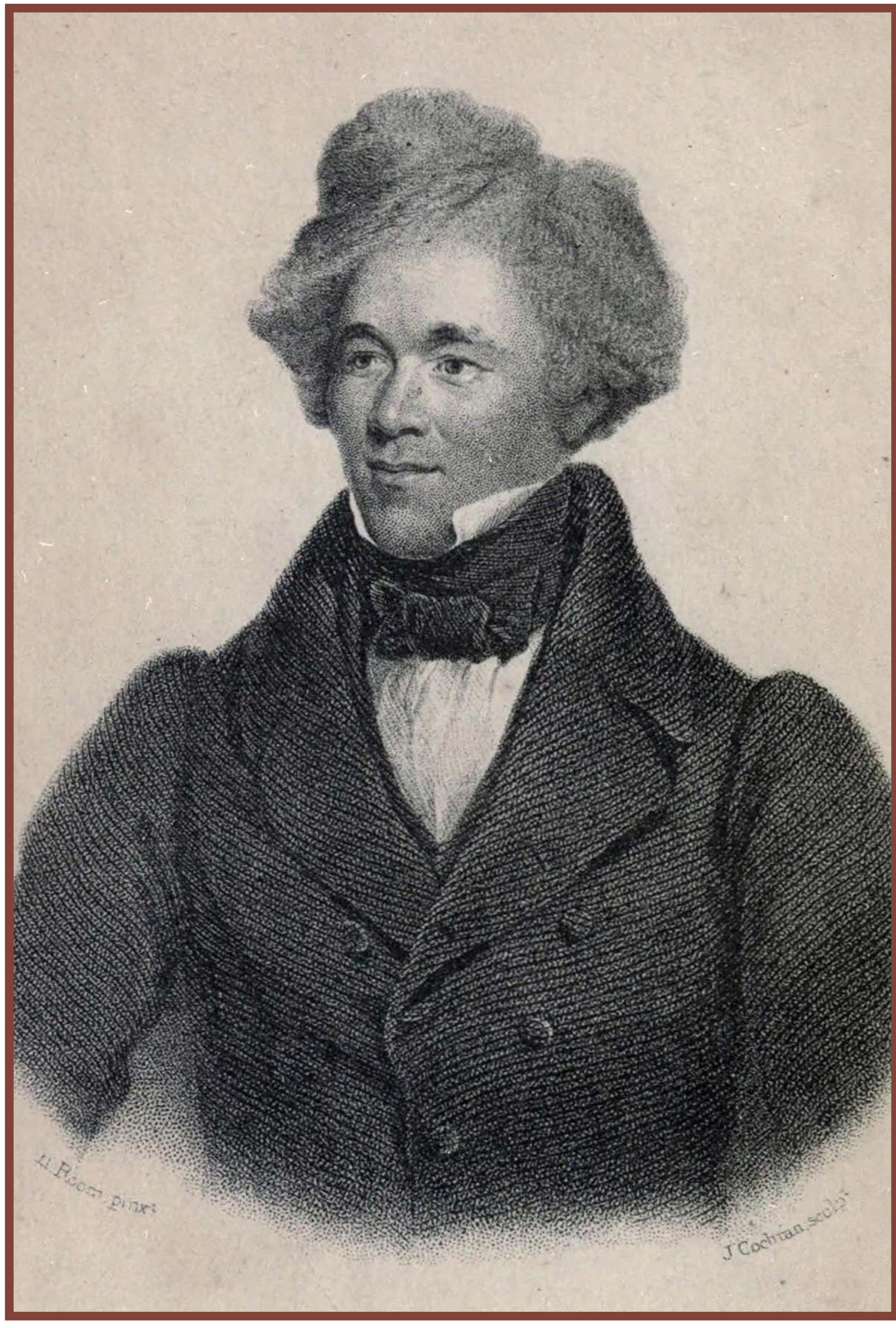


Village Tavern, John Lewis Krimmel, 1813, oil on canvas, Source: Toledo Museum of Art.

A Corridor of Ideas

Like raw materials and finished goods, ideas traveled along the Champlain Canal. At waterfront gathering places, locals and waterway travelers exchanged ideas about the Suffrage and Abolition movements, visions for new religions and Utopian communities, wild conspiracy theories, and news of the world.

A Floating Underground Railroad



Wikimedia Commons

Enslaved people used the strategic Hudson-Champlain corridor to escape slavery prior to the American Civil War. Many self-emancipators landed at Rouses Point, New York, and walked to the Canadian border. “Many a slave has enjoyed the indescribable pleasure of leaping from the liberty-loving [steamship] *Burlington*, to feel the pleasure of being free under the protection of a Queen whose pleasure it is to make the lowest of her subjects happy,” wrote Abolitionist and Underground Railroad agent Abel Brown in 1844.

Moses Roper (above) and Samuel R. Ward (below) used the Champlain Canal and Lake Champlain to attain their freedom. Both men went on to become leaders in the Abolition Movement.



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Utopias and New Religions

The combination of the Second Great Awakening—an early 19th century revival in Christianity—and easier transport along the canals helped foster new religions in upstate New York. Vermonter Joseph Smith began the Church of Jesus Christ of Latter-day Saints—commonly known as the Mormons—along the Erie Canal. The Seventh Day Adventists trace their beginnings to the Millerites, followers of unique beliefs that began on the shores of Lake Champlain and spread south through the canals.

William Miller of Poultney, Vermont, dedicated his life to his Christian faith after surviving the 1814 Battle of Plattsburgh. Miller used dates and numbers in the bible (illustration above) to calculate the second coming of Jesus Christ “sometime between March 21, 1843, and March 21, 1844.” When no second coming materialized, Miller selected a new date: April 18, 1844. This date also came and went, as did a third date in October 1844. His thousands of followers—many of whom had not planted their crops or gave away their possessions—called this last date “The Great Disappointment.”



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A Civil War Hits Home

In 1619—one year before the Pilgrims arrived at Plymouth Rock—English colonists in Virginia purchased more than 20 enslaved people kidnapped from Africa. Debate over slavery and slave trade ensued immediately. From the beginning, some European settlers voiced their opposition. The 1777 Vermont Constitution outlawed slavery (New York passed anti-slavery legislation 40 years later). But the 1789 United States Constitution included provisions for slavery, including counting enslaved people as 3/5th of a person in the U.S. Census. The Abolitionist Movement gained ground after the opening of New York’s canals. Various groups were formed across the northern states, working to end, or at least stop the spread of the country’s “peculiar institution.”

After decades of compromise and with growing mistrust and animosity between pro-slavery southerners and abolitionist northerners, the American Civil War began in 1861. On May 24, Colonel Elmer Ellsworth from Mechanicville, New York, was the first U.S. Army officer to be killed in the Civil War. “Remember Ellsworth” was a rallying cry in the early months of the conflict.

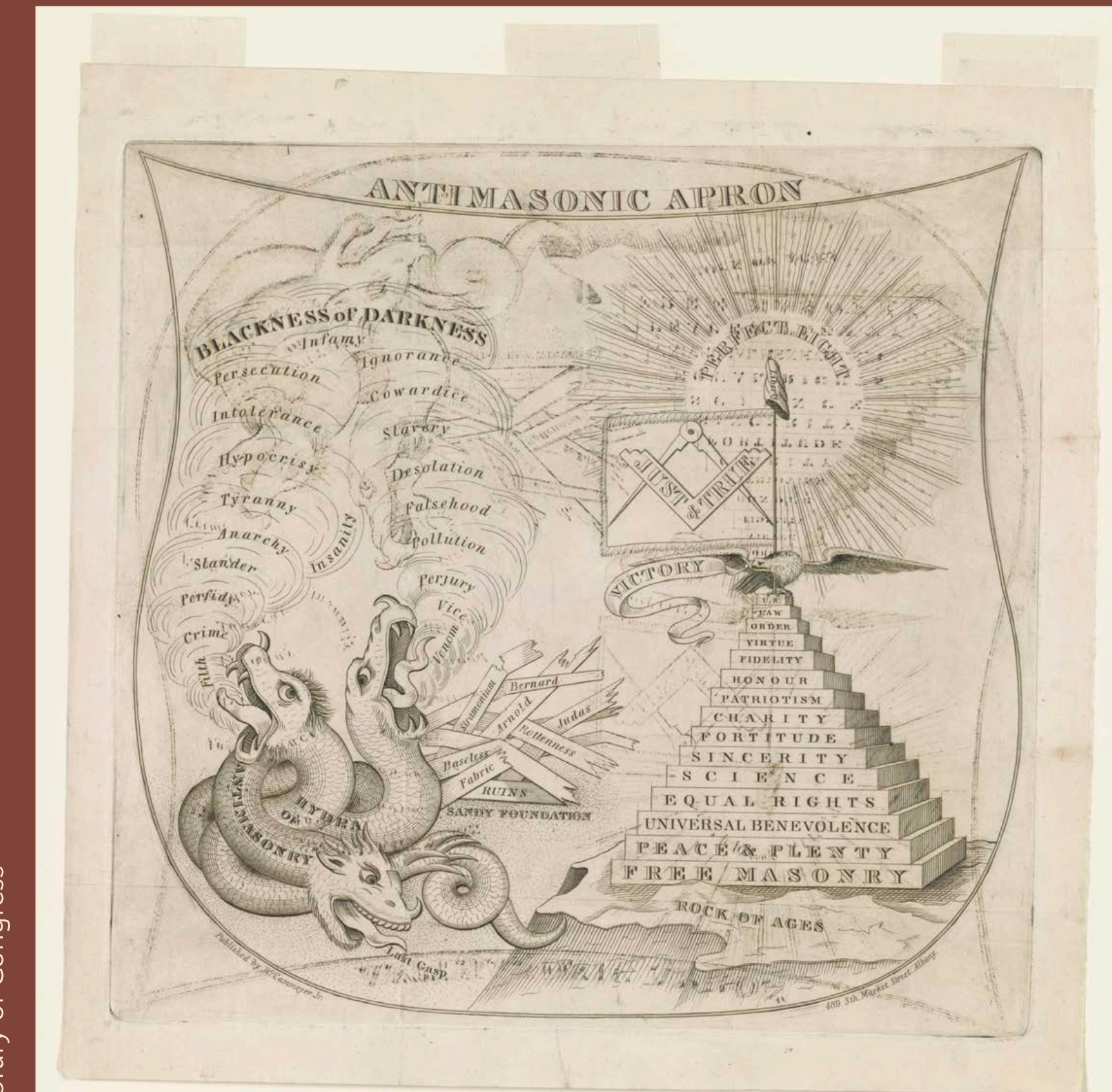


Library of Congress

Conspiracies Abound

Good—and bad—ideas flowed along the early canals. While the concepts of Women’s Suffrage, Abolitionism and Utopian living were shared along the interconnected waterways, more sinister views flowed too. Like today’s internet, conspiracy theories abounded on this communication network. The Anti-Masonic Party believed that a cabal of elitist Freemasons secretly ran the country with evil intentions. To the left, a Mason’s apron depicts the Masons’ views of the Anti-Masons.

Other conspiracy theories about the country’s banks and the economy, politics, the Catholic Church followed the transportation routes. As Irish refugees from the Potato Famine arrived in the late 1840s, the anti-Catholic, anti-immigration Native American Party gained ground. Called the “Know Nothings” due to their secrecy, the party used violence against their opponents.



Library of Congress





The Island Line along the marble causeway connecting Colchester and the Champlain Islands during the 20th century.

Credit: John Gardner

A Slow Decline

When it opened, the Champlain Canal had a capacity for vessels that were 78 feet long, 13.5 feet wide, and 5.25 feet tall with a 4.5-foot-deep draft. The canal was expanded again in 1862 and 1877. The final expansion in 1918 allowed for 102-foot-long, 23-foot-wide, 10-foot-tall vessels with a 9-foot-deep draft. An 1823-class canal boat could carry 120,000 pounds; almost 100 years later, a barge in the waterway could haul 800,000 pounds!

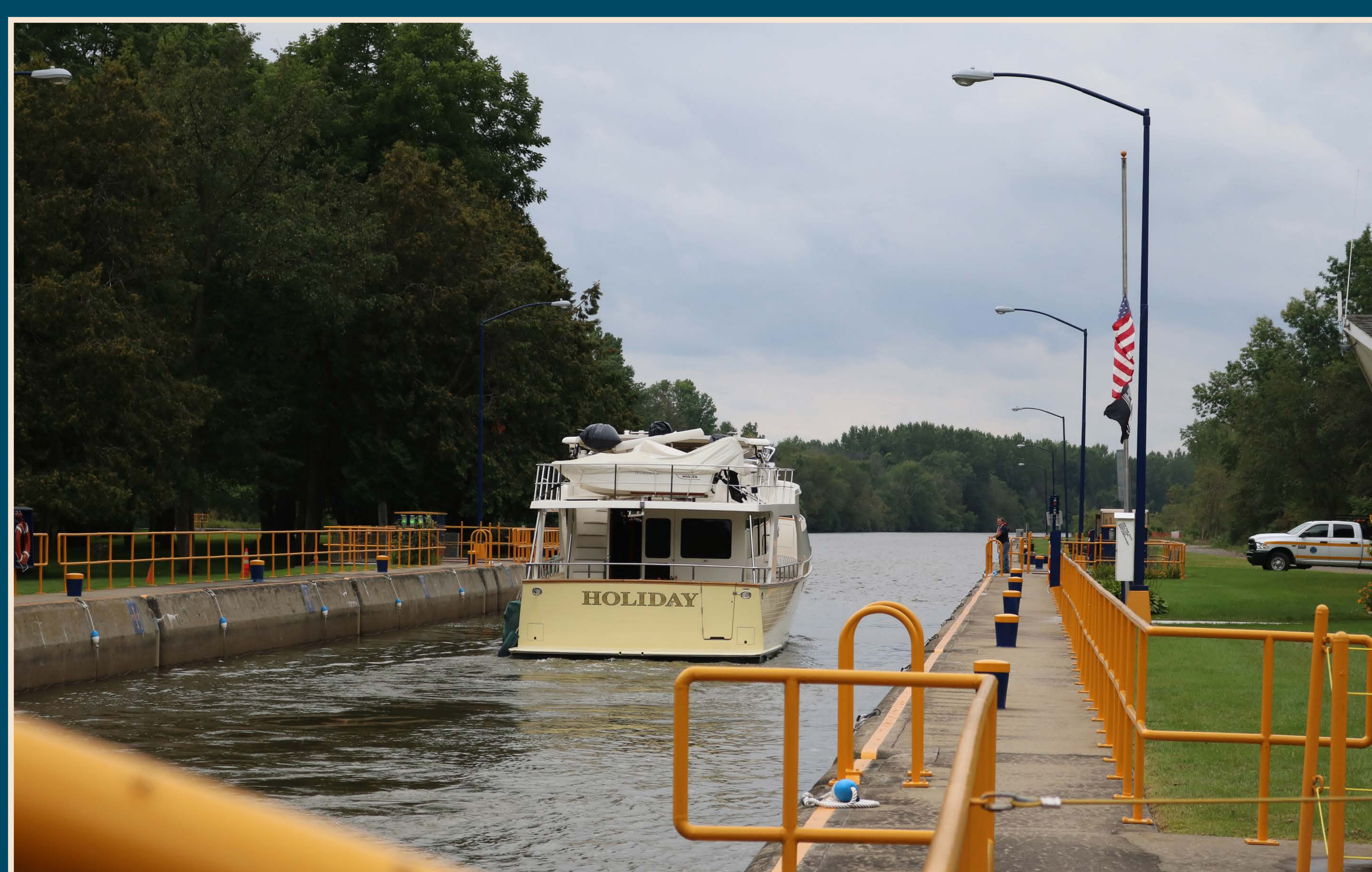
The canal had its highest volume of commerce in 1890—1.5 million tons—but within 20 years, only half that amount was shipped on the canal. Even with the 1918 construction of the Champlain Barge Canal, the waterway was on borrowed time. In 1849, a new railroad connected Boston to Burlington, opening new markets to the Champlain Valley. The 1875 completion of a railroad connecting Albany with Quebec along the western shore of Lake Champlain made the north-south passage along the Hudson and Lake Champlain much faster. Waterways froze in the winter; railroads ran year-round.

Paved highways and trucking in the early 20th century contributed further to the decline of canal traffic. By 1940, the wooden canal boats were replaced by barges with steel hulls. Barges delivering jet fuel, heating oil, and gasoline plied the canal for the next few decades, but over-water transit of fossil fuels ended in the early 1990s.



Photo by Howard Pyle, courtesy Fort Ticonderoga Museum

A family stands on their canal boat towed by a side-wheel steamship on Lake Champlain, heading south to the Champlain Canal. This image is circa 1890, the height of the canal's use. Many families lived on their boats, spending their winters in salt-water ports along the New York and New Jersey shores. At one time, thousands of canal boats plied the waters, but by 1940, the canal boats were gone.



LCBP

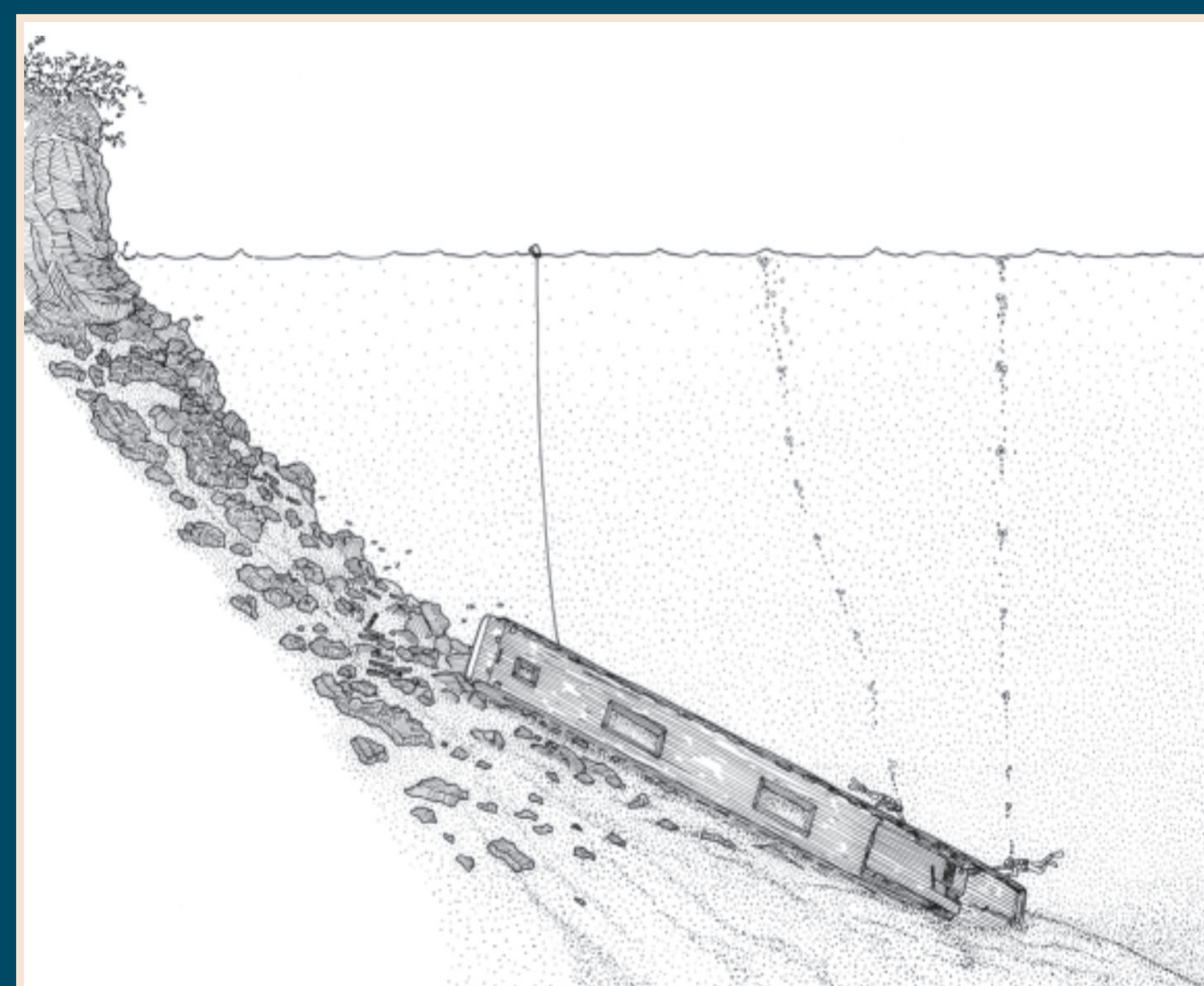
Today, almost all the traffic along the Champlain Canal is recreational vessels. Many of these boats along the canal follow the "Triangle Loop" that follows the Erie Canal to Lake Erie, where it then follows the Oswego and Rideau canals to the St. Lawrence Seaway, then heads south along the Richelieu River to Lake Champlain and the Champlain Canal. While this 700-mile trip is a grand adventure for anyone following the Triangle Loop, the voyage may allow some unwanted invasive hitchhikers to be introduced into Lake Champlain.



Lake Champlain Maritime Museum

Lake Champlain is home to more than 300 shipwrecks; most of them from the Commercial Era. These artifacts give nautical archeologists a better understanding of how the vessels were constructed, how people lived on them, and the cargos they carried.

Found in 1990, the canal scow, *Vergennes*, contains a cargo of cast iron cauldrons, kettles and stoves. The vessel sank in New York waters in 1853. Today, recreational divers can visit 10 shipwrecks that are part of the Lake Champlain Underwater Historic Preserve System managed by the Lake Champlain Maritime Museum and the Vermont Division for Historic Preservation.



Lake Champlain Maritime Museum

Note the invasive zebra mussels which cover the shipwreck above. Zebra mussels traveled northward along the Champlain Canal, arriving to Lake Champlain in 1992. These sharp, little mussels not only cut the feet of bathers and clog water intake pipes, they also affix themselves to sunken vessels. The mussels' excretion decays the iron fastenings that hold wooden boats together, causing them to fall apart.





A zebra mussel encrusted mooring anchor.

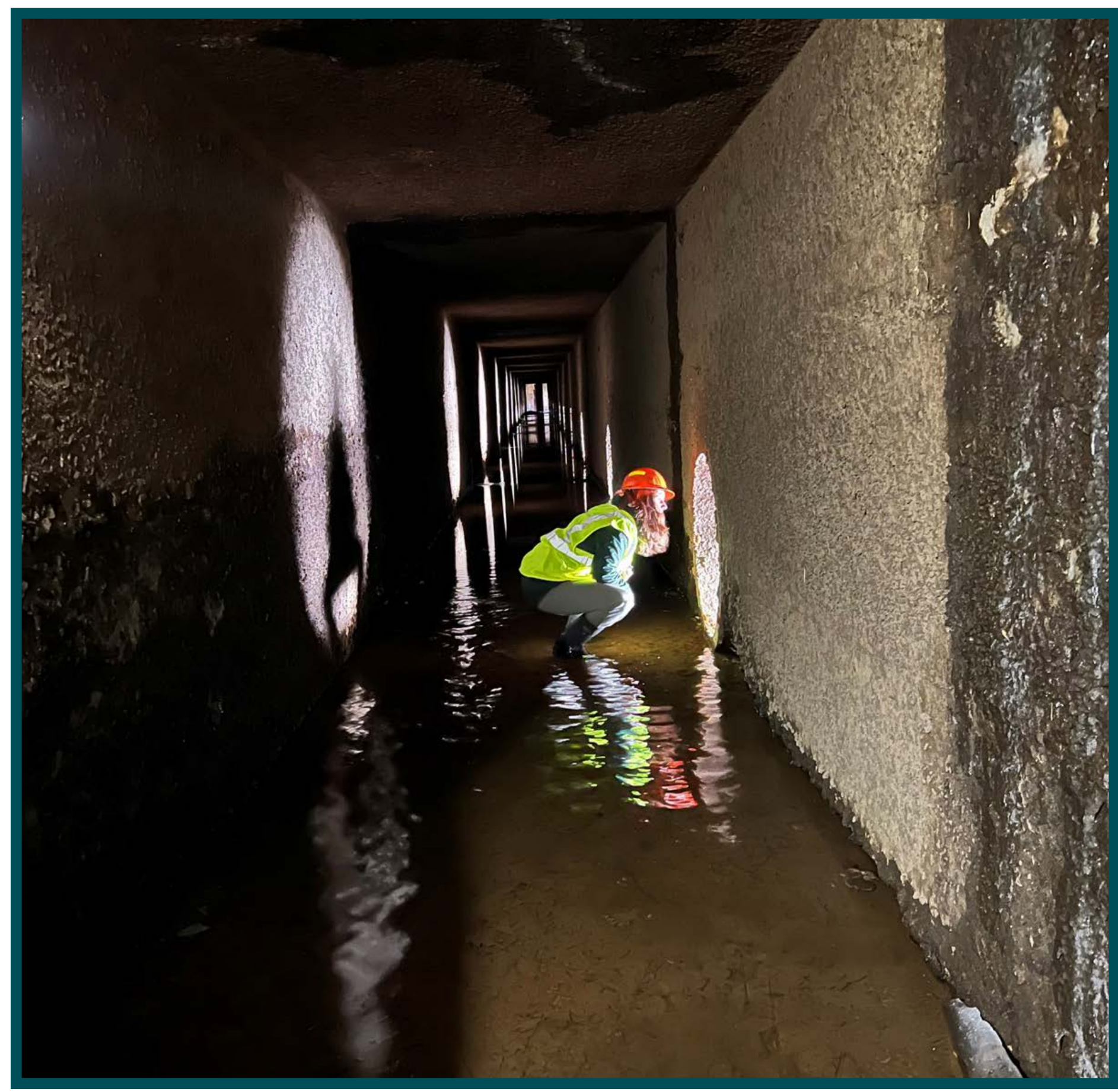
Unwanted Travelers

The Champlain Canal is an open pathway along which aquatic invasive species (AIS) move to Lake Champlain, usually as hitchhikers on boats. The canal connects Lake Champlain to the Hudson River and from there to the Great Lakes watersheds via the Erie Canal. These water bodies are the source of a great number of AIS threats: 122 in the Hudson River and 188 in the Great Lakes. Experts believe that about half of Lake Champlain's 51 known aquatic invasive species traveled along the Champlain or Chambly canals to reach it.

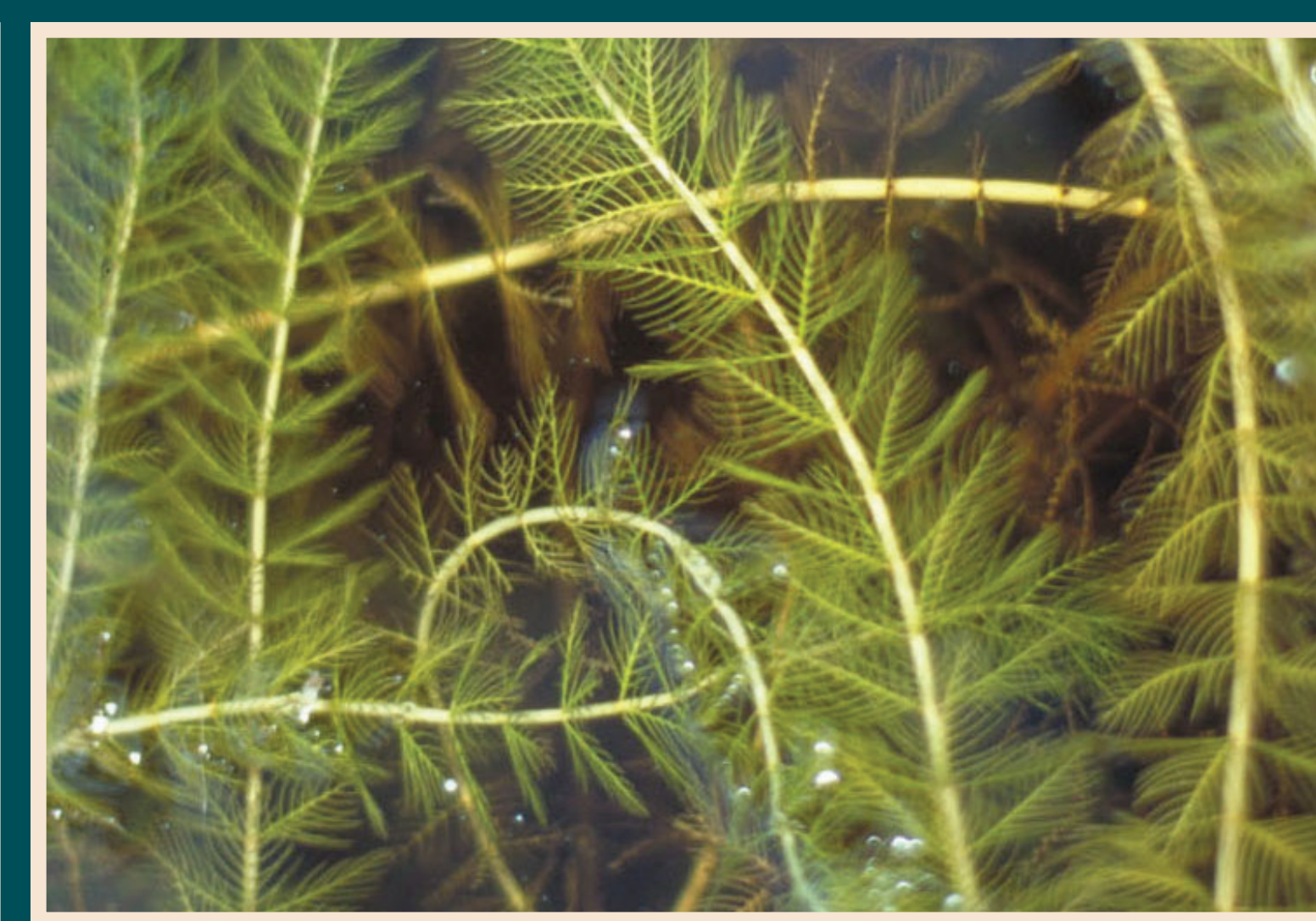
Many species, including the Asian clam, spiny waterflea, hydrilla, round goby, and quagga mussel, could potentially enter Lake Champlain through the Champlain Canal. The Lake Champlain Basin Program (LCBP), the New York State Canal Corporation, New York State Department of Environmental Conservation (NYDEC), U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, and several partner groups are working together to prevent the spread of more invasives into Lake Champlain. In 2022, NYSDEC and NYSCC released a rapid response plan to prevent the spread of round goby, one of the greatest current invasive species threats to the Lake Champlain ecosystem.

Searching for a Solution

Invasive species experts, engineers, and policy makers are collaborating to find the best way to keep the round goby from traveling up the Champlain Canal. Plans are underway to develop a barrier that stops the spread of invasive species, but allows recreational boats to continue using the canal.



Meg Modley, LCBP Healthy Ecosystems and Aquatic Invasive Species Management Coordinator, in C6 tunnel.



As of 2023, 51 known aquatic non-native and invasive species have been identified in Lake Champlain. Nonnative species—those that were not present at the time of European settlement—were first documented as early as 1840. Aquatic invasive species (AIS) are non-native species that cause harm to the environment, the economy, or human health. They include plants, animals, and pathogens (microscopic organisms that cause disease) that are intentionally or unintentionally introduced into the Basin. Invasive plants like Eurasian watermilfoil (top right) and water chestnut (left) spread easily, crowd out native plants altering the lake's habitat, and diminish boating and fishing opportunities. Fish like tench (middle right) and white perch (bottom right) crowd out other fish species.

A Little Fish is a Big Threat



Native to Eurasia, the round goby (*Neogobius melanostomus*) is a bottom-dwelling fish that outcompetes native species for food and habitat. They also prey on eggs and juveniles of other fish, including bass and lake sturgeon. They thrive in poor water conditions and spawn multiple times each season. They eat zebra mussels—seemingly a benefit to the Lake—but in the process, ingest toxic substances like PCBs and botulism. These toxic substances bioaccumulate in predators like bass and walleye, posing a threat to other fish, the American bald eagle—and potentially humans—which may eat contaminated fish. As of summer 2023, round goby had not been found north of Lock 1 of the Champlain Canal near Troy, or south of the St. Ours Dam in the northern reaches of the Richelieu River. The threat to Lake Champlain of invasion by round goby is real. The round goby traversed the entire Erie Canal in eight years; arriving in the Hudson River in 2021.

Knocking at the Door

Experts are concerned about several aquatic invasive species in particular. The Eurasian ruffe (top left) threatens sport fish populations by preying on eggs and competing for food and habitat. Ruffe mature quickly and are adaptable to a wide variety of habitats. Hydrilla (far right) is adaptable to a variety of habitats and spreads rapidly. It can completely clog waterways and is extremely difficult to control once it becomes established. Quagga mussels (bottom left) were first introduced to the Great Lakes from the Caspian Sea area in 1989 and have since spread to the St. Lawrence River, Erie Canal, and a few inland water bodies in New York. Quagga mussels pose many of the same threats as zebra mussels but can live in much deeper waters.



Clockwise from top left: Eurasian Ruffe, Michigan Sea Grant; Hydrilla, Anshie Stock; Quagga Mussel, Ellen Marsden.

