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TEXT: Waterfalls between New York, United States and Ontario, Canada  
  
This article is about the waterfalls on the Canada/US border. For the nearby cities named after them and all other uses, see Niagara Falls (disambiguation)  
  
Niagara Falls ( ) is a group of three waterfalls at the southern end of Niagara Gorge, spanning the border between the province of Ontario in Canada and the state of New York in the United States. The largest of the three is Horseshoe Falls, which straddles the international border of the two countries.[1] It is also known as the Canadian Falls.[2] The smaller American Falls and Bridal Veil Falls lie within the United States. Bridal Veil Falls is separated from Horseshoe Falls by Goat Island and from American Falls by Luna Island, with both islands situated in New York.  
  
Formed by the Niagara River, which drains Lake Erie into Lake Ontario, the combined falls have the highest flow rate of any waterfall in North America that has a vertical drop of more than 50 m (160 ft). During peak daytime tourist hours, more than 168,000 m3 (5.9 million cu ft) of water goes over the crest of the falls every minute.[3] Horseshoe Falls is the most powerful waterfall in North America, as measured by flow rate.[4] Niagara Falls is famed for its beauty and is a valuable source of hydroelectric power. Balancing recreational, commercial, and industrial uses has been a challenge for the stewards of the falls since the 19th century.  
  
Niagara Falls is 27 km (17 mi) northwest of Buffalo, New York, and 69 km (43 mi) southeast of Toronto, between the twin cities of Niagara Falls, Ontario, and Niagara Falls, New York. Niagara Falls was formed when glaciers receded at the end of the Wisconsin glaciation (the last ice age), and water from the newly formed Great Lakes carved a path over and through the Niagara Escarpment en route to the Atlantic Ocean.  
  
Characteristics [ edit ]  
  
Horseshoe Falls is about 57 m (187 ft) high,[5] while the height of the American Falls varies between 21 and 30 m (69 and 98 ft) because of the presence of giant boulders at its base. The larger Horseshoe Falls is about 790 m (2,590 ft) wide, while the American Falls is 320 m (1,050 ft) wide. The distance between the American extremity of Niagara Falls and the Canadian extremity is 1,039 m (3,409 ft).  
  
The peak flow over Horseshoe Falls was recorded at 6,400 m3 (230,000 cu ft) per second.[6] The average annual flow rate is 2,400 m3 (85,000 cu ft) per second.[7] Since the flow is a direct function of the Lake Erie water elevation, it typically peaks in late spring or early summer. During the summer months, at least 2,800 m3 (99,000 cu ft) per second of water traverse the falls, some 90% of which goes over Horseshoe Falls, while the balance is diverted to hydroelectric facilities and then on to American Falls and Bridal Veil Falls. This is accomplished by employing a weir – the International Control Dam – with movable gates upstream from Horseshoe Falls.  
  
The water flow is halved at night and during the low tourist season winter months and only attains a minimum flow of 1,400 cubic metres (49,000 cu ft) per second. Water diversion is regulated by the 1950 Niagara Treaty and is administered by the International Niagara Board of Control.[8] The verdant green color of the water flowing over Niagara Falls is a byproduct of the estimated 60 tonnes/minute of dissolved salts and rock flour (very finely ground rock) generated by the erosive force of the Niagara River.[9]  
  
Geology [ edit ]  
  
The features that became Niagara Falls were created by the Wisconsin glaciation about 10,000 years ago.[10] The retreat of the ice sheet left behind a large amount of meltwater (see Lake Algonquin, Lake Chicago, Glacial Lake Iroquois, and Champlain Sea) that filled up the basins that the glaciers had carved, thus creating the Great Lakes as we know them today.[11][12] Scientists posit there is an old valley, St David's Buried Gorge, buried by glacial drift, at the approximate location of the present Welland Canal.  
  
When the ice melted, the upper Great Lakes emptied into the Niagara River, which followed the rearranged topography across the Niagara Escarpment. In time, the river cut a gorge through the north-facing cliff, or cuesta.[13] Because of the interactions of three major rock formations, the rocky bed did not erode evenly. The caprock formation is composed of hard, erosion-resistant limestone and dolomite of the Lockport Formation (Middle Silurian). That hard layer of stone eroded more slowly than the underlying materials.[13] Immediately below the caprock lies the weaker, softer, sloping Rochester Formation (Lower Silurian). This formation is composed mainly of shale, though it has some thin limestone layers. It also contains ancient fossils. In time, the river eroded the soft layer that supported the hard layers, undercutting the hard caprock, which gave way in great chunks. This process repeated countless times, eventually carving out the falls. Submerged in the river in the lower valley, hidden from view, is the Queenston Formation (Upper Ordovician), which is composed of shales and fine sandstones. All three formations were laid down in an ancient sea, their differences of character deriving from changing conditions within that sea.  
  
About 10,900 years ago, the Niagara Falls was between present-day Queenston, Ontario, and Lewiston, New York, but erosion of the crest caused the falls to retreat approximately 6.8 miles (10.9 km) southward.[14] The shape of Horseshoe Falls has changed through the process of erosion, evolving from a small arch to a horseshoe bend to the present day V-shape.[15] Just upstream from the falls' current location, Goat Island splits the course of the Niagara River, resulting in the separation of Horseshoe Falls to the west from the American and Bridal Veil Falls to the east. Engineering has slowed erosion and recession.[16]  
  
Future of the falls [ edit ]  
  
The current rate of erosion is approximately 30 centimeters (1 ft) per year, down from a historical average of 0.91 m (3 ft) per year. At this rate, in about 50,000 years Niagara Falls will have eroded the remaining 32 km (20 mi) to Lake Erie, and the falls will cease to exist.[9]  
  
Preservation efforts [ edit ]  
  
In the 1870s, sightseers had limited access to Niagara Falls and often had to pay for a glimpse, and industrialization threatened to carve up Goat Island to further expand commercial development.[17] Other industrial encroachments and lack of public access led to a conservation movement in the U.S. known as Free Niagara, led by such notables as Hudson River School artist Frederic Edwin Church, landscape designer Frederick Law Olmsted, and architect Henry Hobson Richardson. Church approached Lord Dufferin, governor-general of Canada, with a proposal for international discussions on the establishment of a public park.[18]  
  
Damage from wind and ice on Goat Island, 1903  
  
Goat Island was one of the inspirations for the American side of the effort. William Dorsheimer, moved by the scene from the island, brought Olmsted to Buffalo in 1868 to design a city park system, which helped promote Olmsted's career. In 1879, the New York state legislature commissioned Olmsted and James T. Gardner to survey the falls and to create the single most important document in the Niagara preservation movement, a "Special Report on the preservation of Niagara Falls".[19] The report advocated for state purchase, restoration and preservation through public ownership of the scenic lands surrounding Niagara Falls. Restoring the former beauty of the falls was described in the report as a "sacred obligation to mankind".[20] In 1883, New York Governor Grover Cleveland drafted legislation authorizing acquisition of lands for a state reservation at Niagara, and the Niagara Falls Association, a private citizens group founded in 1882, mounted a great letter-writing campaign and petition drive in support of the park. Professor Charles Eliot Norton and Olmsted were among the leaders of the public campaign, while New York Governor Alonzo Cornell opposed.[21]  
  
Preservationists' efforts were rewarded on April 30, 1885, when Governor David B. Hill signed legislation creating the Niagara Reservation, New York's first state park. New York State began to purchase land from developers, under the charter of the Niagara Reservation State Park. In the same year, the province of Ontario established the Queen Victoria Niagara Falls Park for the same purpose. On the Canadian side, the Niagara Parks Commission governs land usage along the entire course of the Niagara River, from Lake Erie to Lake Ontario.[22]  
  
In 1887, Olmsted and Calvert Vaux issued a supplemental report detailing plans to restore the falls. Their intent was "to restore and conserve the natural surroundings of the Falls of Niagara, rather than to attempt to add anything thereto", and the report anticipated fundamental questions, such as how to provide access without destroying the beauty of the falls, and how to restore natural landscapes damaged by man. They planned a park with scenic roadways, paths and a few shelters designed to protect the landscape while allowing large numbers of visitors to enjoy the falls.[23] Commemorative statues, shops, restaurants, and a 1959 glass and metal observation tower were added later. Preservationists continue to strive to strike a balance between Olmsted's idyllic vision and the realities of administering a popular scenic attraction.[24]  
  
Preservation efforts continued well into the 20th century. J. Horace McFarland, the Sierra Club, and the Appalachian Mountain Club persuaded the United States Congress in 1906 to enact legislation to preserve the falls by regulating the waters of the Niagara River.[25] The act sought, in cooperation with the Canadian government, to restrict diversion of water, and a treaty resulted in 1909 that limited the total amount of water diverted from the falls by both nations to approximately 56,000 cubic feet (1,600 m3) per second. That limitation remained in effect until 1950.[26]  
  
American Falls diverted during erosion control efforts in 1969  
  
Erosion control efforts have always been of importance. Underwater weirs redirect the most damaging currents, and the top of the falls has been strengthened. In June 1969, the Niagara River was completely diverted from American Falls for several months through construction of a temporary rock and earth dam.[27] During this time, two bodies were removed from under the falls, including a man who had been seen jumping over the falls, and the body of a woman, which was discovered once the falls dried.[28][29] While Horseshoe Falls absorbed the extra flow, the U.S. Army Corps of Engineers studied the riverbed and mechanically bolted and strengthened any faults they found; faults that would, if left untreated, have hastened the retreat of American Falls. A plan to remove the huge mound of talus deposited in 1954 was abandoned owing to cost,[30] and in November 1969, the temporary dam was dynamited, restoring flow to American Falls.[31] Even after these undertakings, Luna Island, the small piece of land between the American Falls and Bridal Veil Falls, remained off limits to the public for years owing to fears that it was unstable and could collapse into the gorge.  
  
Commercial interests have continued to encroach on the land surrounding the state park, including the construction of several tall buildings (most of them hotels) on the Canadian side. The result is a significant alteration and urbanisation of the landscape. One study found that the tall buildings changed the breeze patterns and increased the number of mist days from 29 per year to 68 per year,[32][33] but another study disputed this idea.[34]  
  
In 2013, New York State began an effort to renovate Three Sisters Islands located south of Goat Island. Funds were used from the re-licensing of the New York Power Authority hydroelectric plant downriver in Lewiston, New York, to rebuild walking paths on the Three Sisters Islands and to plant native vegetation on the islands. The state also renovated the area around Prospect Point at the brink of American Falls in the state park.  
  
Toponymy [ edit ]  
  
Theories differ as to the origin of the name of the falls. According to Iroquoian scholar Bruce Trigger, Niagara is derived from the name given to a branch of the local native Neutral Confederacy, who are described as the Niagagarega people on several late-17th-century French maps of the area.[35] According to George R. Stewart, it comes from the name of an Iroquois town called Onguiaahra, meaning "point of land cut in two".[36] In 1847, an Iroquois interpreter stated that the name came from Jaonniaka-re, meaning "noisy point or portage".[37] To Mohawks, the name refers to "the neck", pronounced "onyara"; the portage or neck of land between lakes Erie and Ontario onyara.[38]  
  
History [ edit ]  
  
Many figures have been suggested as first circulating a European eyewitness description of Niagara Falls. The Frenchman Samuel de Champlain visited the area as early as 1604 during his exploration of Canada, and members of his party reported to him the spectacular waterfalls, which he described in his journals. The first description of the falls is credited to Belgian missionary, Father Louis Hennepin in 1677, after traveling with the explorer René-Robert Cavelier, Sieur de La Salle, thus bringing the falls to the attention of Europeans. French Jesuit missionary Paul Ragueneau likely visited the falls some 35 years before Hennepin's visit while working among the Huron First Nation in Canada. Jean de Brébeuf also may have visited the falls, while spending time with the Neutral Nation.[40] The Finnish-Swedish naturalist Pehr Kalm explored the area in the early 18th century and is credited with the first scientific description of the falls. In 1762, Captain Thomas Davies, a British Army officer and artist, surveyed the area and painted the watercolor, An East View of the Great Cataract of Niagara, the first eyewitness painting of the falls.[41][42]  
  
Horseshoe Falls, 1869  
  
American Falls frozen over with people on the ice, 1911  
  
Aerial photograph of Niagara Falls, 1931  
  
During the 19th century, tourism became popular, and by mid-century, it was the area's main industry. Theodosia Burr Alston (daughter of Vice President Aaron Burr) and her husband Joseph Alston were the first recorded couple to honeymoon there in 1801.[43] Napoleon Bonaparte's brother Jérôme visited with his bride in the early 19th century.[44] In 1825, British explorer John Franklin visited the falls while passing through New York en route to Cumberland House as part of his second Arctic expedition, calling them "so justly celebrated as the first in the world for grandeur".[45]  
  
After the American Civil War, the New York Central Railroad publicized Niagara Falls as a focus of pleasure and honeymoon visits.  
  
In about 1840, the English industrial chemist Hugh Lee Pattinson traveled to Canada, stopping at the Niagara Falls long enough to make the earliest known photograph of the falls, a daguerreotype in the collection of Newcastle University. It was once believed that the small figure standing silhouetted with a top hat was added by an engraver working from imagination as well as the daguerreotype as his source, but the figure is clearly present in the photograph.[46] Because of the very long exposure required, of ten minutes or more, the figure is assumed by Canada's Niagara Parks agency to be Pattinson.[46] The image is left-right inverted and taken from the Canadian side.[47] Pattinson made other photographs of Horseshoe Falls; these were then transferred to engravings to illustrate Noël Marie Paymal Lerebours' Excursions Daguerriennes (Paris, 1841–1864).[48]  
  
On August 6, 1918, an iron scow became stuck on the rocks above the falls.[49] The two men on the scow were rescued, but the vessel remained trapped on rocks in the river, and is still visible there in a deteriorate state, although its position shifted by 50 meters during a storm on October 31, 2019.[50] Daredevil William "Red" Hill Sr. was particularly praised for his role in the rescue.[51]  
  
After the First World War, tourism boomed as automobiles made getting to the falls much easier. The story of Niagara Falls in the 20th century is largely that of efforts to harness the energy of the falls for hydroelectric power, and to control the development on both sides that threaten the area's natural beauty. Before the late 20th century, the northeastern end of Horseshoe Falls was in the United States, flowing around the Terrapin Rocks, which were once connected to Goat Island by a series of bridges. In 1955, the area between the rocks and Goat Island was filled in, creating Terrapin Point.[2] In the early 1980s, the U.S. Army Corps of Engineers filled in more land and built diversion dams and retaining walls to force the water away from Terrapin Point. Altogether, 400 ft (120 m) of Horseshoe Falls were eliminated, including 100 ft (30 m) on the Canadian side. According to author Ginger Strand, the Horseshoe Falls is now entirely in Canada.[52] Other sources say "most of" Horseshoe Falls is in Canada.[53]  
  
The only recorded freeze-up of the river and falls was caused by an ice jam on March 29, 1848. No water (or at best a trickle) fell for as much as 40 hours. Waterwheels stopped, and mills and factories shut down for having no power.[54] In 1912, American Falls was completely frozen, but the other two falls kept flowing. Although the falls commonly ice up most winters, the river and the falls do not freeze completely. The years 1885, 1902, 1906, 1911, 1932, 1936, 2014, 2017 and 2019 are noted for partial freezing of the falls.[55][56][57] A so-called ice bridge was common in certain years at the base of the falls and was used by people who wanted to cross the river before bridges had been built. During some winters, the ice sheet was as thick as 40 feet (12m) to 100 feet (30m), but that thickness has not occurred since 1954. The ice bridge of 1841 was said to be at least 100 feet thick.[58] On February 12, 1912, the ice bridge which had formed on January 15 began breaking up while people were still on it. Many escaped, but three died during the event, later named the Ice Bridge Tragedy.[59]  
  
Bridge crossings [ edit ]  
  
Hand-colored lithograph of the (double-decked) Niagara Suspension Bridge, c. 1856  
  
Niagara Cantilever Bridge, c. 1895  
  
A number of bridges have spanned the Niagara River in the general vicinity of the falls. The first, not far from the whirlpool, was a suspension bridge above the gorge. It opened for use by the public in July 1848 and remained in use until 1855. A second bridge in the Upper Falls area was commissioned, with two levels or decks, one for use by the Great Western Railway. This Niagara Falls Suspension Bridge opened in 1855. In 1882, the Grand Trunk Railway took over control of the second deck after it absorbed the Great Western company. Significant structural improvements were made in the late 1870s and then in 1886; this bridge remained in use until 1897.[60]  
  
Because of the volume of traffic, the decision was made to construct a new arch bridge nearby, under and around the existing bridge. After it opened in September 1897, a decision was made to remove and scrap the railway suspension bridge. This new bridge was initially known as the Niagara Railway Arch, or Lower Steel Arch Bridge; it had two decks, the lower one used for carriages and the upper for trains. In 1937, it was renamed the Whirlpool Rapids Bridge and remains in use today. All of the structures built up to that time were referred to as Lower Niagara bridges and were some distance from the falls.[60]  
  
The first bridge in the so-called Upper Niagara area (closer to the falls) was a two-level suspension structure that opened in January 1869; it was destroyed during a severe storm in January 1889. The replacement was built quickly and opened in May 1889. In order to handle heavy traffic, a second bridge was commissioned, slightly closer to American Falls. This one was a steel bridge and opened to traffic in June 1897; it was known as the Upper Steel Arch Bridge but was often called the Honeymoon Bridge. The single level included a track for trolleys and space for carriages and pedestrians. The design led to the bridge being very close to the surface of the river and in January 1938, an ice jam twisted the steel frame of the bridge which later collapsed on January 27, 1938.[61]  
  
The Rainbow Bridge , the first bridge downstream from the falls  
  
Another Lower Niagara bridge had been commissioned in 1883 by Cornelius Vanderbilt for use by railways at a location roughly approximately 200 feet south of the Railway Suspension Bridge. This one was of an entirely different design; it was a cantilever bridge to provide greater strength. The Niagara Cantilever Bridge had two cantilevers which were joined by steel sections; it opened officially in December 1883, and improvements were made over the years for a stronger structure. As rail traffic was increasing, the Michigan Central Railroad company decided to build a new bridge in 1923, to be located between the Lower Steel Arch Bridge and the Cantilever Bridge. The Michigan Central Railway Bridge opened in February 1925 and remained in use until the early 21st century. The Cantilever Bridge was removed and scrapped after the new rail bridge opened.[60] Nonetheless, it was inducted into the North America Railway Hall of Fame in 2006.[62][60]  
  
There was a lengthy dispute as to which agency should build the replacement for the Niagara Railway Arch, or Lower Steel Arch Bridge in the Upper Niagara area. When that was resolved, construction of a steel bridge commenced in February 1940. Named the Rainbow Bridge, and featuring two lanes for traffic separated by a barrier, it opened in November 1941 and remains in use today.[61]  
  
Industry and commerce [ edit ]  
  
Hydroelectric power [ edit ]  
  
The enormous energy of Niagara Falls has long been recognized as a potential source of power. The first known effort to harness the waters was in 1750, when Daniel Joncaire built a small canal above the falls to power his sawmill.[63] Augustus and Peter Porter purchased this area and all of American Falls in 1805 from the New York state government, and enlarged the original canal to provide hydraulic power for their gristmill and tannery. In 1853, the Niagara Falls Hydraulic Power and Mining Company was chartered, which eventually constructed the canals that would be used to generate electricity.[64] In 1881, under the leadership of Jacob F. Schoellkopf, the Niagara River's first hydroelectric generating station was built. The water fell 86 feet (26 m) and generated direct current electricity, which ran the machinery of local mills and lit up some of the village streets.  
  
The Niagara Falls Power Company, a descendant of Schoellkopf's firm, formed the Cataract Company headed by Edward Dean Adams,[65] with the intent of expanding Niagara Falls' power capacity. In 1890, a five-member International Niagara Commission headed by Sir William Thomson among other distinguished scientists deliberated on the expansion of Niagara hydroelectric capacity based on seventeen proposals but could not select any as the best combined project for hydraulic development and distribution. In 1893, Westinghouse Electric (which had built the smaller-scale Ames Hydroelectric Generating Plant near Ophir, Colorado, two years earlier) was hired to design a system to generate alternating current on Niagara Falls, and three years after that a large-scale AC power system was created (activated on August 26, 1895).[66] The Adams Power Plant Transformer House remains as a landmark of the original system.  
  
Ten 5,000 HP Westinghouse generators at Edward Dean Adams Power Plant  
  
By 1896, financing from moguls including J. P. Morgan, John Jacob Astor IV, and the Vanderbilts had fueled the construction of giant underground conduits leading to turbines generating upwards of 100,000 horsepower (75 MW), sent as far as Buffalo, 20 mi (32 km) away. Some of the original designs for the power transmission plants were created by the Swiss firm Faesch & Piccard, which also constructed the original 5,000 hp (3.7 MW) waterwheels. Private companies on the Canadian side also began to harness the energy of the falls. The Government of Ontario eventually brought power transmission operations under public control in 1906, distributing Niagara's energy to various parts of the Canadian province.  
  
Other hydropower plants were being built along the Niagara River. But in 1956, disaster struck when the region's largest hydropower station was partially destroyed in a landslide. This drastically reduced power production and put tens of thousands of manufacturing jobs at stake. In 1957, Congress passed the Niagara Redevelopment Act,[67] which granted the New York Power Authority the right to fully develop the United States' share of the Niagara River's hydroelectric potential.[68]  
  
In 1961, when the Niagara Falls hydroelectric project went online, it was the largest hydropower facility in the Western world. Today, Niagara is still the largest electricity producer in New York state, with a generating capacity of 2.4 GW. Up to 1,420 cubic metres (380,000 US gal) of water per second is diverted from the Niagara River through conduits under the city of Niagara Falls to the Lewiston and Robert Moses power plants. Currently between 50% and 75% of the Niagara River's flow is diverted via four huge tunnels that arise far upstream from the waterfalls. The water then passes through hydroelectric turbines that supply power to nearby areas of Canada and the United States before returning to the river well past the falls.[69] When electrical demand is low, the Lewiston units can operate as pumps to transport water from the lower bay back up to the plant's reservoir, allowing this water to be used again during the daytime when electricity use peaks. During peak electrical demand, the same Lewiston pumps are reversed and become generators.[68]  
  
To preserve Niagara Falls' natural beauty, a 1950 treaty signed by the U.S. and Canada limited water usage by the power plants. The treaty allows higher summertime diversion at night when tourists are fewer and during the winter months when there are even fewer tourists.[70] This treaty, designed to ensure an "unbroken curtain of water" flowing over the falls, states that during daylight time during the tourist season (April 1 to October 31) there must be 100,000 cubic feet per second (2,800 m3/s) of water flowing over the falls, and during the night and off-tourist season there must be 50,000 cubic feet per second (1,400 m3/s) of water flowing over the falls. This treaty is monitored by the International Niagara Board of Control, using a NOAA gauging station above the falls. During winter, the Power Authority of New York works with Ontario Power Generation to prevent ice on the Niagara River from interfering with power production or causing flooding of shoreline property. One of their joint efforts is an 8,800-foot-long (2,700 m) ice boom, which prevents the buildup of ice, yet allows water to continue flowing downstream.[68] In addition to minimum water volume, the crest of Horseshoe falls was reduced to maintain an uninterrupted "curtain of water".[71]  
  
In August 2005, Ontario Power Generation, which is responsible for the Sir Adam Beck stations, started a major civil engineering project, called the Niagara Tunnel Project, to increase power production by building a new 12.7-metre (42 ft) diameter, 10.2-kilometre-long (6.3 mi) water diversion tunnel. It was officially placed into service in March 2013, helping to increase the generating complex's nameplate capacity by 150 megawatts. It did so by tapping water from farther up the Niagara River than was possible with the preexisting arrangement. The tunnel provided new hydroelectricity for approximately 160,000 homes.[72][73]  
  
Transport [ edit ]  
  
Ships can bypass Niagara Falls by means of the Welland Canal, which was improved and incorporated into the Saint Lawrence Seaway in the mid-1950s. While the seaway diverted water traffic from nearby Buffalo and led to the demise of its steel and grain mills, other industries in the Niagara River valley flourished with the help of the electric power produced by the river. However, since the 1970s the region has declined economically.  
  
The cities of Niagara Falls, Ontario, Canada, and Niagara Falls, New York, United States, are connected by two international bridges. The Rainbow Bridge, just downriver from the falls, affords the closest view of the falls and is open to non-commercial vehicle traffic and pedestrians. The Whirlpool Rapids Bridge lies one mile (1.6 km) north of the Rainbow Bridge and is the oldest bridge over the Niagara River. Nearby Niagara Falls International Airport and Buffalo Niagara International Airport were named after the waterfall, as were Niagara University, countless local businesses, and even an asteroid.[74]  
  
Over the falls [ edit ]  
  
Jumps, plunges and walks [ edit ]  
  
In October 1829, Sam Patch, who called himself "the Yankee Leapster", jumped from a high tower into the gorge below the falls and survived; this began a long tradition of daredevils trying to go over the falls. Englishman Captain Matthew Webb, the first man to swim the English Channel, drowned in 1883 trying to swim the rapids downriver from the falls.[75]  
  
On October 24, 1901, 63-year-old Michigan school teacher Annie Edson Taylor became the first person to go over the falls in a barrel as a publicity stunt; she survived, bleeding, but otherwise unharmed. Soon after exiting the barrel, she said, "No one ought ever do that again."[76] Days before Taylor's attempt, her domestic cat was sent over the falls in her barrel to test its strength. The cat survived the plunge unharmed and later posed with Taylor in photographs.[77] Since Taylor's historic ride, over a dozen people have intentionally gone over the falls in or on a device, despite her advice. Some have survived unharmed, but others have drowned or been severely injured. Survivors face charges and stiff fines, as it is now illegal, on both sides of the border, to attempt to go over the falls. Charles Stephens, a 58-year-old barber from Bristol, England, went over the falls in a wooden barrel in July 1920 and was the first person to die in an endeavor of this type.[78] Bobby Leach went over Horseshoe Falls in a crude steel barrel in 1911 and needed rescuing by William "Red" Hill Sr.[79] Hill again came to the rescue of Leach following his failed attempt to swim the Niagara Gorge in 1920. In 1928, "Smiling Jean" Lussier tried an entirely different concept, going over the falls in a large rubber ball; he was successful and survived the ordeal.[80]  
  
In the "Miracle at Niagara", on July 9, 1960, Roger Woodward, a seven-year-old American boy, was swept over Horseshoe Falls after the boat in which he was cruising lost power; two tourists pulled his 17-year-old sister Deanne from the river only 20 ft (6.1 m) from the lip of the Horseshoe Falls at Goat Island.[81] Minutes later, Woodward was plucked from the roiling plunge pool beneath Horseshoe Falls after grabbing a life ring thrown to him by the crew of the Maid of the Mist boat.[82][83] The children's uncle, Jim Honeycutt, who had been steering the boat, was swept over the edge to his death.[84][85]  
  
On July 2, 1984, Canadian Karel Soucek from Hamilton, Ontario, plunged over Horseshoe Falls in a barrel with only minor injuries. Soucek was fined $500 for performing the stunt without a license. In 1985, he was fatally injured while attempting to re-create the Niagara drop at the Houston Astrodome. His aim was to climb into a barrel hoisted to the rafters of the Astrodome and to drop 180 ft (55 m) into a water tank on the floor. After his barrel released prematurely, it hit the side of the tank, and he died the next day from his injuries.[86][87]  
  
In August 1985, Steve Trotter, an aspiring stuntman from Rhode Island, became the youngest person ever (age 22) and the first American in 25 years to go over the falls in a barrel. Ten years later, Trotter went over the falls again, becoming the second person to go over the falls twice and survive. It was also the second "duo"; Lori Martin joined Trotter for the barrel ride over the falls. They survived the fall, but their barrel became stuck at the bottom of the falls, requiring a rescue.[88]  
  
On September 28, 1989, Niagara natives Peter DeBernardi and Jeffery James Petkovich became the first "team" to make it over the falls in a two-person barrel. The stunt was conceived by DeBenardi, who wanted to discourage youth from following in his path of addictive drug use. The pair emerged shortly after going over with minor injuries and were charged with performing an illegal stunt under the Niagara Parks Act.[89]  
  
Charles Stephens in his barrel, prior to his fatal July 1920 attempt  
  
On June 5, 1990, Jesse Sharp, a whitewater canoeist from Tennessee paddled over the falls in a closed deck canoe. He neglected to wear a helmet to make his face more visible for photographs of the event. He also did not wear a life vest because he believed it would hinder his escape from the hydraulics at the base of the falls. His boat flushed out of the falls, but his body was never found.[90] On September 27, 1993, John "David" Munday, of Caistor Centre, Ontario, completed his second journey over the falls.[91] On October 1, 1995, Robert Douglas "Firecracker" Overacker went over the falls on a Jet Ski to raise awareness for the homeless. His rocket-propelled parachute failed to open and he plunged to his death. Overacker's body was recovered before he was pronounced dead at Niagara General Hospital.[92]  
  
Kirk Jones of Canton, Michigan, became the first known person to survive a plunge over Horseshoe Falls without a flotation device on October 20, 2003. According to some reports, Jones had attempted to commit suicide,[93] he survived the fall with only battered ribs, scrapes, and bruises.[94][95] Jones tried going over the falls again in 2017, using a large inflatable ball, but died in the process.[96][97] Later reports revealed that Jones had arranged for a friend to shoot video clips of his stunt.[98]  
  
On March 11, 2009, a man survived an unprotected trip over Horseshoe Falls. When rescued from the river he suffered from severe hypothermia and a large wound to his head. His identity was never released. Eyewitnesses reported seeing the man intentionally enter the water.[99][100] On May 21, 2012, an unidentified man became the fourth person to survive an unprotected trip over Horseshoe Falls. Eyewitness reports show he "deliberately jumped" into the Niagara River after climbing over a railing.[101][102] On July 8, 2019, at roughly 4 am, officers responded to a report of a person in crisis at the brink of the Canadian side of the falls. Once officers got to the scene, the man climbed the retaining wall, jumped into the river and went over Horseshoe Falls. Authorities subsequently began to search the lower Niagara River basin, where the man was found alive but injured sitting on the rocks at the water's edge.[103]  
  
Tightrope walkers [ edit ]  
  
[104] Blondin carrying his manager, Harry Colcord, on a tightrope  
  
Tightrope walkers drew huge crowds to witness their exploits. Their wires ran across the gorge, near the current Rainbow Bridge, not over the waterfall. Jean François "Blondin" Gravelet was the first to cross Niagara Gorge on June 30, 1859, and did so again eight times that year. His most difficult crossing occurred on August 14, when he carried his manager, Harry Colcord, on his back.[105] His final crossing, on September 8, 1860, was witnessed by the Prince of Wales.[106][107] Between 1859 and 1896 a wire-walking craze emerged, resulting in frequent feats over the river below the falls. One inexperienced walker slid down his safety rope. Only one man fell to his death, at night and under mysterious circumstances, at the anchoring place for his wire.[106]  
  
Maria Spelterini, a 23-year-old Italian was the first and only woman to cross the Niagara River gorge; she did so on a tightrope on July 8, 1876. She repeated the stunt several times during the same month. During one crossing she was blindfolded and during another, her ankles and wrists were handcuffed.[108]  
  
Among the many competitors was Ontario's William Hunt, who billed himself as "The Great Farini"; his first crossing was in 1860. Farini competed with Blondin in performing outrageous stunts over the gorge.[109] On August 8, 1864, however, an attempt failed and he needed to be rescued.[110]  
  
On June 15, 2012, high wire artist Nik Wallenda became the first person to walk across the falls area in 116 years, after receiving special permission from both governments.[111] The full length of his tightrope was 1,800 feet (550 m).[112] Wallenda crossed near the brink of Horseshoe Falls, unlike walkers who had crossed farther downstream. According to Wallenda, it was the longest unsupported tightrope walk in history.[113] He carried his passport on the trip and was required to present it upon arrival on the Canadian side of the falls.[114]  
  
Tourism [ edit ]  
  
Advertising broadside for trip to Niagara Falls from Massachusetts, 1895  
  
Peak visitor traffic occurs in the summertime, when Niagara Falls is both a daytime and evening attraction. From the Canadian side, floodlights illuminate both sides of the falls for several hours after dark (until midnight). The number of visitors in 2007 was expected to total 20 million, and by 2009 the annual rate was expected to top 28 million tourists.[115]  
  
The oldest and best known tourist attraction at Niagara Falls is the Maid of the Mist boat cruise, named for an ancient Ongiara Indian mythical character, which has carried passengers into the rapids immediately below the falls since 1846. Cruise boats operate from boat docks on both sides of the falls, with the Maid of the Mist operating from the American side and Hornblower Cruises (originally Maid of the Mist until 2014[116]) from the Canadian side.[117][118]  
  
From the U.S. side, American Falls can be viewed from walkways along Prospect Point Park, which also features the Prospect Point Observation Tower and a boat dock for the Maid of the Mist. Goat Island offers more views of the falls and is accessible by foot and automobile traffic by bridge above American Falls. From Goat Island, the Cave of the Winds is accessible by elevator and leads hikers to a point beneath Bridal Veil Falls. Also on Goat Island are the Three Sisters Islands, the Power Portal where a statue of Nikola Tesla (the inventor whose patents for the AC induction motor and other devices for AC power transmission helped make the harnessing of the falls possible) can be seen, and a walking path that enables views of the rapids, the Niagara River, the gorge, and all of the falls. Most of these attractions lie within the Niagara Falls State Park.[119]  
  
The Niagara Scenic Trolley offers guided trips along American Falls and around Goat Island. Panoramic and aerial views of the falls can also be viewed by helicopter. The Niagara Gorge Discovery Center showcases the natural and local history of Niagara Falls and the Niagara Gorge. A casino and luxury hotel was opened in Niagara Falls, New York, by the Seneca Indian tribe. The Seneca Niagara Casino & Hotel occupies the former Niagara Falls Convention Center. The new hotel is the first addition to the city's skyline since completion of the United Office Building in the 1920s.[119][120]  
  
On the Canadian side, Queen Victoria Park features manicured gardens, platforms offering views of American, Bridal Veil, and Horseshoe Falls, and underground walkways leading into observation rooms that yield the illusion of being within the falling waters. Along the Niagara River, the Niagara River Recreational Trail runs 35 mi (56 km) from Fort Erie to Fort George, and includes many historical sites from the War of 1812.[121]  
  
Skylon Tower as seen from a helicopter on the Canadian side  
  
The observation deck of the nearby Skylon Tower offers the highest view of the falls, and in the opposite direction gives views as far as Toronto. Along with the Tower Hotel (built as the Seagrams Tower, later renamed the Heritage Tower, the Royal Inn Tower, the Royal Center Tower, the Panasonic Tower, the Minolta Tower, and most recently the Konica Minolta Tower[122] before receiving its current name in 2010), it is one of two towers in Canada with a view of the falls.[123] The Whirlpool Aero Car, built in 1916 from a design by Spanish engineer Leonardo Torres y Quevedo, is a cable car that takes passengers over the Niagara Whirlpool on the Canadian side. The Journey Behind the Falls consists of an observation platform and series of tunnels near the bottom of the Horseshoe Falls on the Canadian side.[124] There are two casinos on the Canadian side of Niagara Falls, the Niagara Fallsview Casino Resort and Casino Niagara.[125]  
  
Media [ edit ]  
  
Movies and television [ edit ]  
  
Niagara. The opening title from the theatrical trailer of the 1953 film  
  
Already a huge tourist attraction and favorite spot for honeymooners, Niagara Falls visits rose sharply in 1953 after the release of Niagara, a movie starring Marilyn Monroe and Joseph Cotten.[126] The 1956 animated short Niagara Fools featured Woody Woodpecker attempting to go over the falls in a barrel.[127] The falls was a featured location in the major motion picture Superman II in 1980[128] and was the subject of a popular IMAX movie, Niagara: Miracles, Myths and Magic.[129] Illusionist David Copperfield performed a trick in which he appeared to travel over Horseshoe Falls in 1990.[130]  
  
The falls, or more particularly, the tourist-supported complex near the falls, was the setting of the short-lived Canadian-shot U.S. television show Wonderfalls in early 2004. Location footage of the falls was shot in October 2006 to portray "World's End" of the movie Pirates of the Caribbean: At World's End.[131] Professional kayaker Rafa Ortiz's preparation to paddle over the falls in a kayak is documented in the 2015 film Chasing Niagara.[132]  
  
Kevin McMahon's 1991 documentary film The Falls explored the place of Niagara Falls in the world's collective imagination, covering both positive and negative aspects of the culture around the falls.[133]  
  
Literature [ edit ]  
  
The Niagara Falls area features as the base camp for a German aerial invasion of the United States in the H. G. Wells novel The War in the Air.[134] Many poets have been inspired to write about the falls. Among them was the Cuban poet José Maria Heredia, who wrote the poem "Niagara". There are commemorative plaques on both sides of the falls recognizing the poem.[135] In 1818, American poet John Neal published the poem "Battle of Niagara," which is considered the best poetic description of Niagara Falls up to that time.[136] In 1835, as a poetical illustration ( The Indian Girl.) to accompany a plate of the Horse-Shoe Falls., Letitia Elizabeth Landon imagines an Indian girl who, having saved the life of a captured young European man, takes him as her husband only to be later abandoned by him. In her despair she guides her canoe over the falls in dramatic fashion: 'Upright, within that slender boat, they saw the pale girl stand, her dark hair streaming far behind — uprais’d her desperate hand.'  
  
Lydia Sigourney wrote two dramatic poems on the falls, Niagara, in 1836 and again in her Scenes in my native Land, Niagara, in 1845.[137][138]  
  
Music [ edit ]  
  
Composer Ferde Grofé was commissioned by the Niagara Falls Power Generation project in 1960 to compose the Niagara Falls Suite in honor of the completion of the first stage of hydroelectric work at the falls.[139] In 1997, composer Michael Daugherty composed Niagara Falls, a piece for concert band inspired by the falls.[140]  
  
Fine art [ edit ]  
  
Niagara Falls was such an attraction to landscape artists that, writes John Howat, they were "the most popular, the most often treated, and the tritest single item of subject matter to appear in eighteenth- and nineteenth-century European and American landscape painting".[141]  
  
Panoramic views [ edit ]  
  
Niagara Falls, c. 1921  
  
See also [ edit ]  
  
References [ edit ]  
  
Further reading [ edit ]  
  
  
https://simple.wikipedia.org/wiki/Niagara\_Falls  
TITLE: Simple English Wikipedia, the free encyclopedia  
META DESCRIPTION:   
META KEYWORDS:   
H1: Niagara Falls,   
H2: Gallery[change | change source], Related pages[change | change source], Navigation menu,   
BOLD/STRONG: Niagara Falls, Niagara Falls,   
Italic: : Niagara Falls, This short article about a place or feature can be made longer. You can help Wikipedia by adding to it, This short article about Canada can be made longer. You can help Wikipedia by adding to it,   
TEXT: Niagara Falls is the collective, name of three big waterfalls on the Niagara River in eastern North America, on the border between the United States and Canada. The three waterfalls are: the Horseshoe Falls, sometimes called the Canadian Falls, the American Falls, and the smaller Bridal Veil Falls. The American Falls and the Horseshoe Falls are separated with Goat Island, and the Bridal Veil Falls separated from the other waterfalls with Luna Island. Niagara falls is very well known for both its beauty and hydroelectric power. It has been a tourist attraction, commercial site and hydroelectricity source since the 19th century.  
  
It is located near Niagara Falls, New York in the United States and Niagara Falls, Ontario in Canada.The volume of water approaching the falls during peak flow season may sometimes be as much as 225,000 cubic feet (6,400 m3) per second. The cities of Niagara Falls, Ontario, Canada, and Niagara Falls, New York, United States, are connected by two international bridges.  
  
Niagara Falls were formed when glaciers receded at the end of the Wisconsin glaciation (the last ice age). Water from the newly formed Great Lakes carved a path through the Niagara Escarpment en route from Lake Erie to Lake Ontario and the Atlantic Ocean. The Escarpment has hard limestone on top and soft shale below.  
  
Although not very high, Niagara Falls is very wide, and is probably the most popular waterfall in the world. The Horseshoe Falls are the largest out of the three falls. It is named the Horseshoe Falls because it looks like a horse shoe.  
  
Niagara Falls is a very popular tourist destination and many people visit it on holiday in Canada.  
  
Horseshoe Falls from 25th floor of Hilton at Niagara Falls  
  
Horseshoe Falls  
  
niagara falls  
  
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https://www.britannica.com/place/Niagara-Falls-waterfall-North-America  
TITLE: Niagara Falls | Facts, Geology, & History  
META DESCRIPTION: Niagara Falls, waterfall on the Niagara River in northeastern North America, one of the continent’s most famous spectacles. The falls lie on the border between Ontario, Canada, and New York state, U.S. For many decades the falls were an attraction for honeymooners and for such stunts as walking over the falls on a tightrope or going over them in a barrel. Increasingly, however, the appeal of the site has become its beauty and uniqueness as a physical phenomenon. The falls are in two principal parts, separated by Goat Island. The larger division, adjoining the left, or Canadian, bank, is Horseshoe  
META KEYWORDS: Niagara Falls, encyclopedia, encyclopeadia, britannica, article,   
H1: Niagara Falls,   
H2:   
BOLD/STRONG: Britannica's Publishing Partner Program, Britannica's Publishing Partner Program, Niagara Falls,   
Italic: : verified, verified,   
TEXT: Summary  
  
Niagara Falls, waterfall on the Niagara River in northeastern North America, one of the continent’s most famous spectacles. The falls lie on the border between Ontario, Canada, and New York state, U.S. For many decades the falls were an attraction for honeymooners and for such stunts as walking over the falls on a tightrope or going over them in a barrel. Increasingly, however, the appeal of the site has become its beauty and uniqueness as a physical phenomenon.  
  
The falls are in two principal parts, separated by Goat Island. The larger division, adjoining the left, or Canadian, bank, is Horseshoe Falls; its height is 188 feet (57 metres), and the length of its curving crest line is about 2,200 feet (670 metres). The American Falls, adjoining the right bank, are 190 feet (58 metres) high and 1,060 feet (320 metres) across.  
  
Britannica Quiz Quick Quiz: Know Your Waterfalls What is the highest waterfall in Canada? What five-cascade waterfall is fed by melting snow? Find out how well you know your waterfalls with this quick quiz.  
  
The formation of the Niagara gorge (downriver) and the maintenance of the falls as a cataract depend upon peculiar geologic conditions. The rock strata from the Silurian Period (about 444 to 419 million years ago) in the Niagara gorge are nearly horizontal, dipping southward only about 20 feet per mile (almost 4 metres per km). An upper layer of hard dolomite is underlain by softer layers of shale. Water exerts hydrostatic pressure and only slowly dissolves the dolomite after infiltrating its joints. Dolomite blocks fall away as water from above infiltrates and rapidly erodes the shale at the falls itself. The disposition of the rock strata provides the conditions for keeping the water constantly falling vertically from an overhanging ledge during a long period of recession (movement upstream) of the cataract. As blocks of dolomite are undercut, they fall off and are rapidly destroyed by the falling water, further facilitating the retreat of the falls and the maintenance of a vertical cataract.  
  
Horseshoe Falls Horseshoe Falls on the Niagara River, Ontario, Canada, during winter. Photos.com/Thinkstock  
  
The water flowing over the falls is free of sediment, and its clearness contributes to the beauty of the cataract. In recognition of the importance of the waterfall as a great natural spectacle, the province of Ontario and the state of New York retained or acquired title to the adjacent lands and converted them into public parks.  
  
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The very large diversion of water above the falls for hydroelectric power purposes has lessened the rate of erosion. Elaborate control works upstream from the falls have maintained an even distribution of flow across both the U.S. and Canadian cataracts, thereby preserving the curtains of the waterfalls. A large part of the great river above the falls is diverted and disappears into four great tunnels for use in the power plants downstream. Because of concern over the possibility of major rockfalls, water was diverted from the American Falls in 1969, and some cementing of the bedrock was done; an extensive boring and sampling program was also carried out. River flow was returned to the American Falls in November of that year, and it was decided that safety measures for the viewing public should be implemented and that measures to stem natural processes were both too expensive and undesirable.  
  
New from Britannica New from Britannica The longest known lightning bolt stretched 477 miles from Texas to Mississippi in 2020. See All Good Facts  
  
Excellent views of the falls are obtained from Queen Victoria Park on the Canadian side; from Prospect Point on the U.S. side at the edge of the American Falls; and from Rainbow Bridge, which spans the Niagara gorge about 1,000 feet (300 metres) downstream from Prospect Point. Visitors may cross from the U.S. shore to Goat Island by footbridge and may take an elevator to the foot of the falls and visit the Cave of the Winds behind the curtain of falling water. The Horseshoe Falls, which carry about 90 percent of the river’s discharge, receded upstream at an average rate of about 5.5 feet (1.7 metres) per year in 1842–1905. Thereafter, control works and the diversion of water decreased the erosion rate, which is presently so slow at the American Falls that large blocks of dolomite accumulate at the base of the falls, threatening to turn it into rapids.  
  
  
https://www.niagarafallsstatepark.com/  
TITLE: Niagara Falls State Park  
META DESCRIPTION: Create your Niagara Falls State Park experience. Enjoy breathtaking views, the Maid of the Mist, Cave of the Winds, fireworks over the Falls, and more.  
META KEYWORDS: niagara falls use, niagara falls state park, niagara falls american side, niagara falls tickets, niagara falls use side, american falls,   
H1: Yours to Explore, Niagara Falls State Park,   
H2:   
Experiences  
,   
Plan Your Trip  
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BOLD/STRONG:   
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TEXT: Looking for a fun way to "explore the roar?" The Maid of the Mist boat tour in Niagara Falls, NY, has been described by generations of visitors as one of the highlights of their trip.  
  
Learn More  
  
  
https://www.niagarafallstourism.com/  
TITLE: Official Destination Website  
META DESCRIPTION: Discover Niagara Falls, Canada. Find attractions, restaurants, events, hotels and all the information you need to plan your trip. This is just…  
META KEYWORDS:   
H1:  Niagara Falls Canada, What's NEW in Niagara Falls this Summer, Packages & Getaways, Border Crossing, Itinerary Ideas, Ontario Staycation Tax Credit, GOing to Niagara Falls just got easier, Events, Shows & Festivals, Outdoor Recreation in Niagara Falls, our partners, Share Your Adventure, Lets Talk, Promotions, About NFT, Explore, Media, Social,   
H2:   
BOLD/STRONG:   
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TEXT: The districts of Niagara Falls, Canada offer so much opportunity for travellers to experience the incredible range of entertainment, dining and accommodations available in this great city.  
  
  
https://www.niagarafallslive.com/  
TITLE: Niagara Falls USA & Canada Tourism  
META DESCRIPTION: Niagara Falls Visitors Guide to all Niagara Falls attractions, hotels, boat rides, cave of the winds, zip-line, discounts, and border crossing information.  
META KEYWORDS:   
H1: NIAGARA FALLS,   
H2: Niagara Falls – Niagara Falls USA & Canada Tourism, THE OFFICIAL WEBSITE FOR NIAGARA FALLS FUN!,   
BOLD/STRONG: NIAGARA FALLS, Niagara Falls USA Prospect Point,, Goat Island, Cave of the Winds, Maid of the Mist, Niagara Falls Canada Queen Victoria Park, Now Open in Niagara Falls, parking, Top 10, here., Nightly Illumination, Greg Frewin Theatre, Book your reservation today!, Niagara Whirlpool Jet Boat is open for the season., here, Schoelkopf Power Generating Station, Whirlpool Park, Old Fort Niagara , Fort Niagara Webcam, Where to  park in Niagara Falls, page, Travel Tips, attractions, discount passes, Niagara Falls Hotels, sitemap , Great Gorge Hiking Trail, hiking, Niagara Falls photo contest, Embassy Suites Niagara Falls, Niagara Falls Hotel,   
Italic: : Did yo, u know,   
TEXT: NIAGARA FALLS  
  
In Niagara Falls USA Prospect Point, Goat Island and the Cave of the Winds are open. All Niagara Falls USA hotels and restaurants are open for business. The Maid of the Mist boat ride is now open for the 2022 season.  
  
In Niagara Falls Canada Queen Victoria Park is open for viewing the Falls. All Niagara Falls Canada hotels and restaurants have reopened. Hornblower Niagara boat ride below the Falls in Canada is now open for the 2022 season.  
  
For the most up to date status of Niagara Falls attractions please visit our “Now Open in Niagara Falls” page. We have recently updated our Niagara Falls parking information for your convenience.  
  
If you are looking for accommodations at a Niagara Falls hotel check out our updated Editor’s Top 10 hotels in Niagara Falls.  
  
Covid testing is no longer required to enter Niagara Falls Canada for fully vaccinated travelers as of April 1st 2022. You can read more about crossing the international border here.  
  
The Nightly Illumination of Niagara Falls will be displayed every evening for 2022.  
  
Niagara Falls is frequently misspelled as Niagra Falls…Well now you know!  
  
Experience the mystery and art of illusion with Greg Frewin, International Grand Champion of Magic. This Las Vegas Style Magical Review features spectacular appearances by our rare and majestic tigers. Your imagination will be captivated and you will be amazed “Beyond Belief!” A family friendly show featuring large cats, and illusions which astounded International audiences at the Flamingo Hilton in Las Vegas for two years. Come enjoy a Las Vegas show in Niagara Falls! For more info visit the Greg Frewin Theatre. Book your reservation today!  
  
Niagara Whirlpool Jet Boat is open for the season. What is the most exciting adventure besides visiting the Falls? The Whirlpool Jetboat ride is the most exhilarating ride on the planet! Over 1.5 million people have experienced the thrills of riding through the Niagara Rapids on board one of their 1200hp turbo diesel jetboats. Reservations are required and there are departures from both the Canadian and USA sides of the Niagara River beginning Friday May 6th 2022. This amazing ride is considered to be one of North America’s most thrilling experiences. For more information and discounted rates you can start here.  
  
If you have not visited Niagara Falls State Park in the USA within the past few years you are in for a real treat. The NY State department of parks has revamped the entire park and even opened a new attraction. Just north of the Rainbow Bridge is the remains of what was once called the Schoelkopf Power Generating Station. An elevator was installed and offers a free self guided tour down to the waters edge. Be sure to stop and check it out next time you are here. The parklands leading north to Whirlpool Park have also been completely refurbished and offer a beautiful trail system where you can walk, hike or bike!  
  
We’ve updated the Old Fort Niagara webpage with a beautiful 360 degree panosphere. Located in beautiful Youngstown NY only a short drive north of Niagara Falls. The view from our spectacular Fort Niagara Webcam overlooks the Old Fort Niagara and Lake Ontario. Watch the Fort Live, Lake freighters transiting across Lake Ontario and the ever changing weather. If you have the time to spare while visiting our area we highly recommend a visit.  
  
Planning a visit?  
  
If you are visiting Niagara Falls for just the day there is a good chance that you will be arriving by car and will need a place to park. We’ve recently updated our “Where to park in Niagara Falls” page.  
  
The value of the Canadian dollar is extremely low these days and trading at about .80 cents USD. A $200.00 per night hotel room in Canada will only cost $159.00 US. If you have ever wanted to visit Niagara Falls Canada now is the time to book that vacation!  
  
Planning a trip to Niagara Falls has never been easier. First you need to figure out the best way to get to Niagara Falls. Our “How do I get to Niagara Falls” page is full of valuable information on arriving here by everything from planes to trains and automobiles. The Travel Tips page offers information on crossing the border, passport information to what type of weather you can expect during your visit. Of course you will want to view the Niagara Falls in all its splendor but we’re sure you will want to try some of the associated attractions. Just visit our attractions page and pick and choose what you might like to try. There are discount passes for Niagara Falls attractions available for those who want to visit multiple attractions or if you have limited time just pay individually for each attraction as you go. The next step is to decide on where you would like to stay. Our Niagara Falls Hotels pages offer all the insight you need to choose a place that will suit your needs. If you can’t find what you are looking for check out our sitemap or send an email to info@niagarafallslive.com. We’d be glad to help you plan your visit!  
  
Did yo u know….There used to be a trolley service from Niagara Falls NY to Youngstown NY which followed the Niagara River right at the waters edge? It was named the “Great Gorge Route” and operated from 1895 until 1930. The owners of the line eventually closed for good due to the Great Depression and the newer and more modern modes of transportation of the bus and automobile. During the tourism season a flood light was mounted on a flat-bed car and used to illuminate the Giant Whirlpool at night. The image shown depicts the trolley heading north from the Niagara Falls. Portions of the old rail line are now part of the “Great Gorge Hiking Trail“.  
  
Many visitors to Niagara Falls are unaware that we possess some of the most beautiful hiking trails in Western New York. The area known as the Niagara Gorge begins at the Falls and extends almost 5.5 miles (9 km) to the north. The Niagara Gorge is accessible at various points along the Niagara Parkway on both sides of the Niagara River. You can hike down to the rivers edge for some breathtaking views of the local flora and fauna. Visit our hiking page for details.  
  
Congratulations to the winners of our Niagara Falls photo contest. We had hundreds of great entries from visitors from all over the world. A big thank you to all that participated !  
  
The best views of Niagara Falls are from the Embassy Suites Niagara Falls according to our unbiased research. If you are visiting Niagara Falls and want to enjoy a jaw dropping stay this is the place to stay. Built on the edge of the Niagara Escarpment this towering structure opened for business in 2003. Floor to ceiling windows and a view that is second to none. Spend a night or two at this amazing Niagara Falls Hotel. Find more information on every Niagara Falls Hotel.  
  
The image below depicts the catwalk and hurricane deck at “Cave of the Winds”. It is erected every Spring after the ice melts and removed in the Fall.  
  
  
https://www.world-of-waterfalls.com/waterfalls/eastern-us-niagara-falls/  
TITLE: The Largest Waterfall in North America  
META DESCRIPTION: Niagara Falls is a 167ft waterfall on the Niagara River defining the USA-Canada border. It consists of Horseshoe Falls, American Falls, and Bridal Veil Falls.  
META KEYWORDS:   
H1: Niagara Falls, Chase Waterfalls, About Us, Explore WoW, Have Your Say,   
H2:   
BOLD/STRONG: Have you been to a waterfall? Submit a write-up/review and share your experiences or impressions, Powered by Kinsta, Powered by Kinsta, Full rainbow spanning over Maid of the Mist at Niagara Falls demonstrating just how misty it gets here, Niagara Falls from the observation tower on the US side of the Niagara River, Twilight at Niagara Falls seen from the Canadian side,   
Italic: :   
TEXT: Niagara Falls is by far the most famous waterfall in North America (at least in our minds).  
  
It has been the backdrop to many honeymoons, proposals, daredevil stunts, and even key moments in the history of the United States.  
  
If you haven’t heard of this falls, it’s time for you to get out and start exploring the world around you!  
  
To Julie and I, we visited this waterfall with a lot of expectations.  
  
But after having seen it (twice), we’d have to say we were quite impressed by its power and size.  
  
In fact, it impressed us so much that it not only topped our Top 10 USA Waterfalls List, but it also made our Top 10 Waterfalls of the World List.  
  
Some Facts about Niagara Falls  
  
In fact, Niagara Falls is said to be the largest waterfall (by volume) in North America.  
  
The falls actually consists of three separate components – Horseshoe Falls (see photo above), American Falls, and Bridal Veil Falls.  
  
Combined, the falls is said to have an average discharge upwards of a mind boggling 7,000 cubic meters per second or nearly 85,000 cubic feet per second.  
  
It’s said that over 90% of this volume is over the Horseshoe Falls.  
  
The Niagara River marks the border between New York, USA and Ontario, Canada.  
  
The American Falls and Bridal Veil Falls lies on the American side.  
  
Meanwhile, the Horseshoe Falls is considered Canadian even though my maps seem to indicate that the political boundary in the middle of the Niagara River also splits the falls.  
  
We felt the falls was easily experienced from both sides so it didn’t really matter which side we were on.  
  
Perhaps having to wait in line at the border control could be a total pain, especially heading into the American side (at least in our experiences).  
  
Speaking of visiting both sides, we did a write-up of our trip logistics and nuances involved in visiting both sides of the falls.  
  
Observed Flow Behavior of Niagara Falls  
  
When we first visited the falls during the early Summer month of June, we had thought the water volume was probably either at its highest for the year or close to it.  
  
However, when we visited the falls during the Autumn month of October six years later, we saw even more mist wafting up from the base of the falls.  
  
So we couldn’t really say from our observations whether this could be explained by 2013 being a wetter year than 2007, or if the seasonal variations weren’t as pronounced as we would have expected.  
  
You can read this writeup, where we did discussed our thoughts about the various seasons and conditions at the falls.  
  
Whatever the case, the volume and power of the falls were so evident that the mist from the Horseshoe Falls segment seemed to aggregate into its own clouds.  
  
Indeed, the mist cloud would rise higher than the 167ft plunge of the waterfall itself.  
  
By the way, I’ve also seen reported heights of 173ft and 176ft for the height of Niagara Falls’ drop.  
  
Niagara Falls and Hydroelectric Power  
  
The falls is said to contribute a large amount of hydroelectric power to the power grid in the Eastern US and Canada.  
  
Perhaps in recognition of this heritage of hydroelectricity, we noticed a statue of Nikola Tesla at the falls.  
  
It was he who was credited with being the first to successfully turn the energy of falling water from Niagara Falls into electricity that was distributed for private and industrial use.  
  
Hydroelectricity has been controversial in terms of the environment.  
  
It is especially a bane for waterfalling due to inundation, interruption of waterflow, and collateral damage to the natural surroundings to support hydroelectric infrastructure.  
  
However, there’s no denying the critical role it has played in allowing certain cities (and even whole economies) to be built up and thrive.  
  
In the case of Niagara Falls, human intervention has also meant that the flow of the Niagara River has been regulated in a way that actually slows down the erosion of the falls (roughly 3ft per year).  
  
Moreover, it has been said to play a critical role in the evolution of America into the country it is today.  
  
Experiencing Niagara Falls  
  
We’ve been aware that the falls has been a tourist attraction since America’s early years (the mid 1800s).  
  
So it wasn’t surprising that over the last 200 years or so, the attraction has become heavily commercialized.  
  
This meant that we could experience the falls in numerous ways.  
  
However, we did feel that each waterfall “excursion” was like an amusement park or carnival ride where we paid to do a particular experience and then moved on to the next if we were so inclined.  
  
Indeed, like the tourists of days past, we got drenched at the Cave of the Winds as well as the Maid of the Mist, and we also got to hear and feel the ground tremble from the backside of the falls.  
  
You can read more about our experiences with these excursions here.  
  
The commercialism at the falls also meant that for all intents and purposes, Niagara Falls was an urban waterfall.  
  
It was surrounded by plenty of concrete as well as high rises.  
  
Most of those high rises kind of reminded us of a Frankenstein-like hybrid of Las Vegas and a waterfall world wonder.  
  
In that sense, Niagara Falls had all the potential of rivaling the other waterfalls comprising what we called “The Big Three” in Iguazu Falls and Victoria Falls.  
  
However, it just didn’t measure up to its international counterparts when considering its unnatural surroundings.  
  
Other Ways to Experience Niagara Falls  
  
Nonetheless, we enjoyed the pleasant strolls on both the American and Canadian sides of the falls which were free if you don’t count parking.  
  
They allowed us to take in the scenery at our own leisure.  
  
And if that wasn’t enough, we were able to see the falls at night as they were floodlit with varying colors until midnight.  
  
In any case, it was hard to say which side was better as we felt each side was pleasant in its own way.  
  
However, we did compose a writeup comparing and detailing our impressions of both the American and Canadian sides, which you can read about here.  
  
No doubt about it.  
  
The falls can be experienced and seen in countless ways.  
  
We’re living proof of that as you can see from the pictures and videos on this page.  
  
And with that said, I’m willing to bet there are even more ways to see and experience the one and only Niagara Falls than what we’ve done.  
  
So take a virtual tour by scrolling further to see more photos, videos, links, and more!  
  
See if this doesn’t inspire your own trip to the Granddaddy of waterfalls in the USA!  
  
Authorities  
  
Niagara Falls resides in the Niagara Falls State Park on the USA side and part of the city of Niagara Falls on the Canada side. On the USA side, it is administered by the New York State Office of Parks, Recreation, and Historic Preservation. On the Canada side, it is administered by the city government.  
  
For information or inquiries about the area as well as current conditions, visit the New York State Parks, Recreation, and Historic Preservation website or Niagara Falls City website.  
  
  
https://earth.esa.int/web/earth-watching/image-of-the-week/content/-/article/niagara-falls-2018/index.html  
TITLE: Image of the Week  
META DESCRIPTION: Niagara Falls is the collective name for three waterfalls that straddle the international border between the Canadian province of Ontario and the American state of New...  
META KEYWORDS: iow,   
H1:   
  
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H2:   
Change Detection  
,   
BOLD/STRONG: Overlay images in natural and false color , View large format slider in Visible Colour,      View Landsat 5 TM high resolution image,      View Landsat 8 OLI high resolution image, Technical Information of original image, Sentinel-2, View Sentinel-2 high resolution image, Technical Information of original image, Map of area, Back to top,   
  
  
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Italic: :   
TEXT: Niagara Falls is the collective name for three waterfalls that straddle the international border between the Canadian province of Ontario and the American state of New York. They form the southern end of the Niagara Gorge. From largest to smallest, the three waterfalls are the Horseshoe Falls, the American Falls and the Bridal Veil Falls. The Horseshoe Falls lies on the border of the United States and Canada with the American Falls entirely on the United States' side, separated by Goat Island.  
  
The smaller Bridal Veil Falls are also on the United States' side, separated from the American Falls by Luna Island. Located on the Niagara River, which drains Lake Erie into Lake Ontario, the combined falls form the highest flow rate of any waterfall in North America that has a vertical drop of more than 50 metres. During peak daytime tourist hours, more than 168,000 m3 of water goes over the crest of the falls every minute. Horseshoe Falls is the most powerful waterfall in North America, as measured by flow rate.  
  
The falls are 27 kilometres north-northwest of Buffalo, New York, and 121 kilometres south-southeast of Toronto, between the twin cities of Niagara Falls, Ontario, and Niagara Falls, New York. Niagara Falls was formed when glaciers receded at the end of the Wisconsin glaciation (the last ice age), and water from the newly formed Great Lakes carved a path through the Niagara Escarpment en route to the Atlantic Ocean. Niagara Falls is famed both for its beauty and as a valuable source of hydroelectric power. Balancing recreational, commercial, and industrial uses has been a challenge for the stewards of the falls since the 19th century.  
  
More information is available on Wikipedia  
  
Niagara Falls (Waterfall)  
  
Overlay images in natural and false color  
  
These images acquired by the Landsat 5, 8 and Sentinel-2 satellites, show the Niagara falls, with the Landsat images being 25 years apart. The Niagara Falls were formed over 12,000 years ago, when glaciers retreated north, allowing water from Lake Erie to flow over the Niagara Escarpment, a ridge that extends from southern Ontario to Rochester, New York. Since that time, erosion has slowly pushed the waterfall approx 11 km upstream, forming the Niagara Gorge.  
  
At present the Canadian Falls are receeding at an average yearly rate of about 1.5 metres, and the American Falls are being cut away at an annual pace of about 15 cm. The Canadian Falls erodes at a faster rate mainly because it carries more water.  
  
Another aim of these images is to promote the opportunity to download Landsat data through the ESA portals (or third party mission free catalogue), where images captured every day are made available in near real time to the users and the scientific community, and with the use the new generation of Sentinel satellite by European Commission (Copernicus Project) to monitoring with high resolution every changes around the world.  
  
  
  
Landsat full resolution data products are freely available for immediate download at:  
  
View large format slider in Visible Colour  
  
View Landsat 5 TM high resolution image (JPG 2.8 MB)  
  
View Landsat 8 OLI high resolution image (JPG 2.7 MB)  
  
Technical Information of original image Product: Geo Tiff format Satellite/Sensor: Landsat 8 OLI & Landsat 5 TM Resolution: 30 metres Coverage: 180 x 180 KM Acq. Date: 21 Sep 2017 and 12 Jun 1992 Band Combination used to create this image: 4, 3, 2 & 3,2,1 ( R - G - B ) Visible Colour Bands  
  
Sentinel-2  
  
View Sentinel-2 high resolution image (JPG 7.7 MB)  
  
Technical Information of original image Product: Geo Tiff format Satellite/Sensor: Sentinel-2 (Optical) Resolution: 10 metres Acq. Date: 09 Oct 2018 Band Combination used to create this image: 4, 3, 2 ( R - G - B ) Visible color  
  
Map of area  
  
Back to top  
  
  
https://pixabay.com/images/search/niagara%20falls/  
Access to this page has been denied!