

## The Romance of Niagara Bridges.

BY ORRIN E. DUNLAP.



NO matter what caused the formation of the Niagara gorge, the fact remains that its existence has forced a wonderful demonstration of man's skill. The romance of the Niagara Bridges is the most marvellous and interesting story of its kind in the history of the world.

It is, indeed, a strange coincidence that as the current of the river cut its way through the canyon, it was separating what were to be sections of two nations—the river being the boundary between New York State and the Dominion of Canada—which were later to be brought into mutual rejoicing over the connection of the mighty cliffs by such a tender bond as that of a boy's kite-string.

In the early days, before the Niagara gorge had been spanned by a bridge, the only means of crossing was by a ferry operated close to the foot of the Falls—that great, natural spectacle which has for centuries commanded the admiration of the people of the world. Then the Niagara locality was deemed quite a distance west, but ambitious man kept plunging still farther westward to open up the new country beyond. The gorge of Niagara lay across the direct pathway. It was evident that this obstacle to travel must be overcome, and the necessary money was secured to construct a bridge. The style of structure decided upon was of the suspension type, and the site was at the point where the edges of the cliffs were over 800ft. apart, and this right above where the terrible whirlpool rapids begin. The first thing to be done was to establish connection between the bluffs. No boat could live in the waters below, and so a line could not be carried across in that way. It was proposed to fire a rocket high in the air, giving it sufficient slant to allow it to fall on the opposite shore, and thus carry a cord across from bank to bank. It was found to be impracticable to do this, and then the simple method that brought success was adopted.

Among the boys of the small village on the New York bank there was one who had won wide distinction for his ability as a kite-

flyer. His name was Homan Walsh (No. 1). To him the contractors went for help. They asked him to display his skill with his kite, and try to let it fall from the sky on to the distant shore. Young Walsh entered into the attempt with great enthusiasm. He recognised that the prevailing wind of the locality was from the south-west, and so he sought the Canadian shore as a starting-place for his kite. Going up the river two miles he was ferried across the stream, and then he walked back down along the bank to the bridge site. It was not long ere he had his kite, which he had named "The Union," high in the air. The breeze was good. Walsh and the people who had gathered on either bank were hopeful. It was expected that with sunset the

wind would go down so that the kite could be lowered and the connection between the banks made. Darkness fell. The wind continued to blow a stiff breeze. All hope was gone for the time being, and it was recognised that possibly with the turn of the night the wind would settle as desired. Along the Canadian shore where young Walsh waited, holding fast to the kite-string as a doctor would to the pulse of a patient, in order to know the strength of the pull, bonfires were lighted so that the on-lookers might keep warm during the coolness of the



1.—HOMAN WALSH, WHO, AS A BOY, MADE WITH HIS KITE-STRING THE FIRST CONNECTION BETWEEN THE NIAGARA CLIFFS.  
*From a Photograph.*

night. Soon off across the gorge similar watch fires blazed up on the New York shore, and Walsh knew his purpose was understood.

Midnight came. The night turned. One day had given place to another. The wind went down. The kite did not pull so hard. Walsh knew it was settling—but where? An hour or more passed. Then over the gorge, high above the roar of the rapids, there came to his ears the sound of cheering. Faint, indeed, it was, but it was sufficiently loud to tell the glad story that the kite had fallen, and that between the rocky cliffs of the world-famed Niagara chasm connection had for the first time been established. It was, indeed, a happy moment for him, as he afterward said himself to the writer. "I felt," said he, "that I had leaped from boyhood to manhood. I had joined two





2.—THE FIRST CABLEWAY—ON THE SITE OF THE FIRST SUSPENSION BRIDGE.  
From an Old Print.

countries. Boy-like, I was proud of my work." A short time passed, and then there was a sharp, sudden tugging at the string Walsh held in his grasp. The strain increased. Suddenly it relaxed. The end of the cord that Walsh held fell loose. Tears burst from his eyes, for he knew that there had been too much cord let out, allowing it to sag until it had caught on the rough, uneven surface of the big pieces of ice of a floe passing down the river. The very wind that had raised his kite had broken the ice-field in Lake Erie and brought it down the river just in time to undo what he had accomplished. It was a sorrowful ending of his effort. Kind, new-found friends gave him comfort until morning, when he went up to the ferry to cross the river to his home. Arriving there, he found that the ice was coming over the Falls in such vast fields that a boat dare not attempt a crossing. For eight days he was held on the Canadian side by this condition of the river, finally reaching home safely. He found his kite in good condition, and resolved to try again. This purpose he carried out at the first favourable opportunity, and succeeded in making the connection between the cliffs. This was the commencement of the first great bridge across the Niagara gorge, as well as of the first great suspension bridge erected in America.

The slender kite-string served to draw a heavier rope across the gorge. Wire cables followed, and on one of these wire cables the first cableway in America was

operated (No. 2). This cableway was used for passenger service and also for the construction work. The cable was made of thirty-six No. 9 iron wires, and on it an iron basket was operated. This old relic of the early-day bridge construction at Niagara is still in the possession of the Buffalo Historical Society. It was designed by Judge T. G. Hulett, of Niagara Falls, who is still alive. It was made of strips

of band-iron, varying in width from an inch to an inch and a half, fastened with rivets. The illustration (No. 3) shows that it is higher at the ends than in the centre. The manner in which its shape was decided upon is most interesting. In December, 1847, Judge Hulett and General Ellet, the contractor, met at the old Eagle Tavern, at the Falls, and during their conversation the merits of a cable and basket as an aid to the work were discussed. The form of the basket was determined by Judge Hulett rising from the old-fashioned rocking-chair in which he sat, and, pulling another chair of similar pattern up to it, he said, "There is the shape of your basket." A glance at the following illustration will show that this idea was closely adhered to. One of the men referred to favoured wood as the material for the basket, but a rapid calculation showed



3.—THE IRON BASKET USED ON THE FIRST CABLEWAY.  
From a Photograph.



that a basket made of iron would be lighter, and so it was that the first great suspension bridge in all America was built by aid of this device. While the cableway was in operation the fare charged for passage across the gorge in the basket was \$1 for each person, and on some days as much as \$125 was taken.

On October 10th, 1848, the value of the basket and cableway was well illustrated at the time of an accident. A violent wind-storm had wrecked one of the sections of the bridge-work, and the floor, with four men on it, was thrown across the cable line. Back and forth they swung 200ft. above the river at the mercy of the storm. It was a thrilling spectacle. Volunteers were called for to man the basket and go to their rescue. The men who went out in the basket carried with them a small ladder, and by its aid the four men scrambled into the car and were drawn safely to shore.

From the work performed on this cableway the first suspension bridge at Niagara was developed. It was of wood, even to the towers, and was completed in 1848.

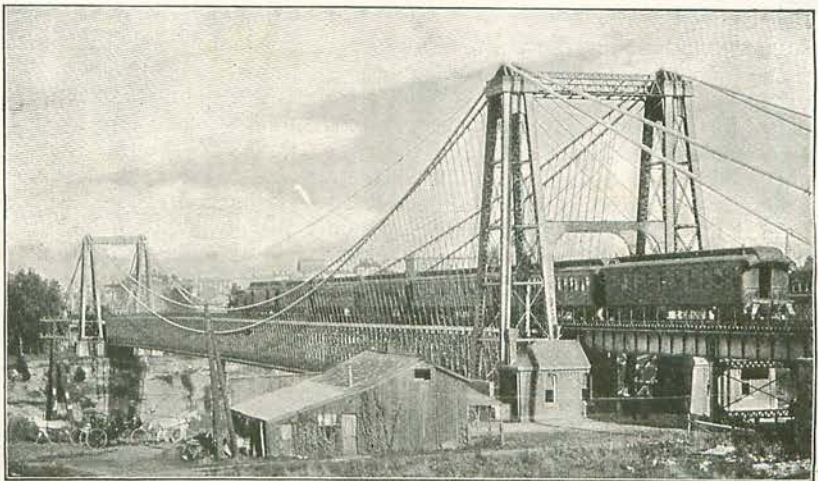
From this success in spanning the gorge grew the idea of building a suspension bridge on the same site for railway purposes. The project won favour, and John A. Roebling was selected as the engineer. The work progressed with reasonable rapidity, and the bridge was finished in 1855. It was the only great railway suspension bridge ever erected. It was a wooden structure, the length of span being about 800ft. It was a double-deck structure, the upper deck being for railway trains and the lower deck for carriages and pedestrians.

At the time of its erection it was regarded as a great—in fact, wonderful—triumph of engineering skill, and such it truly was. The towers of the railway bridge were of stone.

In 1880 a most wonderful feat of engineering was performed in connection with this

bridge, which was nothing more or less than the replacing of the old wooden truss by a metal truss without in any way interfering with traffic across the bridge on either deck. While the bridge was being thus transformed there were no serious accidents, and traffic proceeded with its accustomed regularity. The engineer in charge of this work was Leffert L. Buck, a man who has won brilliant fame in connection with the Niagara bridges, as well as in Europe. In 1886 a still further transformation was made in the structure by replacing the towers of stone with steel towers. This also was accomplished without interrupting traffic. With this finished the bridge had been entirely reconstructed (No. 4).

The reconstructed suspension bridge filled all requirements for over ten years, but the constantly increasing weight of railroad rolling stock, and the fact that the suspension bridge had but a single railway track across its upper deck, developed the necessity for constructing a new bridge. It was then that the death-knell of the Niagara suspension bridges was sounded, engineers deciding that an all-metal arch was the proper structure to replace the most historic suspension bridge in the world. On April 9th, 1896, work on the foundations of a new arch was commenced. It was projected that this arch should occupy the identical site of the suspension bridge, and that the new arch should be erected and the old suspension bridge removed without delaying the traffic over the structure. The abutments of this new arch were located mid-way between the water's edge and the top of the bluff on what is



4.—THE STEEL SUSPENSION BRIDGE, WHICH WAS REPLACED BY THE LOWER ARCH.

From a Photograph.



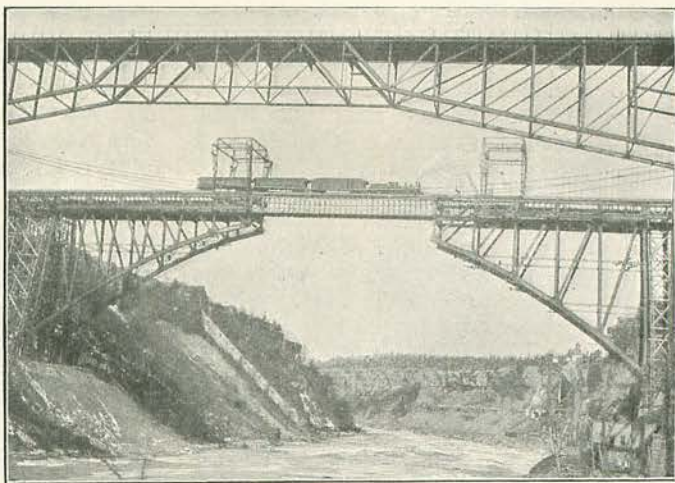
known as the Clinton ledge of limestone. High up from the abutments to the suspension bridge above, great false-work structures were built in order to facilitate the arch construction. The abutments are four in number, two on each side of the river, each supporting one leg of the arch.

The work of erecting the steel superstructure began September 17th, 1896, and the bridge was fully completed August 27th, 1897, the test taking place July 29th, 1897. The span of the main arch from abutment to abutment is 550ft., and it is connected to the banks by two approach spans 115ft. in length. The height of the centre from the water is about 200ft. It can easily be imagined that the erection of such a great arch was an undertaking of magnitude. To replace any small bridge with quite an undertaking, but to supplant a great Niagara suspension bridge with a structure of different type 200ft. above the water was an undertaking requiring the greatest skill.

Only the most skilled bridge builders could be employed, for the slightest error might send scores of men to death in the rapid running waters below. Every part of the new arch must fit to a nicety, so that when lowered into position it would be a perfect part of the whole. Nearly all the trains of the Grand Trunk Railway pass over this structure, and during the entire work not a single train was delayed, while traffic on the carriage floor was delayed but a brief time daily, this fact being precautionary rather than a necessity. On each side of the river anchor-pits were built, and out from these extended anchor chains to hold the steel that formed the halves of the arch, the method of erection being to build out from either side and placing the last section in the centre. Day after day the great steel arms continued to grow out from the abutments (as seen in No. 5), until finally they met and were connected in the centre, completing the springing of the arch. From this point the work was very rapid. Section by section the old suspension bridge was torn away and new parts of the arch inserted, until the old structure had entirely given place to the new,

when the load was shifted on to the new arch, which was now brought into continuous service. The superstructure of the suspension bridge, the old cables, and the towers were taken down, and the grandest arch in the world for railway purposes stood out in all its beauty over the chasm.

The test of the arch was a never-to-be-forgotten spectacle. Early on the afternoon of July 29th, 1897, there put out from the Canadian side two great trains. Each train consisted of eight locomotives and nine loaded coal cars, on top of which rails were



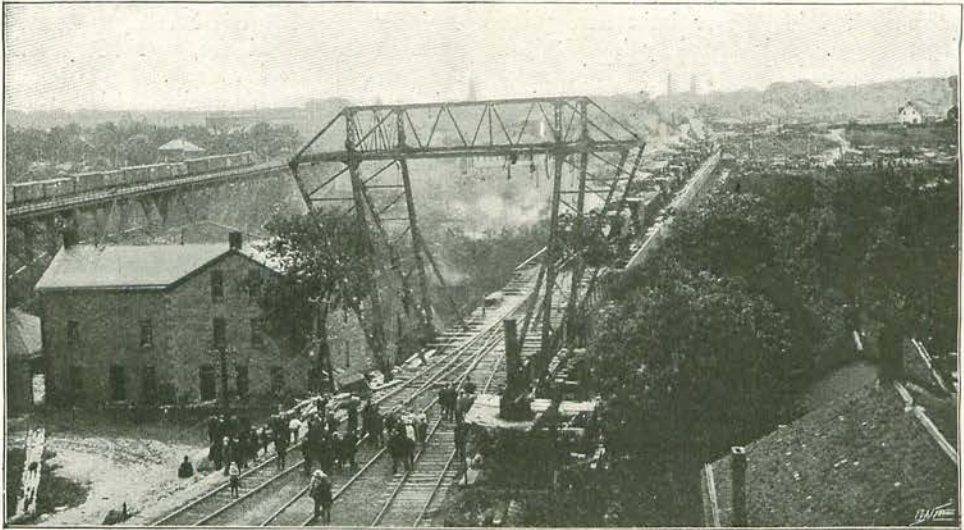
5.—CONSTRUCTION OF THE FIRST GREAT ARCH BRIDGE UNDER THE SUSPENSION BRIDGE, ON WHICH THE TRAINS WERE STILL RUNNING. [Photograph. From a]

piled to increase the weight. In addition to this a heavy load was placed on the lower floor. Slowly the trains made their way out on the upper deck of the structure. Thousands of people lined the river banks on both sides, to witness the test. The trains stopped, as though afraid to proceed. It was simply to give the engineers an opportunity to take levels. Then they ran a little farther out on the arch. They stopped again. It was a thrilling spectacle. What if the arch should succumb to the load? People held their breath. The signal to go ahead was again given. The front engines stood over the centre of the arch. More levels were taken. Again the engines forged ahead. They were at the three-quarter post. Silently they stood, and then they pulled ahead again. The weight of the entire two trains was on the bridge. There was just a moment of silence, and then they burst forth from the engines of the train such triumphant shrieks of whistling as never before had startled the echoes of the Niagara gorge



(No. 6). People waved their hats in frenzy of excitement, and cheer upon cheer swept across from shore to shore. The engineers

who witnessed it. One piece, the Falls of Niagara, was displayed by a perfect wall of fire reaching from the floor of the arch to the



From a)

6.—TEST OF THE ARCH—TRAINS WHISTLING IN TRIUMPH.

[Photograph.]

had made a perfect job. The first Niagara arch had successfully withstood a greater load than was likely ever to be put on it again, unless at some future time it should be again tested.

Within a few weeks the bridge companies and the Grand Trunk Railway inaugurated a three days' celebration of the successful completion of the wonderful bridge, and excursions were run from all parts of the States and the Dominion of Canada. Such a feast of rejoicing had never before and never since been witnessed on the banks of the famous Niagara. All day and almost all night long people of the two countries surged across the arch free, enjoying the regal entertainment provided on both sides of the river, all very much resembling an English country fair. The fireworks feature of the celebration will never be forgotten by those

water in the river. It was indeed a sublime spectacle, beyond all possibilities of description. Thousands upon thousands of people rejoiced over the accomplishment of modern engineering, and expressed pleasure unbounded at the progress of the age (No. 7).

While the original suspension bridge still stood, the development of railroad interests in and about Niagara, owing to the construction of more trunk lines, developed a demand for the construction of another



7.—CELEBRATION OF THE COMPLETION OF THE FIRST ARCH BRIDGE—NEW YORK SIDE.

From a Photograph.



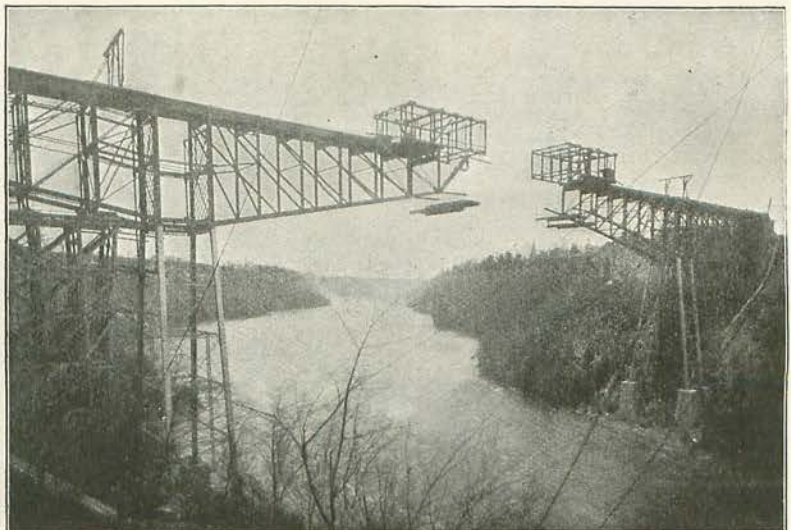
bridge, and a site 300ft. above the suspension bridge was selected. On this site the great cantilever bridge of Niagara was erected. It is a double-track structure; in fact, the first double-track bridge ever built across the Niagara gorge. It is owned by the Michigan Central Railroad Company, and is indeed a famous structure. Work on this grand piece of engineering was commenced April 15th, 1883, and it was completed December 1st of the same year. It is the second bridge of the kind built in the United States. Its total length is 910ft., divided into two cantilever arms, one of which is 375ft. long and the other 395ft. long. These cantilevers or arms are supported on steel towers, which rise 130ft. from piers located at the water's edge. In the centre the ends of the cantilever arms are connected by a fixed span 125ft. long. On the shore ends of the cantilever arms rest huge stone abutments weighing many tons.

The cantilever bridge stands higher above the water than the lower steel arch, and as it was built in 1883, it was the first Niagara bridge to be built out from the ends and connected in the centre high over mid-stream. *Monster false works* were erected on both sides of the river, and section by section the cantilever arms grew out over the river. It being the initial work of the kind at Niagara, it attracted unusual attention, and each day the progress made was noted by crowds of admiring humanity. Finally there was but a single section of the fixed span of the centre to be placed (No. 8). So close were the two ends of the arms that a plank was thrown across the gulf to connect them. Then it was that an interesting incident occurred. The engineer in charge, desiring a young lady friend should have the honour of first crossing the bridge, gave strict orders that none of the workmen should cross the plank. The temptation was too great, however. "Jack" McCloy, the well-known Niagara guide, who was then at

work on the bridge, sprang across the narrow plank, and thus had the honour of being the first to cross from section to section of this wonderful Niagara bridge. When the engineer learned of McCloy's deed he promptly discharged him, so McCloy walked the plank in a double sense.

The test of this bridge (shown complete in No. 9) was made on December 20th, 1883. About eight o'clock that morning seven heavy freight engines ran across the structure in line, but the formal and most severe test occurred about noon of that day during a heavy snowstorm. On each of the two tracks ten large locomotives and twelve platform cars loaded with gravel, making twenty locomotives and twenty-four cars in all, were run out on the bridge. The structure stood the test nobly, greatly to the pleasure of the engineers. The trains stretched from pier to pier, and when their full weight was on the bridge the whistles of the locomotives sounded the good news to the assembled thousands.

The success met with by the promoters and builders of the railway suspension bridge created a demand for a bridge two miles farther up stream, close to the Falls, where the scenic feature was more pronounced. After much opposition a charter was obtained, and in the winter of 1867-68 a rope was carried across the river at the site of the proposed new bridge on an ice bridge, and thus connection was made between the cliffs at this point for another structure which was to develop many interesting incidents in bridge destruction and bridge construction.

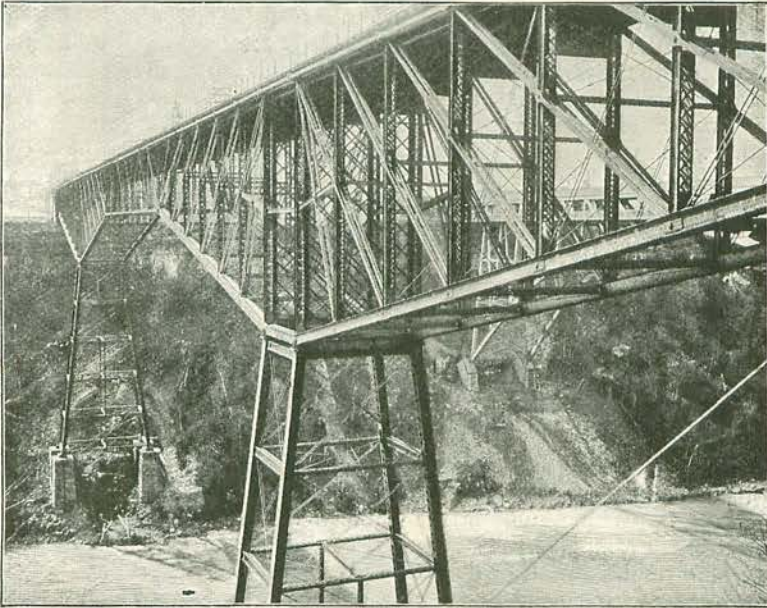


From a]

8.—THE CANTILEVER BRIDGE IN PROCESS OF CONSTRUCTION.

[Photograph.





From a]

9.—THE CANTILEVER BRIDGE COMPLETED.

[Photograph.

The bridge first built on this site was a wooden structure, opened to the public on January 2nd, 1869. It was only about 10ft. wide, and carriages were unable to pass one another on it. This led to long waits at either end, and no doubt many readers of this article will remember the long lines of carriages moving in one direction across the bridge in caravan form, while many others were waiting for the line to pass in order that they might secure the right of way. Those

of traffic. This gave an entire new steel structure from bank to bank, with a span of 1,268ft. (No. 10). As a suspension bridge, it was the admiration of all who visited Niagara, but it was doomed to an untimely fate.

On the night of January 9-10th, 1889, the Niagara locality was visited by a terrific hurricane, and when daylight came in the morning not a single inch of the bridge proper remained, it having been torn away from the cliffs as though cut out by a knife,



From a]

10.—NIAGARA SUSPENSION BRIDGE OF 1888.

[Photograph.

were the days when the Niagara hackman was in his prime, and the locality had not been revolutionized by the electric trolley. In 1872 steel supplanted wood in the bottom chord, and in 1884 the wooden towers, in which elevators were operated on the Canadian side, gave way to towers of steel. In October, 1887, the work of widening the bridge was commenced, and it was completed June 13th, 1888, without any suspension

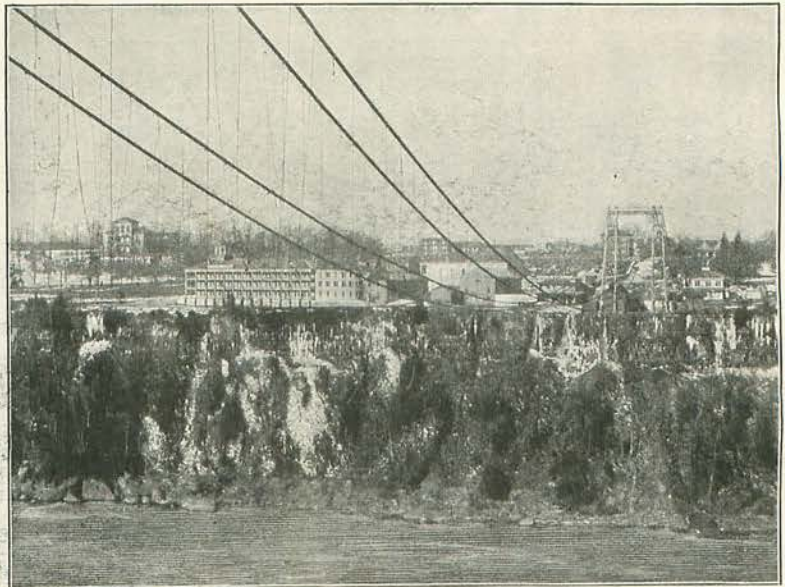


and the entire mass of steel lay bottom up in the gorge below. On the slopes of the bank on each side of the river the ends of the fallen mass were visible, while beneath the deep, silent waters of the river the greater portion of the wreck was hidden, and there it remains to this day. On the fatal night the wind swept down the gorge across the Horseshoe-Fall from the southwest. With its span of over 1,200ft., the bridge was broadside to the gale. It was caught by the storm, and at nightfall was swinging back and forth on the wind. People who desired to cross the structure were warned of their danger, but some few venturesome persons in response to duty pressed on across the tossing bridge.

One of these was Dr. John W. Hodge, and his experience of that night has gone down in history as one of the truly thrilling incidents of Niagara. In answer to a call from a very sick patient, Dr. Hodge, who resides on the New York side, went across to Canada, and returned in the height of the storm. Only a very high sense of duty to his patient led him to do this. It was about 10 p.m. that he crossed to Canada, and it was 11.30 p.m. when he started to return. Down the ink-black gorge the gale swept, bringing great sheets of spray and water right off the crest of the Falls, striking the bridge with hurricane effect. As he made his way toward the New York end he noticed by the high tossing and low dropping of the structure that some of the stays had apparently broken. From side to side the mighty structure surged, and 20ft. or more high it tossed. The doctor realized that his life was in peril, for the storm seemed to be increasing in intensity. To the southern or upper rail of the structure he clung as best he could, and carefully picked his way over the doomed bridge. His headway was necessarily slow, for at times the bridge would tip

at an angle of 45deg. The force of the wind almost took his breath away, while the clouds of spray and water almost drowned him. The night was intensely cold—the clashing of the wires of the bridge, the upheaval and swinging to and fro of the floor, and the roar of the Falls intensified the situation, and made the doctor almost fear reaching the river bank. His tightly-buttoned overcoat was torn loose by the wind, which fairly ripped the buttons off. He made an attempt to throw off the garment, but he dared not loosen his hold of the bridge with both hands for fear of being blown from the structure into the river. His only hope was to hold on and creep or walk toward the New York end, and this he did. When he passed off the bridge he was almost exhausted. He was the last man to cross the bridge before it fell. It is generally understood that the destruction of the bridge was due to a parting of the suspenders, which gave way one by one, allowing the bridge more freedom to swing on the gale until it was torn from its fastenings. It was about 3 a.m., on the 16th of January, 1889, that the bridge fell, and in the morning it presented a sorrowful spectacle (No. 11): a twisted, broken, upturned mass in the gorge below. For weeks it was an attraction to visitors to Niagara, and even now at very low water ends of the steel may be seen in the river on the Canadian side.

While they mourned the loss of their



11.—REMAINS OF THE SAME BRIDGE AFTER THE HURRICANE IN WHICH DR. HODGE HAD HIS THRILLING EXPERIENCE. [Photograph.]



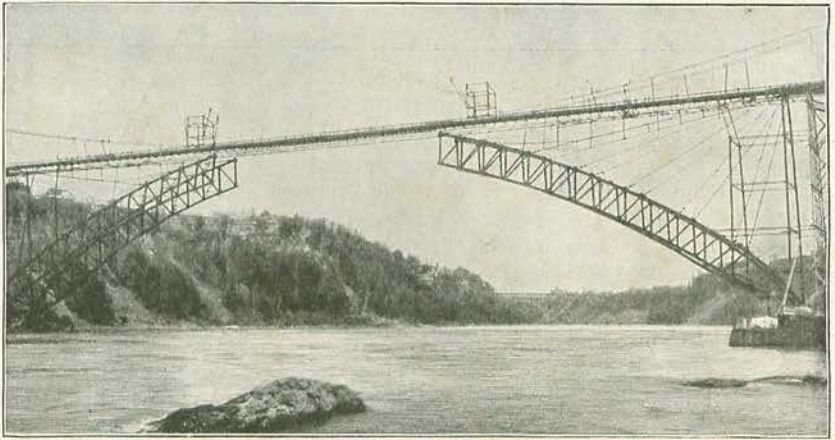
bridge the controlling companies were equal to the occasion, and at once ordered it to be duplicated. This rebuilding of the bridge was a feat of surprising rapidity; but as the iron-mills had all the patterns, the steel parts were quickly at hand. On March 22nd, 1889, the duplicate bridge was started, and on May 7th, 1889, it was opened for travel, thus accomplishing one of the most notable feats of bridge construction ever witnessed on the Niagara frontier. This structure had a width of 17½ft., and when it was built the men behind it believed they were building for all time.

Not so, however. In 1889 they little realized that the ensuing decade would bring forth such wonderful changes in the Niagara region as to demand a voluntary destruction of the handsome structure they had built, in order that it might give way to a more modern and a better bridge. But all this was to be, and has now taken place. With the development of great units of electrical power

at Niagara Falls there was a revolutionizing force of wonderful power set free. The horse-car lines of the region and other new roads were electrically equipped, and a new force was set to work developing the Niagara surroundings. With the construction of electric roads on both sides of the gorge for scenic purposes there came a demand for international connection of the lines, in order that a belt-line trolley service might be operated about the gorge. The modern electric car is heavily weighted, and it was found that none of the bridges were sufficiently strong to furnish the required service. This led to the determination to replace the upper and new suspension bridge with an all-metal arch.

This arch was built in 1897-98, and has the distinction of being the greatest steel arch in the world. The abutments stand close to the water's edge on both sides of the river, and the length of the main span between

them is about 840ft. This arch has but one floor, on which room has been provided for double tracks for the electric car service, the road being the first international line between the United States and Canada. There is ample room for carriages, and walks are also provided for pedestrians. As the bridge practically stands right in front of the Falls, a grand view of the cataract is obtainable. In the grace of its lines this arch is surpassingly beautiful, and is to-day classed as one of the wonderful things to be seen at Niagara. The method of erection (No. 12) was very similar to the arch first erected across the gorge, the suspension bridge being removed after the arch had been erected (No. 13). It is the fourth bridge built on this site.



12.—CONSTRUCTION OF THE GREAT STEEL ARCH UNDER THE SUSPENSION BRIDGE.  
From a Photograph.

The second suspension bridge erected across the Niagara chasm was built right in front of the world-famous Queenston Heights, and stretched across the river to the Lewiston Mountain.

Encouraged by the apparently bright prospects of the locality, capital in 1850-51 erected the second great suspension bridge that ever spanned the Niagara. This bridge was opened on March 20th, 1851, and it stood firm, and furnished means of crossing the gorge until the morning of February 1st, 1864, when it was wrecked by a wind storm. Some days previous to its destruction a great floe of ice came plunging down the gorge from Lake Erie. High winds prevailed, and the water raised many feet. The wind subsided, but the ice-fields of Lake Erie had been broken by the wind and thaw, and continued to come down over the Falls and pass down the gorge in great quantities. The men in charge of the structure feared





From a]

13.—THE GREATEST STEEL ARCH IN THE WORLD, COMPLETE.

[Photograph.

that the guys of the bridge would be torn away by the mass of running ice, and so orders were given to unfasten them and carry them up out of the path of the ice-field. This was done. The ice-floe passed on down the river to Lake Ontario without having done much damage at any point, and none to the bridge property. Fair weather followed. Spring appeared to be opening, and the condition of the guys of the bridge was overlooked. A storm of great force swept down the rocky gorge. It caught the bridge full on the up-side and tossed it to and fro. Then it was recognised that a mistake had been made in not re-fastening the guys, but it was too late. The men in charge were helpless. They could only stand on the river banks and watch the bridge sway with the wind, hoping that it would outlive the storm. Their confidence in this was misplaced. The hurricane increased in fury. It fairly tore through the gorge, up-rooting mammoth trees, and seemed engaged in an effort to move the cliffs. When the storm was at its height a portion of the floor of the structure was torn away and plunged into the river. When the wind went down the bridge was a sad spectacle (No. 14). It had been severely wrenched and twisted, and a part of the deck was gone. It was announced that it would be rebuilt, but time passed and the structure continued to decay and fall away. The fact was, the bridge had not been a paying investment financially, and the companies were not strong enough financially to rebuild it. Year after year it continued to drop away, until finally but a small portion of the floor beams hung from

the cables, all forming one of the most interesting old landmarks of the Niagara region up to the fall of 1898, when they were cut away, and allowed to drop into a watery grave in the river, where they still remain.

There are numerous interesting incidents connected with the history of these old cables, as they swung across the chasm between two countries for years. Criminals who dared not cross either of the bridges farther up stream made their way over the cables in the darkness of night. In one instance, an Orleans County murderer was captured in Canada, and the officers failed to understand how he crossed the river until he told of his passage across the cables at night. The Niagara border offers many inducements to smugglers, more in the past, perhaps, than at present, and Customs' officers watch the river closely. One night two inspectors were on guard near the old towers on the New York side. They were watching the river below, expecting to see a boat make for a landing near a path that had a winding course to the cliff top. The night was ideal for smuggling. Now and then a young moon broke through the clouds. The eyes of the watchers wandered here and there over the river surface in their effort to decipher real or fancied objects. Midnight had come and gone. More than once they thought they saw a boat on the river, but each time they were disappointed. Suddenly one of the men gave a startled whisper.

"Good heavens, what's that?" he said.

"Where?" quickly inquired his companion.





14.—WRECK OF THE SECOND SUSPENSION BRIDGE, FEBRUARY 1, 1864—SHOWING  
From a] THE CABLES OVER WHICH THE CRIMINALS ESCAPED. [Photograph.

“Out on the cable.”

Out over the river, on the cables, in a crouching position, crawling up the strands toward the abutment, was to be seen the form of a man. He had come in view of the two men as he reached a height on the cable where his form was outlined against the lighter sky beyond. It was a startling discovery. The vigilant inspectors were not looking for that kind of game. It was hard to determine what the man's coming in that way meant. They decided to lie quiet and await developments, making their way quietly back to the end of the cables at the anchorages, and intending to wait for the man to land. When he reached the top of the towers he stood straight up and slapped his sides with his hands, apparently resting his muscles. His form was clearly outlined against the sky. Soon he made his way down the cables and stepped off within roft. of where the officers were. They had decided not to molest him, for possibly he had come across

to give the signal for more important work. The man disappeared in the woods. That was the last seen of him. From the distance there fell on the ears of the officers the puffing and snorting of an early morning train on the Rome, Watertown, and Ogdensburg Railroad, as it made its way up the mountain. A cessation of the noise of the locomotive told the men on guard that the train had stopped at the mountain station. Inquiry next day revealed the fact that the man who crossed the cables had boarded the train at that point, but who he was, or what his mission, was never known. It was but one of the mysteries of Niagara.

Now a new suspension bridge has just been erected on this very site. While the bridge of 1851 was among the pioneer bridges of America, so to the same degree does this latest bridge mark all the advancement since made in bridge construction during the past half-century. The cutting of the old cables was the first step towards the construction of the new bridge. The old bridge was simply fifty years ahead of the demands of the locality. And yet this new bridge cannot be said to be actuated by the demands of the Lewiston or Queenston growth, but on the contrary it is inspired by the same revolutionizing tendencies that led to the supplanting the upper suspension bridge by a steel arch, and this is the demands of the electric car traffic in and about the Falls, which is making the time-honoured Niagara hackman a back number. It is the energetic spirit of New Niagara that is doing all this, and compliment is paid to the early bridge builders by selecting the very site where failure was met years ago.

This latest suspension bridge is the only structure of its kind spanning the Niagara, a remarkable fact considering the fame that the former suspension bridges gave to the gorge. But all the old suspension bridges have passed away, and have been supplanted by the modern all-metal arch. The new



bridge has a cable span of 1,040ft., while the suspended span is 800ft. The roadway of the bridge is 25ft. wide, and through the centre of it runs a single track for electric cars. Steel was used in its construction, and in all about 800 tons of metal was used. It is supported by four cables, each composed of fourteen  $2\frac{1}{4}$  in. wire ropes. These cables once were part of the old upper suspension bridge at the Falls.

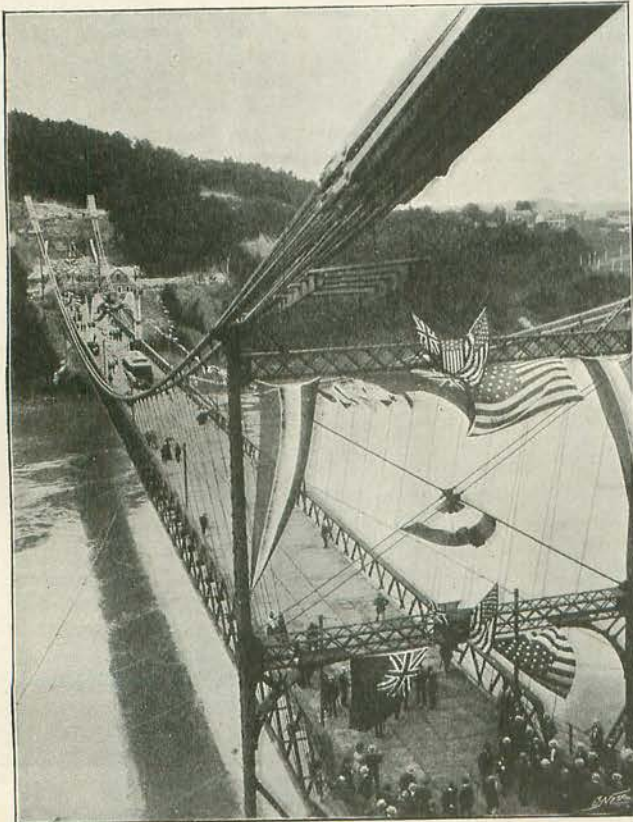
All the former suspension bridges erected near the Falls were built even with the tops of the cliffs, but this new Lewiston bridge is suspended midway between the water and the top of the bank, thus following the style of construction of the first Lewiston bridge. This location is somewhat novel, and necessitates the building of long approaches on either side. These approaches are double tracked and lead to the approach spans of the bridge, that on the New York side about

34ft. long and the one on the Canadian side about 19ft. long. The bridge opened for traffic on July 21st, 1899, the ceremony being shown in our last picture (No. 15).

Such is the history of bridge erection and destruction brought about by the marvellous force that rent the Niagara cliffs apart. It marks the beginning of the construction of wonderful bridges in America, and points out the steps of progress that have been made. The bridges there built have been copied for use in foreign lands, but no place in the world has such a wonderful and interesting history in connection with its bridges, all of which commanded the admiration of the world. There is no doubt but that the old suspension bridges, which are now but memories, marked the highest stage of engineering talent and skill at the time they were built, and so do the two great all-metal arches, the great cantilever, and this latest and newest suspension bridge, tell of the progress and advancement made in bridge-building.

Homan Walsh is dead. He died in Lincoln, Neb., on March 8th, 1899. His body was taken to Niagara Falls for burial. The train that carried it passed over the steel arch built on the site where a half-century before he had stood on the river bank and flew his kite to connect the cliffs by the slender cord held in his hand. In fancy, picture to yourself the scene of that wintry day when young Walsh successfully united the cliffs. Review the illustrations of this article showing the changes time wrought in the bridge there first erected, and then look upon the slowly-moving train as it crossed the bridge, bearing the silent and dead body of the man who, as a boy, made that train's passage over the mighty river possible.

Little did Homan Walsh think that his kite-string was building a path that would lead him from his Western home to the grave.



15.—OPENING OF THE NEW SUSPENSION BRIDGE, JULY 21, 1899.  
From a Photograph.