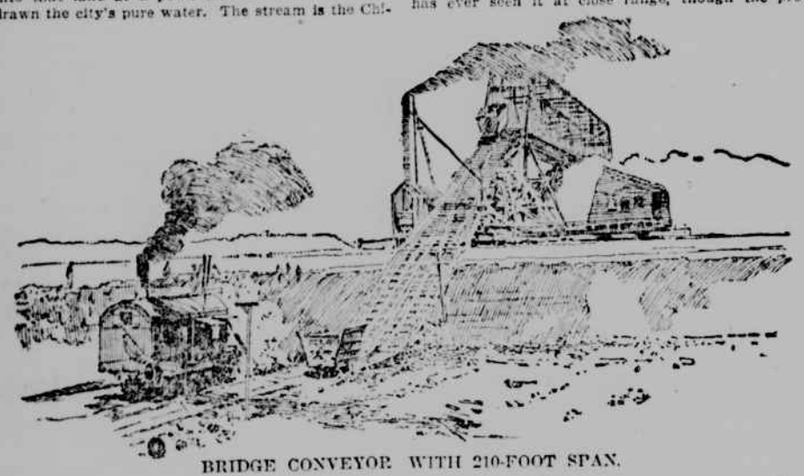
CHICAGO DRAINAGE CANAL.

A GREAT ENGINEERING ENTERPRISE, DESIGNED TO PURIFY THE CITY'S WATER SUPPLY.

INTERESTING FEATURES OF THE WORK ON THE LINE—THE DRAINAGE CHANNEL TO BE ALSO A SHIP CANAL—ELECTRICITY FROM THE WATER POWER.

Chicago, Dec. 19.—Not less important than advantageous location are effective drainage and a pure water supply as factors in the development and advance of a city to permanent greatness. Chicago, as all the world knows, regards New-York as her chief and, indeed, only rival; and it is a signal proof of the vigor and enterprise and civic pride of this city that she is steadily increasing in wealth and population, despite a tremendous handicap as compared with that rival. For Chicago has no available source of water supply near by in the shape of lakes and ponds and rivers, the use of which may be restricted solely to furnishing pure water to her, and she has not at her very gates tidal rivers such as encompass New-York and sweep off her sewage in infinite dilution and dissipation. For water supply she has to look to Lake Michigan, and for sewage disposal to a stream which in its natural course drains into that lake at a point close to that whence is drawn the city's pure water. The stream is the Chicago River, which threads its way hither and thither through the city, a sluggish, sewage-steeped abomination in sight and smell.

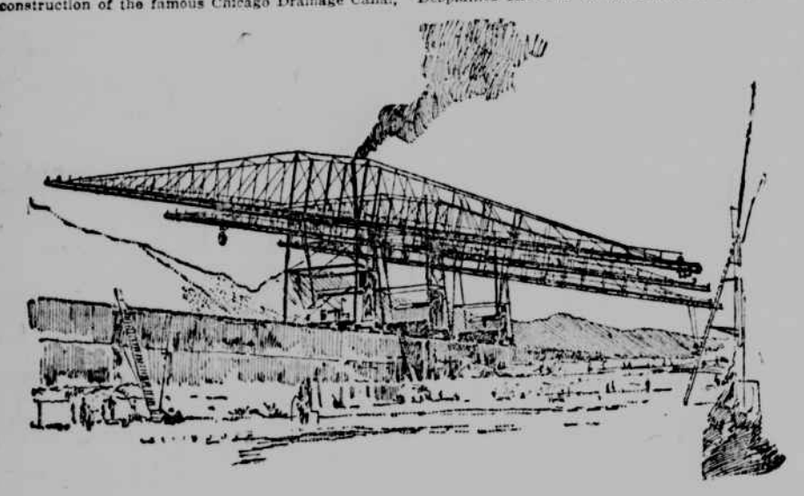


BRIDGE CONVEYOR WITH 210-FOOT SPAN.

In 1848 the Illinois and Michigan Canal, extending southward from Chicago to La Salle, was completed. Chicago was then a small city of less than 30,000 inhabitants; but even at that time the disposal of her sewage was becoming a grave problem. The water for the canal was pumped from the Chicago River, the current of which was thus partly diverted from the lake. In 1871 the work of deepening the canal eight feet was completed, and, of course, additional water—slightly diluted sewage, rather—was pumped into the canal bed from the Chicago River, little of the contents of which now entered the lake. But the difficulty was not yet remedied. Every high wind lakeward and every unusual rainfall forced the contaminated water of the river out into Lake Michigan, to pollute the drinking-water at the "intake," two miles out, whence the pure water comes to the city by tunnel. That condition exists to-day, and after every storm of the sort, the Chicago papers print Board of Health notices warning the people to boil the water for a half-hour before venturing to drink it.

A particularly heavy rainfall in August, 1885, with its accompanying pollution of the lake water used in this city, proved the signal for decisive action looking to the remedying of this grave evil. A citizens' committee was formed, the aid of the Legislature was sought, and in 1890 a board of trustees elected by the people of the city organized the Sanitary District of Chicago.

Under the direction of this board there has been in progress during the last four years a colossal engineering enterprise, now nearing completion, the construction of the famous Chicago Drainage Canal, designed primarily to afford this great city for scores of years to come adequate drainage and to remove absolutely the danger of pollution of the drinking supply; and incidentally to aid in the upbuilding of the city's commerce and wealth. The Illinois and Michigan Canal at its Chicago end is slightly higher in level than the Chicago River, and, as said before, all the river water flowing into the canal must be pumped in. The Drainage Canal, on the other hand, which begins at Robey-st., on the west fork of the south branch of the Chicago River, is below the river level, so that the river will flow into it by force of gravity, a current thus being created which will overcome completely the natural slight flow toward the lake and will cause the water of Lake Michigan to flow constantly into the Chicago River and on into its new outlet, the Drainage Canal. The latter will discharge its contents into the Desplaines River, whence, through the Illinois and the Mississippi, the Chicago River will finally reach the Gulf of Mexico, instead of following its natural course through the great lakes and the St. Lawrence into the North Atlantic.



A TRIPLE CANTILEVER.

SOME OF THE ENGINEERING PROBLEMS.

The work of cutting the great canal has been of such a nature as to require the exercise of the highest engineering skill. The total length of the canal, from Chicago to the terminus at Lockport, Ill., is twenty-eight miles, the line extending southwestward from Chicago and following down the Desplaines Valley, the course of the old glacier, abundant traces of the progress of which are found. The valley varies in width from a half-mile to a mile, and through it flow the Desplaines River and the malodorous Illinois and Michigan Canal, against both of which the Drainage Canal has had to be safeguarded at various points. The Desplaines River is a straggling stream, of greatly fluctuating volume. Sometimes its whole discharge would go through a six-inch pipe, but at the time of the spring floods its volume is fully 800,000 cubic feet a minute, and then it spreads over the whole valley. Necessarily this insubordinate stream had to be disciplined, and the task has been effected by the construction of the "River Diversion Channel." This work involved the excavation of thirteen miles of new river channel, in which the Desplaines is now flowing, the Drainage Canal occupying part of the old bed of the river; and the building of nineteen miles of levee between the Main Drainage Channel and the River Diversion Channel.

The River Diversion Channel is 200 feet wide on the bottom, slopes one and one-half to one, and has an average grade of .12 per 1,000 feet. The cost of the work has been about $1,100,000. At the head of the River Diversion is a concrete dam, 397 feet long, and at its crest sixteen and a quarter feet above Chicago datum (which is, being interpreted, the low water of Lake Michigan on a certain date in 1847, and 579.61 feet above sea-level at Sandy Hook). This dam is known as a "spillway."

The Main Drainage Channel has been constructed with a view to meeting the requirements of the Chicago of the future, with a population of 3,000,000, when a flow of 600,000 cubic feet a minute will be necessary; although a flow of 300,000 cubic feet a minute will be ample for the needs of the present population, and will be the volume maintained for some time after the completion of the canal. From Lockport, the southern terminus, to Willow Springs, a distance of fifteen miles, the canal is in the main cut through solid rock, Niagara limestone. Northward from Willow Springs for a few miles the cut is chiefly through "glacial drift," a mixture of earth, gravel and boulders; and from that point on to the Chicago River only earth is encountered. In the "rock sections" the channel is 160 feet wide at bottom, with practically perpendicular sides.

These sections, with their walls of solid rock built up to the required height of twenty-six feet, with massive masonry upon the rock surface, are of full size to accommodate the maximum flow of 600,000 feet. Five of the earth sections, from Willow Springs northward, are also of dimensions which will not need alteration, as in them there is a preponderence of hard material. They are 202 feet wide on the bottom, and twenty-six feet deep, with side slopes two to one. The remaining earth sections are 110 feet wide on the bottom, with some side slopes. They are designed for a flow of 300,000 feet, and may easily be enlarged by dredging whenever the increase in size of the city shall make necessary an increased volume of drainage.

Work on the line has been in progress since September, 1892, summer and winter, little delay being experienced in the latter season, since the frozen earth has been blasted with dynamite and handled like the rock. The grade throughout the earth, or lettered, sections, Chicago to Willow Springs, is one foot in 40,000; and for the rock, or numbered, sections, Willow Springs to Lockport, one foot in 20,000.

A WALK "ALONG THE LINE."

The people of Chicago are proud of their big canal, but not more than one in a thousand of them has ever seen it at close range, though the proportion is probably as large as that of the New-Yorkers who saw the new Croton Aqueduct in course of construction. It is the strangers here who visit the Drainage Canal, and thrice blessed are they if they can secure the company of a member of Chief Engineer Randolph's staff for the trip. A year or so ago there were almost 9,000 men at work along the big ditch; but now there are less than 1,000, and at many points, especially along the earth sections, everything is ready for letting in the water, most of the activity at present being found in the stretch between Willow Springs and Lockport, so it is usual nowadays to begin the inspection at Lockport and work backward toward Chicago.

The trip to Lockport is made by the Sante Fé (known to Easterners as the Atchison) or the Alton, both of which roads closely parallel the new canal, affording from the car windows many glimpses of the work in the shape of the huge gray "spoil banks" of excavated material which line its sides, here levelled off to form a backfilling, many feet in thickness, to a retaining wall of masonry, and there seen in great shapeless heaps or in the saw-toothed series of hills of broken stone aptly named the "Cantilever Range."

At Lockport the channel has been widened to form a "windage basin" in which large lake vessels may be turned around, for the main channel is a ship canal as well as a drainage canal. The extreme southern end of the canal at Lockport is a sheer wall of solid rock and masonry, of a total height of over sixty feet. At right angles with the western extremity of this wall are the controlling works, through which the flow of water from the main channel into the tailrace leading into the Desplaines River is to be delivered. From Lockport to the canal basin at Joliet, a distance of four and one-third miles, the Desplaines has a sharp fall of about forty-two feet; and in addition to this an extreme fluctuation of thirteen feet in the level of Lake Michigan has to be taken into account; so the controlling works must be elaborate and powerful far beyond the capacity of the ordinary canal lock, in order to regulate the flow, which will exceed in volume that which the Ohio pours into the Mississippi at low water. The controlling works will, when completed, comprise a bear-trap dam, next to the south wall, and beyond it a series of enormous sluice gates, set in masonry bulkheads or piers, upon which are built brick towers.

The bear-trap dam, the main object of which is to afford an outlet for ice, has an opening of 160 feet and a vertical oscillation of 17 feet. It consists of series of metal plates forming two big metal leaves, hinged together and working between masonry bulkheads. The down-stream leaf is hinged to a heavy foundation, the up-stream leaf being so placed as to present the barrier to the water. The structure is operated by admitting water through conduits, controlled by valves, beneath the leaves. The bulkheads for fifteen sluice-gates have been finished, but only seven of the big metal gates are in place, that being as many as will be necessary, with the bear-trap dam, to regulate a flow of 300,000 cubic feet of water a minute.

These gateways have each an opening of 30 feet and a height of 20 feet. Each gate is 32 feet 5 inches long and 20 feet high, and the total weight of the equipment of each gateway will be 75 tons. The bed of the channel is 15 feet below the bottom of the gates, the total distance from the canal bottom to the top of the piers being 60 feet. The water leaving the main channel through the sluice-gates and bear-trap dam will flow into a great rectangular basin, formed by a dike of earth fifteen feet high, by which means the water will be conducted southward of the end of the controlling works and into the Desplaines River.

MOST OF THE EXCAVATION COMPLETED.

Much difficult work remains to be done in making connection between the new canal and the Chicago River at Robey-st., Chicago, and in arranging for the carrying of the water from the Lockport end of the canal into the Desplaines and down the steep grade of Joliet; yet the close of this year sees 95 per cent of the actual labor of excavation accomplished. Many of the sections having been entirely completed, the visitor can no longer see all the various machinery at work, though all along the line of the main channel the machines are still standing upon the "spoil banks," "spoil" being the technical term for all the material excavated.

The first thing that the visitor notices in looking at the rock sections is the exceeding smoothness of the vertical planes of solid limestone walls, and he thinks it must have been a great deal of trouble to chip down the rock to such uniformity after the blasting. But the work was done before the blasting, by an ingenious little machine known as the channeller. This machine, which consists of a vertical boiler and engine, furnishing power for a great chisel with a Z-shaped cutting edge, is placed in such a position that the chisel will come directly on the line of the edge of the channel, and the channeller moves backward and forward on its section of railroad track as the chisel does its work of cutting a groove three inches wide and sinking downward ten feet into the course of rock on which the machine stands. Then the drills of steam or compressed air are set at work, dynamite sticks are put into the holes made, and the blasts are set off, breaking up all the rock in that course for the width of the channel, the three-inch clefts on each side, however, preventing the disfiguring of the smooth and level appearance of the sidewalls.

The blasted material is removed by various contrivances, of which the improved cantilever conveyer has proved by far the most efficient. As many as eleven of these cantilevers have been in operation at one time, and several are still at work. The machine stands on the bank at the level of the canal wall's coping, and rests on four sets of trucks, which carry the structure along on heavy steel railroad tracks. In the centre, supported directly by the four sets of trucks, is a platform forty feet square, on which are the engine, boilers and other machinery. Rising from this platform is a steel tower, composed of four posts, supporting the cantilever, a steel bridge 235 feet long, which is inclined at an angle, the lower end, of course, pointing toward the channel, across which it extends about 140 feet. Along the bridge, drawn by an endless cable, runs a trolley-car, to which are attached the "skips," or great iron buckets in which the blasted rock is placed.

Nine or ten of these skips are used in conjunction with one cantilever, and four or five men are kept constantly busy shovelling the rock into each of them. As soon as a skip is filled, a cable with trigger arms attached runs down from the end of the cantilever to the channel bed, the skip is attached and raised to the bridge level, where it is automatically connected with the trolley-car, which swiftly runs the length of the bridge upward to a given point above the spoil bank, where it discharges the contents of the skip and as swiftly brings the empty receptacle back to the starting point, the total time necessary for the round trip being only fifty seconds.

Another good conveyer has been the Lidgerwood cableway. Two wooden towers, about 90 feet high, stand about 700 feet apart, spanning the channel and the "spoil area." Between them is stretched an endless cable, which drags back and forth a cage to which the loaded skips or hods are attached, to be run out to the spoil bank. These machines, of which nineteen have been in use on the works, move along the banks on railroad tracks, as occasion may require, like the cantilevers. Their cost, both in plant and operation, is much less than that of the cantilevers. Another device, which, however, has not met the expectations of the builders, is the high power derrick and conveyer, which is essentially a derrick mounted on a turntable, like a swing bridge, and is capable of hoisting exceedingly heavy loads, which are discharged into cars running on tracks to the summit of a sharp incline, where they are dumped on the spoil bank.

SOME OF THE EARTH EXCAVATORS.

For excavation on the earth and glacial drift sections several types of steam shovels have been employed, and a number of these contrivances are still at work burrowing into the bank and discharging their contents into a never-ending succession of railroad dirt-cars, which are hauled by dingy and dilapidated-looking locomotives up the bank to dump their contents behind the retaining walls as back-filling. In some places the back-filling is of a thickness of twenty feet, beyond it being the old Illinois and Michigan Canal. Two of the sections were through dredge cuts, and on these the ordinary lake dredges were used, the material being loaded on scows and towed to the dumping-ground in Lake Michigan. Several of the earth sections were through the old bed of the Desplaines River, drained by the River Diversion Channel, and here the conditions were such that hydraulic dredges had to be used.

The favorite form of conveyer in use in the earth sections has been an inclined trestle, with two tracks, up and down which cars for alternate loading and dumping were hauled by cables, the top section of each track for a length of about ten feet being a tipple, over the spoil bank. These conveyers, too, are moved on tracks, laid in the direction of the channel and at right angles with the longitudinal section of the channel. The Mason & Hoover conveyer, a bridge spanning the channel, with cantilever arms reaching out over the spoil area, is another device which has given satisfactory results.

On some of the sections a kind of clay of peculiar toughness is encountered. The engineers call it "bull's liver," and digging it out packs it so that it can with great difficulty be removed. The best apparatus for getting out this bothersome stuff and other tenacious clays has been the Bates conveyer, devised by Lindon W. Bates, which consists of a roller belt, driven by steam, which passes under a granulator—a big hopper into which the clay is dropped by the steam shovel, and in which it is cut into little chunks by a pair of cylinders set with great steel knives. The granulated material, falling upon the belt, is carried thence to a bridge which spans the spoil area.

THE CHANNEL AS A SHIP CANAL.

As has been noted already, the idea of the utilization of the new drainage canal as also a link of a ship canal connecting Lake Michigan with the Mississippi has been present in all the calculations of the engineers in charge of this great undertaking. Says Chief Engineer Randolph in a recent report:

"When completed, the main drainage channel will be a free waterway, navigable for any craft drawing less than twenty-two feet of water. The cutting being made by this district constitutes nearly two-thirds of the entire cost of creating a channel from Chicago to the Mississippi, which would be navigable for the largest boats that will be able to ply between St. Louis and New-Orleans after the present plans for the improvement of the Mississippi will have been completed."

The confident expectation is that the United States Government will ultimately make the necessary improvements in the Desplaines and Illinois rivers. The total distance from the end of the drainage canal, at Lockport, to the mouth of the Illinois River is about 250 miles.

Mr. Randolph's estimate for improving this stretch of waterway, two-thirds of the cost of the sanitary canal, would be about $20,000,000. Lyman E. Cooley, one of Mr. Randolph's predecessors as chief engineer, as the result of a careful calculation a year ago, estimated that the entire cost of carrying fourteen feet of water from the end of the sanitary canal to the Mississippi would be $25,000,000, pointing out in addition that the improvements on the latter river would insure a depth of ten feet at extreme low water from St. Louis to the Gulf. The same eminent engineer in an address some time ago discussing the practicability of the projected ship canal route said in part: "Within the environs of Chicago a raindrop could split on a blade of grass and part run each way. The divide between the Great Lakes and Mississippi system is only eight or ten feet above the level of Lake Michigan, and Chicago is today cutting a channel through it. The bottom of it is on the exact level of the Niagara River at Buffalo, 349 miles away, so you can see by what a narrow margin the geological formation of the continent favored the St. Lawrence route rather than that by the Gulf of Mexico. The idea which I want to impress upon you is the idea of a trunk waterway, establishing a circuit through the heart of the continent. Chicago is cutting the summit of the divide in order to establish this circuit."

THE ILLINOIS VALLEY RISES TO REMARK.

The discharge of sewage into any river is bad enough at best, but the people of the Illinois River valley had their uneasiness over receiving Chicago's sewage into their stream quieted by arguments showing the extreme dilution of that refuse when carried in a volume of water with a flow of 300,000 cubic feet a minute; so they consented to the project on condition that they should receive a compensating advantage in the shape of co-operation in efforts for a ship canal. Now, however, they are growing suspicious of Chicago's good faith. A contract has recently been let by the Drainage Board for a fixed bridge over the new canal, whereas the understanding had been that swing bridges should be built, and the people of the river towns are afraid that that is an indication that Chicago is going to be content with getting rid of its sewage and will not strive to effect the projected improvements below Lockport. The river towns are also worked up over a rumor that an act is to be introduced in the Illinois Legislature, fixing the flow of water through the drainage channel at only 125,000 cubic feet, instead of 300,000. A convention composed of delegates from nearly twenty cities and towns in the valley met at Peoria the other day, and passed resolutions embracing these points, and also urging the general Government to begin at once the desired improvements southward from Lockport. It would seem, however, that their fears concerning a diminished flow through the new canal are groundless, for the greater the volume of water pouring into the Chicago River from the lake the greater the assurance that the city's drinking supply will be pure. It may be said in passing that Dr. Frank W. Reilly, Assistant Health Commissioner of this city, has made many analyses of Chicago sewage in its progress down the Illinois River, the conclusion arrived at by him being that practically all the pollution has disappeared before the sewage gets to Peoria.

Another project which has long been in the minds of the Drainage Board management is now taking shape—a plan for converting the gigantic force of the fall of water between Lockport and Joliet into electricity, which may be carried by wires to Chicago and used in lighting the streets, supplying streetcar traction and running machinery. At a cost of $425,000, it is estimated, electricity can be developed from which the city would receive an annual revenue of from $500,000 to $1,000,000 or $2,000,000. Frank W. Hawley, vice-president of the Cataract General Electric Company, in a recent interview in a local paper, agrees fully with Chief Engineer Isham Randolph and Assistant Engineer T. T. Johnson, of the drainage canal, in the opinion that this plan is entirely feasible. There are other rapids, too, below Joliet, which may be utilized by the river towns themselves in a similar way for producing electrical power.

There has been a great deal of discussion as to the effect of the new canal on the lake level, fears having been expressed that the withdrawal of 300,000 cubic feet a minute from Lake Michigan might have an injurious effect upon navigation. The change cannot be accurately calculated in advance, but the best opinion is that the fall would probably be at least three inches and could not exceed six inches.

FINANCES OF THE UNDERTAKING.

The total expenditure on the drainage canal to December 1, 1896, has been $26,220,143, and the work of completion will probably bring the cost up to $30,000,000. The earth excavation has cost from 25 to 50 cents a cubic yard, with one contract at 19 cents. The average price of glacial drift excavation has been 28.94 cents; of solid rock, 76.31 cents. The lowest price ever secured for rock work was 59 cents, but the contractors here worked at a loss, although the bids on excavation of all sorts have been steadily tending downward, in consequence of the discovery and application of labor-saving and time-saving devices as the work proceeded. The contracts have embraced sections from 4,500 feet to one mile in length, and frequently a contractor has had at work on his section a plant aggregating in value $300,000, including a well-equipped machine shop. In all over 40,000,000 cubic yards of material have been excavated, including five times as much rock as was taken out in building the new Croton Aqueduct.

The Sanitary District of Chicago, which bears the whole expense of this costly work, comprises all of Chicago north of Eighty-seventh-st., together with about forty-three square miles of Cook County outside the city limits, the total population of the district being about 1,750,000. There have been issued thus far bonds to the amount of over $12,000,000, of which $8,000,000 has been 5 per cents and the rest 4½ per cents. The taxes yield revenue enough to pay the interest on the bonds, pay off and retire one-twentieth of the issue each year, and leave a surplus to apply toward current expenses.

The affairs of the canal are managed by a Board, at present consisting nominally of five Republicans and four Democrats, and so far there have been none of the scandals usual in a public enterprise of the magnitude of this; but the citizens are not sure of the ultimate significance of the alliance a week or two ago of one Republican trustee with his four Democratic associates, whereby the full control of the Board was unexpectedly turned over to the Democratic minority. It is the opinion of experts that the canal could be finished next year, but the Republican trustee referred to has been quoted as saying that the work will take four years longer. Chicago will breathe a sigh of deep relief when the day comes for letting the water into the canal, and if the results fit the expectations she will count the vast undertaking well worth the heavy expense. So will the river towns—perhaps.

THE SITE OF FORT RALEIGH.

A MEMORIAL OF THE FIRST ENGLISH SETTLEMENT IN THIS COUNTRY.

IT IS ON ROANOKE ISLAND, IN EASTERN NORTH CAROLINA—A STATUE TO RALEIGH.

The Roanoke Colony Memorial Association has just erected an interesting memorial on the site of the first settlement in the United States of the English-speaking race. This association was organized about a year ago for the purpose of rescuing from oblivion Roanoke Island and the historic Fort Raleigh.

Two companies of colonists sent out by Sir Walter Raleigh, one in 1585, the other in 1587, settled on Roanoke Island, in the eastern waters of North Carolina. The island was then within the boundaries of Virginia, and, indeed, the word Virginia had its origin as the name of that region; but by the provisions of the charter of 1665 of Charles II to the Lords Proprietors of Carolina, it fell within the limits of North Carolina.

On this island the colonists constructed Fort Raleigh in 1585. There, on August 18, 1587, was born Virginia Dare, the first child of English parentage born in America. There, three days later, she was baptized, as Manteo, the friendly Indian chief, had been on August 13, 1587, one week before. These baptisms were the first celebrations of a Christian sacrament within the limits of the original United States, more than twenty years before Pocahontas. The sad story of the abandonment and disappearance of the unfortunate colonists is well known, but there is some reason to believe, according to Graham Daves, president of the Roanoke Colony Memorial Association, that their descendants may still be found among the tribe of "Croatan," more properly "Hatteras," Indians of Robeson County, N. C.

The Memorial Association purchased about 250 acres of land, taking in the site of the old fort. The outlines of the fort have recently been marked by granite posts, and work is progressing on improvements within the fort lines. The fort is in the heart of a tract of woodland of about eleven acres, situated directly on Roanoke Sound. The association owns besides this about 240 acres adjoining on both Roanoke and Croatan Sounds, and it is proposed to lay it out as a beautiful National park. The land is paid for, and is exempt from taxation.

President Graham Daves, of the Memorial Association, who lives at Newbern, N. C., has written a friend in this city describing the memorial his association has just erected. It is hoped by the association's officers to erect a larger and more imposing memorial in the near future. The monument just erected is of North Carolina and Virginia granite, symbolizing the two States whose early settlement is commemorated. The base and sub-base are of North Carolina granite, and the memorial slab of Virginia granite. The posts marking the fort's outline are of North Carolina granite.

The inscription on this monument is as follows:

> On this site, in July-August, 1585 (O. S.), colonists, sent out from England by Sir Walter Raleigh, built a fort, called by them
>
> "THE NEW FORT IN VIRGINIA."
>
> These colonists were the first settlers of the English race in America. They returned to England in July, 1586, with Sir Francis Drake.
>
> Near this place was born, on the 18th of August, 1587,
>
> VIRGINIA DARE,
>
> the first child of English parents born in America, daughter of Ananias and Eleanor White, his wife, members of another band of colonists sent out by Sir Walter Raleigh in 1587.
>
> On Sunday, August 20, 1587, Virginia Dare was baptized. Manteo, the friendly chief of the Hatteras Indians, had been baptized on the Sunday preceding. These baptisms are the first known celebrations of a Christian sacrament in the territory of the thirteen original States.

On the sub-base is cut "1886" on one side and "1887" on the reverse.

"It is the purpose of the association," writes President Daves, "to lay off these historic grounds already owned and paid for by the association, disturbing nature as little as possible. The soil on the spot seems never to have been cultivated since the abandonment, more than 300 years ago. The users of tobacco have materially helped the association in its work of rescuing this historic spot from oblivion. The use of tobacco was first introduced into Great Britain by Sir Walter Raleigh after the return of the first of his colonists from Roanoke Island. To him and to his colonists the Anglo-American users of tobacco are indebted for much comfort and enjoyment in their indulgence in their favorite weed, and a great part of the world at large for a vegetable product valuable as an article of commerce. In consideration, therefore, of what they owe to Sir Walter, it was asked that all who used and dealt in tobacco, contribute a small sum—the value at least of two or three cigars—according to their means, to be devoted to the erection of memorials, at the place in the United States where tobacco was first discovered, to Sir Walter Raleigh, who made known its use, and to his colonists, who perished here. Many smokers and chewers aided us in our undertaking."

The association also proposes to erect a handsome bronze statue to Sir Walter Raleigh, the handsome and brave knight who lost his head because of his good looks and courtly manners.

A GIFT FOR AN AMERICAN.

HOW "SCRIBNER'S HISTORY" CAN BE EXAMINED WITHOUT LEAVING YOUR OWN HOME OR OFFICE—THE EXTRAORDINARY FACILITIES PROVIDED BY THE TRIBUNE.

Tribune readers are invited to avail themselves at this busy season of the very unusual and perfect system provided for their convenience by which they can examine the great work, "Scribner's History of the United States," now being placed in New-York by The Tribune at a discount of one-third.

Any reader of this paper who will go to his district telegraph box and pull the lever five times (you need not be afraid of bringing a fire engine or a policeman—the signal is perfectly understood by every district telegraph office in New-York), will have sent to him without any delay or further instructions sample volumes of "Scribner's History of the United States" and particulars of The Tribune plan. You are under no obligation to order. All that The Tribune desires is to have you look at the book, and gladly leaves the rest to you without urging. Another way is to telephone your name and address to telephone No. 1,820—Thirty-eighth-st. A telegraph operator is stationed at this telephone who has under his hand wires to every district telegraph office in New-York and Brooklyn. Within a few minutes from the time your message is received a boy will be on his way to your home with the specimen volumes and particulars, and without any charge or obligation.

The vexed question of what would make a good Christmas present may be settled by deciding upon "Scribner's History." It is a book for the American family, which will be of value for many years, as no history can replace it with its magnificent illustrations, its high authority and authorship, and its popular character.

Ex-President Harrison, after reading the book and commending it, said: "A good acquaintance with our National history is really essential to good citizenship, and I hope this history may have a wide distribution." Do intelligent Americans generally know what they should about our history?

The Tribune has associated itself with a book of character which will justify all that has been said for it and the facilities of examining the book without leaving your home, which are offered, should lead to hundreds of orders between now and Christmas.

AT THE RED CROSS BAZAAR.

Yesterday was the last regular day of the Red Cross Bazaar at the Hotel Waldorf, and throughout the entire afternoon the big parlors where the bazaar was held were crowded with people. The affair has been a decided success and will net the National American Red Cross Society a considerable sum of money, which will ultimately go to the Hospital and Training School for Red Cross Sisters. Late in the afternoon the auctioneering began. Small trinkets, such as dolls, perfumery, in fact almost everything imaginable, were first offered. Needless to say the prices realized were exceedingly high considering the real value of the articles offered. One box of perfumery probably worth $2.50 at the most was "knocked down" to a man well known in society for $10. His was the first and only bid. After buying it the man gave it back to be auctioned off again later in the day. To-morrow and Tuesday the larger articles will be offered at auction and the results of the drawings on various chances will be announced.

A NATURAL RESULT.

From The Indianapolis Journal.

"Hear about Timmins writing a poem to Dollie Fliptoe's foot?"

"No; did he?"

"Yes, and when he read it to her, her foot went to sleep—so she says."

"THE TUB."

A NEW ALBANY CORPORATION AND ITS ORIGIN.

WHERE BATHS ARE SOMETIMES TAKEN INVOLUNTARILY—THE YELLOW DOG.

Among the organizations recently incorporated at Albany was one which bears the odd name, "The Tub," and to those who do not live in that city, or who have not passed a winter there, the name must seem most strange. But to him who has climbed the hills of Albany during the time when ice and snow make the occupation more exhilarating than pleasant, in the months when the meeting of the Legislature increases the population of Capitol Hill and adds new life to the boarding-houses which manage to exist between sessions, to him the name "Tub" suggests the bathing establishment in State-st. where residents of Albany take Turkish and Russian baths, and where members of the Legislature have been known to retire for rest and refreshment after hard work which was not of a strictly legislative character. In Albany everybody knows the proprietor of the establishment.

"Garry" Bensen has served his time as a swimming teacher, as a renter of boats in the "basin"; he has won distinction as a life-saver, and when the boy became a man he developed into a politician with aspirations toward office in the Legislature during the months when the staid and sedate atmosphere became impregnated with the wit and wisdom which go with the average legislator. His ambition has been rewarded, and "Garry" Bensen, who is known to his townspeople as the man who taught Grover Cleveland and many others how to swim, is known to the visitor as the Senatorial sergeant-at-arms and the keeper of the "Tub."

His "Tub," from which the new association takes its name, is not on the water's edge, as its name might suggest, but on the broad street which leads to the Capitol, and was once one of the fashionable residences of the city. Besides the various kinds of baths, the place contains bachelor apartments, in which scenes have been enacted when they were occupied by newspaper men and clerks connected with the various departments which would have given the writer of roaring farces much good working material.

There men have gone to write their "stories" because it was a quiet place and because they could write there undisturbed, and there, after their work was done, they would go to bed, only to be dragged out by a self-appointed Committee on Indian Affairs and forced to take a plunge bath, despite their assurances that they could worry along until morning, at least, without immersion.

One of the characters of the institution is a yellow dog, said to be from the kennels of Senator Edward Murphy. He answers to the name "Tub," he stands around knowingly when the regular boarders take their morning plunge, and he follows the inmates to the Capitol, where he takes it upon himself to keep the messenger boys moving. When he sees one coming or going he jumps at his heels, and until he gets out of the dog's reach the messenger is likely to move quickly.

A recent story about Bensen shows that maturity has not robbed him of his spirit of fun. Among other sources of income from the Tub is that which comes from bathing dogs. A woman came to the place a short time ago with a pet poodle. "The dog is young," she said, "but I want to have you teach him how to swim. Do you think he will learn?" Garry looked wise, and said that he "supposed the dog could be taught." Terms were agreed upon, and the dog came for his first lesson the next day. He was thrown into a bathtub with no more ceremony than a committee would show toward a too temperate or a too industrious companion, and the report was sent to the woman that her dog was doing nicely, and with so and so many additional lessons at a certain amount for each lesson he would certainly learn to swim. And now the woman shows the poodle to her friends as the successful pupil of "Garry" Bensen.

One of the organizers of the new club, "The Tub," is prominently connected with the historical department of the State of New-York, but the society was not formed for the pursuit of historical research.

ALBANY'S GALA DAY.

THE CENTENNIAL OF THE LEGISLATURE TO BE OBSERVED ON JANUARY 6.

The opening of the legislative session on January 6 will be the beginning also of the celebration which will mark the one-hundredth anniversary of the legislative sessions at Albany, the first of which was held on January 3, 1797. If the poets and orators who will take part in the demonstration had attended the dinner of the Albany Society of New-York at Delmonico's, on Tuesday evening, they might have received inspiration for poems and orations from the men who sang the praises of the old city on the hills, and who prophesied for it a future of unusual brightness and prosperity.

Mayor John Boyd Thacher reviewed the history of the city, dwelling on the fact that in its defence the Stars and Stripes were first unfurled, and eloquently tracing the development of the Fort Orange of old to the beautiful city from which he said ships would in time run to the seaboard, as large and as powerful as any that ply the great waters of the Old World.

Charles Emery Smith spoke of the part which Albanians had taken in the development of the country, and eulogized in eloquent terms the men who marched from Albany to battle for their country and who are laid there in soldiers' graves. Ex-Governor of the State, editors, clergymen and distinguished jurists aided the Albany men in singing the praises of their city, and the feast will be looked upon as the first step in the centennial celebration, because many who came for the occasion discussed the programme which is being prepared for it.

The festivities will include a parade through the principal streets of the city, in which the National Guard under the leadership of General Robert Shaw Oliver, commander of the Third Brigade, will lead. Political, social and trades organizations will also take part in the parade, which will be reviewed by Mayor Thacher, Governor Black and a large body of prominent men. Every ex-Governor and ex-Lieutenant-Governor of the State has been invited, as well as President Cleveland, ex-President Harrison and President-elect McKinley.

In the afternoon the literary exercises will take place in Harmanus Bleecker Hall. Chauncey M. Depew will deliver the oration and William H. McElroy will read a poem written for the occasion. Mayor Thacher said that Governor Morton would preside at the Harmanus Bleecker Hall meeting during the first part of the exercises and that Governor Black would take the gavel during the second part. Mayor Strong and the mayors of most of the cities of the State will be on the platform during the exercises.

For the benefit of the thousands who will be unable to gain admission, an evening entertainment in the shape of a ball and reception will be given in the 10th Battalion armory and Washington Park will be elaborately illuminated. Every city in the State will be represented on the committee. Mayor Thacher said that a committee of ten from each of the eight judicial districts had been appointed and that the best men in the State are as deeply interested in the celebration as the Albanians.

A complete programme will probably be prepared in a few days and will be made public by the committee.

NEW-ENGLAND DINNER PROGRAMME.

TO BE HELD AT THE WALDORF ON TUESDAY—THE TOASTS AND SPEAKERS.

A brilliant scene will be presented at the annual New-England dinner at the Waldorf on Tuesday evening. The new ballroom of the hotel will be decorated handsomely for the occasion, and the tables will be ornamented with choice flowers. More than 500 men will sit at the tables. The New-England Society has invited the following representatives of other societies to be guests: Holland Society, Justice Truax; Society of Colonial Wars, General F. J. De Peyster; Ohio Society, General Henry L. Burnett; St. Patrick's Society, James S. Coleman; St. Nicholas Society, Edward King; St. Andrew's Society, J. Kennedy Tod; St. George's Society, Francis W. J. Hurst. Among other invited guests will be James C. Carter, General Stewart L. Woodford, Horace Russell, J. Pierpont Morgan, Daniel G. Rollins and Elihu Root, the last four of whom are ex-presidents of the New-England Society.

In the absence of Charles C. Beaman, the president of the New-England Society, who is recovering from an attack of typhoid fever and has gone out of the city for the holidays, ex-Judge Henry E. Howland, the first vice-president, will preside at the dinner. Following is the list of toasts and speakers for the dinner:

"Forefathers' Day," E. J. Phelps, ex-Minister to England.

"Our Debt to the Pilgrim Fathers," the Rev. Dr. Minot J. Savage.

"Some New-Englanders in Georgia," Colonel Richard Malcolm Johnston, of Baltimore.

"New-England Literature," Hamilton W. Mabie.

"The Results of Puritan Influence," General Horace Porter.

"The Navy," Hilary A. Herbert, Secretary of the Navy.

"The Army," General Nelson A. Miles.

"The Civic Compact and the Church Covenant of the Pilgrim," Arthur Lord, president of the Pilgrims' Society of Plymouth.

"The City of New-York," Mayor Strong.

"Our Sister Societies," J. Kennedy Tod.

AARON KAHN ACCUSES KILLILEA.

Aaron Kahn, a lawyer, who lives at No. 1,745 Madison-ave., went to Police Headquarters yesterday and filed affidavits with Acting Inspector Thompson, preferring charges against Captain Thomas Killilea, of the Highbridge station. Kahn is the man who has frequently alleged that he was swindled out of thousands of dollars by ex-Mayor Grant, ex-Sheriff Sexton and ex-Corporation Counsel Clark in poker games at the Narragansett Club, Eighth-ave. and Fifty-fourth-st. He charges that Captain Killilea, while he was in command of the West Forty-seventh-st. station, in which precinct the Narragansett Club was, permitted gambling to be carried on there, and knew that he was being cheated at cards. He alleges that Killilea was a spectator at several of the games at which he lost money. Kahn declares that he was cheated out of $33,000 by Grant, Sexton and Clark and two card sharps, who, he says, are members of the Tammany Hall General Committee. His affidavits set forth that he lost this money at poker games in a period of several years prior to 1895.

LOW PRICES FOR CERTIFICATES.

FLUCTUATING VALUE OF MEMBERSHIP IN THE PRODUCE EXCHANGE.

Concerning the remarkably low price for which certificates of membership in the Produce Exchange have recently been sold and the high price which they commanded about twelve years ago, an officer of the Exchange said to a Tribune reporter the other day:

"Prior to 1880 the number of certificates was limited to 2,500, and they were sold for $200 each. In 1880 or 1881 the limit was increased to 3,000, which is the present limit and number outstanding. At that time 500 certificates in addition to the 2,500 then outstanding were sold for $2,500 each, and the proceeds applied toward the erection of the new Exchange Building, which was completed and occupied in May, 1884. When the new building was finished the price of certificates rose to $4,800 each.

"Soon afterward the decline began. It was precipitated by the failure of the Marine Bank and Grant & Ward, both of which concerns were reported to be heavy holders of the certificates, which are negotiable; but, as a matter of fact, they held only a small number. Ferdinand Ward had some time previously been an employe of the Produce Exchange. The decline continued until sales were made for only $100 per certificate. It was not caused by any unsound financial condition of the Exchange nor by competition on the part of other exchanges, as the Produce Exchange has no opposition. The chief cause was dulness of business, which affected all exchanges the same way; the price of seats in the Stock Exchange suffered an exceptionally heavy decline. The Produce Exchange Building is valued