

NEW YORK'S COMING SUBWAYS

AN EAST SIDE LINE TO THE
BRONX BORDER THE NEXT—
STILL MORE AFTER THAT

BROADWAY AND LIBERTY STREET.

In all the mass of proposals for new highways and subway extensions in every part of the city from the Battery to the Westchester line, and from the North River to Coney Island, the great question is: Which will be next?

There will be many more subways. Of that there is no doubt. Plans for at least half a dozen more have been made and are in a more or less tentative shape now.

The lone plan which has received official sanction so far is an extension of the Brooklyn extension of the present subway, now building, from the terminus at Flatbush and Atlantic avenues under the Plaza and the Willink entrance to Prospect Park, to a junction with the Brighton Beach line near Church avenue. This will provide at least one through line direct from the Bronx under the river to Coney Island.

The plan has been adopted by the Rapid Transit Commission, and it is only necessary now to obtain the consent of the Supreme Court and the property owners. Then bids can be advertised for, a contract drawn and the line will be in shape for building.

But this extension, after all, is a little thing, though it will mean much for the half developed part of Brooklyn south of Prospect Park. The burning question is, Which part of Manhattan shall receive the benefits of a subway next? And there is no doubt that the greatest demand is for an East Side subway as part of a new tunnel system which will bring the benefits of rapid transit to crowded localities of which the present subway does not touch the fringe.

Bankers and real estate operators are usually good guessers, and there is not a glimmer of hesitation among those whose business leads them to keep a sharp watch upon developments in the transit problems with which New York is wrestling in saying that the wealthy investors in real estate who have been loading up with undeveloped property in the Bronx all last week have guessed rightly this time.

The completion of this first subway and the glimpse that New Yorkers have had of it, the revelation to thousands of these New Yorkers who have ridden on the practice trains that underground travel can be made almost if not quite as agreeable as elevated railroad travel; the constantly increasing congestion on existing lines of traffic—all these have whetted the public appetite for more subways and have put new life in the demand for quick action to get them.

And of those who cry for better transit facilities the people who want an East Side subway from the Battery to the northern boundary of the city by way of Lexington avenue are the most insistent. Up in that direction are huge tracts of undeveloped land within the city limits still to be opened to settlement.

Downtown, on that side of Manhattan, is the most congested district in the city. Over there, too, are the new bridges—the Williamsburg Bridge, complete; the Blackwell's Island Bridge, half built, and the new Manhattan Bridge, still to come—all to be supplied with traffic.

North of that side is all the beautiful region of the Sound shore at present barely touched by development. The New York, New Haven and Hartford Railroad is about to spend many millions upon electric lines through this very country, and the passengers it will bring in increased numbers will have to be taken down town quickly and directly somehow.

All these considerations will result in settling finally upon the plan for the next subway, and that is why it is fairly certain that whatever big and however comprehensive that plan will be an East Side main line will form part of it.

With one subway finished the way will be clear for another, if not for several more. The last obstacle was removed last year. A bill which passed the Legislature and is now operative wiped from the statute books the law fixing \$50,000,000 as the limit of the sum which the city could spend upon subway construction, and left the Rapid Transit Commission's hands untied.

The commission had spent almost all of its \$50,000,000 anyway on the present subway and the Brooklyn extension, and the further extension of that will account for the few millions left. But there is now no limit on the city's transit expenditures other than the Board of Estimate, the Supreme Court and the Aldermen in their discretion may set, and the commission will go ahead.

For the next subway lines in Manhattan two proposed routes have been planned by the rival Interborough Rapid Transit and Metropolitan Street Railway interests, so far the only competitors in the field; and there is a tentative official plan which is a combination of both.

The Interborough Rapid Transit Company applied about a year ago for leave to extend the present subway south from Forty-second street and Broadway to

the Battery, connecting there with the Brooklyn extension, and to extend north from Forty-second street and Fourth avenue into The Bronx. The lessees of the present subway argued for this plan that it provided an East Side and a West Side line which could be built with the least possible expenditure of time and money.

The Metropolitan interests proposed to build an independent subway altogether, running from The Bronx down Lexington avenue, Irving place, Broadway and William street around the Battery, thence under Church street, Hudson street and Eighth avenue to The Bronx, with connecting cross-town lines at Chambers street and at Thirty-fourth street.

The committee on plans of the Rapid Transit Commission duly considered these proposals early this year, practically rejected both and came out with a plan of its own instead. This is the plan and route which is pretty sure to be adopted when the time comes to fix definitely the route of the next Manhattan subway.

It follows in a large measure the proposals of the Metropolitan Street Railway interests for an independent subway. The committee proposed to start the new line at 140th street and Third avenue, the northern terminus of the present subway proper; carry the line, with a loop terminal half way, under the Harlem River to Lexington avenue, down Lexington avenue to Fourteenth street, making a short curve to Broadway and crossing under the present subway at Fourth avenue; down Broadway to Chambers street, turning east there and passing under the existing subway again just north of the Bridge station, to William street; down William street, curving east to South street and rounding the Battery into Greenwich street and running thence into that street and West Broadway to Washington Square, turning west there to Seventh avenue and up Seventh avenue to Thirty-fourth street and thence under Thirty-fourth street back to Lexington avenue.

To bring this huge loop of a subway into harmony with the existing line and provide for an easy passage from one to another the committee proposed two short spurs. First there was to be a little one running from Lexington avenue and Forty-fifth street diagonally across to the present subway at a point about Fortieth street and Park avenue. Then from Seventh avenue and Thirty-fourth street on the West Side there was to be a short line running directly up Seventh avenue to meet the present subway at Forty-third street.

For Brooklyn it was proposed to build a line long in demand, starting from Fort Hamilton and running under Fourth avenue as far as Flatbush avenue, then along or beside the Brooklyn subway extension as far as the junction of Fulton street, and thence direct to the end of the approach of the new Manhattan Bridge, over that bridge to Manhattan, turning off there to Canal street and meeting the present subway at Canal and Centre streets.

It wasn't proposed to build all these new subways in a lump or to give the job necessarily to one bidder. It was proposed to divide it into five separate sections and invite bids on these separately, a single contractor, however, not being, of course, prohibited from bidding for the whole.

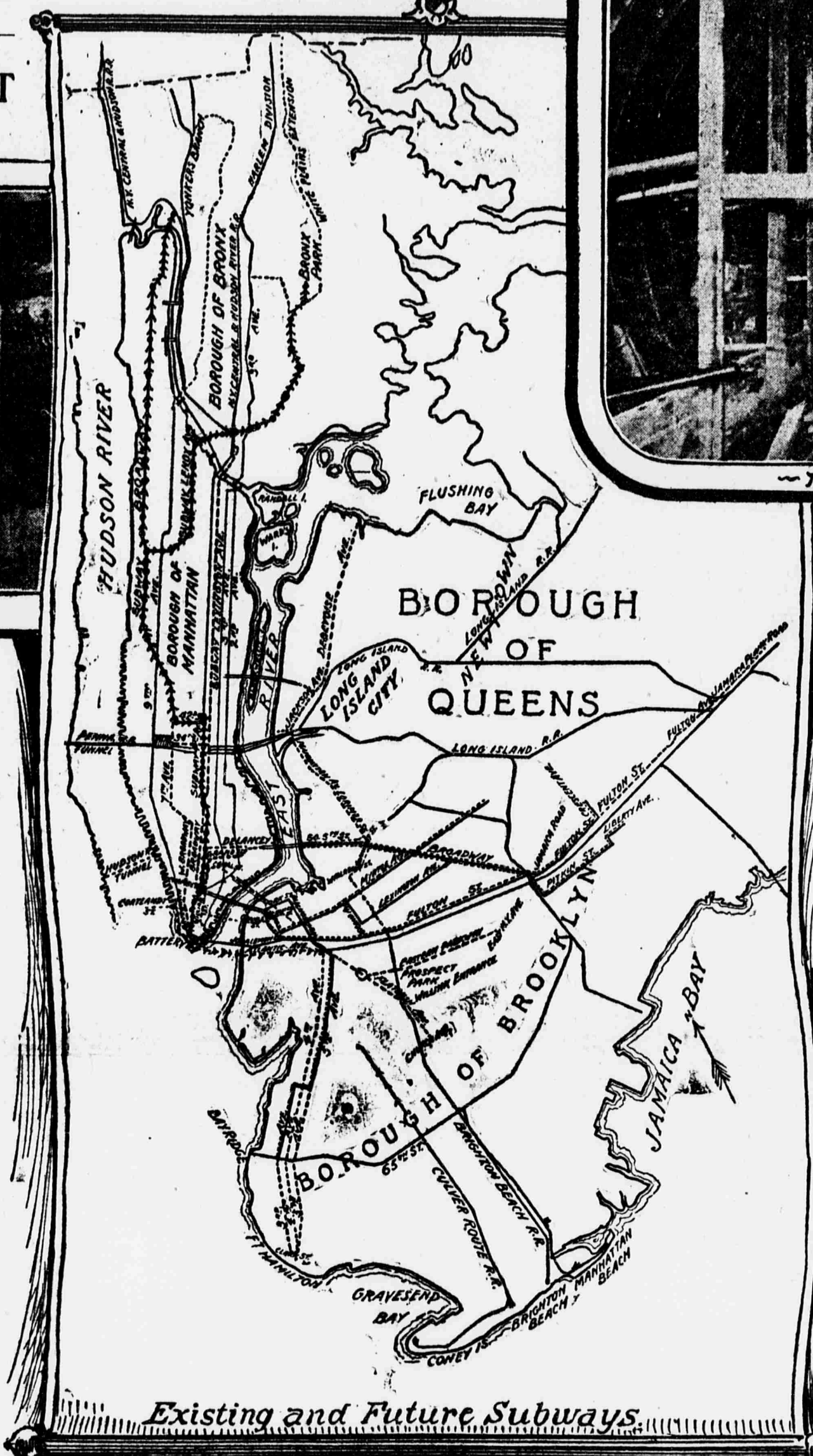
Well, the committee proposed its plan, the commission held a public hearing on it, at which neither the representatives of the Metropolitan nor the Interborough interests raised serious objection to it, though each side thought they could offer a plan which was a little better still. And there the matter rests now.

With the first subway open, the debt limit taken off, and the way clear for further action, the Rapid Transit Commission may be expected to busy itself again with the plan, and something will be done almost immediately to carry out at least a part of these comprehensive proposals.

Discussion of the plan presented to the commission by its committee did, however, bring out several features. One was that if the second subway were let in sections it was possible that the steam railroads, particularly the New York, New Haven and Hartford on the East Side section, and possibly the Brooklyn Rapid Transit or the Long Island Railroad on the Brooklyn side, might enter into the competition for the construction and operation of the lines.

Another and more important feature still was that the commission in awarding the new contracts for these future subways will be guided by the transfer facilities that the contractor and lessee can give the passengers to existing lines, rather than the price that will be paid directly to the city for the franchise.

When the Metropolitan interests proposed their plan for a new subway to the commission, Thomas F. Ryan announced on their behalf that if the plan was adopted and the contract to build and operate the road given to the Metropolitan, transfers to the company's surface lines in Man-



Existing and Future Subways.

The present Subway and the half completed extension to Brooklyn are indicated by a thick and a thin line crossed by arrow-heads; proposed subways by dotted lines, and elevated and surface railroads by plain lines.

hattan and the Bronx would be given free to passengers in the subway, and vice versa, thus enabling every resident of either borough to ride from his home to his office for one fare, or in other words providing transit all over town on this side of the East River for a nickel.

When the committee's plan came out, Mr. Ryan unhesitatingly accepted it and announced that the transfer offer would apply to this plan, too, if the Metropolitan should be the successful bidder. Mr. Belmont, on his part, has offered free transfers to the Interborough subway and to the Brooklyn extension. Before a route and plan are settled on it is quite probable that some features of the present plan may be changed, and even if changes are made the Lexington avenue part of the plan will be adhered to.

Meantime the comprehensive system of subways thus brought into view has been added to by other proposals from public corporations to build tunnels on their own account and by one other city enterprise. To relieve the congestion at the Brooklyn Bridge, and to bring the Williamsburg Bridge into closer touch with the business districts of Manhattan, Chief Engineer Parsons has proposed another subway between the approaches on the Manhattan side, with a loop extending across town. But this proposal will wait a decision on the other plan.

The Pennsylvania Railroad is already at work on a series of tunnels across town under Thirty-first, Thirty-second and Thirty-third streets, with a big station between Seventh and Ninth avenues. The New York and Jersey Railroad has dug one tunnel under the North River to Jersey, coming in on this side under the Christopher street ferryhouse and is at work on another. It will have a station at Christopher street and Ninth avenue, but now proposes to continue its line across town to a loop at Astor place or under Sixth avenue to Thirty-fourth street.

Substantially the same interests which operate in this company have planned another tunnel from Jersey City to the foot of Cortlandt street, coming to a terminal in the block on the east side of Greenwich street and connecting by a passage with the subway under lower Broadway.

There are more such plans for tunnels and subways, by the dozen almost, all rather dry and vague at present, but some of them are sure to mature. The facts certain about

the whole matter are that Manhattan Island will soon be pierced by a large system of underground railroads and that a beginning will be made upon these sooner than many persons expect. As to the proposed extensions of elevated railroads and trolley lines their number is legion. It would take a page of *THE SUN* to tell about them all. Some of these in Brooklyn and Queens are shown in the accompanying map. New York, in fact, is getting a hustle on in dealing with its transportation problem. It may soon even begin to catch up with the demand for more facilities.

WHO WILL BUILD THE NEXT SUBWAY?

One of the most interesting questions in connection with the future development of New York's subway system is: Who is likely to get the job of building and operating the next one? On the decision of this question the character of the future system largely depends. Alexander E. Orr, president of the Rapid Transit Commission, talked about this a week or so ago.

"Does the fact that the Belmont interests have already built and will operate one subway give the Interborough, Mr. Belmont's company, any advantage in bidding for a second?" Mr. Orr was asked.

"Perhaps Mr. Belmont and his friends would have an advantage in bidding for an actual extension of their present line in either direction," he replied. "But in laying out future subways, it is the intention of the commission so to plan them that they can be built as an independent system, and this would prevent the present tenant from having an unfair advantage."

The position of the Rapid Transit Commission as to future subways is, in fact, understood to be that it will welcome competition from any interests able to build and finance them, and will give the prize to the corporation or individual even, that will pay the most in cash to the city, and advantages to passengers, for it.

THE STATIONS ON OUR NEWEST RAILROAD

Lots of folks of course will want to know just where the stations are on the city's newest railroad. There are forty-nine of them altogether, thirty-seven in the sub-

way and twelve on the viaduct, which carries the road into The Bronx, and they are divided into two classes—express stations and locals.

The express stations, of which there are five, are all on the four-track road, which extends to Ninety-sixth street. Express trains below Ninety-sixth street will stop at these five stations only. Above Ninety-sixth street the road divides into East and West Side branches, with two and three tracks respectively, and all trains stop at all stations.

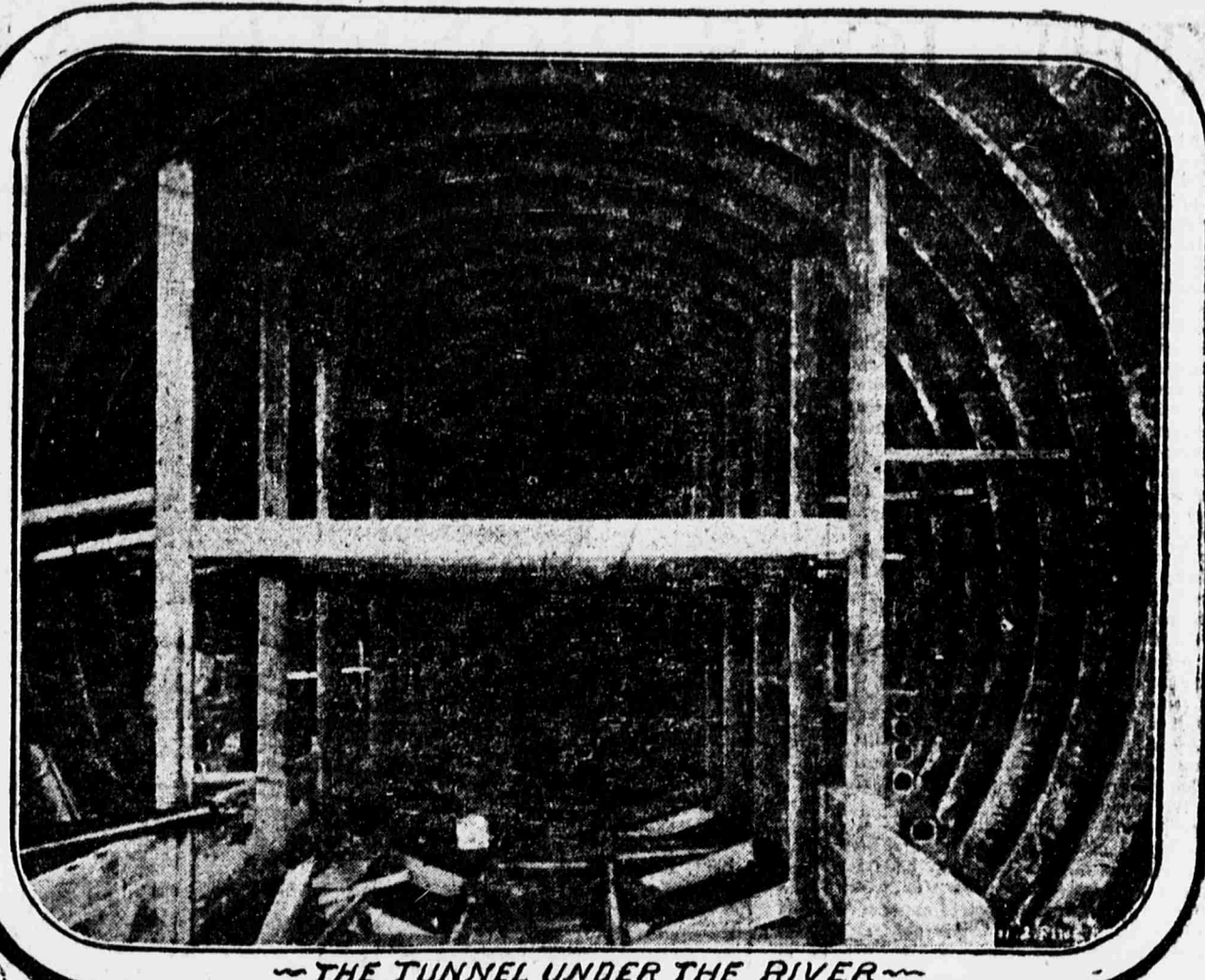
The five express stations are Brooklyn Bridge, Fourteenth street, Grand Central, Seventy-second street and Ninety-sixth street. Here is a list of all the stations:

MAIN LINE.	
City Hall (loop station).	
Brooklyn Bridge.	
and Elm streets.	
Canal.	
Spring.	
Seventh street.	
Forty-second street.	
Forty-third street.	
Forty-fourth street.	
Forty-fifth street.	
Forty-sixth street.	
Forty-seventh street.	
Forty-eighth street.	
Forty-ninth street.	
Fiftieth street.	
Fifty-first street.	
Fifty-second street.	
Fifty-third street.	
Fifty-fourth street.	
Fifty-fifth street.	
Fifty-sixth street.	
Fifty-seventh street.	
Fifty-eighth street.	
Fifty-ninth street.	
Sixtieth street.	

WEST SIDE BRANCH.	
Cathedral Parkway.	
Madison street and Broadway.	
140th street.	
141st street.	
142nd street.	
143rd street.	
144th street.	
145th street.	
146th street.	
147th street.	
148th street.	
149th street.	
150th street.	
151st street.	
152nd street.	
153rd street.	
154th street.	
155th street.	
156th street.	
157th street.	
158th street.	
159th street.	
160th street.	

EAST SIDE BRANCH.	
110th street and Lenox avenue.	
111th street.	
112th street.	
113th street.	
114th street.	
115th street.	
116th street.	
117th street.	
118th street.	
119th street.	
120th street.	
121st street.	
122nd street.	
123rd street.	
124th street.	
125th street.	
126th street.	
127th street.	
128th street.	
129th street.	
130th street.	

Of course, as was announced several weeks ago, the West Side branch will be open on Thursday as far as 145th street only. Beyond that the line is still incomplete. The East Side branch may not be thrown open for several weeks yet, and how far along it travel will extend at first is problematical.



THE TUNNEL UNDER THE RIVER.

BY TUNNEL TO THE BATTERY BEFORE NEXT SUMMER

If the Rapid Transit engineers are not making vain predictions, New Yorkers far downtown will not need to walk as far up as City Hall next summer to take a subway ride up town.

By next May, if the contractors are lucky and the labor unions are kind, the subway trains will be running down to the Battery. About that time the Battery loop may even be completed, in which case there will be a full fledged subway service in operation from one end of Manhattan Island to the other.

But after their experiences with the subway now about to be opened, the rapid transit folks are shy about making predictions. The best they dare to hope for publication—is that about the time the spring starts the trees in Trinity churchyard budding the tunnel track will be laid, the two stations at Fulton street and at Rector street will be in shape, and trains can be backed down to the Battery and sent up again, tapping the crowd from the financial district on the way, until the loop is ready.

Then all will be smooth sailing. Within two years the tunnel under the East River and the whole of the Brooklyn extension to the Long Island Railroad station at Flatbush and Atlantic avenues is expected to be finished; and then the second stage in the tremendous job of fitting New York city with a new transit system will have been reached.

Under the pavements of lower Broadway, down among the foundations of the skyscrapers, the contractors' men have been hustling for the last year. Under the out and cover system of subway digging adopted there, the people above ground have had no inkling of the progress being made below them.

But the work has gone steadily forward almost without a hitch until now, a year after the start was made, almost all the excavating has been done, some of the steel framework is being put in and the workmen are already busy with the stations that will be.

Except for one little piece, something less than 100 feet through, in the stretch above Rector street you could walk underground all the way from the Battery to the Post Office. Even that piece of excavating would have been done long ago, but the contractor is holding it back for his own purposes.

The foundations of lower Broadway are practically all sand and this sand is of an exceedingly good quality. It is useful in making concrete and it is the best back filling, that is, material for filling in between the subway walls and the rough side of the excavation, that could be desired. The contractor likes to keep a good parcel of it handy, so he is taking his time about removing that block of 150 feet until he finds uses for the material it will supply.

But the rest of the work is advancing in rapid time. At Fulton street the steel frame of the subway is being put in and the foundations of the station have been laid.

The Rector street station is nearly as far advanced. Part of the foundation has been put in and the work of setting up the steel will soon be begun.

Three-fourths of the excavation for the Battery loop has been done. The contractor thinks the loop may be finished some time in the summer under ordinary conditions. He has had the advantage of open excavation there for a greater part of the way, and with the Battery wall and sewers to carry off the waste material so close at hand there has been nothing to hinder the job.

Excavation has been pushed south from the opening and platform in front of St. Paul's church, north and south too from that in front of Old Trinity, north and south from Bowling Green and all the way round under the river from the Battery. The business men of lower Broadway made up their minds to pocket inconvenience with as good grace as possible for the sake of better transit facilities; and since the work got well under way there have been comparatively few complaints about the things the contractor found it necessary to do to the street.

Whether the tradesmen and the brokers of far downtown will be quite so philosophical when the time comes for replacing the sunken and uneven pavement, as it soon must, is not quite so certain, for large sections of the street must be torn up then. But the Rapid Transit people are not meeting troubles in advance and they are hoping that when that time comes, if the contractor can be stirred to haste and a good share of the work is done at night, that particular bad spot in the line of progress can be got over without much repining.

There are few easy jobs in subway construction; and the building of this extension to Brooklyn, while easy compared with some of the other problems which have had to

be met, is not all plain sailing. On both sides of the river the path of the subway has gone through sand, which is not the nicest kind of material for excavators to deal with. With permission only to remove material at night, the work was necessarily held back a little, but a temporary railroad track, with mules for motive power, was laid and it was soon possible to accumulate enough material at the mouths of the shafts in the daytime not to delay the job unduly.

On the Brooklyn side an open cut was possible for part of the way. For the rest, as the excavation was deep and the material was sand there, too, shafts were sunk and the work was pressed on from both ends under protection of shields. Excavation was begun several months ago at the site of the Flatbush avenue terminal and from there westward to meet the cut going east, and the trolley line is being used for carrying away the waste material.

The hardest problem on this second subway, though, has been the East River tunnel. Work was begun from both sides of the river rather more than a year ago, and after several slight accidents which delayed operations for a while is now making fine progress. Altogether, about two-thirds of the distance has been excavated. Rook was soon encountered in the middle of the shaft, but that had been expected. The trouble was in the first place, that it was a treacherous, shaly sort of rock to work in, and in the second that while there was plenty of rock to cut away in the middle of the shaft, in the upper corners it fell away to within a few feet of the level of the top.

The result was that the contractor was obliged to cut his tunnel either with no rock at all above him or with only a thin shell. And ten feet above the top of the shaft was the river.

In spite of this nearly 300 feet of tunnel was excavated before trouble began. Then one day last spring it came the water, and the workmen had to run for it. The shaft—it was the Battery shaft going east into which the flood came—was pumped dry again in a week or so, the hole was plugged and the work went on this time under compressed air of 9 or 10 pounds pressure. That is the plan still being followed.

Shield work has not been necessary in this tunnel yet. The method of construction is that of ordinary excavation. The roof is supported on beams almost five feet apart, with the cutting behind and above protected by a plank lagging.

The tunnel lining at this point consists of cast iron plates lined with concrete. The outside diameter of the tunnel is 16 feet 8 inches, and the excavation is made large enough for this lining to be put in place.

In the space between the lining and the rock, broken stone is tightly packed and into the interior Portland cement is poured. On completion, therefore, the lining will be an iron tubular tunnel lined with concrete inside and backed by a heavy masonry jacket on the outside.

With good luck it will all be done, street tunnel, Manhattan spur and the long stretch to the heart of Brooklyn, before the end of 1905. The tracks will be down and the cars will be humming along as they are now in the first subway in Manhattan.

And by that time still further extensions carrying the road down to the sea at Coney Island are likely to be under way. For it is confidently expected that the people of New York, once they have given the subway system a trial, won't be able to have too much of it.

TEMPERANCE IN HIS WILL

None of James Callahan's Millions to Get Users of Liquors or Drugs.

DES MOINES, Oct. 22.—James Callahan, who paid more taxes than any other five Iowa men, disposed of \$3,000,000 in his will in such a way that no user of liquor, morphine or any other drug can benefit from his wealth in any way. Mr. Callahan bequeathed the bulk of his fortune to three sons, three sons and ten, and he bequeathed them in his will also.

In addition to direct bequests for the cause of temperance, Mr. Callahan bequeathed of nearly \$2,000,000 to his relatives, most of them New Yorkers, in such a way that none of them who use liquor can touch a cent of it.

He made a bequest of \$50,000 to found a home for drunkards' wives and to provide for the families of drunkards, but he provided especially that not one cent of the money should be used to benefit the users of liquor or the drunken husbands. A \$50,000 bequest for the Home for the Aged was protected against drunkards in the same way.

"My life is," said Mr. Callahan in his will, "that if a person will spend his money in the use of such filthy and useless drugs so that he has not enough left to support him in his old age he must suffer the consequences." The bequest is made on the further condition that the money be used for the purpose within six months after the date of the articles of incorporation not to knowingly admit any person to the home who for the past ten years prior to the time of his application for admission has been or is in the habit of using morphine or any other drug or drinking habitually or to excess any intoxicating liquor or drugs, and on the further condition never to allow such persons within the institution.