

EXTENSION OF TRANSIT FACILITIES IN NEW YORK.

We present a map of New York city which shows in clear detail the present elevated and subway transit facilities and the elaborate scheme of improvements and extensions recently suggested by the Chief Engineer of the Rapid Transit Commission. In his report the Chief Engineer states that it has always been the intention of the Rapid Transit Board, when the finances of the city would permit, to lay out a thoroughly comprehensive system of rapid transit, and that the work at present under contract was mapped out with reference to and as part of this ultimate and more comprehensive plan. As will be seen from our map, the present report deals with Manhattan and the Bronx. Naturally, the first interest attaches to the proposed extensions of the subway system proper, and it is gratifying to note that the report proposes the construction of another north and south subway tunnel below Forty-second Street. The new line will run from the corner of Forty-second Street and Broadway, below Broadway to Fourteenth Street, whence it will continue south below University Place, Wooster Street and Church Street to South Ferry. This will be a two-track structure. A short connecting branch will run from Broadway below Thirty-second Street to connect with the new Pennsylvania depot. From the present four-track subway at Fourth Avenue and Fortieth Street a three-track subway extension will be carried below Lexington Avenue to and beneath the Harlem River, to connect with the New York Central and Harlem River tracks at Mott Haven. A connecting branch will be carried from the Lexington Avenue line westward beneath 110th Street, to a junction with the subway at 110th Street and Lenox Avenue, thus providing a connection between the east and west lines north of Central Park, just as the Forty-second Street subway line provides a connection south of the Park. Shortly after leaving Mott Haven the subway line now under construction passes to an elevated structure, and is con-

Greenwich and Christopher Streets, it is proposed to extend the Sixth Avenue line along Christopher Street from Eighth Street station to Greenwich, and to lay a third track on the Sixth Avenue structure from Eighth Street northward. This would enable trains to run "local" as far as Eighth Street, and then pass to the third track and run express to Harlem. On the Ninth Avenue line it is proposed to extend the third track from Fourteenth Street south to Cortlandt Street, thereby enabling the express service to commence from the latter point. A branch is to be run westerly from the Ninth Avenue road at Fifty-third Street to Tenth Avenue, and thence north to Fifty-fifth Street, where the new branch would be depressed into a subway and extended under Amsterdam Avenue to a connection with the subway at Seventy-second Street. This would give some measure of relief pending the completion of the present subway from City Hall Park to South Ferry. Another important extension is the continuing of the third track on the Eighth Avenue road from 116th Street north to 155th Street. An important proposal affecting the districts north of the Harlem River is to make an arrangement with the Putnam division of the New York Central Railway for widening the present Harlem bridge into a three-track structure, and then carrying the Eighth Avenue line across the Harlem River with three tracks to Jerome Avenue and northerly to Woodlawn, and thence westerly to a connection with the Putnam division in Van Cortlandt Park. This line would give rapid transit facilities to the largest area in the whole city of New York, which is to-day without rapid transit facilities.

If the consent of the railroads with terminals at Forty-second Street can be had, connections should be made at as many points as possible with the subway and elevated lines. The points where such connections can be made are with the suburban elevated at For-

could be obtained for the expenditure of between \$45,000,000 and \$50,000,000, \$25,000,000 of which would fall upon the city. Taken altogether, the scheme of extension seems to have been very carefully thought out, and we believe that the selection of routes is about the best that can be made to meet the immediate necessities of city travel.

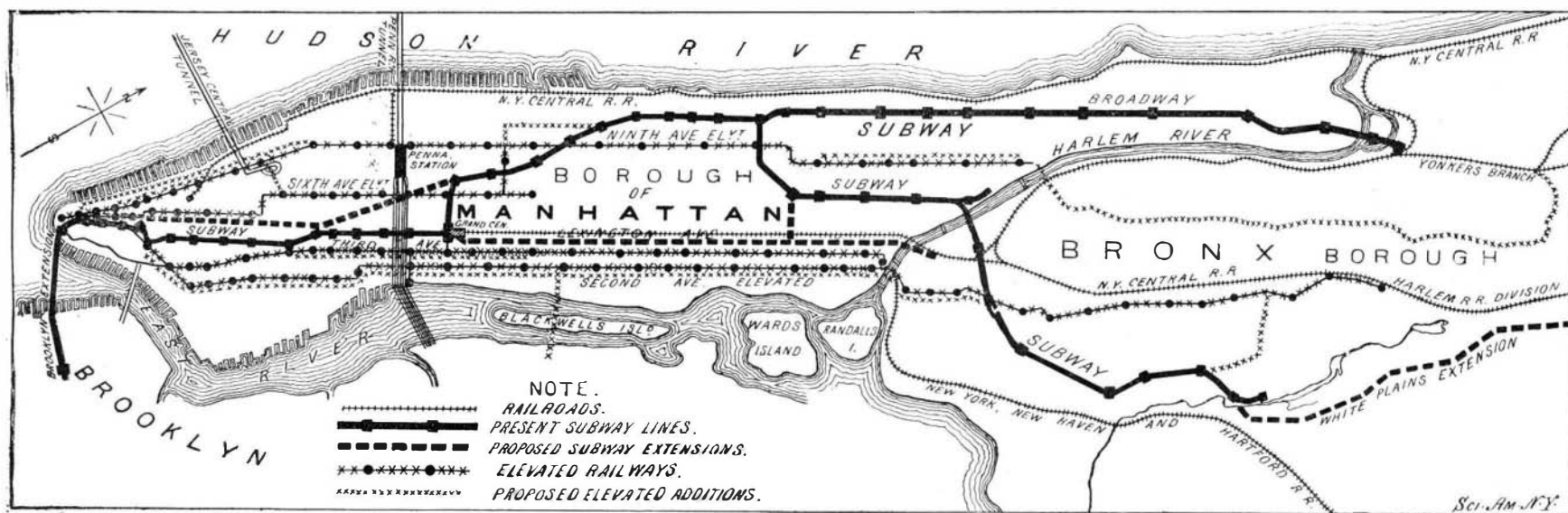
Expiration of the Brush Storage Battery Patents.

The two patents granted to Charles F. Brush in 1886, covering the construction of the Faure, or pasted type of storage battery plate, expire on March 6. These two patents—Nos. 337,298 and 337,299—covered very broadly the mechanical application of the active material to a storage battery plate. The patents were assigned to the Electric Storage Battery Company, which, having a monopoly of the pasted plate—considered to be the only practical form in the early days of commercial storage battery manufacture—built up a large business with its "chloride" accumulator. In the various suits for infringement instituted by this company against other concerns, the validity of these patents was always upheld. Consequently, the storage battery designers were forced to fall back on the original Planté type of plate, which has been much improved on this account.

Now that the Brush patents have become public property, inventors can make use of this type of plate in still further perfecting storage batteries; and it is to be hoped that eventually, perhaps by the combination of the two forms, a well-nigh perfect storage cell will be devised.

Tortillas—Bread of the Spanish-American People.

In conjunction with the systematic effort made in recent years by the United States to make known in Europe the food value, or rather, table value, of Indian corn, it may interest many housekeepers to know how tortillas are made. These tortillas are, as many know,



MAP SHOWING PROPOSED EXTENSIONS OF THE SUBWAY AND ELEVATED LINES IN NEW YORK.

tinued as such to Bronx Park. The proposed extensions include the continuance of the elevated structure along the eastern side of Bronx Park to the suburbs of Wakefield and Mount Vernon, while another branch is proposed, to extend along the Southern Boulevard, then westerly on 180th Street to a connection with the Third Avenue line of the Manhattan Elevated Railroad.

As the additional lines proposed, especially those in the subway, will require several years to complete, and as, during this interval, it is absolutely essential that early relief measures be provided, it is proposed to make immediate extensions of the Manhattan Elevated system, besides laying additional tracks on certain specified avenues. In the first place, it is proposed to double the capacity of the Second Avenue line, by the addition of two tracks from Harlem River to Chatham Square, where the new tracks will be carried over the Chatham Square junction and over the Park Row line in the form of a second deck to the City Hall. By converting the Second Avenue division into a four-track structure, and by extending it to the City Hall, an immeasurably better service will at once be provided for the east side of the city, and passengers from Harlem and the Bronx will be carried direct on express tracks to the City Hall. By connecting the rapid transit Westchester Avenue line with the suburban line at 149th Street, through trains can be run from as far north as Mount Vernon by a direct line to all points south of the Harlem River, including South Ferry. The Third Avenue line is to be increased in capacity by extending the third track from Fifty-ninth Street to Ninth Street, thereby giving a continuous express track from Harlem River to the latter point. North of the Harlem River it is proposed to add a third track on the Third Avenue Elevated from the south side of Harlem River to Westchester Avenue. On the Sixth Avenue Elevated line, in order to furnish special trains from the shopping district, and a connection to the terminus of the New York and New Jersey tunnel at

ham; with the proposed Jerome Avenue extension at Van Cortlandt Park; with the subway at Kingsbridge; with the Manhattan elevated at 155th Street, to both the main line and the Putnam division of the New York Central; with the subway to the New York Central at the Harlem Ship Canal; with the Lexington Avenue subway to the New York Central, Harlem, and New York and New Haven railroads at Mott Haven; and all so arranged that local trains from nearby suburban points can be run direct over the rapid transit lines and thus avoid the congestion at the Grand Central Station or the delay in transferring from one rail way to another.

Finally, it is proposed that negotiations be taken with the New York Central Railroad Company for the removal of their tracks from the city streets south of Fifty-ninth Street and on the surface of Eleventh, Tenth, and other avenues and streets south to Beach Street, and the substitution in place of them of an elevated structure along the same route, or possibly along West Street, which might be continued south to Battery Place, and so provide not only a freight line, but also a passenger line along the water front. It is also suggested that a branch of the Second Avenue Elevated be constructed along Sixty-fourth Street, and over Blackwell's Island bridge to Long Island, and that on Long Island a plaza be arranged permitting the present surface lines in that district to deliver their passengers to the elevated, by which they can be carried by an express and local service to any point north or south in Manhattan, Brooklyn, or the Bronx.

Should the proposed extension be carried out, the city will own a complete railway system covering 37½ miles in the borough of Manhattan and the Bronx, with 100 miles of track exclusive of side tracks. Moreover, immediate relief is offered by an extension of the existing elevated railway facilities. Such an extension of the city's transit facilities, which together are equivalent to the addition of about 130 miles of single track,

thin cakes of corn, and are used in Mexico and other Spanish-American countries almost universally in lieu of wheat bread. The corn, selected clean kernels for best results, is boiled in lime water until soft. It is then washed thoroughly in water to remove all traces of lime, and rubbed between the hands to remove the outer husk of the corn. The clean corn is then ground, while wet, to a soft mass, which is easiest accomplished with a Straub peanut butter mill. The wet dough resulting from grinding is patted into thin cakes of convenient size and baked on a dry griddle (that is, without fat) and served hot. In the better class families it is usual to have one servant bake these tortillas continually during the course of a meal, so that the table may be supplied fresh from the griddle all the time. While these cakes are a radical departure to all English-speaking people, many soon develop a great liking for them. They are especially palatable when eaten with highly flavored meat dishes, such as the Mexican "chile con carne;" and also when spread with butter. It may be well to add that no salt is used in the preparation of these cakes.

The Current Supplement.

The current SUPPLEMENT, No. 1418, contains, among other interesting things, an article on Aluminography. Civil engineers will find in the "Simplon Tunnel and Its Construction" a most valuable article. Why the government vessels are so long delayed in construction is a subject which is treated at length. In the South it is the practice to employ convicts for the making of roads. Mr. J. O. Holmes, of the Department of Agriculture, describes in an entertaining way exactly how convict labor is utilized for this purpose. Mr. Fred T. Jane continues his account of the Naval War Game between the United States and Germany. M. Berthelot, the well-known French chemist, has made an analysis of certain ancient metallic objects, and has described his results in an interesting memoir.