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PENNSYLVANIA

STATION



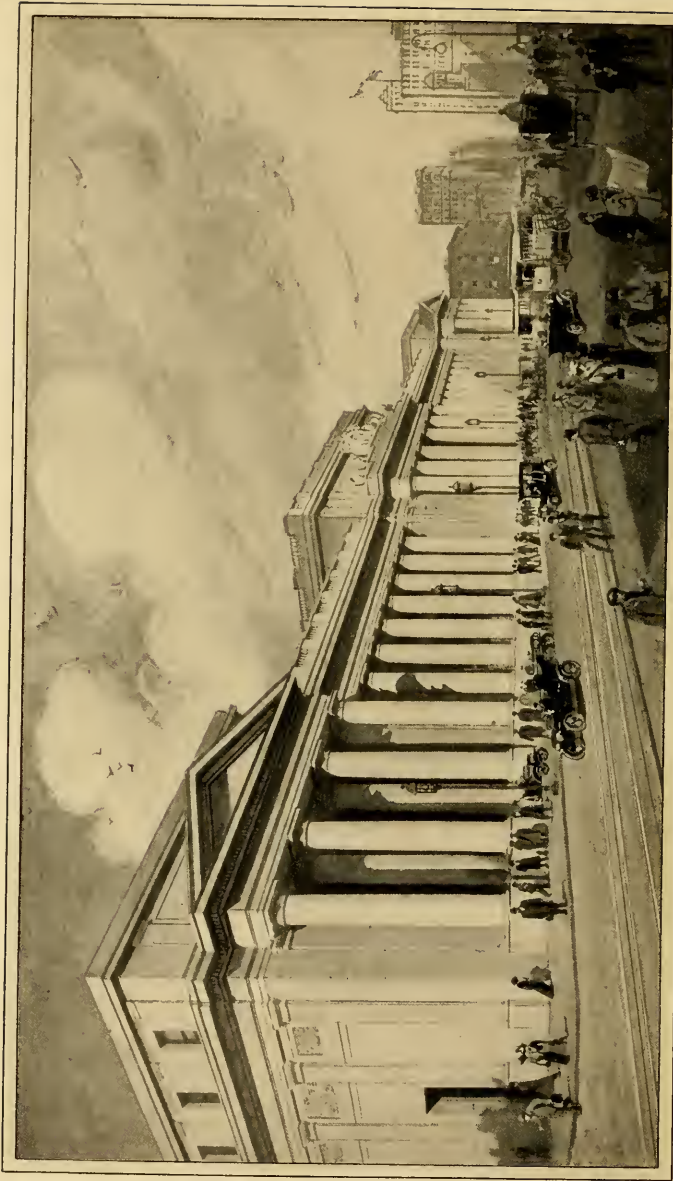
IN NEW YORK CITY



PENNSYLVANIA R.R.

PENNSYLVANIA
STATION





SEVENTH AVENUE FACADE LOOKING TOWARDS TIMES SQUARE

Pennsylvania railroad company.

PENNSYLVANIA

STATION

IN NEW YORK CITY



SEVENTH AND EIGHTH AVENUES

THIRTY FIRST *TO* THIRTY THIRD STS.

ONE BLOCK *FROM* BROADWAY

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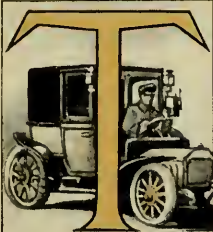
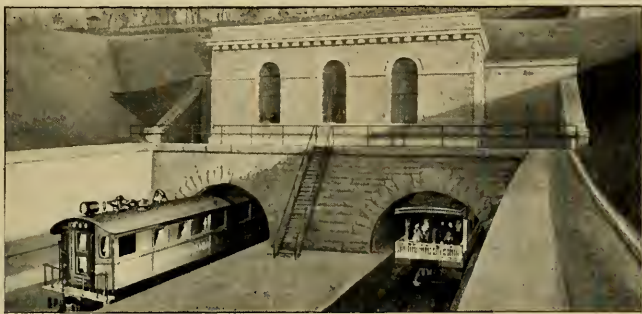
PENNSYLVANIA R.R.



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The Bergen Hill Portal 

PENNSYLVANIA STATION *IN NEW YORK CITY*



THE opening of the Pennsylvania Station in New York City crowns the heroic work which has resulted in the founding of a Pennsylvania Railroad Station in the heart of the business and social activities of the great city.

In order to reach this goal the highest type of genius was enlisted. The thought of its great founder was developed by the brightest brains in the engineering and architectural world, and their plans were executed by the most skilled constructors, utilizing processes and materials which have had their birth as constructive forces within the span of a generation.


The completion of the work signalizes the success of the greatest corporate undertaking of any



PENNSYLVANIA RAILROAD


period. In the amount of money involved and the scope of the work with all its correlated parts, the achievement is second only to the building of the Panama Canal, an enterprise backed by the wealth of the nation and prosecuted under national control.

The magnitude of the accomplished fact of providing a station in the center of Manhattan Island for the patrons of the Pennsylvania Railroad may be best realized by a short sketch of what may be termed the preliminary steps necessary to secure access to and the occupation of a convenient site for the station.



Since the extension of the Pennsylvania Railroad to the western bank of the Hudson some forty years ago, the rail terminus of the line has been Jersey City, directly opposite Cortlandt Street, New York. In order to reach the new station it was necessary to deflect the line from Harrison, N. J., to the northeast to a point in the Bergen Hills, just opposite the foot of West Thirty-second Street, New York.

A steel and concrete transfer station, to be known as "Manhattan Transfer," has been constructed near Harrison, which is just across the Passaic River from Newark, whence the new line starts. The station contains two platforms eleven hundred by twenty-eight feet. Here the steam locomotives are exchanged for the monster electric locomotives which draw the train through the tubes. The new line is double





STATION *IN* NEW YORK CITY



ONE BLOCK FROM BROADWAY





PENNSYLVANIA RAILROAD

tracked, elevated and built in the standard style of the main line of the Pennsylvania Railroad. From Harrison to the Bergen Hill portal it is over five miles long, and crosses two streams, three railroads and numerous highways above grade.

Through the solid rock of Bergen Hill, and under the towns located on its surface, two single track tunnels have been bored, and from its eastern border two single track concrete-lined tube tunnels extend under the river to the New York side and thence under Thirty-second Street to the passenger station at Seventh Avenue, Eighth Avenue, Thirty-first and Thirty-third Streets. The railroad continues across the island east of the station under Thirty-third Street and under Thirty-second Street, first in two tunnels of three tracks each, then in two single-track twin tunnels, and finally in four single-track tube tunnels running under the East River to Long Island City, thence still by tunnel to the portals at the Sunnyside Yard, the final terminal of all trains passing through the New York station.

The construction of these tunnels exemplifies the skill and daring of modern engineering. The tubes under the river were bored by the shield method. An iron tube over twenty-three feet in diameter was driven through the mud and sand, seventy feet below the surface of the river, by hydraulic jacks, compressed air being used to keep out the water, and as

STATION IN NEW YORK CITY



EIGHTH AVENUE FACADE FACING WEST



PENNSYLVANIA RAILROAD


the shield progressed the rings of the tubes were fitted in place.

By this process the metal tube was gradually built from one bank of the river through to the other, and as the shield bit its way through the rock, gravel or sand, it left in its wake the outer rim of the iron tunnel ready for the interior work.

Then came the concrete workers to line the sides of the tube with a solid mass of concrete two feet thick, and to lay on its bottom a still solidier foundation for its tracks, and to build along its sides the conduits for wires, the tops of which serve as pathways through the tunnel from end to end.

Every known scientific appliance was utilized in the construction work, both in implements and for the safeguarding of the lives and health of the workmen, and although the work extended through several years and thousands of men were engaged in it from time to time, the percentage of the loss of life, or even injury, was small.

The boring was started from the sides and progressed until the shields met near the center of the river, and in every case when the western shield met its eastern counterpart the calculations were so accurate and exact that there was a discrepancy of only a fraction of an inch in the theoretical alignment and grade of the tunnels.



STATION IN NEW YORK CITY



THIRTY FIRST ST. SIDE-LOOKING WEST

The excavations of the land tunnels under the streets in the city of New York were executed with equal skill. There was no interruption to traffic or business. Here and there a shaft was sunk to facilitate the progress of the work, but there was little



PENNSYLVANIA RAILROAD

ocular evidence to the millions of people who passed over the surface every day that one of the greatest engineering projects in the history of the world was being quietly but surely worked out beneath the surface of a busy city.

The motive power to be used in the tunnels is exclusively electric, and the entire equipment of the trains is built of steel. By the use of electricity, smoke is entirely eliminated, and a special ventilating plant keeps the tunnels supplied at all times with an abundance of fresh air, although the motion of the passing train is ordinarily sufficient to give complete ventilation. The extraordinary thickness of the walls of the tubes excludes any dampness, and even the under-river sections of the tubes are dry.

The tunnels under the rivers and the city of New York will be used for the transportation of passengers and, if necessary, for high-class freight during those hours when passenger trains will not be running.

The Pennsylvania Station is located in the heart of the central district of the city. It occupies two complete blocks from Seventh Avenue to Eighth Avenue and from Thirty-first to Thirty-third Street. The actual area covered by the building is nearly eight acres; the area of the station and subterranean yards is twenty-eight acres. Five hundred houses,

STATION IN NEW YORK CITY



33RD. ST. SIDE & 34TH. STREET ENTRANCE

including several churches, were removed to clear the ground for the structure. This acreage of a small farm, in the heart of America's largest city, is covered above the street level, and for a considerable depth below, with the largest structure in the world devoted solely to the use and convenience of railroad passengers.

The frontage on each of the two avenues is 430 feet, and on each of the two streets, 784 feet. The average height of the building above the street level is 69 feet, the maximum height, 153 feet.

The tracks are located at a depth below the street level sufficient for the passage of trains under the

PENNSYLVANIA RAILROAD



ARCADE-SEVENTH AVENUE ENTRANCE

buildings of the city, and yet the descent to them and the ascent to the streets, through three levels, is scarcely noticeable.

The main entrance is on the first or street level at Seventh Avenue and Thirty-second Street.

STATION IN NEW YORK CITY

Thirty-second Street runs directly to the front door of the station, and there stops, being absorbed in the station area from Seventh Avenue to Tenth Avenue. Above the Doric columns of the Seventh Avenue façade is an entablature surmounted by a clock seven feet in diameter, which is placed on the axial line of Thirty-second Street, 61 feet above the sidewalk. The clock is flanked by three symbolic eagles on either side.

This entrance, which is for foot passengers only, is one block from Sixth Avenue and Broadway and two blocks from Fifth Avenue in a direct line. It leads to the main waiting room through an arcade 225 feet long by 45 feet wide, bordered on both sides by shops in which merchandise especially appealing to the traveler will be offered for sale. At its further end the arcade expands into the Loggia, a colonnaded hall, affording entrance to the dining room and cafe on one side, and the luncheon room and buffet on the other. A broad, stone stairway leads directly



STATUE OF
A. J. CASSATT

PENNSYLVANIA RAILROAD



RESTAURANT AND DINING ROOM

into the general waiting room. In a niche in the Loggia is a bronze statue of Alexander Johnston Cassatt, former President of the Pennsylvania Railroad, under whose direction the plans for the comprehensive enlargement of the terminal facilities in and around New York were perfected, and the work of construction supervised until his death in December, 1906.

The restaurant and luncheon room occupy handsome and commodious rooms on opposite sides of the Loggia. They are appointed and fitted in the best manner and with the most modern appliances. Regular restaurant service is maintained in one and

STATION IN NEW YORK CITY

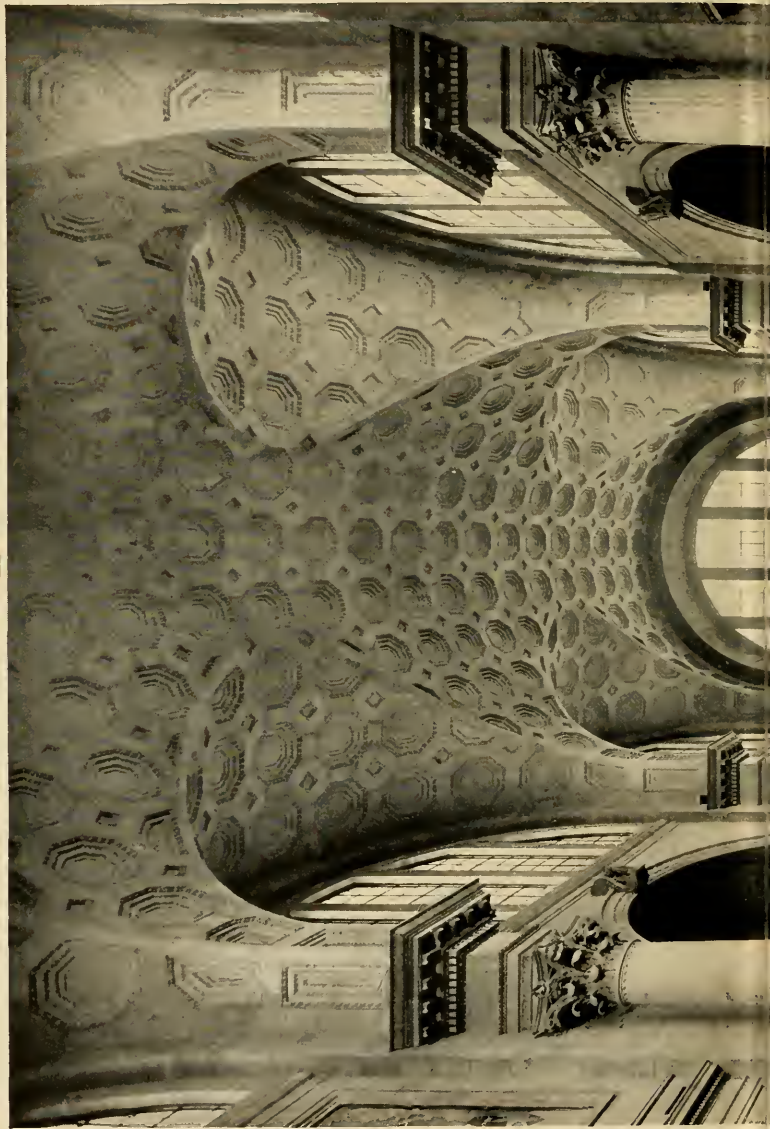
a luncheon service in the other. The kitchens on the floor above are thoroughly equipped in every detail.

At the corner of Seventh Avenue and Thirty-first Street is a colonnaded entrance for vehicles, which descends by an incline to the level of the general waiting room, where the ticket offices and baggage rooms are located. At the corner of Seventh Avenue and Thirty-third Street is a similar gateway for vehicles leaving the station.

In the matter of entrances and exits, the requirements for any number of people are fully met. There are both entrances and exits, each distinct, directly into the general waiting room and the concourse from each of the bounding avenues and streets, so that the incoming passengers may enter from the



THE LOGGIA BETWEEN THE RESTAURANT & LUNCH ROOM





MAIN WAITING ROOM & ENTRANCE FROM ARCADE



PENNSYLVANIA RAILROAD



LOOKING INTO ARCADE FROM
MAIN WAITING ROOM

most convenient quarter, and the out-going hosts, their steps directed by signboards, may emerge on any one of the highways without interference, crowding or confusion. This advantage applies also to Thirty-fourth Street, which is connected with the Thirty-third

Street entrance and exit by a wide private street. An escalator will convey passengers from the concourse level under Thirty-third Street to a convenient connection with Thirty-fourth Street, while the entrance to the station from Thirty-fourth Street will be made by a gradual incline under cover.

The interior of the station is arranged with special regard to the convenience and comfort of those using it. It is so spacious and so practically equipped in all its appointments that it can rarely be crowded to the point of discomfort.

STATION *IN* NEW YORK CITY

On the first level below the street is the station proper, reached from all sides by short stone stairways. Here is the general waiting room, the largest in the world, 277 feet by 103 feet, and 150 feet from floor to roof. Within its walls are located the ticket offices, parcel rooms, telegraph and telephone offices, and baggage checking windows, all so arranged that the passenger may proceed from one to the other seriatim with a minimum amount of exertion and without retracing his steps. Opening into the general waiting room on the west are two subsidiary waiting rooms provided with seats. These rooms, each 58 by 100 feet, are for men and women,



LUNCH ROOM AND BUFFET

PENNSYLVANIA RAILROAD

respectively, and connect with retiring rooms with lavatories attached.

Hardby is an emergency hospital equipped with the necessary attendants and appliances for first aid to the ailing.

On the same level with the general waiting room the main baggage room with 450 feet of frontage, for the use of the transfer wagons, is located, covering the full area occupied by the arcade and restaurants on the plane above. The baggage is delivered and taken away through a special subway. From the baggage room trunks are delivered to the tracks below by motor trucks and elevators. The court for the public motor cabs and private vehicles is also located on this level.

Parallel to and connecting with the main waiting room by a wide thoroughfare is the concourse, a covered assembling place over 200 feet wide, extending the entire width of the station and under the adjoining streets. An idea of the width of the concourse is gained by comparing it with the lobby



MAIN WAITING ROOM

STATION IN NEW YORK CITY

of the Jersey City train shed, which is narrower by twenty-five feet. This is the vestibule of the tracks, as stairways descend from it to each of the train platforms on the track level. The concourse and adjacent areas are open to the tracks, forming a courtyard 340 feet wide by 210 feet broad, covered by a lofty roof of iron and glass. In addition to the entrances of the concourse from the waiting room there are also direct approaches from the streets.

The third level just beneath the concourse is the train platform. There are twenty-one standing tracks and eleven platforms, providing 21,500 feet of platform adjacent to passenger trains. The concrete platforms are level with the floor of the cars, so that one passes directly from platform to car without the use of steps. The train platforms are reached from the concourse by gently inclined stairways starting from gates on the concourse floor, each gate plainly marked by signs designating name of the train, its destination and fixed time of departure.



TICKET OFFICES

PENNSYLVANIA RAILROAD

The descent ends on the particular platform from which the designated train starts, and there the passenger boards it.

For the special benefit of incoming passengers there is an auxiliary concourse located between the track platform and the main concourse for exit purposes only. It is connected with the track platforms by short stairways and elevators, and is designed to expedite the egress of those who desire to pass directly out of the building. Inclines and easy ascents lead to the street level.

The section of the station at Seventh Avenue and Thirty-third Street is set apart for the service of



WAITING ROOM FOR WOMEN

STATION IN NEW YORK CITY

the Long Island Railroad, which is largely a local service, and is fully provided with entrances and exits best adapted to the use and convenience of the local passengers who may enter and leave the station without coming in contact with the through passengers.



DETAIL OVER ENTRANCE
TO MAIN WAITING ROOM

The magnitude of the station, the classic lines of its architecture and its pleasing color, mark it as the largest and most notable structure in America's greatest city.

To one accustomed to thinking of New York as an aggregation of skyscrapers, and who has trailed through the wind-swept canyons whose man-made walls rise up hundreds of feet toward the sky, the building may look squat and out of harmony with the towering structures that rise in graceful lines about it. But when he reflects that even these habitable shafts rest on foundations four and five stories below the street level, in which machinery hums and many of the usual avocations of life are followed, including the preparation and service of food, and that the real intent of the structure is worked out under the surface, he will understand

PENNSYLVANIA RAILROAD



THE CONCOURSE - ENTRANCE TO TRAINS

STATION IN NEW YORK CITY

the wisdom of the builders. It is exclusively a railroad station in the heart of a great, bustling, busy mart of unceasing human activity, where the lines of transportation that feed it are under the feet of the moving masses and out of the sight of all but those who use them. The magnificent superstructure, imposing in breadth and length, classic in its outlines and pleasing in its tinted grayness, is but a pavilion of enormous proportions superimposed above the greatest traffic exchange in the world. There are no offices under the roof except a few in the upper stories used solely for the administration of the great business of which the station is the center. The pulsing life of the structure is forty feet below the streets. From the street level to the crown of the dome the



ONE OF THE TRAIN GATES

PENNSYLVANIA RAILROAD

space is utilized to supply light and air and ventilation to the mobile throng of people who pass in and out of it hourly.

The interior of the station is even more imposing than the exterior. The public rooms are open to the roof. The lofty walls of mellow travertine are unbroken by galleries or protrusions of any kind, but their splendid beauty is magnified at intervals by stately Ionic and Corinthian columns. The only touch of color is given by a series of large maps imposed within panels high on the walls. Daylight pours in through huge semi-circular windows high above the floors and through skylights set in the roof. At night it is illuminated by bracket lights, electroliers and a number of handsome standards surmounted by groups of incandescent bulbs.

The heating and ventilation is as perfect as modern science can make it. As all the trains are operated exclusively by electricity there can be no smoke nor gases such as are unpreventable in stations where steam is the motive power.

The arrangement of the trackage under the surface of the streets is as interesting as any part of this great institution.

When the two tracks emerge from the tubes under the Hudson and reach the entrance to the station yards at Tenth Avenue they begin to

STATION IN NEW YORK CITY



TRAIN PLATFORMS - CONCOURSE ABOVE

PENNSYLVANIA RAILROAD



ONE OF THE EXITS AND ENTRANCES

multiply, and at Ninth Avenue, and extending into the station, the number has grown from two to twenty-one. There is also a reduction in the number of tracks leading out of the station yard to Long Island to a total of four for the main line, passing under the city, and thence under the East River to the Sunnyside Yard on Long Island. The track surface of the station may be compared to two unfolded fans joined together at the open ends, the handle of one extending under the Hudson and that of the other under the East River. Within the station area, covering twenty-eight acres of ground space, there are sixteen miles of tracks. Through




STATION IN NEW YORK CITY

trains from the western side of the Hudson, after discharging passengers, will proceed to the Sunnyside Yard on Long Island, where the trains are shifted, stored and cleaned, thus leaving the station tracks free of any idle equipment. Likewise the westbound through trains made up at the Long Island City yard will pass through the station, stopping only to take up their quota of passengers.

The location of the station is notable. It fronts directly on Seventh Avenue, Thirty-first Street, Thirty-third Street, Eighth Avenue, opposite the new United States Post Office, and on Thirty-fourth Street by special plaza. It has entrances and exits on all four fronts. The main entrance is at Seventh Avenue and Thirty-second Street, which leads directly to Sixth Avenue, Broadway, Fifth Avenue, Madison Avenue, Park Avenue and Lexington Avenue. This entrance is one block from Broadway, two blocks from Fifth Avenue, and by way of Thirty-third Street, one block from Herald Square, the busiest spot in the city's center.

Within a radius of a mile are located the majority of New York's big hotels, clubs, restaurants, places of amusement, and most of the big retail stores. The Seventh Avenue surface cars and the Eighth Avenue surface cars pass the doors of the station, the Thirty-fourth Street surface cars pass the Thirty-fourth Street entrance, and a station of both



PENNSYLVANIA RAILROAD



BRIDGE OVER THE DRIVEWAY

the Sixth Avenue Elevated and the Hudson & Manhattan Railroad is a short block from the main entrance. All sections of the city are within easy reach by regular lines of travel.

Through trains of the Pennsylvania Railroad will arrive at and depart from the Pennsylvania Station on time-tables which may be procured in the usual manner on and after the date of opening.

Travel to the "downtown" section of the city will also be provided for by trains from the Manhattan Transfer Station near Harrison, by way of the Hudson & Manhattan tubes to the Hudson Terminal at Cortlandt and Church streets, which is

STATION *IN* NEW YORK CITY

the heart of the financial district as well as of the section where all the big industrial and manufacturing corporations have their business offices. The ferries between Jersey City and Cortlandt and Desbrosses streets will be continued in operation. The



ENTRANCE FOR VEHICLES LOOKING OUT

PENNSYLVANIA RAILROAD

location of the station appeals directly to the hotel guest, the shopper, the amusement seeker, the business man, the professional man, and every class of travelers to and from New York over the Pennsylvania Railroad.

The station, its purpose and its meaning, has been aptly epitomized by a celebrated writer as follows:

“The façade—indeed, the whole building—is a mighty gateway—a perpetual port of entry to a great modern city.

“‘Lift up your heads, O ye gates, and be ye lift up, ye everlasting doors’—is the idea toward which they shaped the rocks.”

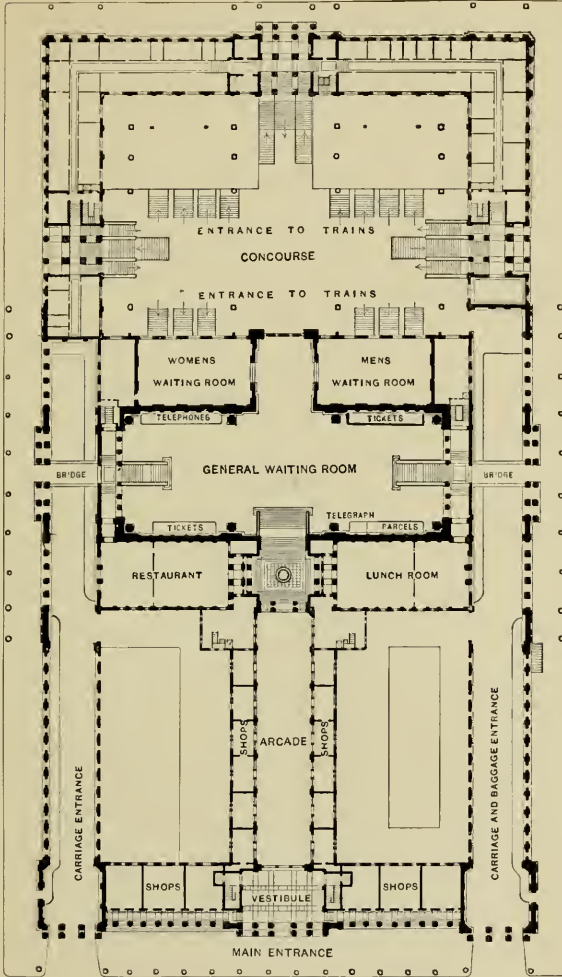


ONE OF THE ELECTRIC LOCOMOTIVES

EIGHTH

AVENUE

THIRTY FIRST ST.



THIRTY THIRD ST.

34TH ST. ENTRANCE

SEVENTH

AVENUE

THIRTY SECOND STREET
ONE BLOCK TO BROADWAY

PLAN OF THE STREET FLOOR

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