CHICAGO'S METROPOLITAN ELEVATED RAILWAY.

THE electric elevated railway in America, that most potent factor in our modern civilization, dates from the exposition of railway appliances held in Chicago in 1884, when a small electric road carried passengers around the gallery of the exposition building on flat cars. The motor was called "The Judge," and attracted a great deal of interest and admiration from the public, to whom it held out hopes of a happy era of rapid transit. Railroad experts, however, said that the thing was a toy, and that it would never be of public service. The unsuccessful experiments of the Daft motor in New York in 1888 and 1889 gave the "new power," as it was called, a setback, and the opinion was confirmed that its usefulness was limited to light cars upon surface tramways. It remained for the Liverpool Overhead Railway to prove, early in 1893, that electricity is practical for the elevated roads of large cities, and the highly successful Intramural railroad of the World's Fair a few months later gave electric power a still more convincing demonstration.

The projectors of the Metropolitan West Side Elevated Railroad of Chicago (who are mostly New York capitalists) had intended to equip their line with steam locomotives, but, being men of enterprise and discernment, they were not slow in comprehending the lessons presented by the recent advances in electro-engineering science. They studied both the Liverpool and the Jackson Park line with care, going into every detail of construction and operation, and the result was the adoption of electricity, not only for motive power, but for light and heat as well. The result demonstrates their wisdom. The road is, without question, the best constructed and the most completely equipped in existence. So, at least, says Mr. Edward Rae, F. R. G. S., and a director of the Liverpool Overhead Railway. "It gives," he says, "an object-lesson to the whole globe," and he adds, "That it will be a success goes without saying, and as a developer of the tributary territory no other form of transportation is in the hunt."

The main line, from the Franklin Street terminus to Marshfield Boulevard, nearly two miles west, is a substantial structure of open-hearth steel with plate girders, bearing four tracks laid with eighty-pound steel rails and a fifty-pound trolley rail. The continuation of the line, west, south, north, and northwest, is double track, and of the same general construction, which, designed for the continual pounding and strain of steam locomotives, with their heavy weight resting upon a narrow wheel-base, is more rigid than seems strictly necessary; but the public profits by the smoother and quieter operation of the road, and the company will find it more economical in the long run. The light-running electric trains cause no trembling of the structure, and the passenger has no sensation of being up in the air, even on the difficult curves and bridges. The sixteen tracks of the Pennsylvania road were crossed by throwing a truss bridge of two spans over tracks, switch-tower, and freight-house without disturbing their operation in the least. The Chicago River, at this point very narrow, had to be spanned by a bridge without centre abutment. A double rolling lift-bridge of a new pattern was designed, of one hundred and eight feet span, so finely balanced that when standing at an angle of forty-five degrees the centre of gravity passes through the axis. The bridge is opened or closed in fifteen seconds by the action of two horizontal arms parallel with the rails and connected with the axis, thus moving the arms forward as they close. There are practically two double-track bridges side by side, both or either of which may be operated at will from either side of the river. Four one hundred horse-power motors beneath the permanent tracks furnish the power. Wonder is sometimes expressed regarding the operation of the eastern end of the road when the bridge is open, thus apparently cutting off communication with the power-house on the west side. This is explained, however, to the watchful observer when he sees a dozen great electric eels apparently climbing up out of the murky depths of the river to the rails and to the switch-tower. On this side of the river the structure is carried through two large seven-story warehouses (another having been demolished) upon its own foundations, the upper floors being rented for commercial purposes, and the Franklin Street building being used as the down-town terminus and the offices of the company.

Unlike the "Alley L" road and the elevated roads of New York and Brooklyn, the track structure does not occupy the public property of the city, but, with the necessary exception of the street crossings, runs throughout on its purchased right of way, which has cost the company now nearly seven millions of dollars. This policy has obviated long and expensive damage suits, has made the road friends instead of enemies, and has given the company much valuable property which in time will return a handsome rental. Many fine buildings were moved off entire (as shown in our illustration) to sites purchased elsewhere, some four hundred thousand dollars having been laid out for this purpose alone. As there is no drip from the tracks, a great deal of the space beneath can and doubtless will be utilized for shops and other purposes. The stations are neat structures of pressed brick and terra-cotta, built on the street level and with stairways all under cover.

A new system of collecting fares has been adopted, resulting in economy of operation and in increased convenience to the public. Tickets and ticket-choppers are done away with. There are no turn-stiles nor iron gates, nor anything suggestive of the prison system about the stations of the Chicago Metropolitan. You pay your fare at the gate and the receiver of nickels "rings you up" with one hand as he dexterously makes change with the other. "Pass on, please!" and you pass on and ascend the stairs (there is a whisper about elevators in the future), enter your car, and there you are, with a sense of relief and comfort seldom experienced by the urban traveler. The company is even talking about running a sufficient number of trains during business hours to prevent overcrowding.

The National Switch and Signal Company have put in an interlocking plant by which it is impossible to throw two tracks to the same switch at the same time, or to throw a switch while a train is standing on it. A steel tower with forty-four levers controls the double bridge over the river and the approaches to the terminal station, throwing the express trains on to the central tracks, holding them until the automatic danger-signal at the bridge is lifted, and in other ways effectually controlling, in a manner said to be very simple to the diplomat in the tower, the maze of tracks, switches, points, locks, signals, and what-not. A sixty-lever switch-tower is placed at the Paulina Street junction, where the branches leave the main line, and here the tower man must have all his eyes about him to properly guide the red, white, and green lights or disks of the various branches, and to start the expresses on their proper tracks. And yet, so perfect is the system, and so effectually are the electric motors under control, that anything like disaster is practically impossible. In the picture of the four-track structure the switch rods, of inch pipe, may be seen on either side of the tracks. Twenty thousand feet of rods are required at this point.

A capital thing about the trains is that every train has a smoker, and a smoker is never used as a regular passenger-coach. The motor-cars are the smokers, the cab occupying only a corner in each end, leaving a door and platform on each side. Each motor-car carries two one hundred horse-power motors directly connected with the axles. An air-brake, supplied by a reservoir kept at eighty pounds pressure by an automatic air-pump in the cab, controls the train with ease, and an automatic cut-off, answering the place of a safety-valve, prevents the fuses from burning out and the consequent disabling of the train. The regular coaches were built by the Pullman Company, and are of the usual elevated-road pattern, finished in mahogany and upholstered in cane. The cars are lighted and heated by electricity. The way-trains make sixteen miles an hour, or twenty-five minutes between Humboldt Park and Franklin Street. The expresses are scheduled at five minutes between Marshfield Avenue and the city terminus—two miles.

The generating plant, or power-house, is, of course, the heart of the system. Here slack coal (costing one dollar per ton) is automatically fed under sixteen Babcock & Wilcox boilers, generating the steam to actuate the four Allis-Corliss engines, which are technically described as "compound, inverted, vertical, direct-acting." Two of these are Titans of twenty-five hundred horse-power, and the others are baby giants of one thousand horse-power each. The great engines stand fifty feet high, and the fly-wheels are twenty-five feet in diameter, holding enough stored energy at full speed to shoot a loaded train from the power-house to the city terminal.

The dynamos are of the General Electric Company's new street-railroad type, and are identical with the great machine that ran the "Intramural" at the World's Fair—the largest ever built. Electricians speak of them as "multipolar" and "direct driven," the latter term meaning that the armatures are constructed upon a big wheel which is mounted upon the engine shaft, and so run without the aid of belting. The two largest, driven at seventy-five revolutions per minute, run at six hundred volts with a current of two thousand two hundred and thirty amperes. In other words, the team are capable of an energy of four thousand horse-power, while the three smaller are equal to two thousand seven hundred horse-power. Above the machinery is a Morgan electric crane, running upon tracks the length of the building, and capable of transporting masses of machinery seventy-five tons in weight. The power-house is located at Throop Street, nearly two miles west of the river, in the rear of the city electric-lighting station—which, by the way, forms part of the property condemned and purchased by the company.

The promoter of the Metropolitan West Side Elevated Railway of Chicago was Mr. A. F. Walcott, of New York. It was built by the West Side Construction Company of New York, under the personal supervision of its president, Mr. R. Somers Hayes, and the chief engineer, Mr. E. W. Eckert. The president of the Metropolitan Company is Mr. Robert E. Jenkins, of Chicago; Mr. W. E. Baker, formerly of the Intramural, is the general superintendent and chief engineer, and Mr. H. M. Brinkerhoff is electrical engineer. The company is capitalized at fifteen million dollars, and bonded for the same amount. The company stood, at the partial opening of the road for business May 6th, with its structure, equipment, and land paid for, and with no suits for damaged property to contest. The record of fifteen thousand passengers carried the first day, with but a portion of the road on the west side of the river open, offers a fine prospect for the success of the road as a public carrier. As a mail route, and for summer outing traffic, the road will undoubtedly win increasing favor with the growth of the western suburbs.

The route of the road is one shrewdly calculated to develop the outlying territory west and northwest of the city, as hinted by Mr. Rae, while by a loop now in course of construction and the connection of the road with all the elevated roads, the entire central section of the city will be encompassed. From the Paulina Street junction the line runs in three directions. Westward the main line runs four miles to Garfield Park and the city limits. Northward and northwest the line runs to Logan Square, four and a half miles. South and southwest the Douglas Park branch extends 3.7 miles. Then there is a spur from the Logan Square line westward a little over two miles to Humboldt Park. The whole distance covered by the road is a little over sixteen miles. A glance at the map of Chicago shows that the lines are pointing out beyond the parks toward new and flourishing suburbs, and especially toward the higher and more picturesque country northwest of the city.

The Metropolitan road will give the people along its line an opportunity to get away from the smoke and grime of the big city, out into the fields and prairies—a service quite as important as that of giving the distant suburbs speedier communication with the centre of the city. For the town needs the country no less than the country needs the town. Of the three-quarters of a million population of the west side, a large majority belong to the working classes, whose whole life is spent amid the dust and dirt of a great manufacturing city. The parks, admirable as they are, offer but a poor substitute for the freedom of open fields, and to the working people cheap and rapid transit to the country will be an inestimable boon.

The marked suburban development in connection with the West End road of Boston and the West Side road of Chicago reminds me of a peculiar feature of municipal growth. Like the march of empire, the progress is ever westward. London's West End is not more aristocratic than Berlin west of the Brandenburg Gate, or Paris west of the Champs Elysées. In Madrid, St. Petersburg, Lisbon, Dublin, and nearly every other capital of Europe, the parks, the palaces, and the abodes of rank and wealth are upon the westward side of the city. The aristocratic district of New York is west of Central Park, and that of Washington is going west of Rock Creek. Philadelphia's Fairmount Park, Brooklyn's Prospect Park, Baltimore's Druid Park, and St. Louis's Forest Park are all upon the west side, while even conservative Boston is pushing her fine residence district westward beyond the Back Bay. Chicago will prove no exception to the rule; people will build their homes in the direction from which the cool breezes blow in summer, away from the malaria of the south and the chill winds of the lake. This development of the rapid transit of Chicago is, therefore, in harmony with the natural trend of population and municipal expansion. Altogether, considered with regard to its construction, its operation, and its prospects, the Metropolitan Elevated Railroad of Chicago appears to offer a model for the satisfactory solution of the problem of rapid transit in large cities.

The effect of the construction and operation of this line is already being felt by capital, as indicated by the organization in Chicago of an inter-oceanic electric elevated-railroad company, with a reported capital of two hundred million dollars. The plan is, it is believed, to build an elevated structure only through cities and over crossings, and to use water-power to generate electricity in the mountain country where this may be employed to advantage.

JOHN T. BRAMHALL.

Widowed.

"Better tyne life sin' tint is a' life lo'ed."
—*Heart of Mid-Lothian.*

OH, the thirtieth o' May! the thirtieth o' May!
The bitter-sweet entwinin' o' the cypress with the bay,
The fresh outpourin' o' the eyes that never may be dried,
The glory-flush at mem'ry o' the cause in which he died,
The wishin' an' the waitin' for the final break o' day—
The thirtieth o' May—the thirtieth o' May.

At Malvern Hill the bullet sped that pierced my bosom's core
An' drained o' blood an' maimed o' limb he tottered home once more.
O' all his strength an' beauty shorn in war's delirious game;
Only the firm an' loyal heart within him still the same,
Only the true an' tender heart that slowly ebbed away—
The thirtieth o' May—the thirtieth o' May.

We laid him here when winter's breath was white upon the wold,
While still the thunder-clouds o' war o'er hill an' valley rolled;
Ere Gettysburg's green battlements flung back the Southern wave,
An' Christendom with horror saw that hol'caust o' the brave—
We laid him here, beneath this sod whereon I sob an' pray,
The thirtieth o' May—the thirtieth o' May.

Oh, patiently these eyes have watched thro' many a dawnin' year
The pale-green feathers o' the grass above the wold appear,
The ivy creepin' round the stone, the buds unfoldin' slow,
Waitin' the hour till mine shall mingle with the dust below,
An' other hands with gentle care death's tithe o' blossoms pay,
The thirtieth o' May—the thirtieth o' May.

PRIVATE WILL STOKES.

The Case of Admiral Meade.

No man in the United States Navy has a more honorable record than Rear-Admiral Richard W. Meade, who is just now so conspicuously in the public eye because of his alleged criticism of the general policy of the

REAR-ADMIRAL RICHARD W. MEADE.—*Photograph by Bell.*