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NEW YORK, SATURDAY, DECEMBER 20, 1902.

The Editor is always glad to receive for examination illustrated articles on subjects of timely interest. If the photographs are sharp, the articles short, and the facts authentic, the contributions will receive special attention. Accepted articles will be paid for at regular space rates.

THE TRANSPORTATION PROBLEM IN NEW YORK CITY.

The extraordinary congestion of its passenger traffic is the most serious problem confronting the city of New York, and particularly that portion of it that is embraced by Manhattan Island. We had all of us hoped that with the completion of the electrical equipment of the street surface and elevated lines, there would be a marked loosening of this congestion; but in this we have been disappointed. Not only has there been no improvement, but the congestion has appreciably increased; indeed, there has never been a time when the means of travel appeared to be more helpless to meet the demands imposed upon them. Go where you will, north or south, east or west, at street level or on the elevated system, there is to be found, during the rush hours, a congestion that baffles description, and can only be appreciated by those who are subjected to its miseries morning and evening. We are speaking now merely of Manhattan Island itself. The chaos on the Brooklyn Bridge is too well known to call for any description here.

The city is just now reaping the bitter fruits of the want of foresight, or supine indifference (to say nothing of the political corruption) of former municipal administration. As far as the Rapid Transit Subway is concerned, it would have been open four or five years ago had it not been for political influence coupled with the opposition of a few small-minded shopkeepers, who were afraid of a temporary loss of trade during the work of construction. As it is, fully another twelve months must elapse before the system is even partially in operation, and it is due to the splendid energy shown by the contractor that we shall not have to wait nearly two years before the line is declared open. If trains are running by the first of January, 1904, the city will be indebted to Mr. McDonald, the contractor, for having pushed the work to completion nine months before the date named in the contract.

The fact of the matter is, that travel on Manhattan Island has always increased at a much greater rate than was anticipated; and, as a consequence, the provisions, great as they were, made for handling the traffic by opening new lines and improving the rolling stock and methods of operation of existing lines, have always been years behind the necessities of the city.

What are we going to do about it? Judging from the talk of the man on the street, and the more serious discussions of the question in the columns of the daily press, we are looking forward to the opening of the Rapid Transit Subway for a complete solution of the difficulty, and are forgetting that the capacity of the new line, after all, will be but a limited quantity, while the growth of passenger travel is proceeding at an ever-increasing rate. If we are content to sit still, satisfied with our \$35,000,000 effort, it will be but a comparatively short time before the Rapid Transit Subway, like the street surface lines and the electrified elevated lines, will be swamped by the volume of traffic that will roll in upon it. Very few of the citizens of Manhattan Island realize at what an astonishing rate our passenger traffic is growing. Ten years ago, the total number of passengers traveling north and south annually over the lines of the Metropolitan Street Railway Company on Manhattan Island was 175,000,000. In 1896 the total had increased to 255,000,000, and in 1902 to 465,000,000. Ten years ago the Manhattan Elevated Railway carried 216,000,000 passengers in the year. With the opening of, first, the cable railways, and then the electrical railways, by the Manhattan Street Railway Company, there was naturally a transfer of a large number of passengers from the elevated to the surface systems, so that, in 1896, the total elevated travel had fallen to 185,000,000. With the electric equipment of the elevated railroads, however, there was a return of travel to that system, so that, in 1902, the totals had risen to 215,000,000 passengers, or about what it was ten years before, when its only competitors were the miserable horse car surface lines, which

have since been amalgamated to form the admirable properties of the Metropolitan Street Railway Company. The total north and south travel obtained by adding the figures for the Metropolitan to those of the Elevated system are, for 1892, 391,000,000; for 1896, 440,000,000; for 1899, 553,000,000; and for 1902, 627,000,000;—an increase in ten years' time of 62 per cent. In addition to the north and south travel, there are some stupendous totals of east and west travel, which takes place entirely on the Metropolitan Street Railway system. Thus, in 1892, there was a total east and west travel of 61,000,000 passengers; in 1896, there were 80,000,000 passengers east and west; and, in 1902, the total had risen to 121,000,000. Adding the total east and west and north and south travel, we find that the growth during the past decade has been as follows: In 1892, the total number of passengers was 452,000,000; in 1896, the total had risen to 520,000,000; in 1898, it was 605,000,000; in 1900, it was 716,000,000; in 1901, the total was 785,000,000; while last year, it had risen to the vast number of 801,000,000, an increase, during a single decade, of 77 per cent.

Now to meet this growing traffic, although several new lines have been constructed, the chief provision has come chiefly from the improvement of existing lines, the small and slow-moving horse cars being replaced by commodious and swiftly-running electric cars; while on the elevated there has been an increase, due to the new electrical equipment, of from 20 to 30 per cent in speed, and of 20 per cent in the capacity of the trains, the latter due to the introduction of six-car in place of five-car trains. Although these improvements and extensions provided a large increase in carrying capacity, it was nothing like so large as the 77 per cent increase in the number of passengers; and hence we predict that by the time the Rapid Transit Subway is in operation, the whole of its four tracks will be taxed to their utmost to relieve the present situation, leaving practically no margin for the future expansion of travel in this city.

Now the lesson that is clearly written upon these statistics is, that we ought at once to make provision, on a far more extensive scale than we have ever done in the past, for the future growth of travel in this city. And since the surface lines have appropriated practically all the streets, and because, on account of their inherent ugliness, the construction of additional elevated roads is out of the question, it is evident that any additional lines constructed in this city must be built underground. Here we have unlimited space and opportunity, and the preliminary steps should be taken at once toward constructing a tunnel on the east side above Forty-second Street, either under Madison or Lexington Avenue; moreover by the time work has been begun on this line, provision should be made for the construction of additional tunnel lines extending the whole length of the island from the Battery to the Bronx, one to the west of the present Subway, and the other to the east of Third Avenue. Of course, we are fully aware that in providing the necessary funds for construction, there is the ever-recurring question of exceeding the city's debt limit, but this difficulty will be met, in part, by the natural increase in the assessed value of property, while the city could well afford to curtail its appropriations for improvements that are less urgently needed, in order to allow of a liberal apportionment for this, the city's greatest want.

A PROPOSED DUODECIMAL SYSTEM OF WEIGHTS AND MEASURES.

The American Society of Mechanical Engineers has apparently not yet given up the idea of combating the introduction of the metric system into the United States. As a kind of compromise between the existing system and the metric, Prof. S. A. Reeve recently proposed before the Society a duodecimal system, which takes as its standard the English yard. Upon the yard a system is to be reared, exactly as a system has been built up upon the meter. The divisions, however, are duodecimal to suit the duodecimal numbers. It is claimed that small units of length will be obtained which are exactly equal to those now in use in machine-shops. A unit of volume will be obtained corresponding with the meter, which unit is practically equal to the existing pint. This new pint, which is a cube measuring 3 inches on each edge, when filled with distilled water weighs within 2½ per cent of the present standard pound.

The standard yard multiplied by 1,000 (which is the duodecimal expression for 1,728 decimal) very closely equals the statute mile. Prof. Reeve believes that this new system of units is as beautifully correlated as are the measurements of the metric system.

So far as the influence of the proposed change on coinage is concerned, Prof. Reeve states that if the arithmetical notation and the standard of weights and measures unite in becoming purely duodecimal in character, the monetary system is bound to follow. The standard of value, the dollar, and all its unit representations would remain unchanged. All bills of five dollars or higher denominations would naturally be called

in, and their equivalent issued in denominations of three, six, dozen, gross dollars, etc. This process could be as gradual as desired. Under duodecimal notation five and ten dollar bills would be inconvenient, but they would be usable. The half dollar and quarter dollar would remain unchanged. The dime, the nickel and the cent would have to be retired. In their place would be issued fractional currency under the following plan:

1 dollar = 10 bits (one dozen bits of 8 1-3 cents value each).

1 bit = 10 groats.

1 groat = 10 grets (for purposes where the mill is now used).

The probable coins would be:

Silver half-dollar (= 50 cents) = 6 bits = 60 groats.

Silver quarter (= 25 cents) = 3 bits = 30 groats.

Silver bit (= 8 1-3 cents) = 1 bit = 10 groats.

Nickel half-bit (= 4 1-6 cents) = 6 groats.

Copper quarter-bit piece (= 2½ cents) = 3 groats.

Copper groat (= 0.7083 cent).

Change for a quarter could ordinarily be had in a single convenient denomination, that is, in three silver bits, whereas now it requires two denominations, dimes and nickels, to make it. The practical objections to relying upon nickels alone for changing quarters are obvious. The progress of business toward finer margins and lower prices is steadily making the cent too large for many retail transactions. The smaller value of the groat meets this need.

The duodecimal system, as proposed by Prof. Reeve, necessitates the introduction of two new numbers. They are inserted by him between the 9 and the 10. The first is a peculiar-looking combination of the figure 1 and the 0, and is called the dek; the second is like an inverted 3, and is called an eln. Thus when our decimal 10 is reached it signifies a dozen. Prof. Reeve has compiled some interesting new names for his duodecimal numbers, such as "dozone" (thirteen) "fitze" (five dozen), "twodz-nine" (two dozen and nine), etc. This, of course, brings in the use of the dek and eln, and he has "dedz" (dek dozen), etc.

RETURN OF THE JESUP SIBERIAN EXPEDITION.

After a two years exploration of northern Siberia, a part of the Jesup North Pacific exploring expedition has returned to New York. The expedition was headed by Mr. Waldemar Jochelson, a Russian scientist of great repute. The expedition visited regions never before reached by a white man, and found races of people of whom the civilized world knows as yet nothing. Mr. Jochelson and his party collected 15,000 specimens. The collection will be installed in the American Museum of Natural History, and will probably excel that of any other museum in the world. In one of the New Siberian Islands in the Arctic Ocean the tusk of a mammoth was unearthed which is without doubt the largest yet found. It weighs 220 pounds. Other tusks and bones of mammoths were brought from the Anadyra River. About 2,000 bone carvings, executed in a manner that would do credit to an artist of civilization, were gathered. Eight complete sets of iron armor, similar to that made by the early Japanese, are also included in the collection.

Mr. Jochelson states that the tribes which he studied in Siberia all possessed characteristics in common with the Indians of North America. That these tribes were not found before was due to the fact that they inhabited a remote region, and that they have nearly been wiped out by disease and starvation. Some of the tribes had legends, language, and customs almost identical with those of the American Indians. One great tribe, the Yukoghirs, has been reduced by starvation and smallpox from many thousands to seven hundred persons. It occupies the Kolyma district, which contains 14,000 square miles. The tribe has no reindeer, but uses dogs to a limited extent. Having nothing to ride, they walk. Women drag the sledges in winter. In summer the men and women dwell in tents of skins and boughs. In winter they live in wooden huts. The Yukoghirs are the remnant of a Paleo-Asiatic race, and are one of the small tribes which do not belong to the main stock of the Asiatics. Their physical traits are different from those of the Mongolians. They are a small, slender people, well shaped, with small round faces. Some of the women have fair, almost white, skin. Their religion is Shamonism. Natives of the coast tribes are often armed with rifles. They have plenty to eat and are independent. Old men and women when they become infirm are killed by their children, in response to imperative demands supposed to come from spirits.

A NEW TYPE OF AUXILIARY VESSEL FOR THE BRITISH NAVY.

One of the latest and newest acquisitions to the British navy was recently launched at Southampton. This is an ordnance vessel of very stout construction, specially built for the conveyance of heavy guns in reserve, and other ordnance stores. The hatch is of sufficient dimensions to accommodate the largest of