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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.

## A COSTLY BLUNDER.

The most foolish and inexcusable blunder made in the provision of transit facilities in this city, was the failure of the operating company of the Rapid Transit Subway to install a type of car suited to rapid transit. There is no denying that in some matters the American people are marked by a rigid conservatism, which is in strange contrast to their general alertness and adaptability. Nowhere is this shown to more striking effect than in the blind persistency with which our railroad men insist on using the old end-door car for suburban and rapid-transit purposes. Ten years ago, in discussing the proposed subway, the writer of the present article, foreseeing the pit into which our rapid-transit authorities have deliberately walked, urged time and again the necessity for using a special type of car to handle the crowds which were certain to pour in upon the subway like a flood at the hours of busiest travel. The ordinary type of American car, with central aisle and end doors, is admirably designed for long-distance travel; but it is absolutely the worst type of car that could be designed for short haul, frequent-stop, city and suburban service. It was never intended for such service, and the only possible explanation of the existence of such cars in our subway to-day is the reluctance of car builders, superintendents, and operating men generally, to make any radical departure from existing forms and methods.

It is an axiomatic truth, well understood among railroad officials, that in a crowded city service the speed and carrying capacity of a road are determined, other things being equal, by the length of the stops. Never, surely, in all the history of railroading was represented such a fiasco as when, after building the subway in such excellent fashion and equipping it with eight-car trains with a speed of forty miles an hour, the operating company proceeded to throttle down the whole scheme and limit its carrying capacity by equipping it with the obsolete end-door passenger car.

In a recent and very excellent report presented by the City Club to the Public Utilities Commission, it is stated with much truth that the entire secret of the relief of the congestion on the subway at the rush hour lies in the adoption of a proper type of car door. Not even the notorious Brooklyn Bridge is more seriously hampered than the subway; for observation shows that 53 per cent of the passengers for Brooklyn obtain seats at the height of the rush hour, whereas only 41 per cent of those who travel by the subway can sit down. The limiting feature of the whole line is the long stops at the stations, and especially at the Grand Central; the delay being due to the length of time required to get passengers on and off the train through the two little end doors.

What is needed on the subway is not more trains, but more doors, coupled with the exercise of a little more common sense. The Interborough Company should begin at once to install the type of cars which is used by the Illinois Central Railroad for its Chicago suburban traffic, and has been in successful use in European suburban service for over half a century. Each Illinois Central car seats 100 persons, and there are twelve doors on a side. In response to

inquiry, the officials of the Illinois Central Railroad state that the introduction of this type of car in their suburban service reduced the average time of stop from 30 seconds to 7 seconds. No platform men are required for the operation of the doors, which are opened and shut by the guards on the train. If these cars were adopted on the subway, instead of a maximum of 27 expresses an hour, the subway could accommodate 40 expresses; double the number of seats would be provided per car; and, in fact, 56,000 seats would be supplied every hour. This would leave a considerable margin for future increase of traffic.

## THE PERILS OF THE LONG ISLAND GRADE CROSSING.

The gruesome collision of an automobile with an express train at a Long Island grade crossing, which occurred last Sunday, when two people were thrown into the ditch and burned to death by the oil from the broken gasoline tank, is the latest in a long series of fatalities of a similar kind, which have been occurring with increasing frequency during the past few years. The obvious duty of the railroad company is to abolish these grade crossings altogether, substituting at the intersection of their lines with the public highways either subways or bridges; indeed, they are under obligation to do so by law. We understand that the company is slowly doing this work, and has made the change at several places; but, considering the alarming increase in disasters, it is surely imperative upon the road to hasten the work, instead of permitting it to drag along in the present leisurely fashion. Absolutely inexcusable, however, is the present unguarded condition of many of these crossings. There are no gates, no gatemen, no flags, nothing, indeed, but an automatic gong which, it is stated, in the case of last Sunday's accident, was out of order. Pending the abolition of the grade crossings, the least the company can do is to render these places reasonably secure. Immediate steps should be taken to provide every one of them with gates and a gateman and some form of warning, either by flag or loud gong, which shall attract the attention of the automobilist sufficiently far from the crossing to enable him to make a safe stop. Automatically operated by the gates, there should be a signal which will warn the engineer by semaphore or red light, when the gate is open. These precautions are simple, easily taken, and sufficient to render the crossings safe until the change of grade can be made.

## PERILS OF RECORD TARGET FIRING.

With the memory of the "Georgia" disaster still fresh in our minds, there comes the story of another similar accident—this time to a gun mounted in one of our land defenses. The premature ignition of the powder took place in this case at Fort Terry, Plum Island, while the artillerymen were engaged in repelling an imaginary attack by the enemy. The piece was a 6-inch disappearing gun, and the casualties included the death of one artilleryman, the loss of eyesight by another, and the severe burning of several members of the gun detachment. In the course of an interview, an artilleryman at Fort Trumbull attributed the too-frequent accidents of this kind to the same cause which we outlined in this journal in our last issue, namely, the too great anxiety of the men to make a record, leading to their playing fast and loose with the rules which are intended to safeguard their own lives. The officer in question stated that, if there should be a damp spot in the cloth inclosing the charge of powder, it is apt to remain in the breech and burn slowly; while carelessness in swabbing may leave a small ember which may ultimately cause a premature explosion.

The Board which inquired into the accident on the "Georgia" reports that the powder was ignited by a "flare-back." This is nothing more nor less than we expected. There is no possible excuse for a "flare-back" having occurred; for since the terrible accident from the same cause which occurred a few years ago on the "Missouri," the navy has installed on our large guns a pneumatic device for blowing the remaining gases out of the gun before a new charge is inserted. The strength of this blast is sufficient to blow a hat or other light article entirely through the bore and out at the muzzle; and therefore if the air blast be kept on for a sufficient length of time, it is evident that all of the gases must be entirely expelled. In the case of the 8-inch gun on the "Georgia," the fact that these unburnt gases were not driven out is strong presumptive evidence that, in their laudable desire to make a speed record at the target, the gun detachment must have reduced the time that should have been occupied in blowing out the gun.

But after all, is the value of speed of fire not being very much overrated? It is accuracy more than speed which will count in a naval engagement. No gun captain will attempt, when on the battle line, to fire at anything like the speed which obtains in target practice; for he knows too well that if such a speed could be maintained, the ship's magazines would be empty before the battle was half over. More time between

rounds means a larger number of bull's eyes on the target; and the slowest rate of fire in target practice will always be faster than the fastest rate of fire in battle.

## GOOD WORK BY OUR SUBMARINES.

In spite of the prejudice under which the submarine labored in the earlier years of its development, and the indifferent results which were secured, it begins to look as though this type of vessel would, after all, fulfill the sanguine promises of its inventors. Although the detailed official report of the recent competitive trials off Newport has not been made public, enough has leaked out to show that in our latest submarines we possess very capable vessels. The "Octopus" proved to be fast both above and below water, and she passed through unusually severe submergence tests at great depths in a most satisfactory manner. Recently the "Octopus" and "Cuttlefish," two of our largest vessels, during their official acceptance trials, have broken the records for submerged target practice. The "Cuttlefish," while running at full speed submerged, that is to say at about 10 knots an hour, made two bull's eyes with Whitehead torpedoes at a range of 500 yards, the third shot being a little to one side of the center of the target. Later in the trials, the "Octopus" made three bull's eyes out of four shots, at a range of 800 yards, while running submerged at full speed.

## BRIGHT OUTLOOK FOR BETTER RAILS.

It is seldom that an agitation meets with such immediate success as that which has resulted from the recent exposure of the poor quality of rails which have lately been furnished to the railroads. As between the railroads and the railmakers, conditions have been completely reversed. Three months ago, the railroads were urging the manufacturers to give them a better product; to-day, it is the manufacturers who are urging the railroads to come to a speedy conclusion as to what kind of rail they require, in order that the present stagnation of the steel rail business may be relieved. It was a wise move on the part of the railroads, when they jointly determined to place no more orders with the mills until some better understanding had been arrived at, and a specification drawn that would meet the present conditions. There is evidence that the manufacturers are sincerely anxious to co-operate with the engineers of the railroads; and it is only fair to recognize the fact that the former had already shown a conciliatory spirit before the present falling off of orders began.

We note with much satisfaction that more than one of the more important rail-making establishments are preparing to overhaul their plants, and put in such improvements as are necessary to meet the demands for a better rail. A dispatch from Pittsburg announces that the Carnegie Steel Company are about to rehabilitate, at a cost of \$2,000,000, their famous Edgar Thomson rail-making plant in Braddock. In addition to the installation of engines to be run by the fuel gas from blast furnaces, the improvements include extensive changes in the rolling mills, which, it is believed, will secure that more thorough working of the rail which is universally admitted to be necessary. It is also the intention of the company to build open-hearth furnaces, to enable them to furnish rails of open-hearth steel whenever they may be called for.

## DESIGNER FIFE ON THE "AMERICA" CUP CONTEST.

Apparently, the question of a challenge for a race for the "America" Cup next year depends entirely upon the decision of the New York Yacht Club as to which rule the contest must be sailed under. While on his way through New York to the "Canada" Cup races, Mr. Fife, the designer of "Shamrock I." and "Shamrock III.," stated that he regarded the prospects of an "America" Cup race next year as very bright. According to this authority, if a challenge is sent over this summer, it will bear the express stipulation that the race be held under the present rules of the club, and there is not the slightest likelihood of any challenge being sent over for a race to be sailed under the old conditions. Mr. Fife expresses his belief that there is absolutely no chance of England or any other foreign country being able to win the "America" Cup under the old rule. This opinion is probably shared by the majority of yachtsmen upon both sides of the Atlantic. The old rule, which was based merely upon a load-waterline and sail-area measurement, produced a fast light-weather boat, of such slight construction and exaggerated proportions that it was good for nothing more than a contest in a smooth sea and a moderate breeze. Not one of the later cup challengers and defenders has been put to any use whatever, subsequently to the sailing of a series of "America" Cup races. They are too broad, too flat, too long, too light, too heavily ballasted, and too heavily sparred to be of any possible use for cruising purposes. Moreover, they require for their handling as big a crew of men as is necessary for a large ocean square-rigger.