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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.

THE BICYCLE AND THE AUTOMOBILE.

The history of sports and pastimes in this country furnishes no parallel to the rapid growth in popularity of the bicycle, and its even more sudden decline as a means of recreation. Its decline is rendered the more puzzling when we remember that the medical profession indorsed bicycle riding as being, when followed in moderation, of valuable assistance in keeping the body in good condition, and in the cure and prevention of certain ailments that arise from sedentary habits and the lack of a proper amount of outdoor exercise. So true is this that if it were possible to gather the testimony of the hundreds of thousands of people in this country, whose "wheels" are to-day rusting in the cellar, or stored ingloriously among the top attic lumber, it would be found that not a few thousands of them would readily admit that they have never enjoyed the perfect health which was theirs when the Sunday trip into the country or the evening ride on the boulevards or cycle paths formed an important and pleasurable item in the routine of their lives.

The causes for the decline were many. The chief trouble was the very one that is threatening the automobile to-day—people rode too fast and too far; and those who were not gifted with the muscular and constitutional equipment necessary for riding centuries, or even half-centuries, without distress, began to associate the bicycle with aching limbs and an exhausted body. Another and scarcely less active cause of the decline was the introduction of cheap bicycles, and the placing of the wheel within reach of everybody who could find the necessary forty or fifty dollars for its purchase. Bicycling became unfashionable; and in this respect the decline of wheeling is one of the most startling signs of the fact that the American people are fast losing that independent, democratic spirit which for three centuries has been one of the distinguishing characteristics of the race. When the fad became unfashionable its death-knell as a pastime of universal popularity was sounded. The bicycle was relegated to uses purely utilitarian. As a means of transportation it will always fill a useful place in the economy of everyday life; but that bicycling will ever win back anything of its former position as one of the most fashionable and popular means of recreation is most improbable.

But what of the automobile? Will like causes produce like effects? Already the speed mania is threatening to work injury to automobile interests by multiplying the lists of casualties and provoking a prejudice in the public mind. It is gratifying to know that earnest efforts are being made by the great body of automobilists as a whole to prevent reckless driving, and save this splendid sport from the harm that was done to bicycling by the growth of the "scorching" habit. The introduction of cheap and reliable automobiles (and if the plans of certain firms do not miscarry, the market will within the next two or three years be flooded with such) will bring the automobile within reach of the pocketbook of ten times as many people as can afford a machine under existing conditions. Before many years the boulevards, concourses, and turnpike roads will swarm with devotees of the latest sport. Shall we in this splendid means of recreation see repeated the history of the bicycle? Will it become unfashionable? Possibly in a limited degree it will; although it must surely remain to the end of time one of the most useful means of transportation, both for freight and passengers, that invention has placed at the service of man, rivaling, if not surpassing, the locomotive and the trolley car.

There is this much to be said in favor of the prospects of the automobile maintaining its present popularity as a means of recreation, namely, that, unlike the bicycle, it affords a means of travel that is comparatively free from effort, and may be made, if so desired, positively luxurious.

LOSS OF THE FLAGSHIP "MIKASA."

It is the very irony of fate that the flagship "Mikasa," after enduring the stress of eighteen months of bitter warfare upon the high seas, should be lost ingloriously, during the piping times of peace, while riding at her moorings in a home port. Not merely the Japanese themselves, but the whole world must feel a sentimental interest in the ship that flew Admiral Togo's flag from the first naval engagement at Port Arthur to the final splendid triumph in the Sea of Japan. What the "Victory" was to Nelson, and the "Hartford" to Farragut, the "Mikasa" was to Togo; and when the latest chapter of naval history comes to be written, the two names will be indissolubly associated.

The "Mikasa" was a noble ship. She "looked the part" she was supposed to play, and she played it well. In the two great battles in which she was engaged, both the ship and its crew suffered more severely than any other Japanese ships in the line. At the time of her construction in 1901 she represented the latest theories and practice in battleship construction, and she will be surpassed only by the monster battleships, now proposed, whose distinctive features have been based upon the lessons derived from the performance of the "Mikasa" and her class when in action.

According to the dispatches, the loss of the ship was due to a fire, which started during the night and spread to the after magazine, which exploded and "blew a hole through the side of the ship," causing her to founder. It is difficult to understand how the explosion of the magazines could inflict merely a local injury. A catastrophe of that magnitude usually, as in the case of the "Maine," tears the ship absolutely in two. Hence the cabled statement that the ship sank in shallow water and can be raised is extremely puzzling. The mystery can be explained only by the publication of the official details of the disaster—something which the extreme reticence of the Japanese naval department renders very unlikely.

RISK OF DERAILMENT ON ELEVATED RAILROAD CURVES.

When the elevated railroad system in this city was opened, about a quarter of a century ago, it was freely predicted that sooner or later a derailment, accompanied by great loss of life, would occur. The public of that day considered that there was great risk in the operation of a railroad that was carried entirely upon an elevated structure, 20 or 30 feet above the street level. It is a really remarkable fact, and one that must be mentioned to the credit of the company, that in spite of the enormous traffic over the elevated system, a traffic which in density is not paralleled in any other place in the world, this is the first accident that has occurred involving a heavy loss of life. Such fatal accidents as have happened were due chiefly to collisions; derailments have been less frequent, and it was reserved for the shocking mishap of September 11 to record the first serious loss of life due to this cause.

The elevated railroads, considering the extremely sharp curves and the great number and comparatively high speed of the trains, have been, in fact, singularly free from derailments, and this is due to the excellent system of guard rails adopted, there being a guard rail on both sides of each rail, or four altogether to each track. Moreover, the guard rails are deep and well bolted, so that should a wheel leave the track it would be difficult for it to mount the guard rails and get away from the structure. At the same time engineers generally have realized that the elevated railroads in this city have presented and do now present a very serious source of danger at the sharp curves by which the tracks run from the avenues into cross streets. The tracks, as we have said, are heavily guarded at these points; where it is possible the outer rail is superelevated; and in every case a heavy steel rail takes the place of the ordinary guard rail on the inner track. These precautions are necessary, for the curves are so sharp that, if the trains are run around them at any speed above eight or ten miles an hour, the centrifugal force becomes excessive and there is a decided risk of the wheels climbing the track. Although the superelevation of the outer rail is a safeguard for moderate speeds, it affords but little protection when the speed rises above the particular maximum speed corresponding to any given superelevation, and there is no denying that elevated trains are being run around the curves at a speed much higher than the latter have been built for. An easy method of detecting whether the superelevation and the speed are properly related is to notice whether, on passing around a curve, the passengers are swung to the outside of the curve. If they are, the train is going too fast for that curve, and the more violent the outward fling, the more severely are the guard rails and the flanges of the wheels on the outer rail being strained. If the pressure upon them passes a certain point, it will become sufficient to enable them to "bite" and climb the track.

About the time of the introduction of electric traction on the Elevated, the engineers were running their trains around the curves at such a reckless speed that this journal entered a strong protest and pointed out the great risks incurred. The speed was immediately modified, and for some time after the line was electrified, we noticed that great care was being taken in passing the curves. Gradually, however, as the motormen, and possibly the superintendents and other officials, have become familiarized with the higher speeds which are possible under electric traction, they have permitted, unconsciously perhaps, the use of an excessive rate of speed around these curves, until, as matters now stand, the trains, and especially the last few cars, are being whipped around the curves at a speed that simply invites disaster.

As we have shown elsewhere in this issue, the accident at Ninth Avenue and Fifty-third Street was due to the fact that a train which was running down Ninth Avenue found itself suddenly switched into the curve leading to Fifty-third Street. It is probable that the whole train would have remained on the tracks and gone straight around the curve, had the outer rail been properly superelevated; but superelevation is impossible at this point, for the reason that the outer rails of the Fifty-third Street curves have to be kept down at level grade in order to carry them across the Ninth Avenue rails.

The crossing at which this accident occurred is a notoriously dangerous one. Much of the risk is due to the present system of operation in which too much is left to the "human element." The danger could be eliminated by introducing the automatic stop and placing it in such a position that when the switch was set for Fifty-third Street, it would stop Ninth Avenue trains, but would allow Sixth Avenue trains to run through. This is an age of automatic control, and in the presence of the late awful disaster, it is binding upon the Interborough Company to place the control of this dangerous crossing as far as possible under automatic supervision.

AN IMPORTANT INNOVATION IN TELEGRAPHY.

The important problem of economy in the works of telegraphic services has just been solved by a new technical application of the very greatest importance. The gravity of the problem in question will at once be recognized when it is borne in mind that, at the present day, there is a steadily increasing rise in the cost of public services in all civilized countries, due to a growing demand for new and indispensable lines and for increased speed in transmission, thus necessitating use of costly apparatus requiring an augmentation in the electromotive energy employed in electric stations.

Signor Magini, an Italian electrical engineer, well known already for several useful innovations in the field of electro-technics, has recently been devoting much study to the operation of the coherer inserted above a telegraphic wire subjected to electric vibrations originating from a low-power induction coil. His observations have led him to the discovery of an extremely simple arrangement which solves in a very happy manner various problems still existing in connection with every-day telegraphy. In addition to this the device works equally well whatever the distance may be between the telegraphic stations, and whatsoever the material condition of the wires in use on existing lines. There would thus be no need to make alterations in existing services but, it may be pointed out, that with the new system telegraphic communication may also be carried out under existing generic conditions by means of very thin wires, instead of the thick and expensive conductors or "leads" now generally employed—a point of exceptional importance, especially in connection with the erection of new installations. All competent persons will at once recognize the importance of the innovation from the above brief remarks as to the actual condition of telegraphic wires. As a matter of fact, interruptions in telegraphic services depend almost always upon defective insulation of the conductors (especially during bad weather), upon short circuits, "earths," etc.; fortunately all these causes have no effect at all upon the transmission of the new currents selected and practically employed by Signor Magini. These currents are of an oscillating character and neither disturb, nor are disturbed by, ordinary currents—a fact the importance of which cannot escape the attention of those who understand anything about telegraphy; furthermore, they have the singular property of rapidly passing over electric conductors even when such "leads" are imperfectly insulated (whether due to bad weather or other causes) or have not been insulated at all, and also if short-circuited to earth or if the continuity be even interrupted. To put the matter briefly, the new "Magini system" insures perfect telegraphic communication under even the worst possible conditions in the electric status of the leads.

Magini's transmitter comprises a small Ruhmkorff coil, into the primary circuit of which there are sent, by means of a special key, currents emanating from the few cells of some dry batteries, while one of the terminals of the secondary circuit is placed in communi-