A UNIQUE PIGEON POSTAL SERVICE.

The homing and carrier pigeons have on more than one occasion displayed their remarkable innate proclivities for the quick conveyance of messages between different points when other systems of communication are either unavailable or have broken down. In the Franco-Prussian war they were used by the unfortunate imprisoned citizens of Paris to carry messages to the outside world. In the present Boer war they have been freely employed, especially during the siege of Ladysmith. Then, again, since the foundering of the French steamer Bourgogne with her four hundred souls off Newfoundland some months ago, the various French shipping companies have been conducting several experiments with these pigeons, with a view to employing them to carry news of any accident that may have occurred to the steamer during her voyage, thus explaining to the anxiously waiting relatives of the passengers ashore the safety of the vessel, the reason for her delay, and other interesting information. But in New Zealand a much more novel and enterprising attempt has been made to introduce the pigeon into the commercial world by establishing a pigeon post between Auckland and Great Barrier Island. Great Barrier Island lies about sixty miles north of Auckland. It is a bleak, inaccessible spot. The mines supply the most important means of support to the few inhabitants who eke out their existence on this lonely island, with no other means of communicating with the mainland than by the steamer, which calls only once a week. Their complete isolation has been forcibly brought home to the islanders on more than one occasion. Some months ago a terrible shipwreck occurred on its formidable coast, and though within so short a distance of Auckland, the news of the catastrophe was not known in the latter town until four days after it had happened.

NEW ZEALAND PIGEON POSTAL SERVICE—THE BIRDS' HOME QUARTERS.

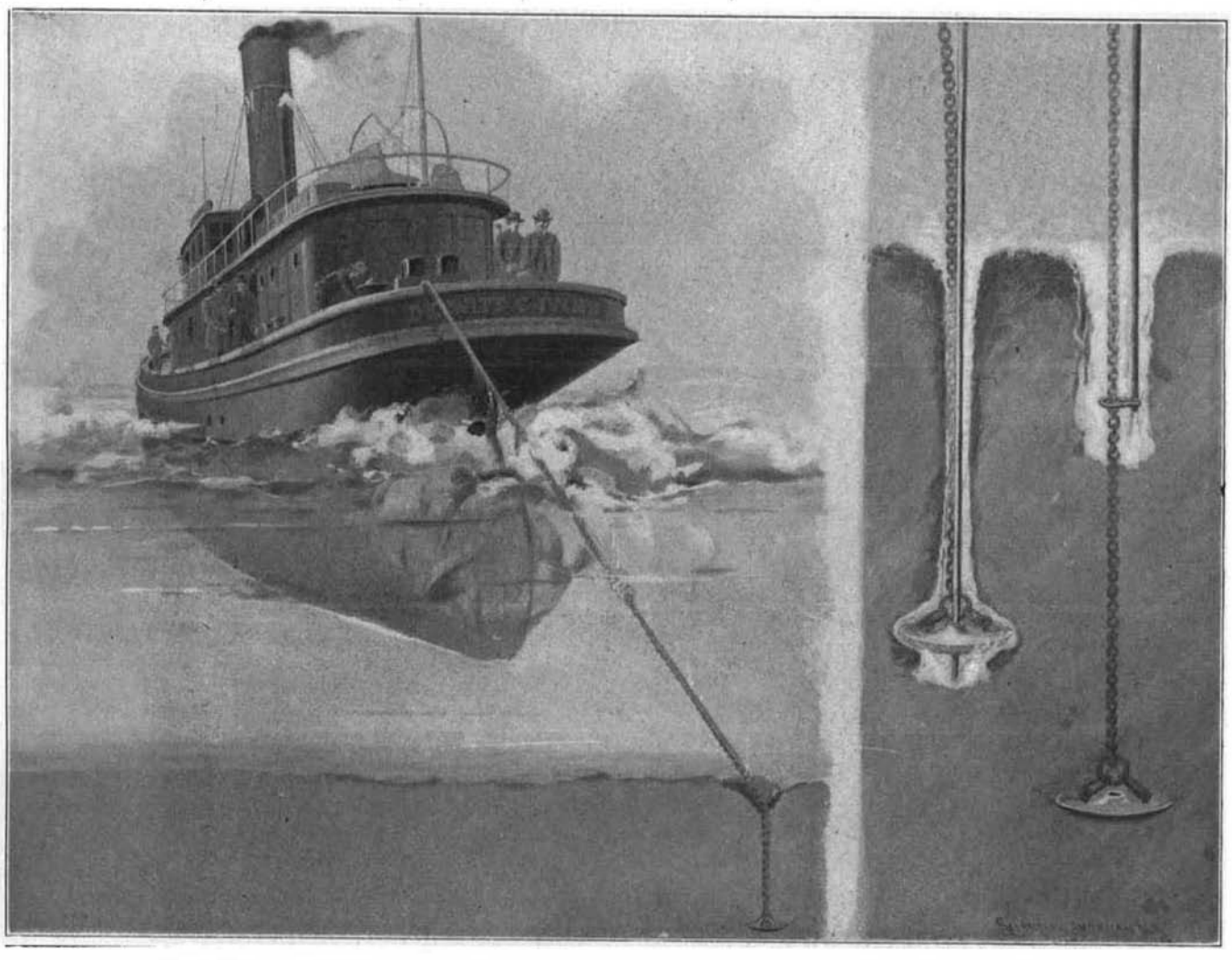
In 1896 the island was imbued with a new lease of life through the mining industry increasing, owing to the efforts of one or two influential gentlemen on the mainland. The result was that a number of families of miners traveled to the island to participate in the prosperity. It was also recognized by one gentleman, Mr. W. Fricker, who was an ardent pigeon fancier, that a quicker means of transit should exist for the conveyance of news, correspondence, etc., between the island and the mainland. He thereupon established his pigeongram agency. The birds were housed in comfortable quarters on Great Barrier Island, and were soon sufficiently trained for the purpose of carrying messages to the town of Auckland. The value of this unique agency was immediately realized, and it was enthusiastically and substantially supported by the shipping company and several other mine owners and merchants who were greatly interested in the development of the island. At first, the birds were only trained to fly one way. That is to say, they were taken by boat to Great Barrier Island, and liberated as the exigencies arose, when they immediately set out toward their home at Auckland, and were returned to the island in crates by the weekly steamer. The disadvantage of this method is obvious. It was possible to carry messages from the island to the mainland, but no communications could be conveyed from the mainland to the island. Mr. Fricker, realizing this drawback, immediately commenced to train other birds to accomplish the reverse journey from Auckland to Great Barrier Island, and now it is possible to dispatch a message either way with the assurance that a reply will be forthcoming in a very short time.

The time generally occupied on the journey by the birds averages from 65 to 70 minutes; but, as may be naturally supposed, their rate of traveling depends upon the condition of the wind and weather. When the service was first inaugurated, the cost of transmission was 50 cents per message; but when the circuit of communication was completed, and it was found that one bird could carry four messages at a time, the cost was revised. Now the cost of carrying a message from the island to Auckland is 12 cents, and 25 cents for the reverse journey. The reason that it costs more to carry a message from Auckland to the island is due to the fact that the training of the birds for this route was more laborious, since strong persuasion had to be brought upon the birds to induce them to face the long water journey. The messages are written upon tissue paper with carbon leaf. The paper is perforated down each side. When the message has been written it is folded and sealed with the agency's stamp, which secures complete privacy of the communication. The message is then wrapped round the bird's leg and covered with a waterproof legging, which serves to protect the message from injury during wet weather, and also to prevent the bird's picking it to pieces. When the bird enters the terminus at either end, he passes through the usual trap which is generally provided to the lofts of homing pigeons. In this case, however, the trap gives entrance to a kind of small ante-loft. The trap, in falling, rings a bell, which notifies the attendant of the arrival of a bird. He thereupon takes the bird out of this ante-loft, removes the message from its leg, and then permits the pigeon to enter the main loft. To open the message it is simply necessary to tear the perforation.

The service is well supported, considerably over one hundred birds being retained as messengers. It is officially recognized by the New Zealand government and the Imperial government as a bona-fide postal service between the island and Auckland. It issues its own postage stamps for franking the messages. It is a reliable, rapid, and cheap means of communication. Even when the telegraph cable eventually connects the island with the mainland, it is extremely improbable that it will fall into desuetude, since the number of words that can be written upon the tissue paper and transmitted for 12 cents—the same message would cost ten or twelve times that sum if dispatched by cable—will recommend its utilization in lieu of the telegraph.

THE LANGSTON MOORING DEVICE.

The Langston mooring device, which bears the name of its inventor, is designed to afford absolutely secure anchorage for vessels and buoys under extreme conditions of storm, ice pressure or other sources of violent strain. As represented in the accompanying engravings, it consists of a cast iron disk of any desired diameter, from 10 inches up to 2 feet, on the concave surface of which strong lugs are forged for the holding of triple rings to which a chain may be attached by a shackle. To sink the device, the nozzle of a 1½-inch galvanized pipe is passed through a hole

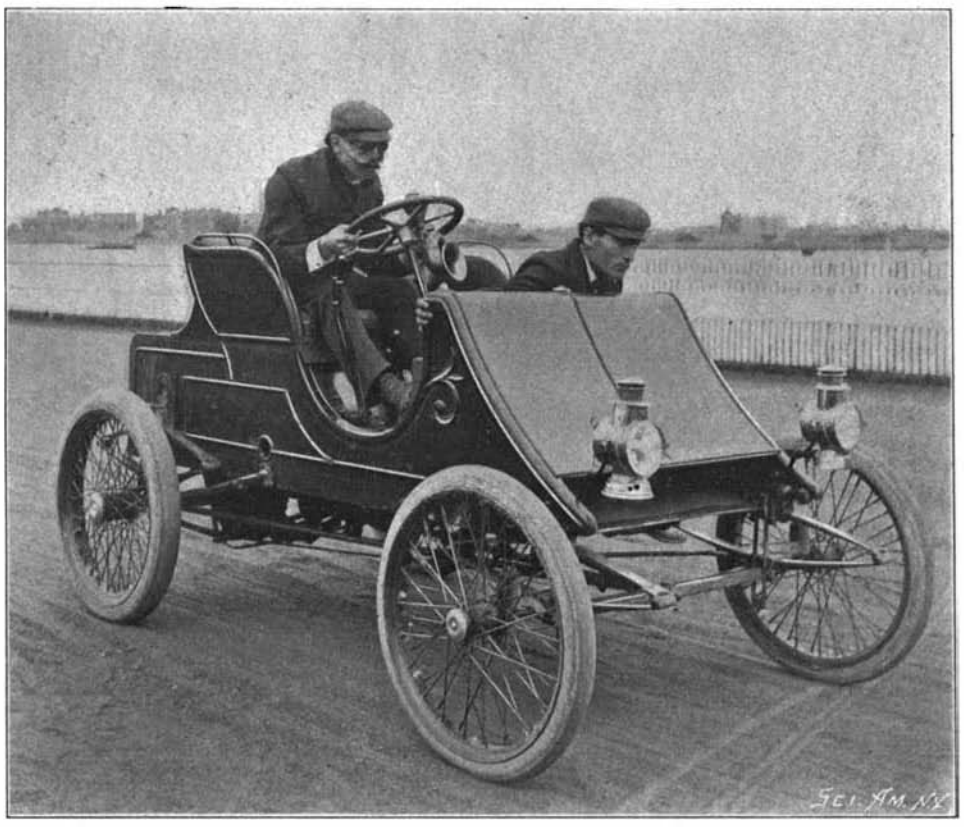


Ocean Tug Attempting to Start the Disk.

Method of Lowering and Removing the Disk by Means of the Hydraulic Jet.

THE LANGSTON MOORING DEVICE.

which is bored through the center of the disk. At the upper end of the pipe a hose is attached by means of an inverted U connection (this form being used to prevent cramping), and by this means a stream of water is forced to the under surface of the disk by means of a hydraulic pump. The chain is stopped to the pipe to keep the disk firmly on the nozzle, and the whole apparatus, pipe, hose, chain and disk, is supported from a davit or gaff and, therefore, easily maintained in a vertical position. The disk is lowered to the bottom until it rests upon the sand or other material in which it is to be sunk, when the pump is started. The stream of water, passing through the disk to its under or convex side, loosens the sand and allows the disk with its pipe, chain, etc., to sink into the vertical hole, which is thus continually being washed out as the apparatus descends. The apparatus being supported from a davit in the way described, it is practicable to lower the pipe to the bottom in any depth of water where anchorage may be desired, the pipe merely being long enough to steady the disk in the hole which is bored in the sand or mud of the bottom, and put a disk down from 10 to 30 feet or more below the bottom. When the disk is at the proper depth, the stoppings of the chain are cast off, by releasing a clutch, and the pipe is withdrawn. The disturbed material immediately settles back on the disk and around the chain, burying it firmly in place. It can be readily seen that the holding power of this form of anchorage is enormously greater than that which can be obtained by means of the plow point of an ordinary fluke anchor or the broad lip of a mushroom anchor, whose hold upon the sand or mud is merely superficial.



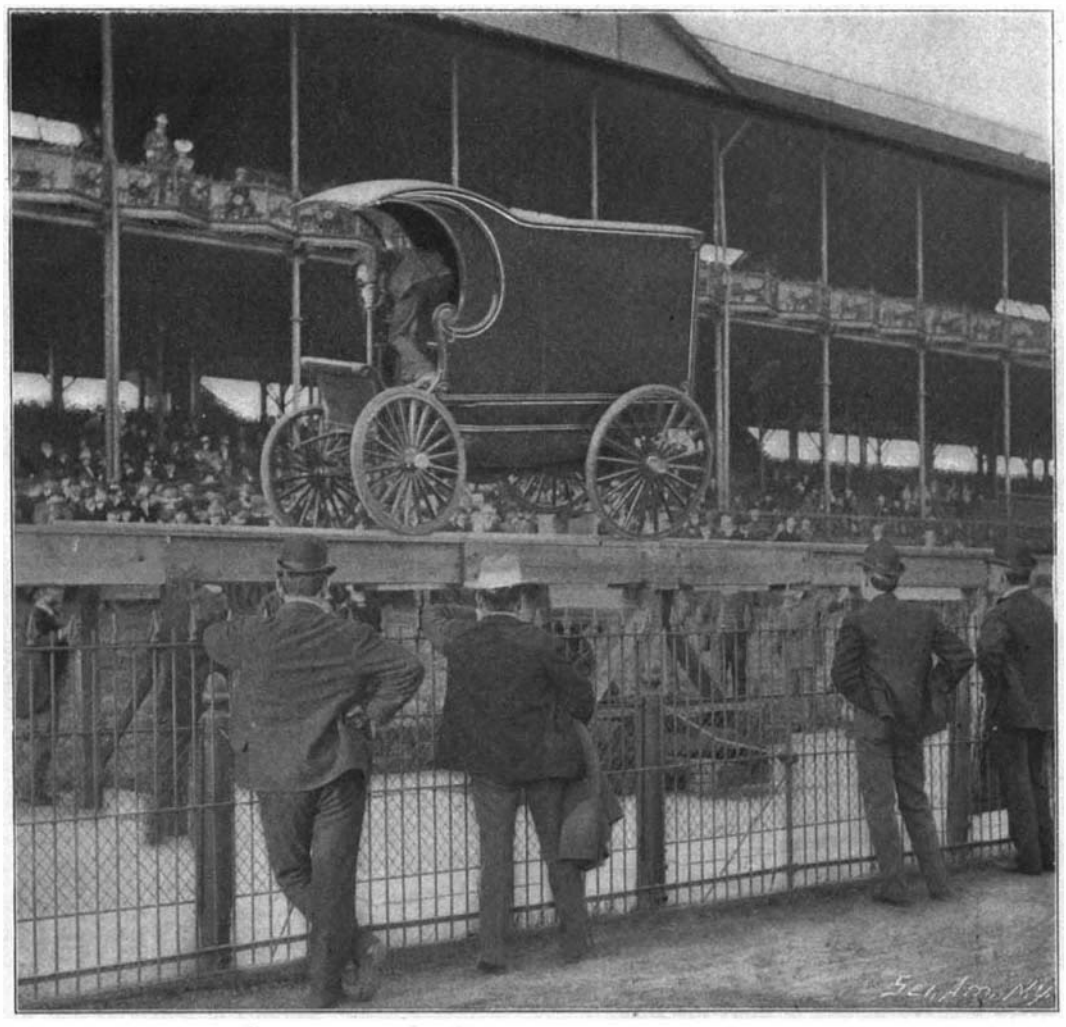
MR. ALEXANDER WINTON IN HIS RACING MACHINE ON THE WASHINGTON PARK TRACK, CHICAGO.

In the gale which visited New York on September 5 last, when the wind attained a velocity of 65 miles an hour, striking evidence was afforded of the efficiency of this form of anchor. It seems that eleven of these disks, which have been sunk in the mooring grounds of the Brooklyn Yacht Club and vicinity, did yeoman service, not merely in holding the particular yachts that were made fast to them, but in saving three or four other boats that had dragged their anchors from being cast ashore. Forty other yachts which were not so secured dragged their anchors of the ordinary type, and were piled up on the beach between Ulmer Park and Fort Hamilton.

It was natural that this device should commend itself to the attention of the Navy and the Lighthouse Board. There are along our coast no less than 44 light vessels and 5,000 channel and coast buoys. The number of buoys that are torn adrift from their moorings every year is such as to warrant the department in investigating every new device that promises to afford a more secure means of anchorage than is at present available. Apart from the financial loss that occurs in the displacement and loss of buoys, which by the way frequently cost several hundred dollars apiece, there is the serious risk to navigation—a much more serious matter. The value of an absolutely secure form of anchorage to the navy is also obvious, for there are many locations where naval vessels can find but poor holding ground for anchors of the ordinary type. Realizing the possibilities of the Langston mooring, the Lighthouse Board and the Navy Department detailed officers to observe and report upon the practical demonstrations of its utility in New York Harbor. The last of these tests was made on September 15, at a point a little distance offshore from the Atlantic Yacht Club house at Norton's Point.

The experiment was carried out with a 12-inch cast iron disk, which was put down through water 18 feet deep, to a depth of 8 feet, in a bottom of sand and clay. The time required from the starting of the force pump until the sinking was complete was 6½ minutes. A ⅝-inch crown chain, 15 fathoms in length, was attached to the disk. The accompanying illustrations show very clearly the action of the water in cutting away the sand and clay below the disk and excavating the vertical shaft at the bottom of which the disk was deposited. The sand, etc., closes in somewhat upon the chain and pipe as the disk descends, but upon the withdrawal of the pipe the discharge of the water loosens the surrounding material sufficiently to allow of the easy withdrawal of the pipe, after which the material closes in quickly and solidly above the disk and around the connecting chain, as shown in the illustration.

Sixty minutes were allowed for the filling in of the hole, which, while it was probably not sufficient for the completion of the process and the thorough settlement of the loosened material, sufficed, as the test afterward showed, for all practical purposes. A new 7-inch hawser was attached to the chain, and 25 fathoms were paid out and made fast to the towing bits of the ocean-going tug "DeWitt C. Ivins," the newest and most powerful vessel of the Moran towing fleet. The tug has a compound engine with cylinders of 15 and 30 inches diameter by 22 inches stroke, and the boiler carries 140 pounds of steam pressure. The propeller, which is 8 feet 6 inches in diameter, was turned at 105 revolutions, and this was subsequently increased to 120, a rate which was maintained up to the conclusion of the test, or for a period of twenty-one minutes. The tug failed to produce the slightest effect upon the stability of the buried disk, and it was the unanimous opinion of the officials who witnessed it that the demonstration was completely successful. Although the holding power of the device is so great, the removal of one of these disks is a very simple matter. The hose is brought into requisition, and a double ring, shaped like the figure 8, is fitted tightly to the lower end of the hose and loosely on the mooring chain, down which it slips. As the pipe descends, the stream of water speedily cuts its way through the sand, opening a way for the pipe, until, guided by the chain, it reaches the disk, which may then be drawn up without difficulty.



AUTOMOBILE DELIVERY WAGON BREAKING AN EGG PLACED ON A BOX, THE WHOLE BEING SUPPORTED ON A TEETER-BOARD.

CHICAGO AUTOMOBILE EXHIBITION AND RACE MEET.

BY ARTHUR T. KELLOGG.

The automobile exhibition and race meet promoted by The Chicago Inter-Ocean, while an interesting affair, fell short of being the success for which the promoters and all interested in automobiles hoped. The exhibitors of complete automobiles numbered twenty, of whom eleven showed vehicles or cycles propelled by hydrocarbon motors; five exhibited electric vehicles, and four steam vehicles. The steam vehicles were all very much alike, not only in general appearance, but in their mechanical construction. All had fire-tube boilers, with about 300 tubes; two-cylinder, single-acting, vertical engines, and burners fed with vaporized gasoline and working on the Bunsen principle. One firm had two racers on the grounds, which showed themselves remarkably speedy over comparatively short distances. Within fifteen yards they would be going at full speed, in contrast to the electrics, which were much slower, and in still more marked contrast to the gasoline vehicles, which took an eighth to a quarter of a mile to attain their best speed. One of these little steam racers was reported to have gone a mile in 1 minute and 6 seconds. This time was not official, however.

The electric vehicles were, by all odds, the handsomest vehicles in the show, judged from the standpoint of a carriage builder. One make is equipped with an electric brake which worked admirably. Another make is notable for having motors which work at higher pressure than that generally accepted as the correct thing. This necessitates the use of more than the usual forty cells to the vehicle, which forty cells can be charged from the 110-volt, direct current circuit, such as is common in the larger cities. The use of a greater number of cells necessitates the use of a booster, or, as the exhibitors preferred to call it, a "motor-generator."

The high pressure automobiles carried off the majority of prizes offered for electric vehicles, thus showing them to be of high efficiency.

The eleven makes of gasoline vehicles differed widely from each other. Almost the only feature common to them all was that they all employed the four-cycle principle in their motors. The speediest vehicles on the grounds—for any considerable distance, at least—were among these gasoline vehicles. Of these, the speediest of all were the little tricycles, all built on the accepted French lines. While these little vehicles were speedy, they proved themselves unreliable.

Among the larger vehicles there was only one machine that made any pretensions to speed sufficiently high to make a showing against the little tricycles, and that was the racer with which Alexander Winton vainly attempted to win the championship of the world in France this past summer. It ran with a commendable consistency, unlike the tricycles, never showing a greater variation than ten