by step-down transformers located on that side to 2,200 volts, two-phase, for paralleling, or, if it is so desired, will be delivered direct to tenants of the Niagara Falls Power Company.

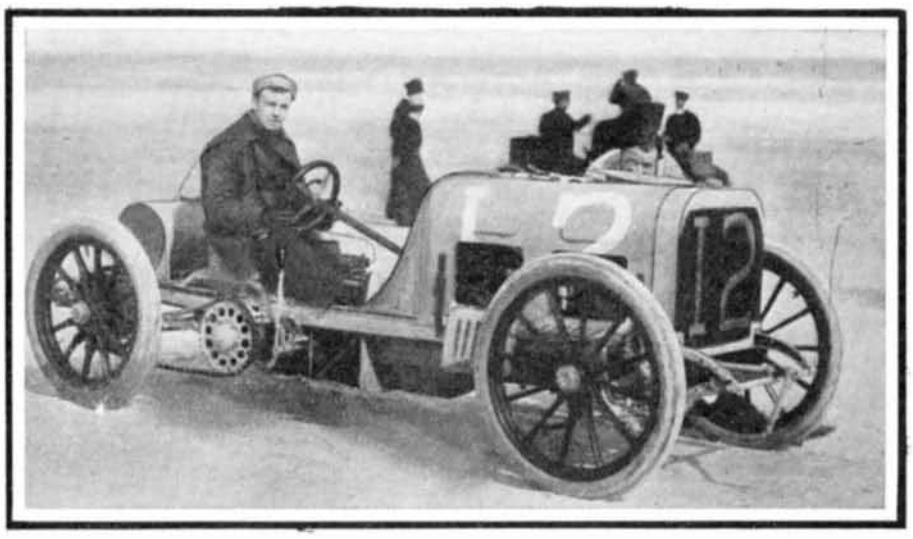
Because it was first to project a power development on the Canadian side of the river, the Canadian Niagara Power Company had the pick of sites. It located 2,200 feet back from the brink of the Horseshoe Fall. Its power house is a handsome stone building with covered forebay. The wheel pit is much like the pits on the New York side, and, like them, was cut out of solid rock. The tunnel of the Canadian Niagara Power Company is slightly larger than the tunnel of the Niagara Falls Power Company, but it is about 5,000 feet shorter, a fact of considerable economy in construction. The tunnel is lined throughout with con-

THE ANNUAL AUTOMOBILE RACE MEET AT ORMOND, FLORIDA.

The week of racing on the Ormond-Daytona beach, which seems to have become a fixed event taking place annually the last week in January, was productive of some very fast speeds and numerous new records. The various events were run off successfully, notwithstanding that the death of Mr. Frank H. Croker and his mechanic the previous Saturday, due to the overturning of his car when traveling at high speed—an accident which resulted from his trying to make a sharp turn to avoid a motor cyclist who swerved into the pathway of the car—cast a gloom over all the races.

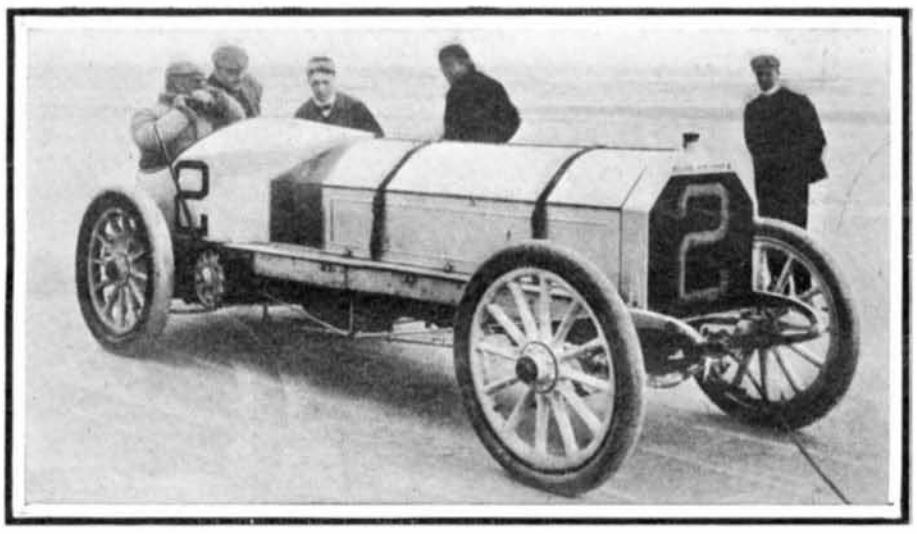
The events run off the first day were chiefly races for stock cars. The kilometer for machines weighing from 851 to 1,432 pounds (Class B) was won by a 15-ed a gain in average speed of 6.07 miles per hour with a car having nominally the same horse-power. McDonald's average speed was at the rate of 91.37 miles an hour. In a 10-mile record trial, Bernin, on W. Gould Brokaw's 60-horse-power Renault, made 5 miles in 3:51 3-5 and the total distance in 7:42. The 10-mile races for stock cars in the $2,751-$4,000 and $1,001-$1,800 classes were won in 10:35 3-5 and 14:12 3-5 by the 30-horse-power Pope-Toledo and the 18-horse-power Columbia cars respectively.

The second day of the races saw the making of new mile and kilometer records by the Napier 90-horse-power car and Bowden's 120-horse-power Mercedes—a specially-constructed machine having two four-cylinder, 60-horse-power Mercedes engines. This car covered a mile in 34 1-5 seconds, or at the rate of 105.26 miles an

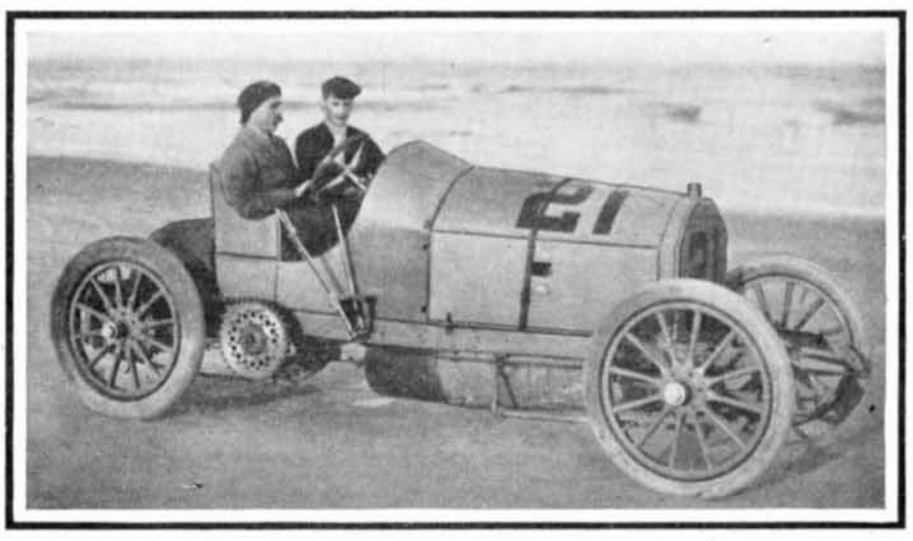


Frank Croker on His 75-Horse-Power Simplex Machine.

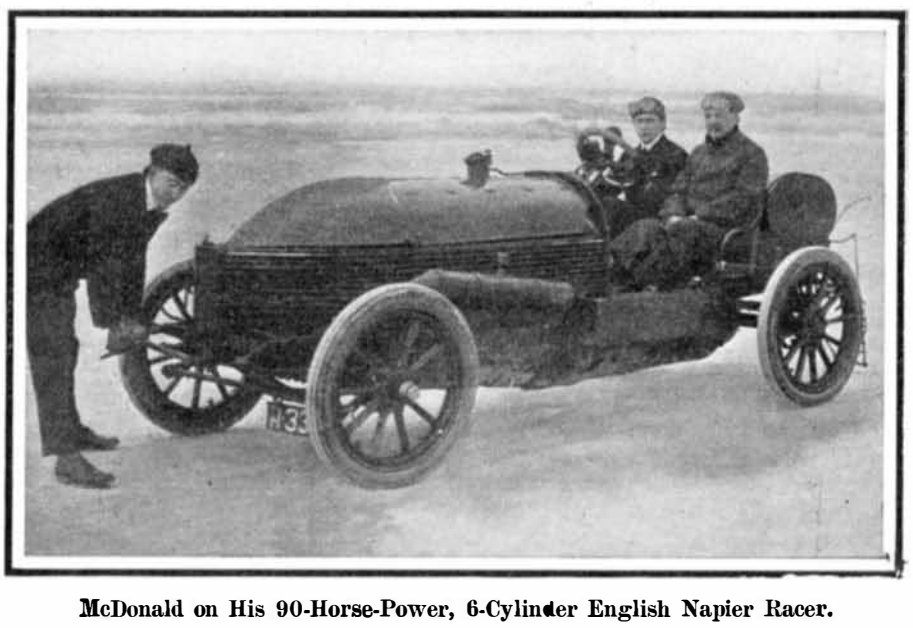
Croker's Wrecked Simplex Car.



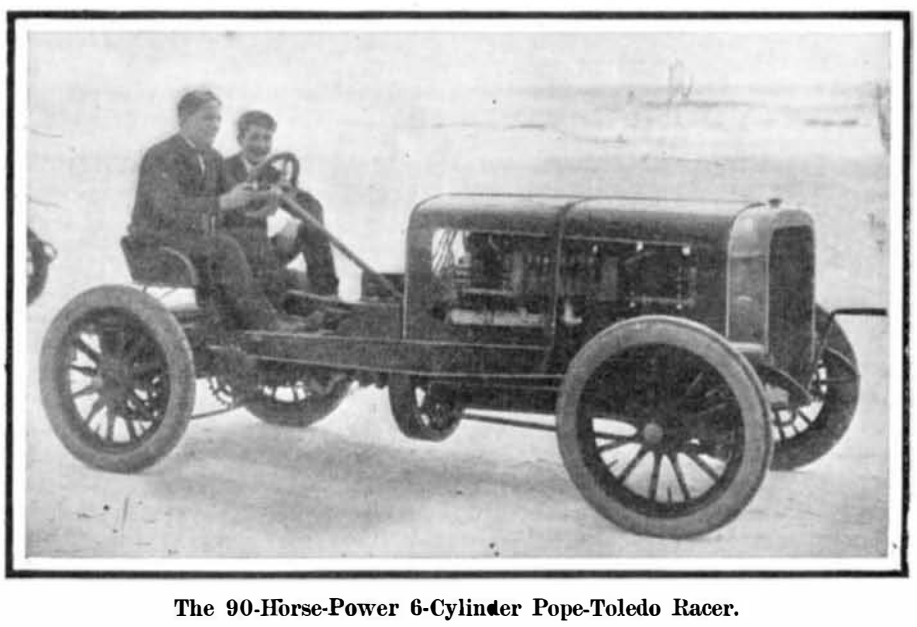
Bowden on His 120-Horse-Power 8-Cylinder Mercedes.



Sartori on A. G. Vanderbilt's 90-Horse-Power Fiat Racer.



McDonald on His 90-Horse-Power, 6-Cylinder English Napier Racer.



The 90-Horse-Power 6-Cylinder Pope-Toledo Racer.

THE ANNUAL AUTOMOBILE RACE MEET AT ORMOND, FLORIDA.

crete and specially burned brick. Its portal is very close to the foot of the Horseshoe Fall, and when the rush of water pours from it, it is likely to have its influence on the currents of the lower river.

A safety device for the protection of persons from the electric current, upon the rupture of a trolley wire, has been placed on the market. By the employment of this arrangement the current is cut off and the wire rendered harmless. The device is fitted to each section of the wire, and consists of an ordinary connecting ear, held in its proper position by the strain on the trolley wire. Directly this tension is released, as by the breaking of the trolley wire, the current is immediately cut off the broken section without any showing of sparks whatever.

horse-power White steamer in 44 2-5 seconds. A. Le Blanc's 20-horse-power Darracq was second in 1 minute, 1 4-5 seconds. The 5-mile races for cars costing from $2,751 to $4,000 and from $4,000 to $6,000 were both won by Charles Soules in a 30-horse-power Pope-Toledo in 5:13 3-5 and 5:17 3-5 respectively. A 5-mile handicap race was won by an 18-horse-power Columbia car in 7:18 1-5, with the above-mentioned Pope-Toledo second in 7:28 4-5.

The most interesting event of the first day was a series of 5- and 10-mile trials against time, in which the shorter distance was covered in 3 minutes and 17 seconds by Arthur McDonald, on a six-cylinder, 90-horse-power Napier racer. This beat Mr. W. K. Vanderbilt's record of 3:31 1-5, made last year on a 90-horse-power Mercedes, by 14 1-5 seconds, and represent-

hour, while the Napier was only 1-5 second longer in making this distance, which it traversed at the rate of 104.65 miles an hour. The Bowden machine weighs 2,650 pounds, and is thus over the weight limit of 1,000 kilogrammes (2,204 pounds). It is also a specially-constructed racer and not a regularly-built car. Therefore its record is in a special class, and the Napier holds the record for standard cars. The speeds of both in the mile trials are the highest that have thus far been made. In the kilometer (0.621 mile) trials, the Napier made the distance in 23 seconds (only 1 2-5 seconds less than the record abroad) and the Bowden Mercedes in 23 3-5. Ross, in a special steam torpedo racer, covered this shorter distance in 24 1-5 seconds and the mile in 38 seconds. In a competitive event of 1 kilometer for the Bowden trophy, McDonald on

the Napier won the final in 27 3-5 seconds, thus establishing a new American record for the distance in competition. Ross was second in 28 1-5, Stevens on a 90-horse-power Mercedes third, in the same time, and W. Wallace on a 90-horse-power Fiat fourth in 30 seconds.

The mile championship race for the Dewar trophy, run in three heats and a final, was won by Ross on his steam torpedo in 42 seconds. McDonald was second in 42 3-5 seconds. He also won the first heat in 41 3-5 seconds. Wallace won the second heat in 49 seconds, and Oldfield, on the 60-horse-power Peerless, the third in 49 3-5.

The only long-distance event that took place up to Saturday, January 28, was that for the Lozier trophy, a 50-mile race for American cars only. This race was run off on the 27th ultimo, and was won by Walter Christie with his novel 70-horse-power racer, on which the motor is placed transversely and forms the front axle. Christie had as competitors A. C. Webb on a 90-horse-power Pope-Toledo racer, which is entered in the next Gordon Bennett race, and Barney Oldfield on the 60-horse-power Peerless racer which holds so many track records. All three cars had breakdowns, and the race was virtually an obstacle race against time. Webb had trouble with his commutator, and dropped out at the end of 10 miles. Christie also had electrical troubles, which delayed him some 20 minutes. Oldfield turned at the 10-mile post instead of at the 12½-mile one, and, after returning to the starting point with a rear tire off, he started anew, but later abandoned the race. Christie was the only one to finish. He ran the last 25 miles through spray, dashing up from the rising tide, in 26 minutes, 48 2-5 seconds, and his time for the entire distance, including stops, was 1 hour, 11 minutes, 22 2-5 seconds. A full description of the Christie racer and of the McMurtry timing apparatus used at Ormond was published in the Automobile Number of this journal one week ago.

A special 10-mile match race between a 40-horse-power Decauville and a 40-horse-power Bollée was the only other race of interest on the 27th ultimo. This was won by the former machine, driven by Guy Vaughn, in 9:20 1-5, with the other machine only 5 3-5 seconds behind at the finish. The races were all run with difficulty because of the tide receding but little, and giving but a very narrow stretch of beach on which to run them.

An interesting sub-aqueous engineering feat has been achieved in the successful laying of a submerged water main at a depth of 86 feet across the channel in Cork Harbor, Ireland, separating Queenstown from Haulbowline. The work was attended with several difficulties, among which the great depth of water and the irregular nature of the bed of the harbor, which consists of jagged limestone rock, were the most important, and at first it was deemed by many experts to be impossible. The submerged main measures about 2,000 feet in length, and consists of specially cast pipes of 6 inches internal diameter.

Of the iron ores mined in the United States in 1903 it is estimated that 86.6 per cent were red hematites; 8.8 per cent brown hematites; 4.5 per cent magnetites; 0.1 per cent carbonates. The line between the red and brown hematites is, however, not clearly defined.

NEW SYSTEM OF EGG TRANSPORTATION.

BY GEORGE J. JONES.

The egg men of this country have recently had called to their attention a new method of shipping and handling eggs, which has already been adopted to a considerable extent, and the use of which is becoming more and more general. Quite a large factory is maintained at Scranton, Pa., in the manufacture of the devices known as "Zinkets," which are the foundation of the new system. These zinkets are tray-like constructions of metal made by mechanical methods, each one of which holds one dozen eggs, and it is designed that the eggs shall be placed in these carriers at the time of their gathering on the farm, and in them they shall remain until such time as it is proposed to prepare them for consumption. When the zinket is empty, it is laid aside and returned to the dealer when a supply of fresh eggs is being secured.

This system is said to have a number of advantages over the method of packing the eggs in horizontal layers with the aid of pasteboard fillers, as is done at present. In the first place, the zinket offers a most convenient means for carrying and handling the eggs through all of the various processes through which they must pass from the farmer to the consumer. Secondly, the transportation of the contents of these packages is effected more safely than by the old methods, and the packages are smaller than those of corresponding capacity in use at present.

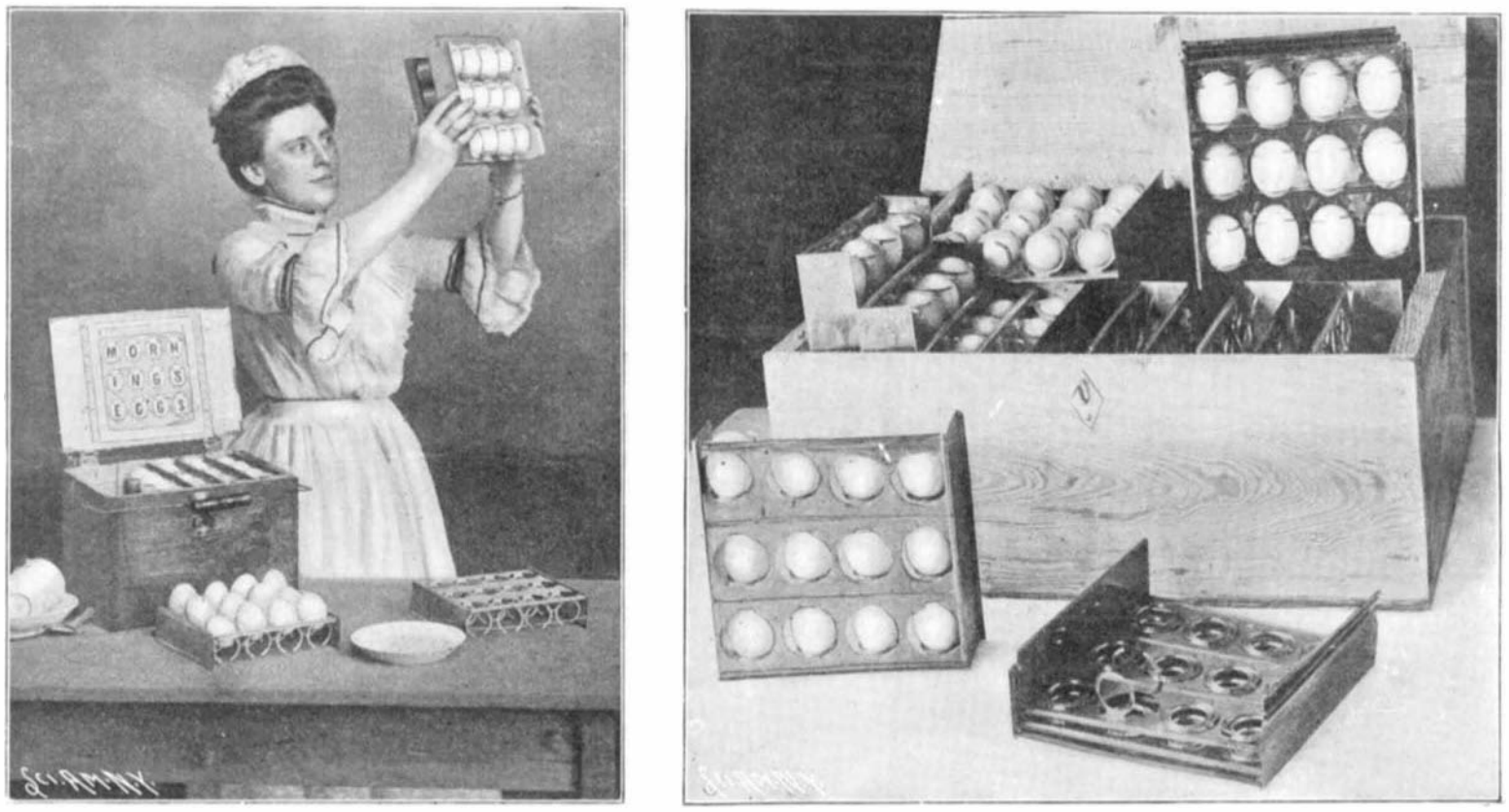
It has been said that the carrier is the basis of the new system. This is cut out of a roll of sheet metal, preferably steel, in an oblong shape, with twelve round holes placed regularly in the center. These shapes are then electroplated with zinc, as this is the most cleanly and desirable for the device. By subsequent passages through special machinery, these holes are enlarged by cutting at the top and bottom. The strips thus formed are afterward bent out from the metal body, and form clips over and under the hole, for the purpose of grasping the egg. The ends of the metal are then bent so as to form something of a tray, the ends being grooved to enable one of these devices to fit tightly in another. Thus, when packed, they are slipped into suitable boxes, vertically instead of horizontally. When in transit in this manner, the spring-like qualities of the clip consume all ordinary shock, and prevent the eggs from being broken. A very severe blow is required to dislodge the eggs from their resting places.

By this vertical arrangement of the trays, it is easily possible to examine and even count the contents of the box in a few minutes. For candling, the eggs may be examined in their places, and by a simple apparatus invented for the purpose, the entire dozen of eggs may be carefully examined almost at a single glance. This is done without disturbing them from their places between the clips.

The safety of carriage is a feature which appeals to the dealer, and another important factor is the economy of space shown by the zinket system, for the carriers pack very closely. In shipping or storage they actually occupy one hundred cubic inches less space per thirty dozen eggs than the pasteboard filler system. A feature which appeals to the consumer very strongly is the means afforded for the identification of goods. On each of these carriers the name and address of the owner must be stamped, in order that they shall find their way back to him. This enables the careful housewife to know just where her eggs came from. She will soon become familiar with the names of the farmers supplying her dealer, and she will reject the packages of any of those in which she has at any time found unworthy goods.

These devices have been already extensively used by fancy farmers, who supply what is known as "morning eggs." For infants and invalids it is often desired to have eggs that have been laid on the day of delivery. Here these carriers are the hasty messengers from the poulterer to the pantry. In order to give patrons further assurance of the quality of the contents, a strip label is pasted across each row of eggs in such a manner that it is impossible to remove one of the eggs without destroying the label.

After the package has been delivered to the house it is placed in the refrigerator, still in the zinkets, and in this shape it takes up much less room than the usual bowl. If it is desired to boil the eggs in numbers, as for a large family or restaurant, the entire arrangement is placed in the boiling water, and thus they are all cooked to exactly the same degree, a thing which has not been possible before without the use of some expensive device of a special nature.



A NEW SYSTEM OF TRANSPORTING EGGS.

Astronomical News.

A telegram has been received at the Harvard College Observatory from Prof. Kreutz, at Kiel Observatory, stating that a planet of the thirteenth magnitude or ftr. was discovered by Wolf at Heidelberg, January 22, and that it was observed by him January 23d. 2735, Greenwich mean time in R. A. 1h. 31m. 59s., and Dec. 36m. 13s. Daily motion in R. A. + 1m. 32s. and in Dec. +0° 9m. It is supposed to be Perrine's satellite of Jupiter.

NOTE.—In a letter dated January 13, 1905, Prof. Campbell writes: "Unfortunately, we have had only one or two breaks in the clouds since the announcement was made, but the two short exposures show the satellite where it was expected to be."

A telegram has been received at the Harvard College Observatory from Prof. W. W. Campbell at Lick Observatory, stating that the sixth satellite of Jupiter was observed by Perrine January 17d. 702 G. M. T. Its position angle with reference to Jupiter was 266 deg. and its distance 36m. Wolf's asteroid has no connection with the sixth satellite.

The following story is published in Machinery: A circus train was pulling out of Spokane, Wash., a few weeks ago when suddenly the injector "broke" and persistently refused to take up water. After working with it a few minutes the engineer ordered an examination made of the tank; it was found nearly empty, although filled at the water crane but a short time before. No explanation of this mystifying condition was apparent until water in numerous streams was seen running from the elephant car next to the tender, and then the cause was found. "Jumbo" had amused himself by reaching his trunk through the open end of his car into the manhole of the tender and sucking up the water, with which he had deluged the other animals in the car. They looked like "drowned rats," and needless to say had enjoyed their involuntary baths no more than the trainmen had the delay.