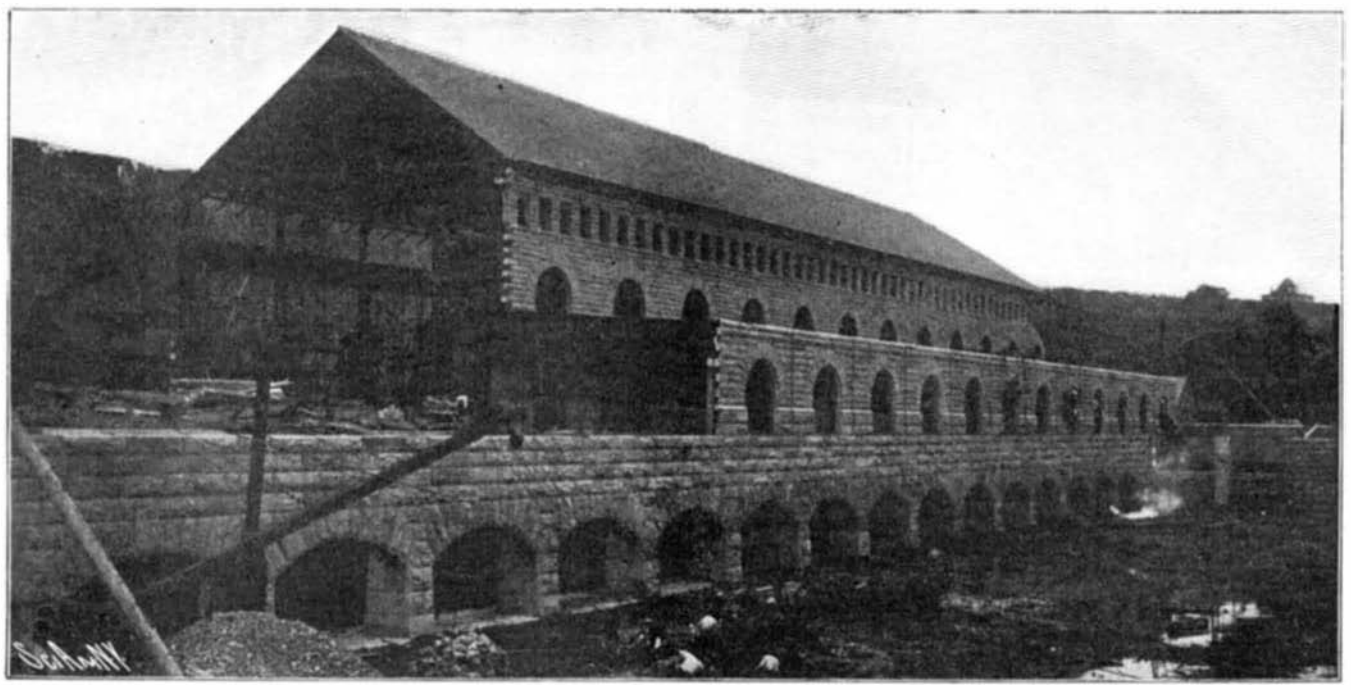
OPENING OF THE NIAGARA CANADIAN POWER COMPANY'S PLANT.—I.

The Canadian Niagara Power Company is now prepared to deliver electric power for commercial purposes. This company is owned by the Niagara Falls Power Company, which latter company has built two magnificent generating stations on the New York side at Niagara, the combined output capacity of which is 105,000 electrical horse-power. When the plant of the Canadian Niagara Power Company has its complete installation, it will have an output capacity of 110,000 electrical horse-power, or 5,000 horse-power more than is developed in the two big stations at Niagara Falls, N. Y. In the plants of the Niagara Falls Power Company, the unit of development is 5,000 horse-power, whereas in this new plant on the Canadian side of the river, the unit of development is 10,000 horse-power. Thus, where there are 21 units in the two plants of the Niagara Falls Power Company to develop 105,000 horse-power, in this latest Niagara plant there will be but 11 units in the development of 110,000 horse-power.



Power Station Partially Completed, Showing the Forebay, the Arched Entrances Through Which the Water Flows to the Penstocks, and the Main Generating House to Contain Eleven 10,000-Horse-Power Generators.

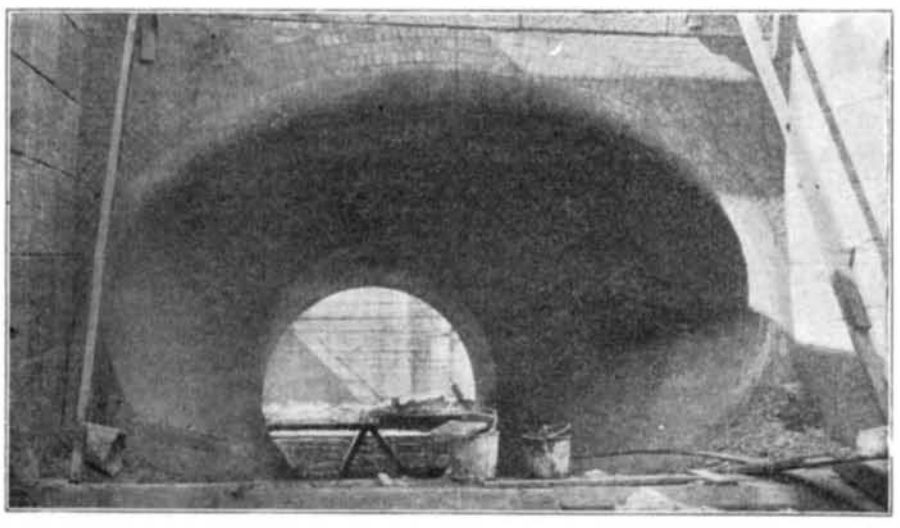
Not only is this Power Company the first at Niagara to adopt a unit of 10,000 horse-power for its hydro-electric plant, but it is the pioneer in the development of Niagara power on the Canadian side for commercial purposes. Less than fifteen years ago, when the International Niagara Commission met in London, England, and adopted a unit of 5,000 horse-power for the then projected development at Niagara Falls, the world marveled, and electrical engineers and scientists awaited with much interest the outcome of the installation. To-day, with the adoption of a 10,000-horse-power unit, it is evident that Niagara is not standing still, but is making rapid strides forward.

The first of the 10,000-horse-power units in the plant of the Canadian Niagara Power Company was started on the morning of Monday, January 2, at which time, in the presence of a party of eminent guests, President William H. Beatty turned the small hand-wheel that released the flood of water in the penstock and allowed it to rush into the turbine, which was soon making 250 revolutions per minute. When Unit No. 1 was in motion, Unit No. 2 was successfully started, and the new power station had 20,000 electrical horse-power at its command. Three additional units of the same capacity are being installed, and these are to be ready for operation by May 1 next, when the Canadian Niagara Power Company will have 50,000 horse-power for use, supply, and transmission. The six remaining units to be installed to bring the power house up to its full capacity will be placed in position very rapidly as demand makes it necessary.

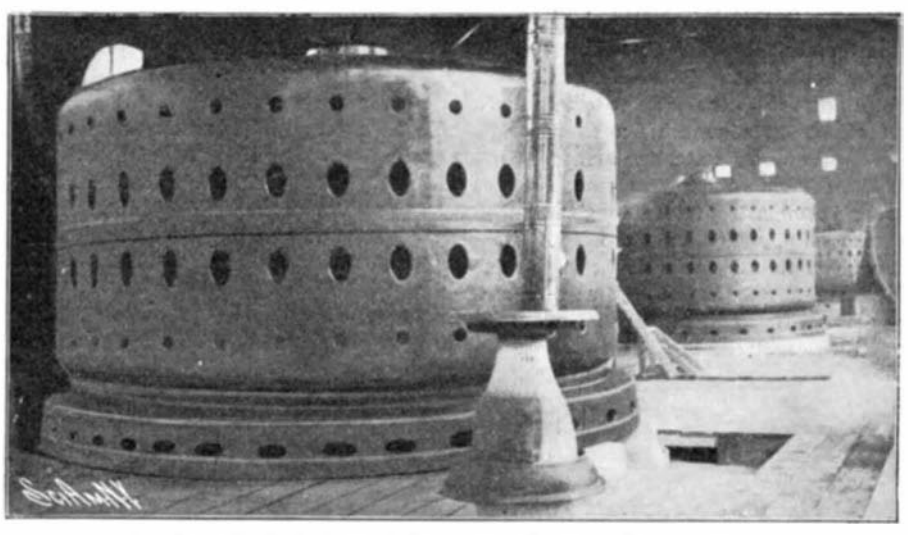
In starting its initial units at this time, the Canadian Niagara Power Company lives up to the terms of its contract with the government. In this contract it is provided that the company shall have a development by January 1, 1905, involving the construction of a tunnel with a capacity for the discharge of water sufficient to produce 100,000 horse-power, a canal or intake from the river with a capacity of 50,000 horse-power, a wheel pit with a capacity of 50,000 horse-power, and 20,000 electrical horse-power ready for sale and transmission. However, the works of the company have been constructed on a larger scale than is called for by the requirements of the contract with the government, for to-day the company has a canal, tunnel, and wheel pit complete for the development of 110,000 horse-power.

It is significant of the careful electrical engineering practice of the present time that the two American plants and this new Canadian plant have been considered as one. It is a fact that they can be operated in parallel. Connections have been made between the stations by cables laid in conduits through the Victoria Park and city of Niagara Falls, crossing the river by way of the upper steel arch bridge a short distance below the American Fall, the distance between the plants being about three and a half miles. These connections assure every power customer of these two companies, no matter whether they are on the American or Canadian side, continuity of service. Under the contract, one-half of the power product of the Canadian plant must be supplied on the Canadian side of the river, should there be a demand for it. All the power is to be used outside of Victoria Park.

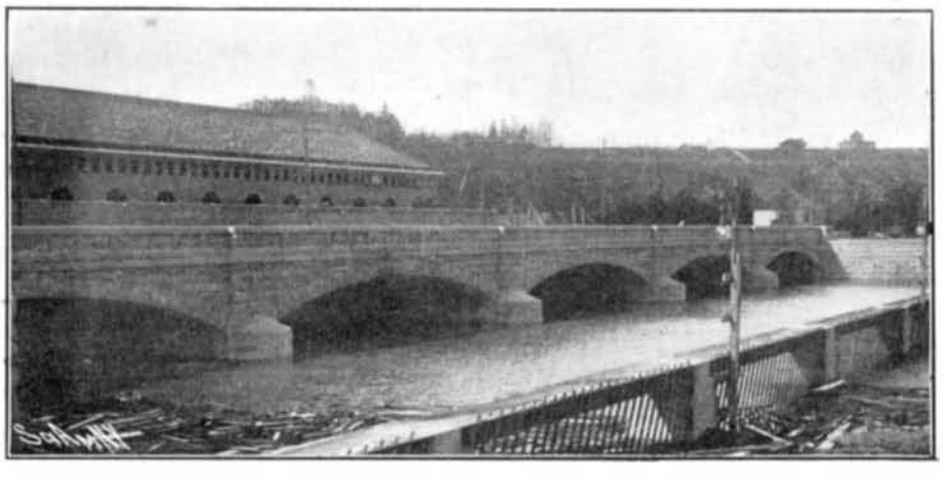
The new generators were made by the General Electric Company, while the turbines were designed and manufactured by Escher, Wyss & Co., of Zurich, Switzerland. The generators are wound for 12,000 volts, three-phase, 25-cycle current at 250 revolutions per minute, this high voltage being selected not for transmission, but for economy in distribution in the vicinity. For long distance transmission, the voltage will be raised to 22,000, 40,000 or 60,000 volts. The generators are of the internal revolving field type, the revolving field ring being built up of punched laminations, bolted together, with joints lapped. The weight of the revolving part of the machine is about 141,000 pounds. The over-all diameter of the new generator is about 19 feet. The electric current sent to the New York side from this Canadian plant will be changed



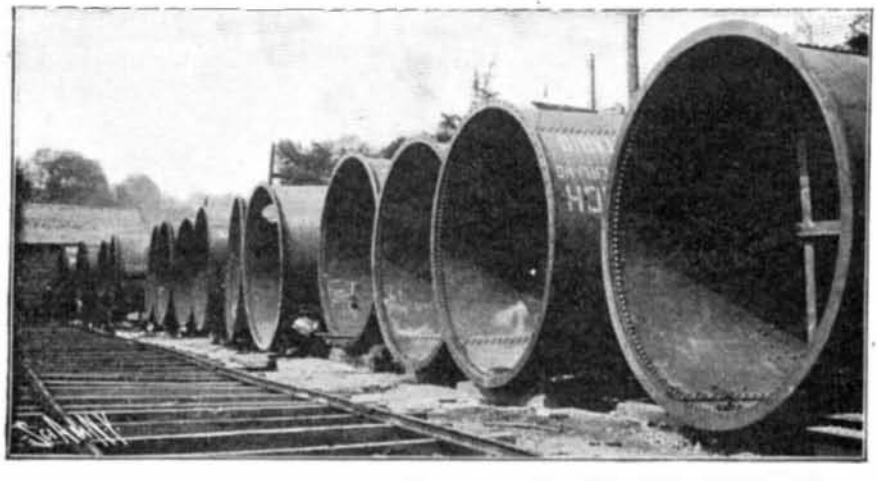
One of the Masonry Culverts, by Which Water is Led from Forebay to the Top of the 10-Foot Penstocks.



Three of the 10,000-Horse-Power Generators in the Power Station.



The Screen for Preventing Entrance of Drift and Ice to the Forebay, the New Bridge, and the Power Station.



Sections of the 10-Foot Penstocks, Through Which Water is Conveyed from the Forebay, Vertically, to the Turbines at the Bottom of the Wheelpit.

OPENING OF THE NIAGARA CANADIAN POWER COMPANY'S PLANT.

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.

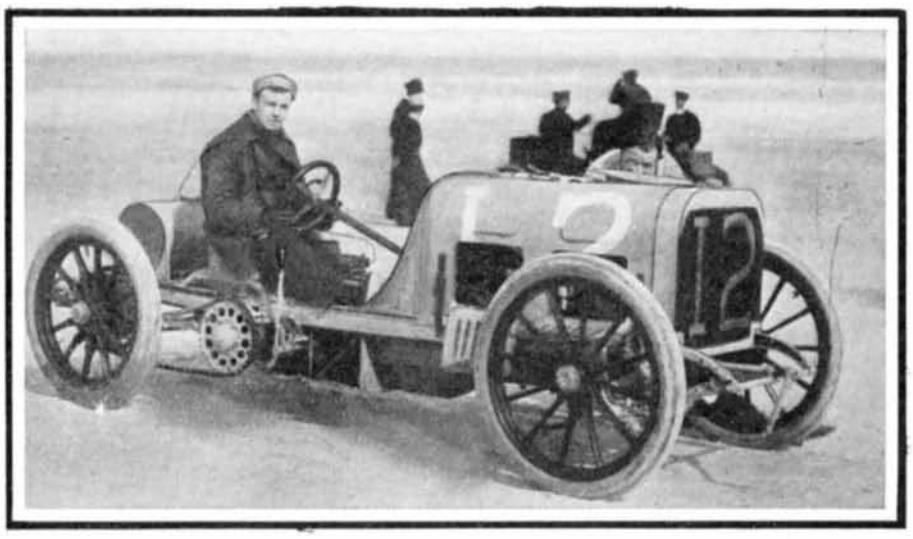
Because it was first to project a power development on the Canadian side of the river, the Canadian Niagara Power Company had the pick of sites. It located 2,200 feet back from the brink of the Horseshoe Fall. Its power house is a handsome stone building with covered forebay. The wheel pit is much like 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.

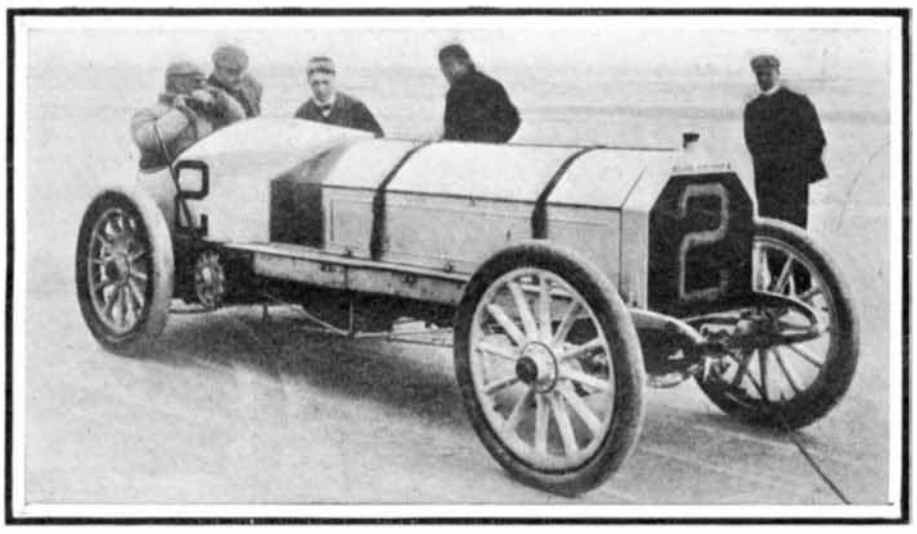
The second day of the races saw the making of new mile and kilometer records by the Napier 90-horse-power car and Bowden's 120-horse-power Mercedes—a specially-constructed machine having two four-cylinder, 60-horse-power Mercedes engines. This car covered a mile in 34 1-5 seconds, or at the rate of 105.26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



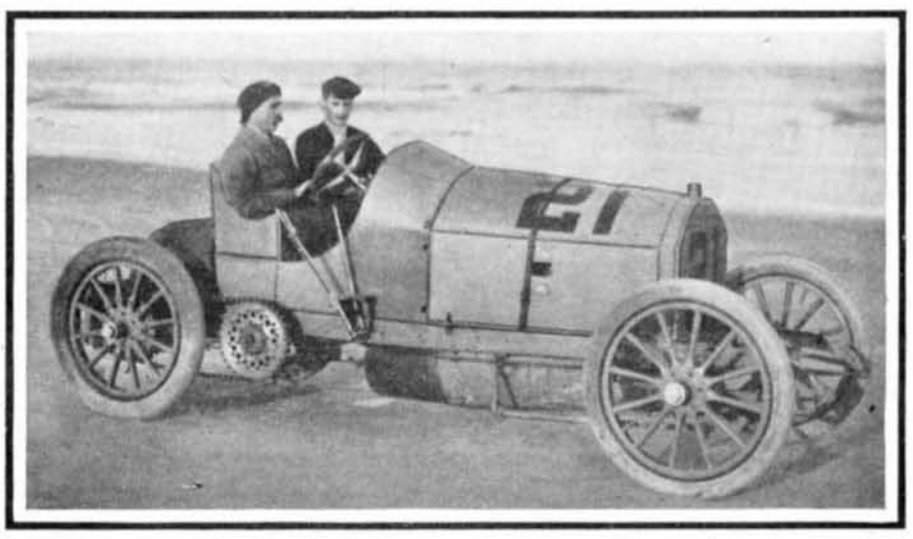
Frank Croker on His 75-Horse-Power Simplex Machine.

Copyright, 1905, by Burr McIntosh.

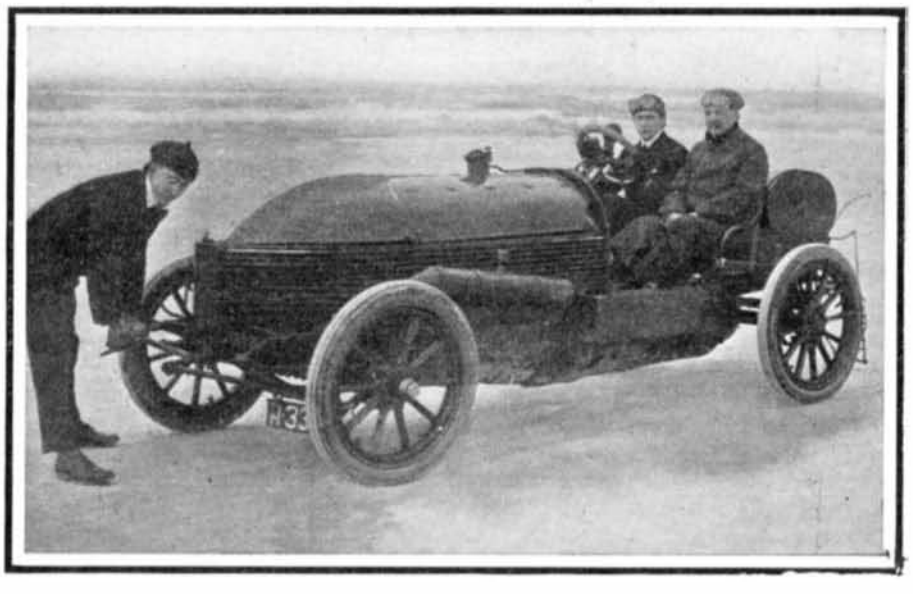
Croker's Wrecked Simplex Car.



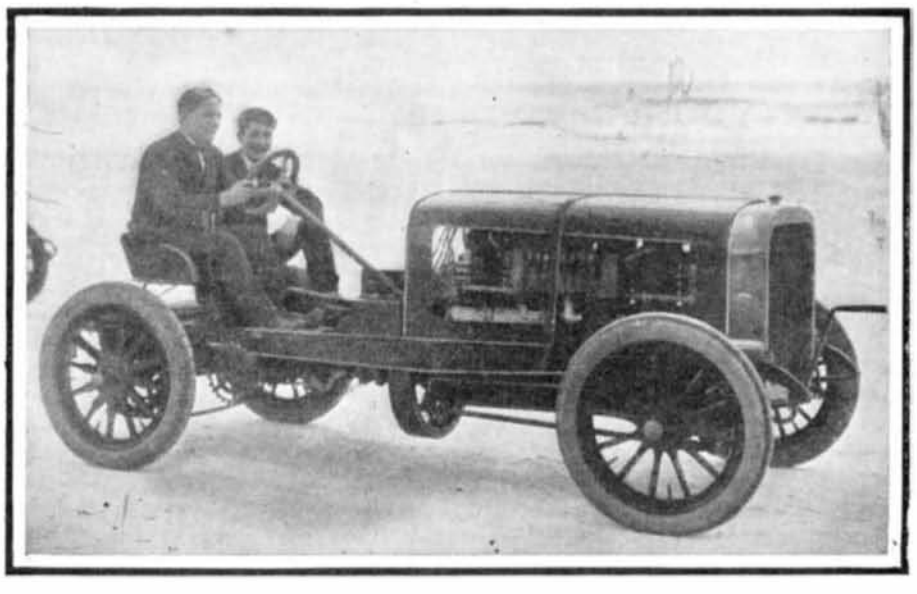
Bowden on His 120-Horse-Power 8-Cylinder Mercedes.



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