

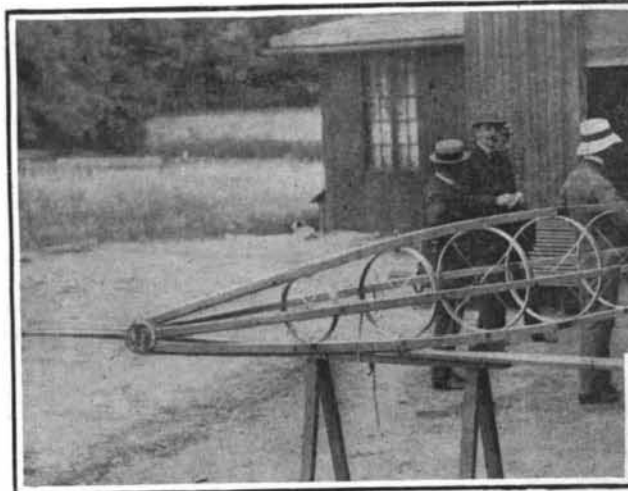
BY MOTOR CAR TO THE SOUTH POLE.

BY J. S. DUNNET.

At the beginning of next year, E. H. Shackleton will make another attempt to reach the South Pole, leaving New Zealand in January for that purpose.

The party of twelve will embark in a ten-knot steamer, not specially built to resist the ice packs, for she will return to New Zealand as soon as she has landed the expedition, with a liberal quantity of supplies. After wintering at a convenient spot, the work of exploration proper will begin during the following October. The expedition will be divided into three sections. One will travel eastward, and cross the barrier in the hope of reaching the area known as Edward the Seventh's land, and follow the coast line southward, retracing its steps when necessary. The second detachment will strike south over the same route followed by the "Discovery's" sledge party in 1892. The third will go in a westerly direction over the mountains toward the magnetic pole. Each party will be equipped with a motor car, specially built for the purpose. The sledges containing provisions and paraphernalia will be hitched to the car. As a stand-by, Siberian ponies will be used instead of dogs, as employed in the 1901-4 expedition. It is claimed that these animals will easily drag a load of 1,800 pounds on a food basis of 10 pounds per day, while a dog will only conveniently shift a load of 100 pounds on a 2-pound per day ration. Thus one pony will equal as a carrier 18 dogs at less than one-third the aggregate food allowance. Besides that, the pony can comfortably sledge a distance of 20 to 25 miles a day on a pinch, a thing the dog has never been able to do.

It is expected by Shackleton that the party will be able to cover up to 25 miles per day. If the motor-car air reaches his expectations, he feels sure he will be able to get beyond latitude 82 deg. south. At



Framework of the Large Float.

The skeleton of the floats is made of wood and aluminium.

every 100 miles of the journey a sledge will be left containing provisions, in case of any accident. The winter quarters will be at Mount Melbourne, the highest known point of the dark continent. At that spot they will be 731 miles from the pole; and assuming that the motor cars carry them beyond latitude 82 deg. south, they would then be starting on the remaining 464 miles as fresh as if they were starting from the ship's side. Shackleton thinks they can follow the trend of the southern mountains a long distance before needing to turn east or west. Should it be necessary to veer east, and they find it impossible to surmount the glacier fields with the car, they can resort to the method of pulling the sledges up with the ponies. If that expedient is impracticable, they may go eastward until they find it necessary to return to winter quarters at Mount Melbourne. But if, on the other hand, the mountains turn to the west, they could go due south, increasing the distance between their depots to 150 miles, to admit of a more extended journey. If the pole area be reached, they could then strike at an angle about northeast, picking up the mountains to the west.

It is not proposed during the expedition to neglect the biological, meteorological, geological, and magnetic work commenced by the "Discovery." If possible, a small party will be landed at the nearest available point to the magnetic poles. There it will remain until the time comes for sledging, when it will travel across the mountains to take full observations. Should the party reach the pole, the magnetic area will be surveyed as far as possible. While at Mount Melbourne during the long winter everything possible will be done to collect scientific data. The active volcano, Mount Erebus, in the neighborhood, will be investigated. A special attempt will be made to study the habits of the emperor penguin; and with the aid of a cinematograph camera to snap-shot its movements, and a phonograph to record its weird cries, it is hoped to get matter of great interest.

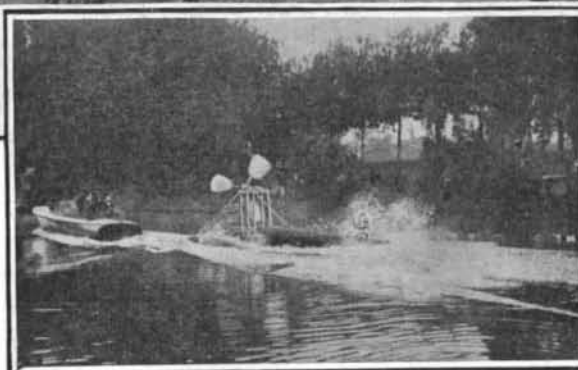
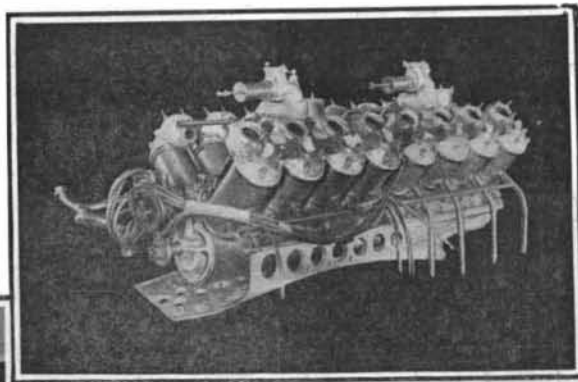
Some carrier pigeons will also be liberated, to see if they can put up a world's record by getting back to New Zealand.

A vessel will be dispatched from New Zealand to pick up the parties in February, 1909. The southernmost section will be picked up first; then the Mount Melbourne party. After that they will steam to the north of Ballemby Islands, keeping in as far as possible in order to trace the coast line of Wilkes Land.

SANTOS DUMONT'S NEW HYDROPLANE.

In an effort to win a ten thousand dollar bet made with M. Charron, to the effect that he could build a hydroplane which would travel 100 kilometers (62 miles) an hour, Santos Dumont has recently constructed the novel craft which we illustrate. This new hydroplane consists of one long cigar-shaped pontoon 10 meters (32.8 feet) in length, and which is placed between two similar smaller floats 1 meter (3.28 feet) long. The three floats are fastened together, and a long, narrow plane, 13.12 feet long, extends crosswise from one of the small outer floats to the other. Another plane 4.92 feet long is placed transversely at the rear. The construction of the apparatus is apparent from the photographs. The floats

The 120-Horse-Power, 16-Cylinder, V-Type Motor Used on the Hydroplane.



Towing Test of Santos Dumont's "No. 18" Hydroplane.

The 3-bladed air propeller will draw the craft.

SANTOS DUMONT'S NEW HYDROPLANE.

are built up upon a framework of wood and aluminium covered with a rubber-treated fabric which is air and water tight. They are inflated with compressed air, in order to increase their stability. A 16-cylinder, 120-horse-power, V-type motor is mounted on the framework which carries the air propeller. The motor drives the latter direct. The helmsman sits in a small seat at the rear end of the center float, and steers the hydroplane by means of a wheel. In one of our photographs the new craft is shown being towed at a good speed by a fast motor boat. When this test was made, the hydroplane rose until the floats were completely lifted out of the water, and it glided upon its two planes with apparently good stability. The total weight of the new craft is not much more than 500 pounds. In the test which is soon to be made, Santos Dumont hopes to do better than 100 kilometers (62.13 miles) an hour.

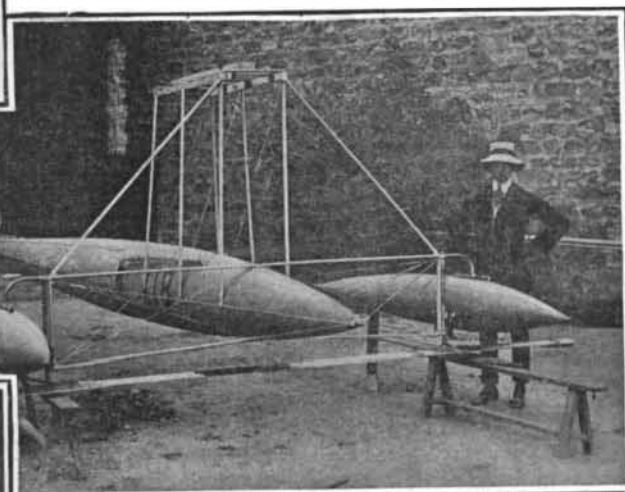
The British War Department's new dirigible balloon "Nulli Secundus" on October 5 made a voyage from Farnborough, a suburb of Aldershot, to London. The trip proved in every way successful. Following the highroad, the balloon kept so straight a course that its shadow fell on the road for a great part of the way. The balloon started against a head wind blowing ten miles an hour, but in spite of this it covered the 32 miles between Aldershot and London in a few minutes over two hours. The balloon appeared under

perfect control, and whether with or against the wind, it sailed smoothly and swiftly. On reaching London the balloon first circled over the buildings of the War Department and then, curving round St. Paul's Cathedral, journeyed southward to the Crystal Palace, where it descended. The entire trip lasted three and a half hours. Col. Capper says he could have remained up six hours and longer, but thought it inadvisable to take risks at this experimental stage. The event is regarded as marking a new epoch in British military history. The visit of the airship came as a surprise to the authorities at the War Office, although they knew that something of the kind was contemplated at some time or other. All the officers in the building turned out to greet the visitor. It came low enough to afford an excellent view of it. It was possible to see the working of the mechanism. During the three and a half hours' trip, the "Nulli Secundus" covered fifty miles. The highest altitude reached was 1,300 feet. The mean height was 750 feet. The speed was fourteen miles an hour, but at one point it reached forty. The engine, which is of French construction, ran from 1,100 to 1,200 revolutions a minute. Ordinary gasoline was used as fuel. Ballast was carried but not used.

During a recent storm the airship was badly injured because of poor housing. It is questionable whether it will ever sail again.

The Pennsylvania Railroad School of Telegraphy.

A school of telegraphy was opened at Reading, Pa., by the Pennsylvania Railroad on September 16. The supply of well-trained men is at present insufficient, and national legislation limiting the daily work of railway telegraphers to nine hours will enforce upon railway companies the problem of supplying a large number of additional operators. On the Pennsylvania road alone, which now employs more than 3,000 operators, it is estimated that 700 additional men will



The Completed Hydroplane.

Note the narrow planes beneath the float at front and rear.

be needed to comply fully with the provisions of the law. The time required for the course is six to eight months, and salaried positions await graduates. The cost of tuition is \$2 monthly—a merely nominal sum. The Pennsylvania Railroad wants healthy young men between the ages of 17 and 25, with a fair knowledge of English, mathematics, and geography—and with brains.

To familiarize students with practical work, the regular wire of the division will run through the school room and standard train order blanks will be furnished. The text books will consist of the book of block signal rules, the book of rules for the government of the transportation department, copies of all standard forms of Pennsylvania Railroad blanks generally used in the keeping of station agents' accounts, and other standard literature used in carrying on the business. In addition to this, students will be instructed in the general duties of an agent in administering the affairs of a station.

The entire frame of the great tower of the Singer building in New York is completed, and the outer walls, which have followed the steelwork closely, are more than three-quarters finished. The framework, which was not started until late in the spring, has been put up in good time and without any serious mishaps. It is expected that the whole of the lofty structure will be inclosed before there is any very cold weather, so that the interior work, which will be entirely fireproof, can proceed without interruption in the winter.

The British Admiralty proposes to arm the new vessels of the "Dreadnought" class with eight new type 13.5-inch guns, so disposed that they can all be fired on either broadside. The new weapon will be over 50 feet long, and a shell from it will, it is calculated, pierce 20-inch Krupp steel armor at a range of 3,000 yards.