

## Aircraft That Hovers

By FREDERIC J. MASKIN

WASHINGTON, D. C., June 30.—The heavier-than-air machine that will ascend and descend vertically, and move forward when called upon to do so, may not have arrived, but it is in the offing. Henry A. Berliner, a Washington inventor, has been making demonstrations with a machine of this kind that have attracted wide-spread attention.

Helicopter is the name given this type of flyer. Experts say it is to be the next development in the flying game, and experimenting has been stimulated by a big money prize that has been offered in England for the first machine that will meet certain fundamental requirements. Mr. Berliner is modest about what he has accomplished, and has not gone after the prize money as yet, but it is possible that he has solved at least one of the big problems presented by the theory of the helicopter.

There are three of these problems—first, getting the machine into the air; second, flying it horizontally; and, third, bringing it down again. The first has not been so difficult of solution and many machines have been constructed that will rise from the ground vertically, although it cannot be said that in any one of them this phase of helicopter flight has been perfected. Mr. Berliner's machines have been directed largely toward horizontal flight.

Of course any helicopter that goes up in the air will come down. The great difficulty lies in bringing it down, rather than letting it fall down, and it is said that this is the greatest of the three problems mentioned.

Theoretically the helicopter can go straight up in the air, fly in any direction, hover in the air, and then come down safely. Power lifts them, and moves them and holds them, but power is difficult of application in making a descent. The machines have no wings and when the motor is cut out there is a marked tendency toward a rock-like fall that spells disaster. If there were an engine of extreme nicety of adjustment and absolute certainty of action descent might be accomplished by simply throttling down the propeller speed gradually. But there is no engine of such dependability as yet.

Propellers At Cross Purposes

The Berliner machine which has been constructed primarily for experimentation in horizontal flight, resembles an airplane, except that it has no wings. The fuselage and rudder are the same, and the motor is mounted forward as in the airplane. On each side of the fuselage is an upright car carrying a 14-foot propeller, and these propellers whirl in opposite directions, forcing the air downwards and giving the lift required to bring the 1,300 pound machine and pilot straight up into the air.

Aviators point out that getting a helicopter off the ground is comparatively an easy matter, for the air that is forced downward forms a cushion that helps sustain the machine. However, when the machine gets some distance above the ground there is no such cushion and there is a gyroscopic action caused by the big rotating propellers which frequently cause the helicopter to turn turtle. Lieut. Stefan von Petrozy, of the Austrian Balloon Service, is said to have ascended 170 feet in a machine of this type, and it is claimed that the Englishman, Louis Brennan, has been up 40 feet inside a hangar, but Mr. Berliner has never taken his helicopter more than 10 or 12 feet above ground. That is ample for experimental purposes, he says.

The Washington inventor in addressing himself to the problem of horizontal motion hit upon the plan of tilting the helicopter. This is done by means of a small propeller near the tail of the machine which is geared to the motor. By lifting the tail slightly this tilts the whole machine, which results in a forward motion at the expense of the lifting power.

Mr. Berliner claims that with a load of 1,000 pounds only 3 per cent of the lift is lost in a tilt of 15 degrees, and that this loss is transferred into a horizontal pull of about 25 per cent of the lifting power. The inventor believes that a 25 degree tilt may possibly be attained with safety, but he has never gone that far in any of his experiments, in the course of which he has made short flights over rough ground.

Such success as he has met with has encouraged him greatly, but he is by no means ready to go after the

British prize money. Barely a beginning has as yet been made in this department of aviation, he says.

## War Stopped Experiments

From the day of the first heavier-than-air machine the helicopter has been one of the visions of both the men who fly and those who design and build "ships." They have wanted a kind of aircraft that would not require an immense field to take off or for a landing—one that could be used from a battleship, or passenger vessel, or from the roof of an office building. Accordingly a deal of experimenting in this direction was going on almost from the beginning of aviation.

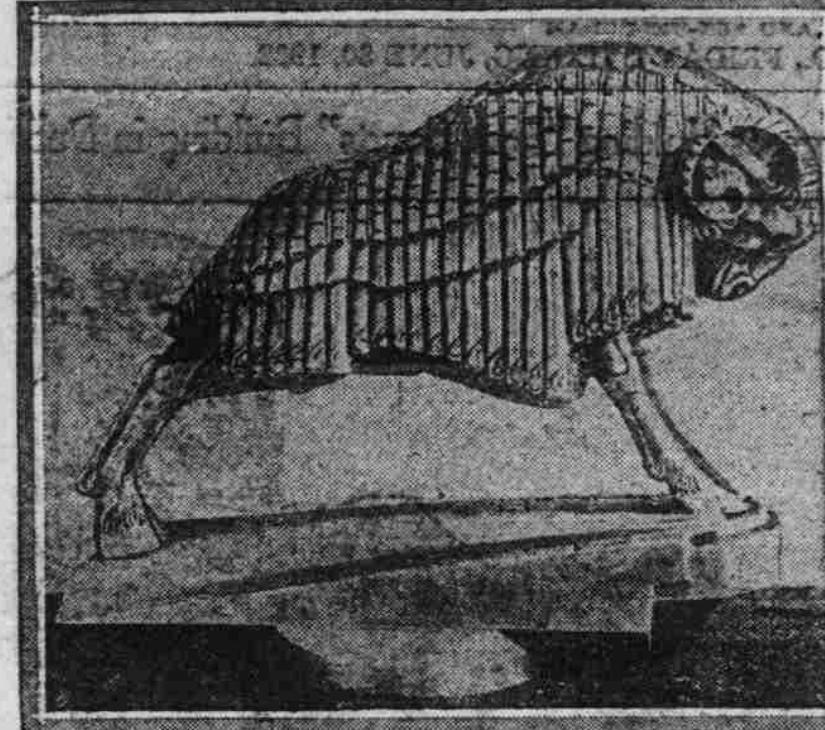
However, when the European war opened and the value of the airplane as a weapon of offense and defense was apparent, all experiments were abandoned save those that had to do with planes. Invention genius and energy were concentrated on perfecting that type of aircraft, with the result that more progress was made in a few months than ordinarily would have been noted in many years.

The war necessity did wonders for the airplane, but it set the helicopter back correspondingly. It was regarded as highly desirable, especially for bombing operations and for observation purposes, as a machine that could remain stationary in the air for an indefinite period has obvious advantages for such work. It would combine the immobility of an observation balloon with the mobility of a plane, and at the same time it would not present such an easy mark for anti-aircraft guns.

But it was recognized that the difficulties in the way of developing such a machine were immeasurably greater than those encountered in the perfecting of the airplane and the war emergency was so great that the helicopter idea was laid aside. It was found, also, that bombs could be dropped from a plane flying at a speed of 100 miles an hour almost as accurately as from a stationary or hovering machine, and that minimized the need of the new type of air-craft.

Some scientists are extremely doubtful that the helicopter can ever be made practicable. Without wings it has nothing to support it save the propellers and the power of its motor, and it is claimed that it will always be erratic and tend to turn turtle in the most surprising and dangerous fashion. The Austrian inventor who succeeded in getting his helicopter 170 feet in the air later crashed

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with it, and Brennan, in England, is reported to have met with frequent accidents. There was a rumor that the latter had succeeded in meeting the requirements that would win the coveted prize, but this has been denied, and Mr. Berliner, the Washington experimenter, has assurances that the field is still an open one.

The idea that the helicopter will be the popular means of transportation between home and office, or that it may be used as a taxi for shopping expeditions, is fascinating, but it is not likely of realization for some time yet.

## RICHMOND

(Continued from Page One.)

One time Dan G. Reid's private physician, and is acquainted with a number of Richmond persons. He accompanied Mr. Reid on a yacht cruise around the world; spent sometime with him at Monte Carlo and later returned to New York where he remained two years.

Gigli, the famous tenor who has taken Caruso's place in the Metropolitan Opera company, was one of the many distinguished passengers. He was confined to his bed with rheumatism

for the entire trip but sang at several swell gatherings.

George F. Baker of New York, who just gave \$1,000.00 to the Metropolitan Museum, was also a passenger, as well as Titta Ruffo, another of the famous singer. Capt. F. M. Zedabassi, of New York, a well-known painter, and formerly tenor at the Metropolitan was one of the chief entertainers

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aboard. The ship's architect, a Mr. White of Glasgow, Scotland, was also a passenger. Two thousand three hundred persons made the trip.

## Luxuriant Liner.

Classed as one of the most luxuriant and perfectly equipped of new floating hotels the Conte Rosso is also one of the fastest ships plying between New York and Italy. All furnishing and decorating was done by Italian artists, and is of the Renaissance period. The mural paintings are unusually wonderful. At one end of the first class deck is a large writing room of the Renaissance period, fitted with small tables light by great wrought iron candelabra. The windows are all of colored glass in rich colors and rose designs. Next to the writing room is a large reception hall with staircase leading down to the offices and small apartments. The music and ballroom is next and beyond it are two dining rooms, one raised above the saloon, the other beneath it being used for a tearoom on cool days. Further back are the cabins. The second deck has an outdoor dance floor and large open porch, where tea is served on warm afternoons and movies shown in the evening. Other rooms for cards and smoking fitted in white wicker furniture. Meals are served five times a day, breakfast then consummate on deck at

10 o'clock, luncheon at 12, tea at 4:30 and dinner at 7.

Shuffleboard, golf (indoor fashion) and tennis can be played on the two upper decks. An orchestra composed of an ensemble from LaTossa orchestra gives a concert from 4 to 5 every afternoon, and in the evening from 8 to 9. Later they play for the dancing. Three balls were given on the trip, and special entertainments by singers and dancers. Dancing, always the last on the program usually lasted until 1 or 2 o'clock in the morning.

All officers and servants on the ship are Italians and few speak any English but most of them speak fluent French.

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<b>32x4</b>	<b>18.75</b>	3.65	10.00
<b>33x4</b>	<b>19.50</b>	3.90	10.00
<b>34x4</b>	<b>20.00</b>	4.25	10.00

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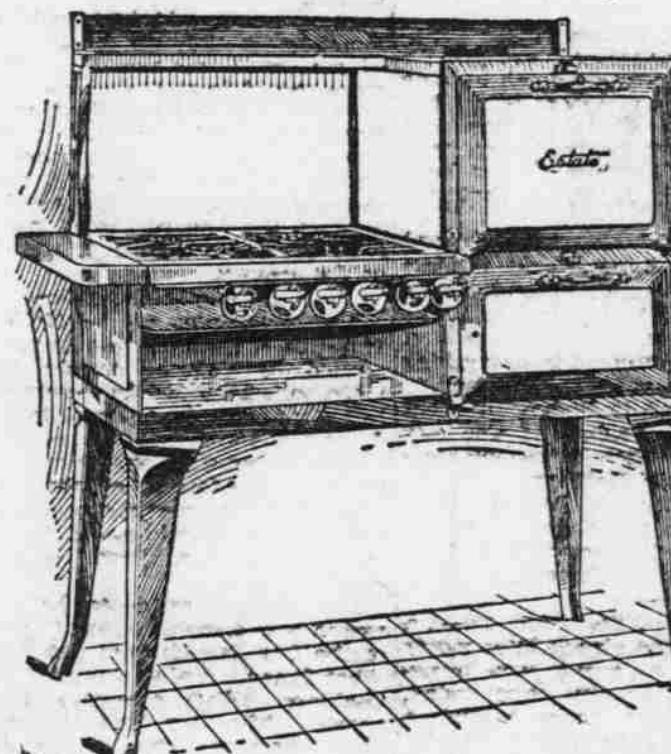
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