Dr. Langley Says We Shall Yet Fly

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WASHINGTON, June 2.—(Special Correspondence of The Bee.)—I have just returned from a talk with Secretary Langley about his flying machine, the experiments in launching which resulted so disastrously last fall. I say "in launching," for, as will be seen from this interview, the ability of the machine to fly has never been tested. The accidents have occurred before it was free from the launching stage. It has really never been in the air. You might as well say that a great modern steamer broken in launching would not float if it were successfully placed upon the water. Indeed, there is every reason to believe that the Langley machine will fly, and that, once properly launched, its engines will drive it through the air at the will of the engineer, sitting within it with his hands on the levers, and controlling it as the engineer controls his ship upon the sea. This is the belief of Mr. Langley. It is also the belief of other scientists and mechanical experts, who know something of the machine and its construction and the experiments which Mr. Langley has successfully made in this field.

Before giving my talk with Mr. Langley let me say a word as to what he has done in this and other fields of discovery and invention. His work is everywhere known in the scientific world, and his standing in Europe is as high as in the United States. What Edison, Tesla and Bell have been in the fields of practical invention he has been in scientific invention. He has created new methods of studying the heavenly bodies, has to the largest extent measured the heat of the sun, and by his invention of the bolometer has produced an instrument by which the temperature of a sunbeam can be tested to the millionth part of a degree. Every railroad in the United States runs on a time system invented by Mr. Langley. It was through him that we got the systematic time service by which the clocks all over the country are regulated from the observations, and by which the railroads run their trains without danger from accidents through varying time.

This invention illustrates one phase of Mr. Langley's work. He brings his enormous scientific knowledge down to the practical uses of mankind, and he has for years been devoted to the study of the sun and its heat, with a view to their better adaptation to practical uses. This has been his professional study, but he has also for years been investigating the properties of the air and making scientific and other experiments to give the world the knowledge upon which may be based its successful navigation. To test these properties he has made machine after machine, from some so small that they could be held in the hand to others so large that they would fill the room of a good-sized house. He had failure after failure, but from each failure he learned something. His work in aerial navigation went on for sixteen years before it culminated in the first successful aerodrome which flew up and down the Potomac in 1896.

I had the honor to describe the first flight of that machine for the public of the United States. I spent a week with Mr. Langley on an island in the river in order to secure a time for the best flying conditions. It came and then I saw this machine, which was made chiefly of steel weighing as much as a 4-year-old boy, but so large that it would about fill the average parlor, dart forth from pounds of water, and it flew through the air. Its motive power was an exceedingly light steam one-horse power engine, invented by Mr. Langley. It carried five pounds of water, and it flew through the air a distance of about three-quarters of a mile, continuing to fly until all the water had been converted into steam, when it gently dropped down upon the bosom of the Potomac.

As I looked at the machine, Mr. Langley told me that it weighed many hundred times more than the air it displaced. This is the difference between Mr. Langley's machine and those of Santos Dumont and others who expect to fly by means of balloons. The balloons are lighter than the air and they float as a boat floats upon the water. Mr. Langley's machine is carried through the air by the engine upon it, although it is many times heavier than the air it displaces. It is believed that such a machine will be safer and more easily directed than anything of a balloon nature, while its special properties will make it more suitable for military investigation in times of war.

The aerodrome I have described weighed about thirty-five or forty pounds. It was a little more than a model, and was not intended to carry a man. It had a score of successful flights, being the first flying machine ever made that really flew, and it effectually proved that an engine could drive a machine through the air.

That little model was the father of the great man-carrying, military aerodrome that now flies in the machine shops of the Smithsonian institution not much the worse for its unsuccessful launching on the Potomac. The latter is the result of Mr. Langley's work for the past eight years. It was undertaken with the aid of the War department, which gave $50,000 for this experiment that it might learn how to make a military engine large enough to carry a man in order to use it in military surveys and in warfare. That and some other money from a special fund in the Smithsonian institution has all been spent in making experiments and in constructing this machine, which still remains to be tested. Personally, I think the expenditure may be one of the most profitable Uncle Sam has ever made, although perhaps a quarter of the amount already spent will have to be added to repair the aerodrome and to construct new launching arrangements which will enable it to start out upon its voyage through the air.

I asked Mr. Langley to give me the reasons for the failures of last fall. He replied:

"There have been no failures as far as the actual test of the flying capacity of the machine is concerned. It has never been in the air and has not had a chance to show what it will do. The difficulty so far has been with the launching, where we least expected it, and where we had reasons to believe that our conditions were perfect. The launching is a very serious matter in aerial navigation, how serious was not understood until I began my experiments with the small aerodrome which you saw fly. After many changes I invented the launching apparatus which worked with that machine. I had more than twenty flights from it and it never failed me. I thought I had just what was needed for the larger machine and built launching ways on a proportionately larger scale. I was still surer of this when I launched an exact model of this large machine upon a successful flight shortly before the other trials were made, and was surprised to find that the same arrangements would not work as well with the great aerodrome. The front platform of its ways drops down in the launching like a disappearing gun carriage, and this was the immediate cause of the trouble."

"Here is a photograph of the machine on the launching stage," continued Mr. Langley as he showed me a snap shot taken by the photographer of the institution shortly before the trial. "Our idea was that the engine on the flying machine would carry it off into the air and that it would leave the launching stage unimpaired and uninjured. On the contrary, a part of the machine was caught as it went forward by the falling platform. This pulled the machine down before it got into the air, at the same time twisting one of the wings entirely out of shape, as you may see from another photograph which was made by Mr. Smillie at the time. The twisting of this wing threw the machine out of balance and helped to dash it down into the water. You might as well expect a bird to maintain itself in the air with a broken wing as a flying machine, which relies upon its wings to steady it, to fly when one of those wings is twisted or broken. The result was that the machine went into the water, carrying the intrepid engineer (Mr. Manly) with it."

"How about your second attempt, Mr. Langley?"

"The result of the second launching was even more disastrous than at the first. At that time one of the stern wings was caught in almost the same way and thrown out of place, resulting in the overturning of the aerodrome and its plunging again into the water before a flight could be begun. Had it not been for these accidents I have every reason to believe the machine would have made a successful flight. I think there is no doubt but that it will fly, but so far it has had no opportunity to do so."

"Then you consider your invention a success?"

"Nothing is an absolute success until it is proved so by actual test. I cannot say the machine is a success in that respect, for it has never been tested. I have, however, every reason to believe that it will be a success. We have taken into consideration every element with which we have to contend; we have tested every part again and again; we have calculated and tested the various possibilities, and if there is anything in scientific engineering, then this will fly."

"Tell me about the flight of your model."

"That flight was so remarkable," said Mr. Langley, "that I was surprised that it did not attract more attention. It was made on August 8 of last year, being the first time in the history of invention that any successful flight took place in public. The model carried a gas engine of three-horse power, which drove it through the air for a distance of a little less than a quarter of a mile. It then stopped only because of a defect in its fuel supply. It left the launching stage without trouble, and this assured us that it was all right for the larger machine."

"Then I suppose you use a gas engine in this large machine?"

"Yes," replied Mr. Langley. "We have a gas engine of extraordinary lightness for the very considerable horse power. The engine was one of my chief difficulties. I am not an engineer, and, indeed, I should not have attempted to construct the machine had I known the trouble I should have in getting the proper engine. In 1898 I made a contract with an American builder for a suitable engine. He agreed to deliver one within a year, but at the close of that time found that he was unable to produce what was needed. For my purpose it is necessary to have the lightest engine possible with a certain definite horse power. Finding it impossible to get this in the United States, I went to Europe and visited the works there noted for building light engines. I went to Maxim's in England and to the best known of the French and German engine builders, but nowhere could I find one which weighed so little as ten pounds to the horse power, none as light as that ever having been built. I was then most reluctantly forced to undertake to build the engine myself or to have it built under my supervision. I say reluctantly, as I am not an engineer. I then secured the assistance of Mr. Charles M. Manly, a young mechanical engineer, a graduate of Cornell university, and we tried to produce a lighter engine than any yet made. We made experiment after experiment, until he finally developed a gas engine much less than half the weight of the lightest gas engine we could procure in Europe. This is the engine which operates the present machine. I will not say just how light it is, but it weighs less pounds per horse power and at the same time it is of wonderful strength in comparison with its weight."

"You refer to the press, Mr. Langley,

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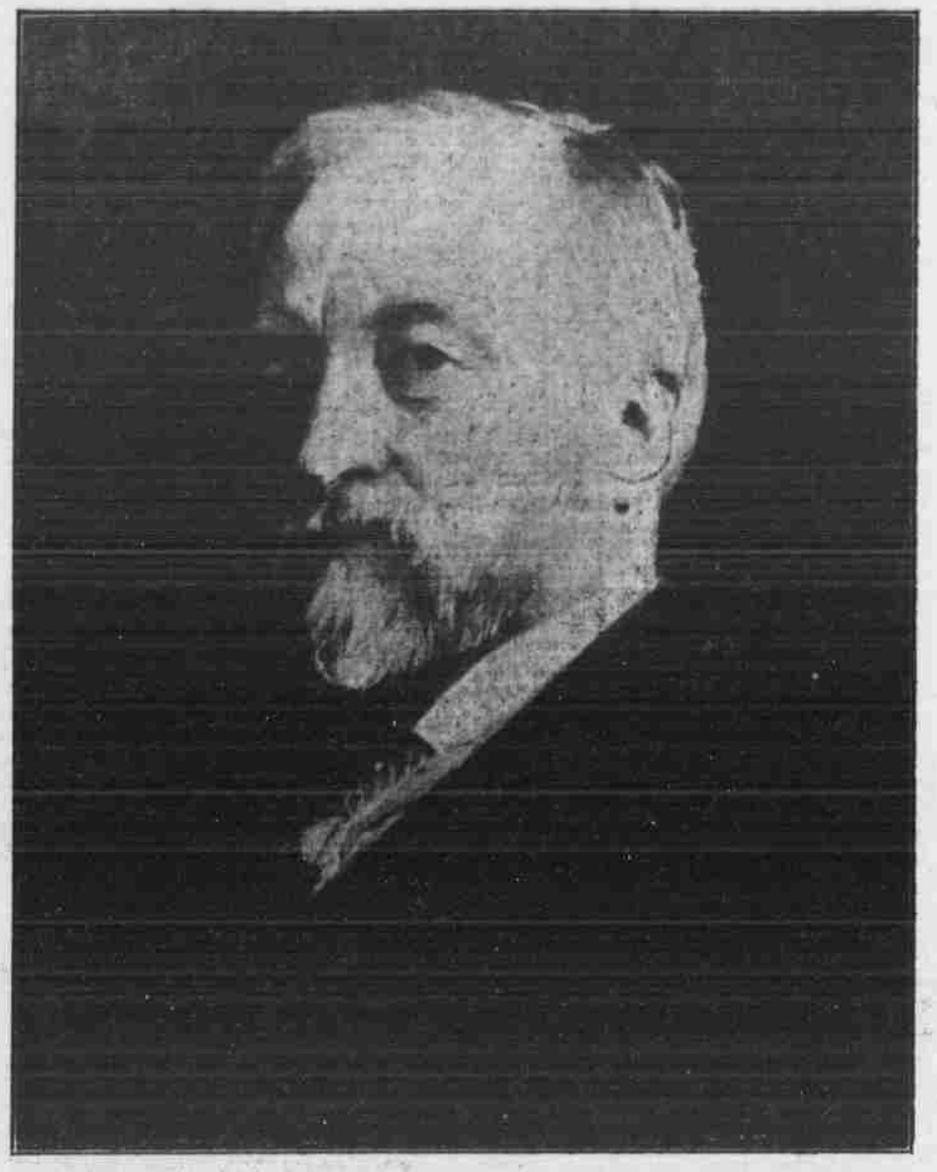
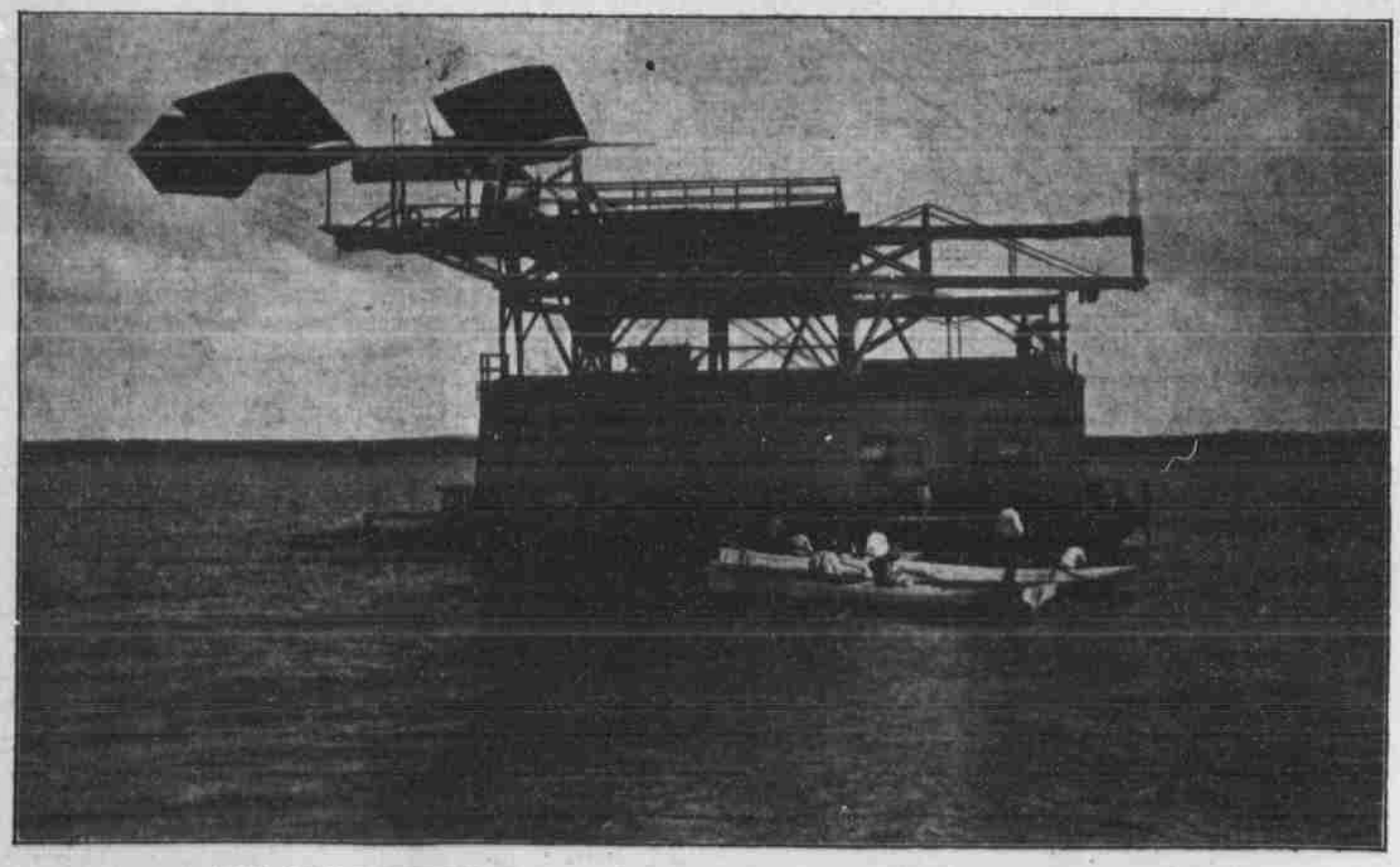


DR. S. P. LANGLEY, SECRETARY OF THE SMITHSONIAN INSTITUTE.



THE MAN-CARRYING AERDROME ON THE HOUSE BOAT, JUST STARTING.