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Attached for your information is a copy, in translation, of an article submitted by Dr. Edward Ludvig for publication in Condor, a German language magazine published in Chile. The article is entitled "The Mystery of the 'Flying Discs,' a contribution to its possible explanation".

Good report but lacking translation

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The significant conclusion drawn by the scientist in this report is that the old handicap of "boundary layer" was a moving object or airfoil had been exploited to produce an advantageous reaction and is the factor controlling the success of the "flying saucer" type of airfoil.

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THE MYSTERY OF THE "FLYING DISCS"

A contribution to its possible explanation.

By Dr. Eduard Ludwig, Santiago, Chile.
Av. Cristobal Colon 1916

Though the continuously reappearing reports on the appearance of new, mysterious aircraft of unknown construction should be considered with severe skepticism as the result of a sort of mass-hypnosis, nevertheless some of the detailed and coinciding accounts of technically trained observers deserve attention and permit one to draw conclusions as to the probable classification of these new aircraft.

Since so far the observations have been made mainly in the dark, which means that only the luminous parts of the craft are visible, every report brings the description of shining discs or circles. If one should discard the absurd conjecture that these aircraft originate from beyond this earth, then it is easy to arrive at the conclusion that the shining circles bear a relation to the exhaust of a rotary gas-turbine. The possibility exists that the rotor of a turbine is used at the same time as a stabilizing top and is therefore fixed vertically to the level of the other turbine rings, which in the darkness produces the effect of the "rings of Saturn".

These observations remind me of a completely new type of aircraft which was developed during the years I worked in the research plant of Professor Junkers in Dessau, which was attached to the airplane factories known all over the world. I do not know how many of my co-workers are still alive today, but I do know that Dr. Bock, Professor at the Technical High School of Berlin, and who was at that time my chief and friend of many years, has been deported to the Soviet Union.

The name of Professor Bock was never widely known due to his modest character, but he may have been the greatest genius of German airplane theoretics, and later, in view of his extraordinary faculties, he was named head constructor of the Ministry of German Airways and Director of the German Institute of Airways Research in Berlin-Adlershof.

In order to explain to a wider circle of readers the basic idea of the new aircraft, I should like to submit first the following explanations:

(only should be mentioned as physicist -)
The first [physicist] and mathematician who considered the new Science of Aerodynamics after the commencement of purely experimental developments of aircraft construction was the Russian Professor *Jukowski* of Moscow. Before the first World War and together with my esteemed teacher, Dr. Kutta from the Technical High School of Stuttgart, Germany, he developed the theory of airplane-wingbeam. Professor Kutta succeeded in establishing the famous "Differential equation of the boundary stratum" which for the first time throws light on the processes in current particles and which in any case explains for the first time theoretically the reason why a planewing can bear a load while moving forward through the air. Since then the "Kutta-Jukowski Theory of Airplane-wingbeam" has been the foundation of all aerodynamics. As already mentioned, the core of this work is the so-called "boundary stratum", which consists of the thin layer of air in which the transition of Velocity Zero to the Velocity of the Moving Object takes place. If the object is streamlined then the boundary stratum will endeavor not to sever, no whirlwinds will occur, and therefore no loss of energy will take place in that stratum. Since nature always functions most economically, it always tries to avoid loss of energy, and therefore a planewing would rather bear weight than cause a disruption of the course of the current and let the wing drop.

The logical conclusions based on these theoretic discoveries were obvious: already in the year 1915 Professor H. C. Bauman, also from the Technical High School of Stuttgart, received a patent on the "Splitwing" through which the artificial interruption of the course of the current, the tearing of the boundary stratum and the consequent braking and diminishing of the landing speed would be attained. This

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with a positive starting angle in connection with the enormously high starting speed. The attaching of speedily rotating tops assures side stability. There is also the possibility of attaching horizontal auxiliary propellers of the helicopter type. And what about the question of the starting force? The safety of such an aircraft stands and falls on the starting force of the cylinders, and only too well do I remember the casualties inflicted by the lack of it. As I mentioned before, only the development of a gas-turbine can bring the solution, since it consists only of rotating parts and works with the dependability of a steam engine.

There is only one more question to be answered: could such an aircraft carry enough fuel for world-wide journeys? This question is easily answered in the affirmative. In the first place such an aircraft has a tremendous carrying capacity, as we have already seen; and in the second place chemical research has made astounding developments in this respect. We know today—quite apart from atomic energy—carriers of energy of unsuspected power and duration. [It should be remembered that the missiles of German anti-tank weapons were coated with chemical substances which melted up to 20 ozs. of steel plates within fractions of a second.] Energy carriers of this type, if applicable to a gas-turbine, should make an action-radius possible which far surpasses that of gasoline engines.

The future will show whether the "Flying Discs" are only the products of imagination or whether they are the results of a far-advanced German science which, possibly, as well as the nearly finished atomic bombs, may have fallen into the hands of the Russians.

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