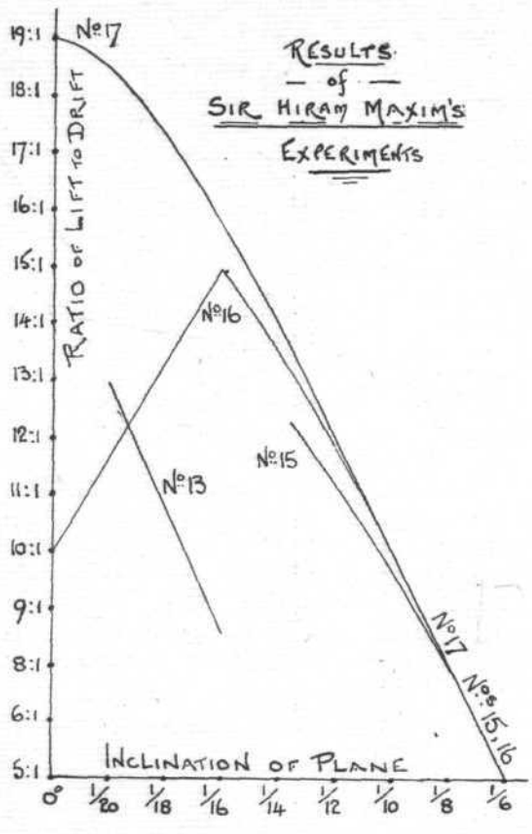
experiments, hence their interest to students of aviation. So little are the laws relating to the effects of wind rendered evident in the ordinary walks of life that some of the results which Sir Hiram Maxim obtained are apparently contrary from what common sense would have led one to expect. Who, for instance, would think of using the back of a knife blade to cut with? Yet the thick edge of a bar having a kite-shaped section (Fig. 5) offers less resistance to the wind than the thin edge (Fig. 6) of the same bar. Similarly with bars shaped as in Figs. 7 to 10, it is always the thick edges which would be most advantageously placed foremost for the purpose of reducing their resistances when forcing them through the air. It does not, of course, follow that these sections are desirable in themselves, but it is obviously of the utmost importance to know which way round they should go, whenever it is necesssary to use them.

Then there is another extraordinary phenomenon, concerning the bar having a triangular shaped section shown in Fig. 12. Placed as shown in the illustration, with the wind blowing against one of its thin edges, the effect of the draught would apparently be to force the bar *downwards*. Sir Hiram Maxim's experiment, on the other hand, produced the paradoxical result of showing that the bar was *lifted* by a wind blowing in either direction! So, when it is realised that things aeronautic may be so very much unlike what they seem on the surface, it is not difficult to understand how important it is that experiments of this character should be carried out.

Besides his tests with bars of different section, such as might be used for struts and stays in aeroplane construction, Sir Hiram experimented with different forms of aeroplanes, such as are shown by the sketches Figs. 13 to 17. We do not propose to refer to the results at length, because they may be ascertained, by those interested, from the book itself, but there are one or two points which certainly deserve comment. In the case of the plane illustrated in Fig. 13, for instance, it was found when placed level with the wind to have no perceptible lift or drift. That it had no lift may be readily believed, but that it had no measurable drift also, is not only extraordinary but very much opposed to the ideas of those who maintain that the mere passage of the wind when sweeping across the *surface* of an object creates a "skin friction" which forms a very appreciable fraction of the whole resistance. This particular plane had a flat under-side, but the plane illustrated in Fig. 16, was cambered, and it demonstrated the interesting phenomenon of an appreciable lift while its front and rear edges were level with the wind; in fact, it was not until the plane was given a downward tilt of 1 in 18 that it ceased to extract "lift" from the wind.

As we have mentioned elsewhere, the figures relating to these experiments are given in a far from convenient form in Sir Hiram Maxim's book, and we have therefore tabulated those which appear to be the most interesting, and have added some calculations of our own to make the data more complete. In addition, we have plotted a few of the results in the form of a chart, as this is the best method of dealing with figures of this description in order to see what they mean. These curves are not intended to be strictly accurate, nor to represent the whole of the figures in the table; they are merely intended to show the nature of those figures. They represent by their slope the relative values of lift, drift and inclination for the different experimental planes as numbered. They are so incomplete that if they do nothing more than point out the necessity for further experiments they will have served a useful purpose; but, even in their crude form, they still convey many important ideas. A comparison of the different lines, for instance, shows that only No. 17 has a continuous and gradual curvature, and that it is, therefore, of the utmost importance that an aeroplane surface should be the right shape. It must be most disconcerting to the pilot if the relationship between the lift-drift ratio and the inclination changes in an irregular manner, because he would have this to combat against in addition to the variation in the elements themselves. Another interesting point which may be deduced from these curves is that at great inclinations (1 in 6, &c.) all planes have approximately the same drift-lift ratio, which is strangely enough numerically equivalent to the slope of the plane. This apparent law is not in accordance with mathematical theory, and it is, therefore, all the more important that more evidence should be collected as soon as may be. Sir Hiram Maxim's book, in fact, contains a great number of interesting points like this, and they are put before the reader in a simple non-mathematical way, so that even the uninitiated is readily able to grasp their significance.



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A Lecture on Flight.

The Coventry graduates of the Institution of Automobile Engineers have showed their appreciation of the importance of Flight at the present time by devoting their first paper to the subject. This was given by Mr. Joseph A. Mackle, B.Eng., on Tuesday, January 26th.

The lecturer gave an interesting sketch of the work of the many experimenters, from mythical Icarus down to the end of 1908, and devoted the remainder of his paper to the consideration of the main existing types of aeroplanes. In conclusion, attention was drawn to the many features common to both the aeroplane and the automobile, and the prediction was hazarded that in a very few years Coventry will be the centre of a new and important industry, just as it is at the present time the motor centre of the world's greatest motoring country.

A short discussion followed the lecture, and judging from the interest aroused, the subject of Flight and its possibilities will have further attention from this centre next session.