wing stroke of the bird *must* be at right angles to this resultant! But *why must this be so?* Again, even if Briant does not make the blunder of intending to compound the force of resistance to the bird's motion with the acceleration of gravity, you can see the absurdity of his logic (?) even on the supposition that he intends to compound the two forces, to wit, the *weight* of the bird with the *resistance* to its horizontal motion; for if he does so, it follows that if two birds have different weights, but are moving with the *same speed*, the *inclination of the* resultant of the compounded forces *will be different.* But, according to Briant, the direction of wing stroke "must" be at right angles to the inclination of this resultant. Therefore the direction of wing stroke will be a function, or depend on, the weight of the bird!

Now, Mr. Brearey, you know this *is not the case as well as I do.* You know perfectly well that a pigeon does not strike nearly downward *because it is light*, while a swan has to strike nearly horizontal because it is heavy, and in order that it may likewise fly.*

* * * * * * I would not have written in this vein, but as you have asked me this second time for my opinion on Mr. Briant's addition (?) to aëronautical lore, I've given it, though somewhat regretting I have had to waste so much time over such a crude conception as that which you forwarded for my criticism. * * * Generally speaking, I may say that as a matter of *direct*

*Mr. Brearey believes that the attainment of the *weight-carrying* ability of the bird's wing stroke will make more demands upon man's ingenuity than he has negotiated for. As witness the instantaneous photograph of the wings' varied positions through a second or two of time, as thrown on to a screen. But that the simple flight of a light weight is very easy of attainment.—F.W.B.

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experiment with boats furnished with wings (or fins) and swimming under water, I have found, as I before expected, that *slight* changes in the inclination of the wing stroke to the vertical—provided no changes were made also changing the inclination of the wing plane to the horizon—made little or *no difference* in the (observed) effect upon the boat. The inclination of the *wing plane*, however, is a matter of *enormous importance*, and you may ask Briant to forward me his *theory* of flight generally, and the *inclination* of the plane of a bird's wing *in particular*.

In haste,

Yours truly,

H. MIDDLETON.

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