

gulls affords a more useful study than can be obtained from the movements of any other bird of equal strength of wing, on account of the fearlessness with which they approach the observer. We think no one can watch the evolutions of these birds without conceding that we are far from having solved the mystery of flight. Taking into account their weight, it is impossible to conceive their power, to float in air and to sail against a strong current of wind, as due to the slow and easy movements of their wings. We have watched these birds daily for months together, and we are wholly at a loss to account for their ability to sustain themselves with so small an effort as they appear to exert. The most rapid movement of their wings appears to be made when they poise themselves in air without advance or retreat. When sailing either with or against the wind, they seem to need but little power to propel them. This peculiarity may be noticed in all the birds which can sail slowly through the air, like the eagle, hawk, etc. The swallow, which skims like an arrow, moves its wings, which are large in proportion to its size, with great rapidity. The stroke of the pigeon is also swift and strong. The wings of the wild goose scarcely move more than one hundred and twenty times per minute, yet they are small in proportion to the weight of the bird, which is often from ten to thirteen pounds.

Standing with a glass on some high peak, one may see, in certain localities and seasons, flock after flock of wild geese traversing the sky from horizon to horizon with steady and uniform stroke, and probably passing thirty or forty miles from the time they are first discovered till they disappear in the distance. Now let the curious reader calculate the power necessary to sustain a body weighing ten pounds, by one hundred and twenty successive and uniform impulses per minute, without taking into account cross section resistance to advance, and he will begin to appreciate the mystery of flight.

It is because this mystery exists that the problem of human flight through the aid of machinery is still unsolved. As soon as we know the mechanical principles of flight, we shall have some ground for judging its possibility or impossibility to "birds without feathers."

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