

developed to such an extent that extraordinary rates of velocity and distances traversed have been recorded. Thus Mr. Charles Boner states, in his 'Forest Creatures,' that the flight of the Eagle is sixty feet per second, being at the rate of somewhat more than forty miles per hour; and my friend Mr. White Cooper mentions, in his 'Zoological Notes and Anecdotes,' that "the flight of a Hawk is calculated at one hundred and fifty miles an hour; and the anecdote of the Falcon belonging to Henry IV. of France, which flew, in one day, from Fontainebleau to Malta, a distance of thirteen hundred and fifty miles, is well authenticated."

Mr. Harting, in his interesting 'Ornithology of Shakespeare,' mentions that the flight of the Common Swallow (*Hirundo rustica*) has been computed to be at the rate of ninety miles an hour. If this be a just computation, that of the Alpine Swift must be twice as great; but these are as nothing when compared with the velocity of the Frigate bird (*Tachypetes aquilus*), which, says Audubon, "is possessed of a power of flight I conceive superior to that of perhaps any other bird. However swiftly the Cayenne Tern, the smaller Gulls, or the Jager move on the wing, it seems a matter of mere sport to it to overtake any of them."

"There are two facts observable in all birds of great and long-sustained powers of flight," remarks the Duke of Argyll, in his admirable 'Reign of Law.' "The first is that they are always provided with wings which are rather long than broad, and sometimes extremely narrow in proportion to their length; the second is that the wings are always sharply pointed at the ends. Let us look at the mechanical laws which absolutely require this structure for the purpose of powerful flight, and to meet which it has accordingly been devised and provided. One law appealed to in making wings rather long than broad is simply the law of leverage . . . . and a long wing is nothing but a long lever. The mechanical principle or law, as is well known, is this—that a very small amount of motion (or motion through a very small space) at the short end of a lever, produces a great amount of motion (through a long space) at the opposite or longer end. This action requires, indeed, a very intense force to be applied at the shorter end; but it applies that force with immense advantage for the purpose in view, because the motion which is transmitted to the end of a long wing is a motion acting at that point through a long space, and is therefore equivalent to a very heavy weight lifted through a short space at the end which is attached to the body of the bird. Now, this is precisely what is required for the purpose of flight." The preceding extract is sufficient for my present purpose; but my readers will find many other interesting remarks on the laws affecting and governing the flight of birds, in the work above mentioned, to which I would earnestly direct their attention.

Birds, like other animals, are endowed with the usual senses; but these vary in degree of perfection in accordance with the variety in their habits. That that of sight is very highly developed is amply testified in the Kestrel, whose eyes must be almost telescopic to enable it to see an insect or a mouse on the ground from the great elevation at which it usually hovers; the familiar Robin, who discovers the wriggling worm