

44. *Ægialitis vocifera* (Linn.). KILLDEER PLOVER. — A rare migrant, seldom more than one seen.

45. *Ægialitis semipalmata* (Bonap.). RING-NECK PLOVER. — This pretty little bird arrives in August and September; it frequents the sand-beach in flocks of three to six, and runs along at considerable speed, uttering its plaintive call note.

46. *Arenaria interpres* (Linn.). TURNSTONE. — Numbers arrive at the migration season; they frequent the seashore, and may be found amongst the débris cast up by the sea. A few remain all the year. I have seen them on the sands of Dumfries and Belvue South at all seasons, and also on the mud flats at Grand Anse. I observed one at the lagoon perched on the mangrove roots eating small oysters.

(*To be concluded.*)

NOTES ON THE SPECIALIZED USE OF THE BASTARD WING.

BY WM. HUBBELL FISHER.

Plate VIII.

IN A book entitled 'The Structure and Life of Birds,' by F. M. Headley, M. A., F. Z. S., published by Macmillan & Co., London and New York, 1895, the author states that he saw a pigeon "when checking his speed in air, lift the bastard wing so that daylight was visible between it and the long feathers, this petty appendage jutting out and impudently spoiling the beautiful line of the front margin of the wing from tip to tip." He further says that "this curious phenomenon may be seen if you stand at the British Museum (the Antiquarian Department at Bloomsbury), as the pigeons which are usually feeding in large numbers in the front fly up and settle overhead on the pediment." He adds that "in Muybridge's photographs of the Cockatoo, on the wing, both bastard wings may be seen to be slightly raised, for what purpose it is hard to say. In the pigeon, they project during a vigorous stroke, but I have seen no other bird use them either for stopping or striking." On page 254 of his work, figure 65, Mr. Headley

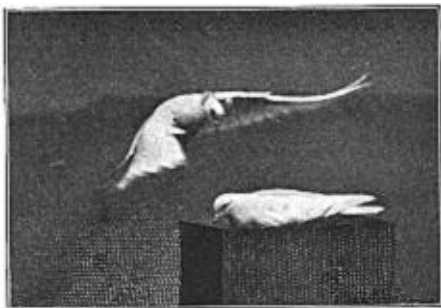


FIG. 1. PIGEON SHOWING BASTARD WING IN FLIGHT.

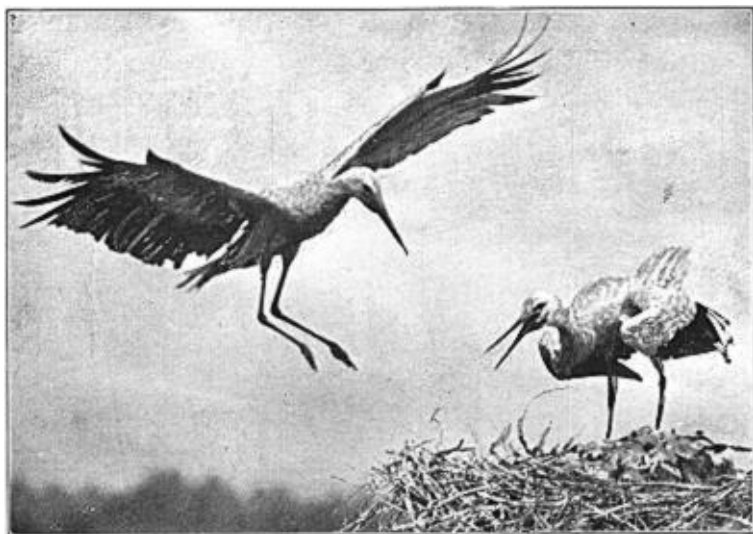


FIG. 2. STORK SHOWING BASTARD WING IN FLIGHT.

furnishes a drawing from a photograph of Ottomar Anschutz, showing the bastard wing extending during a down stroke.

While in Europe last summer, at Munich, I procured a number of instantaneous photographs of pigeons in flight, and also a number of instantaneous photographs of storks (*Ciconia alba*) in flight. All of these were taken by Ottomar Anschutz. One of these photographs of pigeons shows a bird descending. This photograph appears to be a different one from that which is proffered by Mr. Headley, but the pigeon clearly shows the bastard wing raised and projecting forward. The pigeon is evidently about to alight on what appears to be a box, and is checking his flight either by his outstretched wings held rigidly, or the wings are used to back air, as an oarsman backs water. From my observations of pigeons, in alighting, I am of the opinion that the bird is no doubt bringing his wings rapidly forward at the moment when photographed, as he is too near the perch to deem it likely that he was using the soaring position. I here submit the figure. (Plate VIII, Fig. 1.)

Among the photographs of the stork which I procured, was one of a stork descending to its nest. In this (Plate VIII, Fig. 2) the stork's wings are extended and spread to their full capacity.

One interesting feature of the picture is the bastard wings, each of which is extended forward away from the rest of the wing and spread to the full extent of its capacity. I am not positive whether the wings were in motion when this photograph was taken, or whether the wings were being held stationary. That the wing is not being raised is evident, because the tips of the primary feathers are bent backward. It is very interesting to note that in at least two different orders of birds, namely: Columbæ and Herodiones (and Psittaci?), we find pronounced and emphatic use of the bastard wing, and in the same or allied phases of flight, namely: in that or those which belong to the descent, and at that part of the descent when the bird is very near the place upon which it is to alight.