

this terminal part from that of the expanded wings, and thus I obtained, with a moderate degree of accuracy, the length of the wings from the ends of the two radii, answering from wrist to wrist in our arms. The wings, thus measured in the same twenty-five birds, now gave a widely different result; for they were proportionally with those of the rock-pigeon too short in seventeen birds, and in only eight too long. Of these eight birds, five were long-beaked,<sup>39</sup> and this fact perhaps indicates that there is some correlation of the length of the beak with the length of the bones of the wings, in the same manner as with that of the feet and tarsi. The shortening of the humerus and radius in the seventeen birds may probably be attributed to disuse, as in the case of the scapulæ and furculum to which the wing-bones are attached;—the lengthening of the wing-feathers, and consequently the expansion of the wings from tip to tip, being, on the other hand, as completely independent of use and disuse as is the growth of the hair or wool on our long-haired dogs or long-woolled sheep.

To sum up: we may confidently admit that the length of the sternum, and frequently the prominence of its crest, the length of the scapulæ and furculum, have all been reduced in size in comparison with the same parts in the rock-pigeon. And I presume that this may be attributed to disuse or lessened exercise. The wings, as measured from the ends of the radii, have likewise been generally reduced in length; but, owing to the increased growth of the wing-feathers, the wings, from tip to tip, are commonly longer than in the rock-pigeon. The feet, as well as the tarsi conjointly with the middle toe, have likewise in most cases become reduced; and this it is probable has been caused by their lessened use; but the existence of some sort of correlation between the feet and beak is shown more plainly than the effects of disuse. We

<sup>39</sup> It perhaps deserves notice that besides these five birds two of the eight were Barbs, which, as I have shown, must be classed in the same group with the long-beaked Carriers and Runts. Barbs may properly be called short-beaked Carriers. It

would, therefore, appear as if, during the reduction of their beaks, their wings had retained a little of that excess of length which is characteristic of their nearest relations and progenitors.