

GENERAL ZOOLOGY,
— or —
SYSTEMATIC. NATURAL HISTORY.

— by —
GEORGE SHAW, M.D. F.R.S. &c.

WITH PLATES

from the first Authorities and most select specimens

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GENERAL ZOOLOGY.

VOLUME VII.—PART I.

BIRDS.

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SKELETON OF *FALCO PALUMBARIUS*
OR GOSHAWK

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BIRDS.

HAVING in the course of my Zoological Lectures, given a slight general description of Birds, I prefix it, without any material alteration, to the present volume.

In Birds the skeleton or bony frame of the animal is, in general, of a lighter nature than in Quadrupeds, and is calculated for the power of flight: the spine or back bone is immoveable, but the neck lengthened and flexible; the breast-bone very large, with a prominent keel down the middle, and formed for the attachment of very strong muscles: the bones of the wings are analogous to those of the fore-legs in quadrupeds, but the termination is in three joints or fingers only, of which the exterior one is very short. What are commonly called the legs are analogous to the hind-legs in quadrupeds, and they terminate, in general, in four toes, three of

which are commonly directed forwards, and one backwards; but in some birds there are only two toes, and in some only three. All the bones in birds are much lighter, or furnished with a larger cavity than in quadrupeds.

With respect to the definition of a Bird, as absolutely distinguished from all other animals, it would be sufficient to say, according to the old mode, that a Bird is a two-footed, feathered animal. The power of flight need not enter into the definition; for there are many birds which are perfectly destitute of the power of flight; as the Ostrich, the Cassowary, all the Penguins, and some other birds. The feathers with which birds are covered are analogous in their nature to the hair of quadrupeds, being composed of a similar substance appearing in a dissimilar form. Beneath or under the common feathers or general plumage the skin in birds is immediately covered with a much finer or softer feathery substance, called down. The external or common feathers are called by different names on different parts of the animal. The longest of the wing-feathers, which are generally ten in number in each

wing, are called the first or great quills, (in the Linnæan phrase *remiges primores*, as being the chief oars or guiders as it were.) The feathers constituting the middle part of the wing are called the secondaries or second quills, (*remiges secundarii* of Linnæus,) and are more numerous than the first: the feathers descending along each side of the back are called the scapular feathers: the small feathers covering the shoulders are called the smaller wing-coverts, (*tectrices minores*;) the next series to these are called the larger wing-coverts, (*tectrices secundariæ* or *majores*,) and at the edge of the shoulder are a few rather strong and slightly lengthened feathers, constituting what is called the false or spurious wing; the alula or alulet of some ornithologists. The tail, in most birds, consists of twelve feathers; in some of ten only; and in some others of eighteen, twenty, or twenty-four. Sometimes on each side the tail, or above it, at the lower part of the back, are placed several very long feathers of a different structure from the rest: these have been called the hypochondrial and uropygial feathers. The above are the principal distributions of the feathers on a bird.

With respect to the particular shape of the feathers themselves, they vary greatly in the different tribes.

The particulars most important in the comparative anatomy of birds are these. The heart is furnished with two cavities, or, in the language of anatomists, is bilocular, and the general course of the circulation is carried on as in quadrupeds. The lungs are very large, ~~affixed to the back part of the cavity of the~~ breast, and are furnished with several external orifices, by which the air they contain is at pleasure communicated to other parts of the frame. The throat, after passing down to a certain distance, dilates into a large membranaceous bag, answering to the stomach in quadrupeds: it is called the crop, and its great use is to soften the food taken into it, in order to prepare it for passing into another stronger receptacle called the gizzard: this, which may be considered as a more powerful stomach than the former, consists of two very strong muscles, lined and covered with a stout tendinous coat, and furrowed on the inside: in this receptacle the food is completely ground, and reduced to a pulp: in

the predaceous birds or *Accipitres* the gizzard is wanting; the stomach being more allied to that of quadrupeds.

Birds, as every one knows, are oviparous animals, always producing eggs, from which the young are afterwards excluded. The process of the young in the egg, from the time of its first production to that of its complete formation, is extremely curious and interesting, and may be found detailed with sufficient exactness in the works of Malpighi, Buffon, Monro, and others. I shall only observe on this subject, that the first appearance of the young, as an organized body, begins to be visible in six hours after the egg has been placed in a proper degree of heat; and a particular highly worthy of attention is, that the chick or young bird, when arrived at its full size, and ready for hatching, is by Nature provided with a small, hard, calcareous protuberance at the point or tip of the bill, by which it is enabled the more readily to break the shell, and which falls off some hours after hatching. So careful has Nature been, and so accurately has every circumstance attending the process been foreseen and provided for!

Birds are divided by Linnæus into six Orders or Assortments, viz.

1. *Accipitres* or Predacious Birds, such as Vultures, Eagles, Hawks, Owls, and some others.

2. *Picæ* or Pies, containing all the birds of the Crow and Jay kind, the Parrots, the Woodpeckers, the Kingfishers, and a great variety of others.

3. *Passeres* or Passerine Birds, comprising the Pigeons, the Thrushes, the Larks, and all the Finches or small-birds in general, either with thick or slender bills.

4. *Gallinæ* or Gallinaceous Birds, or such as are more or less allied to the common domestic Fowl, and consequently containing the Pheasant and Partridge tribe, the Peacock, Turkey, and several other birds.

5. *Grallæ* or Waders, consisting of all the Heron tribe, the Curlews, the Plovers, and other numerous tribes which have lengthened legs, and chiefly frequent watery situations.

6. *Anseres* or Web-footed Birds, as the Swan, Goose, and Duck tribe, the Gulls, the Penguins, and many others.

Out of these six Linnæan Orders some ornithologists have instituted a few others, in