

## CAMBRIDGE LIBRARY COLLECTION

*Books of enduring scholarly value*

### Zoology

Until the nineteenth century, the investigation of natural phenomena, plants and animals was considered either the preserve of elite scholars or a pastime for the leisured upper classes. As increasing academic rigour and systematisation was brought to the study of 'natural history', its subdisciplines were adopted into university curricula, and learned societies (such as the London Zoological Society, founded in 1826) were established to support research in these areas. These developments are reflected in the books reissued in this series, which describe the anatomy and characteristics of animals ranging from invertebrates to polar bears, fish to birds, in habitats from Arctic North America to the tropical forests of Malaysia. By the middle of the nineteenth century, this work and developments in research on fossils had resulted in the formulation of the theory of evolution.

### Genera of Birds

The naturalist and traveller Thomas Pennant (1726–98) helped popularise British ornithology by meticulously compiling and arranging existing research. At the age of twelve, Pennant had been given Francis Willughby's *Ornithology* (1678), to which he credited his lifelong love of natural history. His own writings on ornithology are heavily based on the classification system devised by Willughby and John Ray, which divides birds primarily into land birds and waterfowl. Although Pennant's brief, accessible book brought few original insights to the field, it boosted public interest in the study and classification of birds. The detailed descriptions of the appearance and habits of each bird are enlivened by the author's elegant turns of phrase. This better-known 1781 version of the 1773 original includes fifteen fine engravings. Pennant's other zoological works include *Arctic Zoology* (1784–5) and his *History of Quadrupeds* (third edition, 1793), both of which are reissued in this series.

Cambridge University Press  
978-1-108-06778-2 - Genera of Birds  
Thomas Pennant  
Frontmatter  
[More information](#)

---

Cambridge University Press has long been a pioneer in the reissuing of out-of-print titles from its own backlist, producing digital reprints of books that are still sought after by scholars and students but could not be reprinted economically using traditional technology. The Cambridge Library Collection extends this activity to a wider range of books which are still of importance to researchers and professionals, either for the source material they contain, or as landmarks in the history of their academic discipline.

Drawing from the world-renowned collections in the Cambridge University Library and other partner libraries, and guided by the advice of experts in each subject area, Cambridge University Press is using state-of-the-art scanning machines in its own Printing House to capture the content of each book selected for inclusion. The files are processed to give a consistently clear, crisp image, and the books finished to the high quality standard for which the Press is recognised around the world. The latest print-on-demand technology ensures that the books will remain available indefinitely, and that orders for single or multiple copies can quickly be supplied.

The Cambridge Library Collection brings back to life books of enduring scholarly value (including out-of-copyright works originally issued by other publishers) across a wide range of disciplines in the humanities and social sciences and in science and technology.

Cambridge University Press  
978-1-108-06778-2 - Genera of Birds  
Thomas Pennant  
Frontmatter  
[More information](#)

---

# Genera of Birds

THOMAS PENNANT



CAMBRIDGE  
UNIVERSITY PRESS

Cambridge University Press  
978-1-108-06778-2 - Genera of Birds  
Thomas Pennant  
Frontmatter  
[More information](#)

---

**CAMBRIDGE**  
UNIVERSITY PRESS

University Printing House, Cambridge, CB2 8BS, United Kingdom

Published in the United States of America by Cambridge University Press, New York

Cambridge University Press is part of the University of Cambridge.  
It furthers the University's mission by disseminating knowledge in the pursuit of  
education, learning and research at the highest international levels of excellence.

[www.cambridge.org](http://www.cambridge.org)

Information on this title: [www.cambridge.org/9781108067782](http://www.cambridge.org/9781108067782)

© in this compilation Cambridge University Press 2014

This edition first published 1781  
This digitally printed version 2014

ISBN 978-1-108-06778-2 Paperback

This book reproduces the text of the original edition. The content and language reflect  
the beliefs, practices and terminology of their time, and have not been updated.

Cambridge University Press wishes to make clear that the book, unless originally published  
by Cambridge, is not being republished by, in association or collaboration with, or  
with the endorsement or approval of, the original publisher or its successors in title.

GENERA  
OF  
BIRDS.



LONDON.  
Printed for B. WHITE  
MDCCLXXXI.

Cambridge University Press  
978-1-108-06778-2 - Genera of Birds  
Thomas Pennant  
Frontmatter  
[More information](#)

---

## A D V E R T I S E M E N T .

**T**HIS trifle was written in the year 1772, and presented to DOCTOR ROBERT RAMSAY, Professor of Natural History in *Edinburgh*, for the use of the class over which he presided. He printed one impression in the following year; and then resigned to me the copy.

DEATH deprived the community of a worthy member, in the loss of my friend, on *December 15th, 1778*. I suffer the Dedication to remain in this edition, as a small monument to his memory; and of the esteem in which I held a gentleman, ever active in all good offices to

DOWNING,  
*Dec. 20th, 1780.*

THOMAS PENNANT.

Cambridge University Press  
978-1-108-06778-2 - Genera of Birds  
Thomas Pennant  
Frontmatter  
[More information](#)

---



T O  
ROBERT RAMSAY, M. D.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS,

A N D

PROFESSOR OF NATURAL HISTORY IN THE UNIVER-  
SITY OF EDINBURGH.

DEAR SIR,

I THINK myself happy in having an opportunity of giving you this mark of the sense I have of your steady friendship, from its origin, in 1769, to the present moment. From the beginning, it has proved a regular series of good offices: You never considered me with the jealousy of a Rival courting the same Mistress; but, with uncommon generosity, promoted all my pursuits after DAME NATURE, whether she retired to the depths of the *Highland Glens*, or lurked amidst the intricate groups of the stormy *Hebrides*. If, in my late expedition, she has granted me any favors (for she proved rather coy) she humbled me by saying, that I was indebted to you for them. So that I find myself bound to make public acknowledgements of advantages acquired by means of the clue you gave of arriving at the few I have obtained.

NOT-

## D E D I C A T I O N .

NOTWITHSTANDING I own your power with the Lady on your side of the *Tweed*, yet I never can be induced to omit any opportunity of recommending myself to her good graces, and, with you, must ever remain a warm admirer of her universal charms. But the following *analysis* of one which captivates me most, is now offered to you, with the hopes of meeting with your approbation, and that of the several votaries who depend on you for a more intimate acquaintance with her various beauties. Long may you enjoy health, and every happiness, to perform so agreeable a task: May you be successful in extending her empire: Good fortune attend you in each of her haunts, whether she affects the air, the woods, or the fields; whether, like an *Oread*, she treads *jocund on the misty mountain's top*; or a *Naiad*, sporting in your rapid streams. Again, success attend you every where; and may none but BIRDS of good omen flutter round you.

Sis licet felix ubicunque mavis,  
 Et memor nostri, mihi care, vivas:  
 Teque nec lævus vetet ire Picus,  
 Nec vaga CORNIX.

DOWNING,  
 JAN. 1, 1773.

THOMAS PENNANT.

# P R E F A C E.

**O**RNITHOLOGY is a science which treats of Birds; describes their form, external and internal; and teaches their œconomy and their uses.

A BIRD is an animal covered with feathers; furnished with a bill; having two wings, and only two legs; with the faculty, except in very few instances, of removing itself from place to place through the air.

## External Parts of B I R D S.

A BIRD may be divided into HEAD, BODY, and LIMBS.

### H E A D,

*Rostrum*, or bill, is a hard horny substance, consisting of an upper and under part, extending from the head, and answering to the mandibles in quadrupeds. Its edges generally plain and sharp, like the edge of a knife, *cultrated* \*, as the bills of CROWS; but sometimes *ferrated*, as in the TOUCAN; or *jagged*, as in the GAN-

BILL.

This and other terms are explained by figures in the BRITISH ZOOLOGY, vol. 1. tab. xv. A few terms are explained from the figure on the title.

B

NET

NET and some HERONS; or *pellinated*, as in the DUCK; or *denticulated*, as in the MERGANSERS; but always destitute of real teeth immersed in sockets.

THE base in FALCONS is covered with a naked skin or CERE (CERA;) in some birds with a carneous appendage, as the TURKEY; or a callous, as the CURASSO.

IN birds of prey, the bill is hooked at the end, and fit for tearing: in CROWS, strait and strong, for picking: in water-fowl, either long and pointed, for striking; or slender and blunt, for searching in the mire; or flat and broad, for gobbling. Its other uses are for building nests; feeding the young; climbing, as in PARROTS; or, lastly, as an instrument of defence, or offence.

## NOSTRILS.

(*Nares*) the nice instruments of discerning their food, are placed either in the middle of the upper mandible, or near the base, or at the base, as in PARROTS; or behind the base, as in TOUCANS and HORNBILL: but some birds, as the GANNET, are destitute of nostrils. The nostrils are generally naked, but sometimes covered with bristles reflected over them, as in CROWS; or hid in the feathers, as in PARROTS, &c.

## PARTS OF THE HEAD.

THE forepart of the head is called the FRONT (*Capistrum*;) the summit (*vertex*) or the crown: the hind part, with the next joint of the neck (*nucha*) the nape: the space between the bill and the eyes, which in HERONS, GREBES, &c. is naked (*lora*) the straps: the space beneath the eyes (*genae*) the cheeks.

## ORBITS.

(*Orbitae*) the eye-lids; in some birds naked, in others covered with short soft feathers.

BIRDS have no eye-brows; but the GROUS kind have in lieu a scarlet naked skin above, which are called *supercilia*; the same word

## P R E F A C E.

iii

word is also applied to any line of a different color that passes from the bill over the eyes.

BIRDS are destitute of *auricles*, or external ears, having an orifice for admission of sound, open in all, but OWLS, whose ears are furnished with valves.

EARS.

THE chin, the space between the parts of the lower mandible and the neck, is generally covered with feathers; but in the COCK, and some others, have carneous appendages, called WATTLES (*Palararia*;) in others, is naked, and furnished with a POUCH, capable of great dilatation (*Sacculus*) as in the PELICAN and CORVORANTS.

CHIN.

(*Collum*) the part that connects the head to the body, is longer in birds than any other animals; and longer in such as have long legs than those that have short, either for gathering up their meat from the ground, or striking their prey in the water, except in web-footed fowl, which are, by reversing their bodies, destined to search for food at the bottom of waters, as SWANS, and the like. Birds, especially those that have a long neck, have the power of retracting, bending, or stretching it out, in order to change their center of gravity from their legs to their wings.

NECK.

## B O D Y.

CONSISTS of the BACK (*Dorsum*) which is flat, strait, and inclines, terminated by the

BACK.

(*Uropygium*) furnished with two glands, secreting a fattish liquor from an orifice with which each is furnished: and which the birds express with their bills, to oil or anoint the discomposed parts of their feathers. These glands are particularly large in most web-footed water-fowl; but in the GREBES, which want tails, they are smaller.

RUMP.

B 2

(*Pectus*)

**BREAST.** (*Pectus*) is ridged and very muscular, defended by a forked bone (*clavicula*) the MERRY THOUGHT.

THE short-winged birds, such as GROUS, &c. have their breasts most fleshy or muscular; as they require greater powers in flying than the long-winged birds, such as GULLS, HERONS, which are specifically lighter, and have greater extent of sail.

**BELLY.** (*Abdomen*) is covered with a strong skin, and contains the entrails.

**VENT.** THE VENT, or vent-feathers (*Criſsum*) which lies between the thighs and the tail. The ANUS lies hid in those feathers.

## L I M B S.

**WINGS.** WINGS (*Alae*) adapted for flight in all birds, except the DODO, OSTRICHES, great AUK, and the PINGUINS, whose wings are too short for the use of flying; but in the DODO and OSTRICH, when extended, serve to accelerate their motion in running; and in the PINGUINS perform the office of fins, in swimming or diving.

**BASTARD WING.** THE wings have near their end an appendage covered with four or five feathers, called the BASTARD WING (*ala notba*) and *alula spuria*.

**LESSER COVERTS.** THE lesser coverts (*teſtrices*) are the feathers which lie on the bones of the wings.

**GREATER COVERTS.** THE greater coverts are those which lie beneath the former, and cover the quill-feathers and the secondaries.

**QUILL-FEATHERS.** THE *Quill-feathers* (*primores*) spring from the first bones (*digiti* and *metacarpi*) of the wings, and are ten in number.

QUILL-feathers are broader on their inner than exterior sides.

**SECONDARIES.** THE SECONDARIES (*ſecondariæ*) are those that rise from the second

## P R E F A C E.

v

cond part (*cubitus*) and are about eighteen in number, are equally broad on both sides. The primary and secondary wing-feathers are called REMIGES.

A TUFT of feathers placed beyond the secondaries, near the junction of the wings with the body. This, in water-fowl, is generally longer than the secondaries, and cuneiform.

TERTIALS.

THE SCAPULARS are a tuft of long feathers arising near the junction of the wings (*brachia*) with the body, and lie along the sides of the back, but may be easily distinguished, and raised with one's finger.

SCAPULARS.

THE INNER COVERTS are those that clothe the under side of the wing.

INNER COVERTS.

THE SUBAXILLARY are peculiar to the greater PARADISE.

SUBAXILLARY  
FEATHERS.

THE wings of some birds are instruments of offence; the ANHIMA of *Marcgrave* has two strong spines in the front of each wing, a species of Plover, EDW. tab. 47. and 280. has a single one on each; the whole tribe of JACANA, and the GAMBO, or spur-winged Goose of Mr. *Willughby*, the same.

THE TAIL is the director, or rudder, of birds in their flight; they rise, sink, or turn by its means; for, when the head points one way, the tail inclines to the other side: it is, besides, an *equilibrium* or counterpoise to the other parts; the use is very evident in the KITE and SWALLOWS.

TAIL.

THE TAIL consists of strong feathers (*rectrices*) ten in number, as in the WOODPECKERS, &c. twelve in the HAWK tribe, and many others: the GALLINACEOUS, the MERGANSERS, and DUCK kind, of more.

{T

It is either even at the end, as in most birds, or forked, as in SWALLOWS, &c. or cuneated, as in MAGPIES, &c. or rounded, as in the PURPLE JACKDAW of *Catesby*. The GREBE is destitute of a tail, the rump being covered with down; and that of the CASSOWARY with the feathers of the back.

IMMEDIATELY over the tail, are certain feathers that spring from the lower part of the back, and are called the coverts of the tail (*uropygium*.)

THIGHS. (*Femora*) are covered entirely with feathers in all land-birds, except the BUSTARDS and the OSTRICHES; the lower part of those of all waders, or cloven-footed water-fowl, are naked; that of all webbed-footed fowl the same, but in a less degree; in rapacious birds, are very muscular.

LEGS. (*Crura*) Those of rapacious fowls very strong, furnished with large tendons, and fitted for tearing, and a firm gripe. The legs of some of this genus are covered with feathers down to the toes, such as the *Golden Eagle*, others to the very nails; but those of most other birds are covered with scales, or with a skin divided into segments, or continuous. In some of the PIES, and in all the PASSERINE tribe, the skin is thin and membranous; in those of web-footed water-fowl, strong.

THE legs of most birds are placed near the center of gravity: In land-birds, or in WADERS that want the back toe, exactly so; for they want that appendage to keep them erect. AUKS, GREBES, DIVERS, and PINGUINS, have their legs placed quite behind, so are necessitated to sit erect: Their pace is awkward and difficult, walking like men in fetters; hence *Linnaeus* styles their feet *pedes compedes*.



## P R E F A C E.

vii

THE legs of all cloven-footed water-fowl are long, as they must wade in search of food: Of the palmated, short, except those of the FLAMINGO, the AVOSET, and the COURIER.

(*Pedes*) All land-birds that perch have a large back toe: Most of them have three toes forward, and one backward. WOODPECKERS, PARROTS, and other birds that climb much, have two forward, two backward; but PARROTS have the power of bringing one of their hind toes forward while they are feeding themselves. OWLS have also the power of turning one of their fore toes backward. All the toes of the SWIFT turn forwards, which is peculiar among land-birds: The TRIDACTYLOUS WOODPECKER is also anomalous, having only two toes forward, one backward: The OSTRICH is another, having but two toes.

FEET.

(*Digiti*) THE toes of all WADERS are divided; but, between the exterior and middle toe, is generally a small web, reaching as far as the first joint.

TOES.

THE SPOONBILL; and a SANDPIPER I received from *N. America*, have webs that reach half way up each toe, or are *semi-palmated*.

THE toes of birds that swim are either plain, as in the single instance of the common water HEN or GALLINULE; or pinnated, as in the COOTS and GREBES; or entirely webbed or palmated, as in all other swimmers.

ALL the PLOVER tribe, or CHARADRII, want the back toe. In the swimmers, the same want prevales among the ALBATROSSES and AUKS. No water-fowl perch, except certain HERONS; the CORVORANT; and the SHAG.

(*Ungues*) Rapacious birds have very strong, hooked, and sharp

CLAWS.

## P R E F A C E.

sharp claws, VULTURES excepted. Those of all land-birds that roost on trees have also hooked claws, to enable them to perch in safety while asleep.

THE GALLINACEOUS tribe have broad concave claws for scraping up the ground.

GREBES have flat nails like the human.

AMONG water-fowl only the SKUA, *Br. Zool. II. No. 243.* and the BLACK TOED GULL, *Br. Zool. II. No. 244.* have strong hooked or *aquiline* claws. All land-birds perch on trees, except the STRUTHIOUS and some of the GALLINACEOUS tribe. PARROTS climb; WOODPECKERS creep up the bodies and boughs of trees; SWALLOWs cling.

ALL water-fowl rest on the ground, except certain HERONS, and one species of IBIS, the SPOONBILL, one or two species of DUCKS, and of CORVORANTS.

## F E A T H E R S.

FEATHERS are designed for two uses, as coverings from the inclemency of the weather, and instruments of motion through the air. They are placed in such a manner as to fall over one another, *tégulatim*, so as to permit the wet to run off, and to exclude the cold; and those on the body are placed in a quincunial form, most apparent in the thick-skinned water-fowl, particularly in the DIVERS.

SHAFTS. THE parts of a feather are, the SHAFTS, corneous, strong, light, rounded, and hollow at the lower part; at the upper, convex above, concave beneath, and chiefly composed of a pith.

ON

## P R E F A C E.

ix

ON each side the SHAFTS, are the

VANES, broad on one side, narrow on the other: Each vane consists of a multitude of thin *laminæ* \*, stiff, and of the nature of a split quill. These *laminæ* are closely braced together by the elegant contrivance of a multitude of small bristles; those on one side hooked, the other strait, which lock into each other, and keep the vanes smooth, compact, and strong.

VANES.

THE vanes near the bottom of the shafts are soft, unconnected, and downy.

FEATHERS are of three kinds; such as compose the instruments of flight; as the PEN-FEATHERS; or those which form the wings and tail, and have a large shaft. The vanes of the exterior side bending downward, of the interior upwards, lying close on each other, so that, when spread, not a feather misses its impulse on the air †. The component parts of these feathers are described before.

PEN-FEATHERS.

THE feathers that cover the body, which may be properly called the PLUMAGE, have little shaft, and much vane, and never are exerted or relaxed, unless in anger, fright, or illness.

PLUMAGE.

THE DOWN, *Plumæ*, which is dispersed over the whole body amidst the plumage, is short, soft, unconnected, consists of lanuginous vanes, and is intended for excluding that air or water which may penetrate or escape through the former. This is particularly apparent in aquatic birds, and remarkably so in the ANSERINE tribe. There are exceptions to the forms of feathers. The vanes of the subaxillary feathers of the PARADISE are unconnected, and the *laminæ* distant, looking like herring-bone.

DOWN.

\* *Derham's physio. theol.* 336. tab. f. 18, 19.

† *Derham.*

C

Those

## P R E F A C E.

Those of the tail of the OSTRICH, and head of a species of CURASSO, curled. Those of the CASSOWARY consist of two shafts, arising from a common stem at the bottom. As do, at the approach of winter (after moulting) those of the PTARMIGANS of *Arctic* countries. The feathers of the PINGUINS, particularly those of the wings, consisting chiefly of thin flat shafts, and more resemble scales than feathers; those of the tail, like split whale-bone.

## F L I G H T.

THE flight of birds is various; for, had all the same, none could elude that of rapacious birds. Those which are much on wing, or flit from place to place, often owe their preservation to that cause: Those in the water to diving.

**RAPACIOUS.** KITES, and many of the FALCON tribe, glide smoothly through the air, with scarce any apparent motion of the wings.

**PIES.** MOST of the order of PIES fly quick, with a frequent repetition of the motion of the wings. The PARADISE floats on the air. WOODPECKERS fly awkwardly, and by jerks, and have a propensity to sink in their progress.

**GALLINACEOUS.** THE GALLINACEOUS tribe, in general, fly very strong and swiftly; but their course is seldom long, by reason of the weight of their bodies.

**COLUMBINE.** THE COLUMBINE race is of singular swiftness; witness the flight of the *Messenger* Pigeon.

**PASSERINE.** THE PASSERINE fly with a quick repetition of strokes; their flight, except in migration, is seldom distant.

AMONG

## P R E F A C E.

xi

AMONG them, the SWALLOW tribe is remarkably agile, their evolutions sudden, and their continuance on wing long.

NATURE hath denied flight to the STRUTHIOUS; but still, in running, their short wings are of use, when erect, to collect the wind, and, like sails, to accelerate their motion.

STRUTHIOUS.

MANY of the greater CLOVEN-FOOTED Water-fowl, or WADERS, have a slow and flagging flight; but most of the lesser fly swiftly, and most of them with extended legs, to compensate the shortness of their tails. RAILS and GALLINULES, fly with their legs hanging down.

WADERS.

COOTS and GREBES, with difficulty are forced from the water; but when they rise, fly swiftly. GREBES, and also DIVERS, fly with their hind parts downwards, by reason of the forwardness of their wings.

PINNATED FEET.

WEB-FOOTED fowl are various in their flight; several have a failing or flagging wing, such as GULLS. PINGUINS, and a single AUK, are denied the power of flight. WILD-GEESE, in their migrations, do not fly *pell-mell*, but in a regular figure, in order to cut the air with greater ease; for example, in long lines, in the figure of a > or some pointed form or letter, as the ancients report that the CRANES assumed, in their annual migrations, till their order was broken by storms.

WEB-FOOTED.

*Strymona sic gelidum, bruma pellente, relinquunt,  
 Poturæ te, Nile, GRUES, primoque volatu  
 Effingunt varias, casu monstrante, figuras,  
 Mox ubi percussit tenfas NOTUS altior alas,  
 Confusus temerè immistæ glomerantur in orbes,  
 Et turbata perit disperfis *litera* \* pennis.*

*Lucan. lib. v. l. 711.*

\* Υ Δ Λ.

C 2

Of

Of the NUPTIALS, NIDIFICATION, and EGGS  
 of BIRDS.

Most birds are monogamous, or pair, in spring fixing on a mate, and keeping constant, till the cares of incubation and educating the young brood is past. This is the case, as far as we know, with all the birds of the first, second, fourth, and fifth orders.

BIRDS that lose their mates early, associate with others; and Birds that lose their first eggs, will pair and lay again. The male as well as female of several join alternately in the trouble of incubation, and always in that of nutrition: When the young are hatched, both are busied in looking out for, and bringing food to the nestlings; and, at that period, the mates of the melodious tribes, who, before, were perched on some sprig, and by their warbling alleviated the care of the females confined to the nest, now join in the common duty.

OF the GALLINACEOUS tribe, the greatest part are polygamous, at least in a tame state; the PHEASANT, many of the GROUS, the PARTRIDGES, and BUSTARDS, are monogamous; of the GROUS, the COCK of the wood, and the BLACK GAME assemble the females during the season of love, by their cries:

*Et vencrem incertam rapiunt.*

THE males of polygamous birds neglect their young, and, in some cases, would destroy them, if they met with them. The œconomy of the STRUTHIOUS order, in this respect, is obscure. It is probable that the three species in the genus OSTRICH are polygamous, like the common poultry, for they lay many eggs; the DODO is said to lay but one.

ALL

## P R E F A C E.

xiii

ALL Waders, or cloven-footed fowl, are monogamous, except the RUFFS; and all with pinnated feet, as far as I know, are also monogamous.

THE swimmers, or web-footed fowl, observe the same order, as far as can be remarked with any certainty; but many of the AUKS assemble in the rocks in such numbers, and each individual so contiguous, that it is not possible to determine their method in this article.

IT may be remarked, that the affection of birds to their young, is very violent during the whole time of nutrition, or as long as they continue in a helpless state; but so soon as the brood can fly and shift for itself, the parents neglect, and even drive it from their haunts, the affection ceasing with the necessity of it: but, during that period,

The mothers nurse it, and the fires defend;  
 The young dismiss'd to wander earth, or air,  
 There stops the instinct, and there ends the care;  
 The link dissolves, each seeks a fresh embrace,  
 Another love succeeds, another race.

## N I D I F I C A T I O N.

THE Nest of a bird is one of those daily miracles, that, from its familiarity, is pass'd over without regard. We stare with wonder at things that rarely happen, and neglect the daily operations of nature, that ought first to excite our admiration, and claim our attention.

EACH bird, after nuptials, prepares a place suited to its species, for the depositing its eggs, and sheltering its little brood: Different

ient genera, and different species, set about the task in manners suitable to their several natures; yet every individual of the same species collects the very same materials, puts them together in the same form, and chuses the same sort of situation for placing this temporary habitation. The young bird of the last year, which never saw the building of a nest, directed by a heaven-taught sagacity, pursues the same plan in the structure of it, and selects the same materials as its parent did before. Birds of the same species, of different and remote countries, do the same. The SWALLOWS of *England*, and of the remoter parts of *Germany*, observe the same order of architecture.

**RAPACIOUS.** THE nests of the larger rapacious birds are rude, made of sticks and bents, but often lined with something soft. They generally build in high rocks, ruined towers, and in desolate places: enemies to the whole feathered creation, they seem conscious of attacks, and seek solitude. A few build upon the ground.

**SHRIKES**, the least of **RAPACIOUS** birds, build their nests in bushes, with moss, wool, &c.

**PIES.** THE order of **PIES** is very irregular in the structure of their nests. **PARROTS**, and, in fact, all birds with two toes forward and two backward (as far as I know) lay their eggs in the hollows of trees. And most of this order creep along the bodies of trees, and lodge their eggs also within them.

**CROWS** build in trees: Among them, the nest of the **MAGPIE**, composed of rude materials, is made with much art, quite covered with thorns, and only a hole left for admittance.

THE nests of the **ORIOLES** are contrived with wonderful sagacity, and are hung at the end of some bough, or between the forks



## P R E F A C E.

xv

of extreme branches. In *Europe*, only three birds have penfile nests; the common ORIOLE, the PARUS PENDULINUS, or HANG-NEST TITMOUSE, and one more \*. But in the Torrid Zones, where the birds fear the search of the gliding serpent and inquisitive monkey, the instances are very frequent, a marvellous instinct implanted in them for the preservation of their young †.

ALL of the GALLINACEOUS and STRUTHIOUS orders lay their eggs on the ground. The OSTRICH is the only exception, among birds, of the want of natural affection: *Which leaveth her eggs in the earth, and warmeth them in the dust, and forgetteth that the foot may crush them, or the wild beast may break them.*

GALLINACEOUS.  
STRUTHIOUS.

THE COLUMBINE race makes a most artless nest; a few sticks laid across suffice.

COLUMBINE.

MOST of the PASSERINE order build their nests in shrubs or bushes, and some in holes of walls, or banks. Several in the Torrid Zone are penfile from the boughs of trees; that of the TAYLOR BIRD ‡, a wondrous instance. Some of this order, such as LARKS, and the GOATSUCKER, on the ground. Some SWALLOWS make a curious plaster nest beneath the roofs of houses; and an *Indian* species, one of a certain glutinous matter, which are collected as delicate ingredients for soups of *Chinese* epicures.

PASSERINE.

MOST of the Cloven-footed Water-fowl, or Waders, lay upon the ground. SPOONBILLS and the COMMON HERON build in trees, and make large nests with sticks, &c. STORKS build on churches, or the tops of houses.

WADERS.

COOTS make a great nest near the water-side.

COOTS.

\* Vide Tour in *Scotland*, 2d Ed. page 101.

† Indian Zool.

‡ The same.

GREBES

**GREBES.** GREBES in the water, a floating nest, perhaps adhering to some neighboring reeds.

**WEB-FOOTED.** WEB-FOOTED fowl breed either on the ground, as the AVOSET, TERNS, some of the GULLS, MERGANSERS, and DUCKS: the last pull the down from their breasts, to make a softer and warmer bed for their young. AUKS and GUILLEMOTS lay their eggs on the naked shelves of high rocks; PINGUINS in holes under ground: Among the PELICANS, that which gives name to the genus makes its nest in the desert, on the ground. SHAGS, sometimes on trees; CORVORANTS and GANNETS, on high rocks, with sticks, dried ALGÆ, and other coarse materials.

## E G G S.

**RAPACIOUS.** RAPACIOUS birds, in general, lay few eggs; EAGLES, and the larger kinds, fewer than the lesser. The eggs of FALCONS and OWLS are rounder than those of most other birds.

**PIES.** THE order of PIES vary greatly in the number of their eggs.

PARROTS lay only two or three white eggs.

CROWS lay six eggs, greenish, mottled with dusky.

CUCKOOS, as far as I can learn, two.

WOODPECKERS, WRYNECK, and KINGFISHER, lay eggs of a most clear white and semi-transparent color. The WOODPECKERS lay six, the others more.

THE NUTHATCH lays often in the year, eight at a time, white, spotted with brown.

THE HOOPOE lays but two cinerous eggs.

THE CREEPER lays a great number of eggs.

THE HONEYSUCKER, the least and most defenceless of birds, lays  
 but

## P R E F A C E.

xvii

but two: but Providence wisely prevents the extinction of the genus, by a swiftness of flight that eludes every pursuit.

THE GALLINACEOUS order, the most useful of any to mankind, **GALLINACEOUS.** lay the most eggs, from eight to twenty; *Benigna circa hoc natura, innocua et esculenta animalia fecunda generavit*, is a fine observation of Pliny. With exception to the BUSTARD, a bird that hangs between the GALLINACEOUS and the WADERS, which lays only two.

THE COLUMBINE order lays but two white eggs; but the domestic kind, breeding almost every month, supports the remark of the *Roman* naturalist.

ALL of the PASSERINE order lay from four to six eggs, except **PASSERINE.** the Titmice and the Wren, which lay fifteen or eighteen, and the Goatfucker, which lays only two.

THE STRUTHIOUS order, which consists but of two genera, disagree much in the number of eggs: the OSTRICH laying many, **STRUTHIOUS.** as far as fifty; the DODO but one.

THE CLOVEN-FOOTED Water-fowl, or WADERS, lay, in general, **WADERS.** four eggs. The CRANE and the NORFOLK PLOVER seldom more than two. All those of the SNIPE and PLOVER genus are of a dirty white, or olive, spotted with black, and scarcely to be distinguished in the holes they lay in. The bird called the LAND RAIL (an ambiguous species) lays from fifteen to twenty. Of birds with pinnated feet, the COOT lays seven or eight eggs, and sometimes more. GREBES from four to eight, and those white.

THE WEB-FOOTED, or Swimmers, differ in the number of their **WEB-FOOTED.** eggs. Those which border on the order of Waders, lay few eggs; the AVOSET, two; the FLAMINGO, three; the ALBATROSS, the AUKS, and GUILLEMOTS, lay only one egg apiece: the eggs of

D the

the two last, are of a size strangely large in proportion to the bulk of the birds. They are commonly of a pale green color, spotted and striped so variously, that not two are alike; which gives every individual the means of distinguishing its own, on the naked rock, where such multitudes assemble.

DIVERS, only two.

TERNs and GULLs lay about four eggs, of a dirty olive, spotted with black.

DUCKs lay from eight to twenty eggs; the eggs of all the genus are of a pale green, or white, and unspotted.

PINGUINS lay two eggs\*; white, and remarkably round.

OF the PELICAN *genus*, the GANNET lays but one egg; the SHAGs, or CORVORANTS, six or seven, all white; the last the most oblong of eggs

A MINUTE account of the Eggs of birds, merits a treatise of itself, or should follow the description of each species. This is only meant to shew the great conformity nature observes in the shape and colors of the eggs of congenerous birds; and also, that she keeps the same uniformity of color in the eggs, as in the plumage of the birds they belong to.

*Zinanni* published, at *Venice*, in 1737, a treatise on eggs, illustrated with accurate figures of 106 eggs. Mr. *Reyger* of *Dantzick* published, in 1766, a posthumous work by *Klein*, with 21 plates, elegantly coloured: But much remains for future writers.

*Penrose's Voy.* Falkland Isles, 32.

SYSTEM.

## P R E F A C E.

xix

## S Y S T E M.

CONSIDERING the many systems that have been offered to the public of late years \*, I hope I shall not be accused of national partiality, in giving the preference to that composed by Mr. RAY in 1667, and afterwards published in 1678. It would be unfair to conceal the writer, from whom our great countryman took the original hint of forming that system, which has since proved the foundation of all that has been composed since that period.

IT was a *Frenchman*, BELON of *Mans*, who first attempted to range birds according to their natures, and performed great matters, considering the unenlightened age he lived in; for his book was published in 1555. His arrangement of rapacious birds is as judicious as that of the latest writers, for his second chapter treats of VULTURES, FALCONS, SHRIKES, and OWLS; in the two next, he passes over to the Web-footed Water-fowl, and to the Cloven-footed; in the fifth, he includes the GALLINACEOUS and STRUTHIOUS, but mixes with them the PLOVERS, BUNTINGS, and LARKS; in the sixth are the PIES, PIGEONS, and THRUSHES; and the seventh takes in the rest of the PASSERINE order.

NOTWITHSTANDING the great defects that every naturalist will at once see in the arrangement of the lesser birds of this writer, yet he will observe a rectitude of intention in

\* By *M. Barrere* of *Perpignan* in 1745, *Mr. Klein* in 1750, *Mr. Moehring* in 1753, *M. Brisson* in 1760, and by *Linnaeus* at different periods. Mr. RAY formed (in conjunction with Mr. WILLUGHBY) his tables of animals, in the winter 1667, for the use of Bishop WILKIN's *real character*.

general, and a fine notion of system, which was left to the following age to mature and bring to perfection. Accordingly, Mr. RAY, and his illustrious pupil the Hon. FRA. WILLUGHBY, assumed the plan; but, with great judgment, flung into their proper stations and proper genera, those which BELON had confusedly mixed together. They formed the great division of TERRESTRIAL and AQUATIC birds; they made every species occupy their proper place, consulting at once exterior form, and natural habit. They could not bear the affected intervention of aquatic birds in the midst of terrestrial birds: They placed the last by themselves, clear and distinct from those whose haunts and œconomy were so different.

VARIOUS attempts have been made to alter this system of our countrymen. It is a disagreeable and invidious task to expose the defects of other methodists, who may have, in many respects, great merit. I leave that to the peevish malignancy of the minute critics; therefore shall only acknowledge the sources from which I draw the materials of the present work, and give each their due share of merit.

Mr RAY's general plan is so judicious, that to me it seems scarcely possible to make any change in it for the better; yet, notwithstanding he was in a manner the founder of systematic Zoology, later discoveries have made a few improvements on his labors. My candid friend LINNÆUS did not take it amiss, that I, in part, neglected his example; for I permit the LAND-FOWL to follow one another, undivided by the WATER-FOWL, the *Grallæ* and *Anseres* of his system; but, in my generical arrangement, I most punctually attend to the order he has given in