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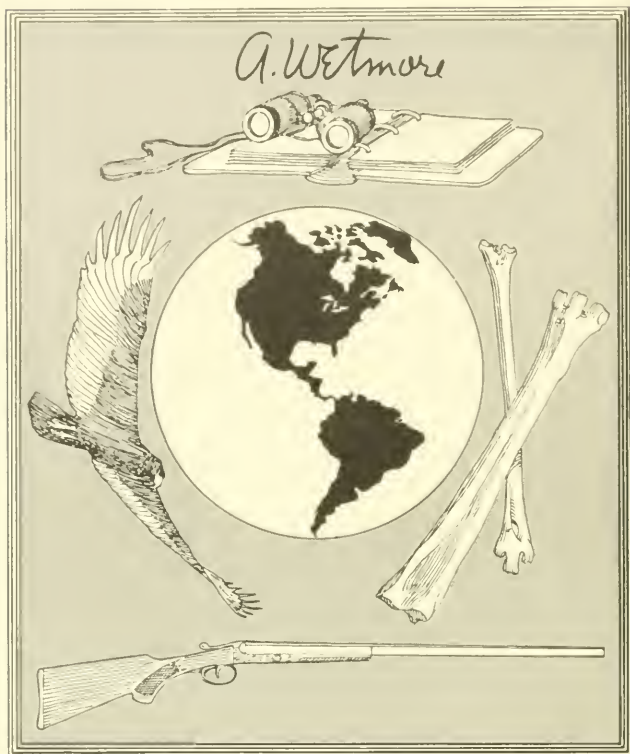
DRIVEN DUCK

BY

R. C. BOLSTER, I.C.S.



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DRIVEN DUCK.



Garganey Teal.

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DRIVEN DUCK

BY

R. C. BOLSTER, I.C.S.

*(Joint Author of "Cupid and Cartridges," "The Man
Who Paid," etc., etc.).*

Illustrated by Photographs taken by the Author.



To A. J. O'B.,
My Shooting Partner.

I've samples sport and work, and gall and wine,
My years for pension near the twenty-one—
Here's to you, John! Did ever you repine,
Of birds divided, were they yours or mine,
The long years through? *You're not that sort of Gun.*
So I revive by my fireside at Home
Rich memories of the fields we used to roam.
The snowy Spoonbills tack across the ;
The Curlew tunes his melancholy pip ;
We're out for Driven Duck. I see th Teal
Climb for your second barrel: past us steal
Godwits and flustered Stilts, or, may be, Snipe,
And, mark! a soaring Pintall (bless him) runs
The fiery gauntlet of the waiting guns.
Again the Geese sweep landwards from the shore;
Together on the Indus bank we walk;
We hunt the furtive Bustard as of yore;
Hark! in the Suleimans a lone *Chukor*
Calls, or we hear the racy Salt Range talk.
Good days they were, and, now I see their end,
All for the sharing sweeter, weren't they, friend?
Your Camel softly pads along the trail;
In the red dawn you hear the questing Owl;
You place your call-birds in the wheat for Quail;
Among the reeds, see! runs a water Rail.....
Do you remember Mornî's Jungle Fowl?
Ah! When the strong-winged Sandgrouse swoop and
pack.
Over your butt, John, *sometimes wish me back.*

R. C. B.

PREFACE.

The object of this little book is to meet the needs both of the beginner in Ornithology and of the sportsman with whom nature-study is not the first consideration, yet who would gladly identify what he shoots if he is furnished with easy means of doing so.

The Individual Notes in Chapters V to XIII are largely "scissors and paste" It has seemed best to give exact quotations from the standard authorities. Where those authorities have themselves drawn on others, it is unnecessary, for reasons of space, to state that "Hume quotes Seebohn" etc., etc., and the name of the original writer alone has been given. The following main works to which the author is indebted are briefly described in the body of the book by the names italicised. His grateful thanks are to all the authors and publishers noted, with whose kind permission his quotations have been made.

Author (short description).	Book.	Publisher.
Hume and Marshall (<i>Hume</i> .)	Game Birds of British India, Burma and Ceylon.	Messrs. Higinbotham.
Oates and Blanford (<i>Fauna</i> .)	Fauna of British India, including Ceylon and Burma.	Messrs. Francis and Taylor, under authority of the Secretary of State.
<i>Oates</i> ...	Manual of the Game Birds of India.	A. J. Combridge and Co.
<i>Stuart Baker</i> ...	The Indian Ducks and their Allies.	Bombay Natural History Society.
<i>Finn</i> ...	The Water Fowl of India and Asia.	Thacker Spink and Co.
<i>Pycraft</i> ...	A History of Birds...	Methuen and Co.
<i>Hankin</i> ...	Animal Flight ...	Hiffe and Co.
	Bombay Natural History Society's Journal.	Bombay Natural History Society.

It is hoped that, since the treatment of many topics in this book has been brief, the reader will be induced to refer to the standard authorities in original.

Chapter II has been reproduced by the courtesy of the *Illustrated Times of India*, in which it first appeared.

The author records his grateful thanks to the authorities of the Karachi Zoo by whom he was enabled to take certain photographs of the various Ducks in full dress.

The new trinomial system of nomenclature, which is as yet perhaps unfamiliar to sportsmen in India generally and is needlessly technical for the purposes of this book, has not been used.

CONTENTS.

Para.	Subject.	Page.
PART I.		
CHAPTER I.		
<i>Methods of Duck Shooting.</i>		
1.	Various methods of Duck shooting—"Walking Up," Wildfowling, and Driving	1
CHAPTER II.		
<i>Duck Driving and Butt-Shooting Described</i>		
2.	Duck Driving and Butt-Shooting Described ..	3
PART II.		
CHAPTER III.		
<i>Object, System and Arrangement.</i>		
3.	Object of the book	8
4.	System and arrangement of the book ..	8
5.	The "Key" system followed	9
6.	How to use the keys	9
7.	The plates illustrating key	10
CHAPTER IV.		
<i>Some Birds Commonly Mistaken for Duck.</i>		
8.	Difference between the ducks and some birds commonly mistaken for them	10
CHAPTER V.		
<i>The Thirteen Species Dealt With.</i>		
9.	Division of the ducks into three main classes ..	12
10.	The thirteen species dealt with	12
11.	Vernacular names	16
12.	The <i>Speculum</i>	17
13.	Residents and migrants	18
14.	Dates of arrival and departure	18
15.	Birds with names that help to identification ..	20
16.	Kind of water on which the various species are found	1

Para.	Subject.	Page.
CHAPTER VI.		
<i>Appearance.</i>		
17.	General appearance—(i) in flight, (ii) on the water	25
CHAPTER VII.		
<i>Size.</i>		
18.	Size	26
CHAPTER VIII.		
<i>Colouration.</i>		
19.	Colouration from below	27
20.	Moulting and change of colouration	30
21.	Index colouring of lower plumage, flanks and under tail-coverts	31
22.	Classification according to the pattern of the primary feathers	31
23.	Similarity or dissimilarity in colouring, of the sexes	32
24.	Birds that show much white when they fly	33
CHAPTER IX.		
<i>Flight.</i>		
25.	Speed	34
26.	Tricks of flight	38
27.	Manner of rising when surprised	40
28.	Regular formations in flight	42
29.	Distinctive noises in overhead flight	44
CHAPTER X.		
<i>Feeding.</i>		
30.	Feeding	48
CHAPTER XI.		
<i>Size of Flocks.</i>		
31.	Rough average size of flocks	53

Para.	Subject.	Page.
CHAPTER XII.		
<i>Notes and Cries.</i>		
32.	Distinctive notes or cries	58
CHAPTER XIII.		
<i>Behaviour under Fire.</i>		
33.	Behaviour under fire	63
—————		
PART III.		
CHAPTER XIV.		
<i>Notes on Shooting.</i>		
34.	Some difficulties in shooting from a butt ..	68
35.	Advantages of a good gun and good ammunition	70
36.	"Swing" <i>versus</i> "Carry Carry Forward" method	70
37.	Place to grip with the left hand ..	72
38.	Lord Walsingham on shooting driven grouse..	72
39.	What the gun and cartridges can do ..	72
40.	Best size of shot for duck	73
41.	Practice	74
42.	Cleaning	75
43.	Optimism and good temper	76
44.	Some negative counsel	76
CHAPTER XV.		
<i>Hints on Organising Duck Drive.</i>		
45.	"Day" and "Night" <i>Jheels</i>	79
46.	Varying conditions of different waters at different times	80
47.	Treatment of main <i>versus</i> subsidiary waters..	80
48.	Number and siting of butts	81
49.	Climatic conditions	82
50.	When to fire the first shot	82
51.	Some minor points	82
52.	Conclusion	83
APPENDIX.		
	<i>The Keys</i>	85 to 107

ILLUSTRATIONS.

	<i>To face page</i>
The Garganey Teal	<i>Frontispiece.</i>
A Butt, with Gun and Loader Installed	4
Going Out to Take Post in the Butts	7
The Coot and Little Cormorant	11
The Great Crested Grebe and Little Indian Grebe	12
Colouration from Below (three plates)	27
Moulting and Change of Colouration	30
Birds that Show Much White when they Fly (two plates)	33
Mallards	40
Some Sporting Ducks	50
Some Ducks in Full Dress	57
"Paddlings" of Mixed Duck	63
A Fair Sportswoman	72
Sketch Map to illustrate Para. 46 on "Varying Conditions of Different Waters at Different Times"	80



PART I.

CHAPTER I.

Methods of Duck Shooting.

1. There are many ways of shooting Duck, and those who at all specialise in each will say that their own single one is right. The beginner may favour walking them up, when he is more or less safe of one gratifying "sitter." Far be it from the writer to decry the sportsman who stalks birds in this way. Often it is the only thing to be done, and the mere fact of having approached wary or well-educated fowl sufficiently near for a shot is often in itself an achievement. The shooter's opportunities of doing anything on a bigger scale may moreover be limited. He may be the kind of man also, the more credit to him, who likes watching the ways of birds before he fires at them. Nor is it always so easy as it seems to hit your bird at near range as he tumbles up out of cover. Then there is the occasional individual, rare enough doubtless in India now, who uses the punt-gun. One of the finest naturalists that India has produced, however, Hume, was an enthusiast with the "swivel," which he compares contemptuously with the mere "shoulder-gun," and it was on this account and because he loved flight-shooting at night and even, strange as it may seem, netting, that we owe him so much close and accurate observation of the habits of the Duck tribe. "There is more skill, knowledge and endurance brought into play" he wrote in the *Game Birds of British India*, Burma or Ceylon in 1879 and 1881, "and therefore more *sport* in one day's big gun shooting than in a week of even exceptional twelve-bore shooting, but punts and swivels, here and at home, have utterly gone out of fashion and no gentleman now-a-days knows how to use them....., and it is useless playing the part of a *laudator temporis acti* or saying more of a form of sport which, however glorious, is as much extinct, where my readers are concerned, as falconry and hawking."

Various methods of shooting Duck—
"Walking up," "Wild-fowling"
and
"Driving."

A good account, from his own pen, of one of Hume's holocausts is given under the Garganey Teal in the *Individual Notes* to Chapter XI. One may be thankful if the punt-gunner has practically disappeared. If he had not, there would probably be fewer Duck, despite the protection afforded by migration, in India than there are now.

To modern ideas wild-fowling on inland fresh water where the birds are sufficiently accessible, does not seem justifiable; it may well be left, as at home, to the salt water estuaries where certain species are obtainable in no other way.

To the writer's mind, the most sporting method of shooting Duck is driving them, whether you merely lie up in cover at a place where the birds will pass and re-pass and have them put up by beaters or, in *jhils* with high and plentiful cover that yet does not prevent passage, cruise about in a party of several guns disposed in different boats, each helping to keep the game on the move for the other; or the method chiefly dealt with in this book—shoot, like a lord, from a well arranged fixed batt. The hardy sportsman who likes his tramp through a marsh will scoff at “the arm-chair expert who need'nt trouble to wet his feet.” but, for the pure art and enjoyment of shooting, the object of his derision will always be ready to turn the tables and say shooting driven Duck as much surpasses walking them up as riding a bold hunter to hounds over an open grass country excels assisting (on the brougham horse) to chop foxes in a park.

For Duck driving, India is the country *par excellence*. You will look in vain for accounts of it in the home standard books. It most resembles *flight-shooting by day*, a chance that the Badminton authority on Wildfowl shooting, Sir Ralph Payne Gallwey, only *once* had the good fortune to enjoy. “We were shooting snipe” he writes “on a long spit of marshy land that reached far into a large lake. It had been blowing a gale from the south-west for some days, and every duck, widgeon and teal for many square miles of water had collected for shelter on the calm side of the point. They were there in hundreds, but there was nothing to be done except to look at them with longing eyes. We continued shooting snipe with poor success till about four o'clock, and then took another look at the duck before turning homewards; in the hope of getting a shot at one or two which had been swimming near the shore in the morning. On reaching the shore it became apparent that the wind, which was still blowing a full gale, had veered to the north-east. We knew that this change would unsettle the fowl, as they were now on a rough shore and not, as before, in snug shelter, and the calculation soon proved correct. That evening every bird passed within fair shot overhead, though at a great speed, making for the other

side of the point—now the smooth one. They came at first singly, then in couples, then in threes and fours, often in dozens. Pintail, teal, widgeon and duck were hurrying overhead for quite half an hour. Being fortunately well supplied with cartridges, as our snipe-shooting had not been nearly as good as we had expected, we fired between seventy and eighty shots almost as fast as it was possible to load and fire, and until the ammunition was exhausted. Even then the birds were passing over, though the great bulk of them had gone. That day and the next we picked up with the aid of a good dog, nearly fifty dead birds; no doubt several escaped wounded and others fell at a distance. This, with No. 8 shot, may be regarded as good enough. It was the best half hour's sport we ever experienced, or shall ever be likely to enjoy again."

In the succeeding chapter the author's own attempt will be made to describe in some detail the sensations of a keen shot *vis-a-vis* the driven bird. Suffice it here to say that there are no "sitters" in this kind of shooting, that there are not many near birds, that the pace is usually a high one and that birds come at all kinds of angles and heights. Opportunities arise and are frequently successfully converted of shots that do not occur in ordinary shooting, or, if they do, are often left alone as too difficult: here however you are getting plenty of them, and you attempt the apparently impossible and sometimes surprise yourself. For the same reason, if you are making the same mistake over and over again, you have time to think things out and consider what it is you are doing wrong. Then, having found what seems to be the solution, you have the means and the chance to test it in practice at the time. And the tense excitement of it,—! Away in the distance, high over the open water of which you command so good a view, a flock appears. Will they come to you, or will they not? If they do, what kind of a shot is it going to be, and what are you going to do, in the minimum time, to solve all the complicated issues (different almost for every shot, involved in hitting them?)

CHAPTER II.

Duck Driving and Butt Shooting Described

2 It was ten o'clock of a beautiful bright morning not far on the other side of Christmas, and the punts, each manned with an eager sportsman or two, were pushing off from the shore and making for the butts, of which there were eighteen on the water. "Yours

is a pretty useful place, though not one of the very best, the writer had been told, and he followed with interest the neat sketch-map which showed him that his position was away towards the right-hand horn of the great horse-shoe lake.

Overhead, Pallas Fishing Eagle wheeled, screaming raucously, its white neck and white-barred tail conspicuous even at a distance. Now the tamarisk bushes on the far side were within reach when we heard the deep alarmed "q-u-a-r-k, q-u-a-r-k" of the female Mallard, as the Peregrine, that queen of Falcons, which arrives and departs with its quarry, the Duck, swooped overhead. In the distance, disturbed by some other boat, a huge flock of snow-white Spoonbills floated up, flying well, with long necks straight, after the manner of Geese. The Coots too were getting busy and the Duck were starting to move, but the time at which the first shot was to be fired was still distant, and we let them be, content to watch them and see if we could make them out afar off. Some you can hardly mistake. There is the Red-crested Pochard, who shows more white on his wings than perhaps any common Duck in Northern India, the Spotbill, with his long neck, large size, and uniformly grey under-parts, and so on. Even the manner of flight you get to know after a while, the hurried, fussy style of the short-winged Pochards, differing from the easy mastery of the long-winged True Ducks, such as the Gadwall, Mallard and Pintail.

Here the writer parted from his companion, whose position was further on, with mutual wishes for good luck. The butt was nicely built of tamarisk branches, to match the vegetation of the surrounding water, the sides thick enough to prevent the birds seeing you through them, and not too high to prevent your firing over them, while the floor was firm and the room sufficient both for the gun and his loader. The boatmen, hardy, amphibious creatures of the fisherman caste, dressed for the occasion in colours of protective green, now tucked the punt away among the trees and got into position to retrieve fallen birds.

Still a few minutes to go before the "zero hour." When you are actually shooting, it is not well to take too much thought about forward allowances and other shooting technicalities, but the mind may be gently directed beforehand in such moments along channels that it will follow subconsciously later. The man at the shooting-school told you years ago the reason why you do less well on birds that cross from left to right



A Butt, with Gun and Loader installed,

than on those going *vice-versa*. Remember now this old vice therefore and any others that you may possess, but, like the good Christian assured of salvation, put such thoughts from you later and do your actual shooting with an untroubled mind.

Ah! You hear a distant "pop, pop." Now the fun is going to begin. Up sails a big flock, Mallard from the heavy build and the green heads and white-collared necks of the males, but they are not in range. Perhaps they saw you, so you crouch lower in your butt.

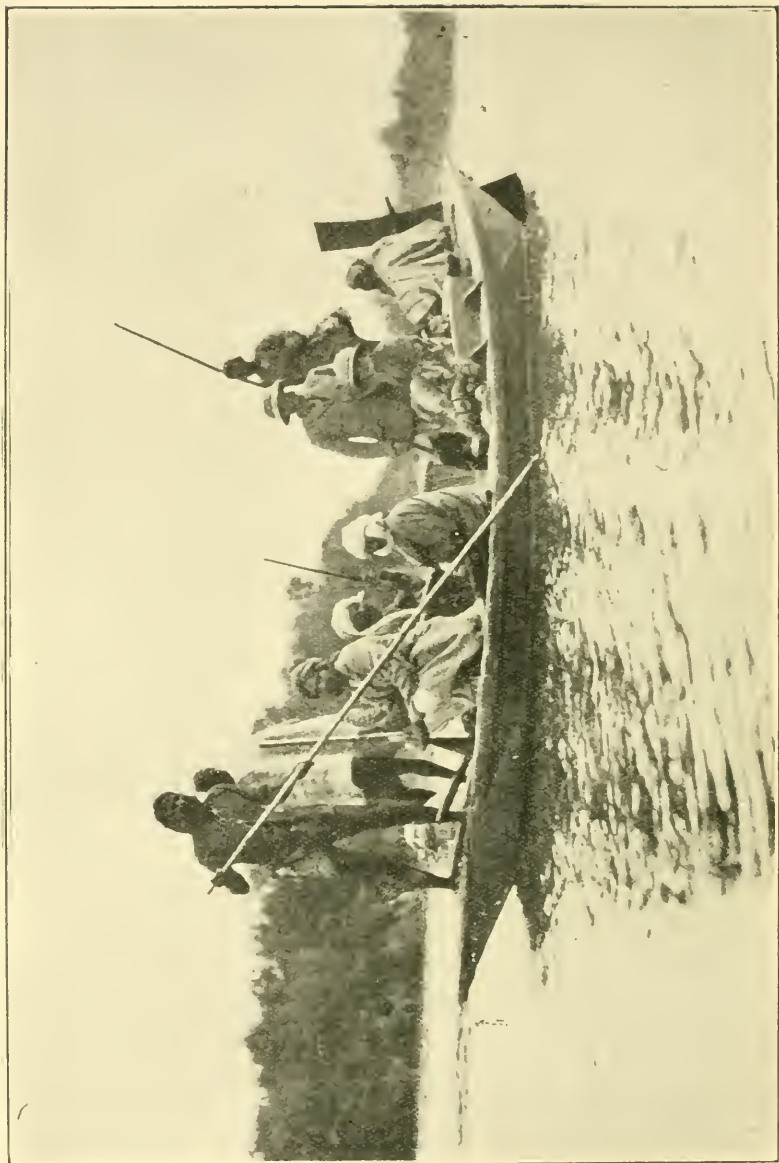
Whoosh. Another flight, Common Teal this time, is on you before you quite realise it and you loose off an ineffective two barrels. The profane man here works off steam with an useful expletive or two. Whichever way you are made, you realise that this wants looking into. Something else comes along, what kind of bird you are too anxious even to make out. You think it is just within range and you fire again as the flock sees you and wheels away. Not a bird falls, though one flinched distinctly. You flatter yourself that this was a little better. Actually you know that you were behind and that the deviation of the bird was probably due to air displacement and not to a hit. It *does* take a bit of getting into. And then, just when you were beginning to feel a little unhappy, you take an incomer with exactly the right amount of lead, and, as he falls not too far behind you, you realise you have made a beginning. The guns all round are hard at it, and the birds come in at all angles and with a fine turn of speed. The pace of winged things is often much exaggerated. The point is discussed in considerable detail in Chapter IX. A recognised old-time authority says of Mallard. "Their rate of flights probably 100 miles per hour." But what were his *data*? An ornithologist, who studied the subject in connection with anti-aircraft duties during the War, thinks that "*for a short distance, the swift*" (the fastest, probably, bar none, of all birds) "*can reach a speed of 100 miles per hour.*" Well, be the pace of the birds what it may to-day, they are going quite fast enough for you. But you are beginning to swing to it, and your bag is creeping up. The loader, despite Indian ideas of the Evil Eye, is keeping count, and you cheer up at what he reports. Don't try and keep eyes in both sides of your head. The man, even if he has two guns going for you, will face in the other direction and warn you of birds coming up behind, so that you can keep your undivided attention on your front. Now you get three, four, and even five consecutive hits and are beginning to fancy

yourself a bit, when, *swish, swish*, a bunch of Teal twist and swoop at you, climbing like lightning to your ineffective first barrel so that you miss the second too. That humbles your pride and you begin to notice that you have got through a surprising number of cartridges already. Don't worry too much about that. This sort of thing, like Christmas, only comes once a year and you would do better to select some other field, your drink-bill, say, for economy.

The behaviour of the different kinds of birds under fire is very interesting. The big Duck, Mallard, Spotbill etc., go steadily on, not altering elevation like the Teal, when fixed at, though most will wheel away (a very favourable opportunity for number two barrel) offering a lot of under surface when surprised by number one. It is interesting too to see the kinds of Duck that go together. Often, for instance, you will see a Shoveller or a Spotbill piloting a flock of Common Teal,--*fathering them*, you might almost suppose.

That time you only got your first barrel bird, though you hoped to make it a right and left. In fact you felt instinctively that you were "on" your second bird. Well, it sometimes happens. The experts tell you of "cartwheel patterns" *i.e.*, *bona fide* cases where, at 40 yards, the centre of a 30 inch pattern is left bare of pellets. The high class shot, therefore, who has got his bird exactly centred fails where the duffer who gets him on the outer edge succeeds. Take that flatteringunction to your soul.

There is to be an interval for lunch and a "general post" of positions after, and the time is drawing near. You take an incomer as your last shot of the morning and he falls, dramatically enough, right inside your butt and you have some work to avoid him. Now is the time to take stock of your bag, some of which indeed has already been gathered in. Why let *shikaris* spoil game by careless handling? The *halal* custom of the good Muhammadan works dreadful havoc with the aspect of your bag, but some birds will have died before the knife and some you will except expressly from that ceremony. Half the pleasure of shooting to some consists in an after-study of the colours and plumage. Your Mallard drake for example arrives in the early winter, adult though he be, dull and sombre, and changes gradually into brighter colours, till, by the end of the season, he has assumed his splendid full-dress. One by one you go over them. Here is a male Shoveller, glorious withal, with green head, bay belly and blue shoulders, and a right good flyer he is even



Going out to take post in the Butts.

though some *do* scoff at his habit of haunting muddy village pools. You have plenty of Spotbill, aptly named from their curious variegated beaks, and not a few Gadwall, very sporting movers, with speckled heads, pencilled breasts, black and white wing-bands, and the tell-tale, brown patch on the wing-coverts. Oh! Here is something out of the way for your part of the country. What is it? It is a rather drab, middle-sized Duck and it has no distinctive wing band. But it has a very short and slightly tapering bill, grey, with a black tip. Something stirs in your recollection. You look among the rest of your bag, and now you have it. She is a female Wigeon. You would not mistake a male in a full plumage, if you had ever seen one, distinguished as he is by his chestnut head with cream blaze, pinky breast, white shoulders and green speculum. But the lady *was* a bit of a puzzle.

Now the friend parted from earlier in the morning came and picked the writer up. Bags were compared and the friend was found to have slightly the smaller. It is a mean mind that drives satisfaction from these little things, but there is at least consolation in finding that you have been doing better than you yourself supposed. Anything over thirty-five brace was good, and the total bag was over eight hundred for the morning.

PART II.

CHAPTER III.

Object, System and Arrangement.

Object of
the book.

3. A number of sportsmen, at a big shoot, most of them by no means novices, were once asked to keep, for identification and preservation, some of the rarer Ducks of Northern India, a nominal list being supplied to them. Most of them very frankly replied that, though they would do their best to comply, they feared they were not able to distinguish any but the very commonest birds, especially when on the wing. If that was the case with them, the tyro's difficulty must be considerable. Few people it is hoped shoot for the mere pleasure of killing. The sportsman's interest in his shooting would accordingly be much increased if he were able, without having recourse to the standard books on the subject, many of them too technical as to repel the beginner, to spot what it is that he has shot and to discover something about its habits in general. The ordinary man probably depends on little beyond colour, size and a very few salient features of shape, etc., for his identifications, and, if he turns to the illustrated books, he gets a picture, often admirable, of the bird in repose along with a highly technical feather-to-feather description of the plumage. That is all right if he has the dead bird in his hand, but one does not always want to kill in order to be able to identify, and it is for every reason nicer to be able to recognise your bird before, rather than after, you have fired at him.

The present little book, then, has two objects, one to acquaint the practical sportsman with the commoner Duck that will be met with on a large sheet of water in Upper India in circumstances mainly in which the birds come to the gun, and the other, by drawing attention to some of their essential habits and by citing a few simple commonsense rules of shooting, to assist him to hit them.

System and
arrangement
of the book.

4. The system and arrangement of the book calls for some explanation. Instead of taking each bird and giving, in a more or less exhaustive account, everything material that is known about it, the plan usually adopted in the bird books, certain subjects or topics have been selected, *e. g.*, Peculiarities of Appearance, Size, Colouration from Below, Flight, Behaviour under Fire, etc., in the light of which all the species are to be brought under a common review. These topics cover Chapters V

to XIII, which contain, in the Notes on Individual Species, the original observations in abstract of well known ornithologists, prefaced by a few general remarks in which general principles are sought to be brought out, the results of the Individual Notes, etc., being summarised for each topic, in one of the 20 Keys, which will be found at the end of each Chapter and in the Appendix and which can also be obtained bound complete as a separate set of notes or chart for reference in the field. Cross references are given from the paragraphs in the text to the Keys and *vice versa*.

The species are dealt with in the same order throughout, and the index of contents has been made as full as possible. It should not therefore, it is hoped, be difficult to find one's way about the book.

5. The attempt is made to seize and fix, by means of simple tables ("Keys") and the use of non-technical language, some of the broadest of the general characteristics of the common species that would be met with on a large sheet of water *where the birds come to the gun*.

The "Key" system followed.

All generalisations are dangerous and it is easy to press any or all too far. All that can be hoped for, or expected, is some rough guide to the usual, the normal and the average throughout, and, if observation is stimulated by the detection of omissions or over-generalisations, something at least will have been gained. The system of similar simple Keys for the use of ordinary people was first adopted, it is believed, by Mr. D. Dewar in his "Indian Birds," a book that must have earned him the gratitude of many a mild seeker after bird-knowledge. All the information for each species cannot be given in every Key (see the blank in Key 18, "Distinctive Notes or Cries") for the reason that the necessary observations have not been completed it is believed, even by the highest authorities.

6. Now for a practical illustration of how it is intended the Keys may be used. You are safely installed in your butt, and you see a flock of ten or so tubby little Duck coming in at you, flying low *en masse* with fast-whirring wings, very clear in their minds as to the point they are making for. You get a general impression of dark-bodied birds with a big patch of white about the middle below and with conspicuous white in their wings. They get to within about the regulation forty yards of you, and then a slight movement on your part, or, may be, the colour of your *topi*, gives you away and the whole flock wheels, giving you a complete under-view as you fire. You see clearly now that the

How to use the Key.

abdomen in some (the males) is white, as is the wing-lining and under tail-coverts, while the head, throat and vent, roughly, are chestnut to dark-brown. You can even see that the wing has a dusky all-round edging. One is brought back to you and you find a thick-plumaged little bird with an eye (not yet glazed in death) that has a conspicuous white iris.

The remarks in Chapter IX on the general difference in flight between the True Ducks and the Poehards tell you that this is a Poehard. His wings are short and rounded. Key 1 suggests that it is the White-eyed Duck, as indeed the white *iris* (see also Key) has already made you suspect. You will do well, though, to corroborate before you jump to a conclusion.

Run your eye down the list of Keys in para. 14 and see which is likely to help you most. No. 4 and 6 in Chapters VI and VIII respectively show you a bird with the tell-tale colouring you are looking for. No. 5 in Chapter VII tells you that the white Eyed Duck is little bigger than a Teal. No. 10 in Chapter IX says he is one of the birds that show much white in the wing. No. 8 says that his speed is respectable. From No. 2 in Chapter V you will see that the Latin specific name *ferruginea* is helpful; the prevailing colour *is* a rusty red. Last of all, run your eye along the details in Key No. 1, Chapter V. There you see that the *speculum* is not distinctive and you find his number in the Fauna of India, Birds, if you want to see what a scientific book says about him.

7. The plates illustrating Key 6, Chapter VIII, "Colouration as Seen from Below," are, in order to give as close a presentation of the details of the shades as possible, reproduced from photographs of the dead bird. A black and white presentation is, as remarked elsewhere, probably as near as need be to what the human eye sees at ranges much over forty yards. The scale throughout is fairly accurate, as the photographs were all taken with the object at an equal distance from the camera.

CHAPTER IV.

Birds Commonly Mistaken for Ducks.

8. There are some birds which are commonly mistaken by the stranger, or the absolute beginner, for Duck, such as the Coots, Grebes and Cormorants.

There is a famous spot in the Western Punjab where a great *jhil* and its subsidiary waters are shot with due care, preparation and circumstance by a large party two or three times every year. A game-book is kept in two

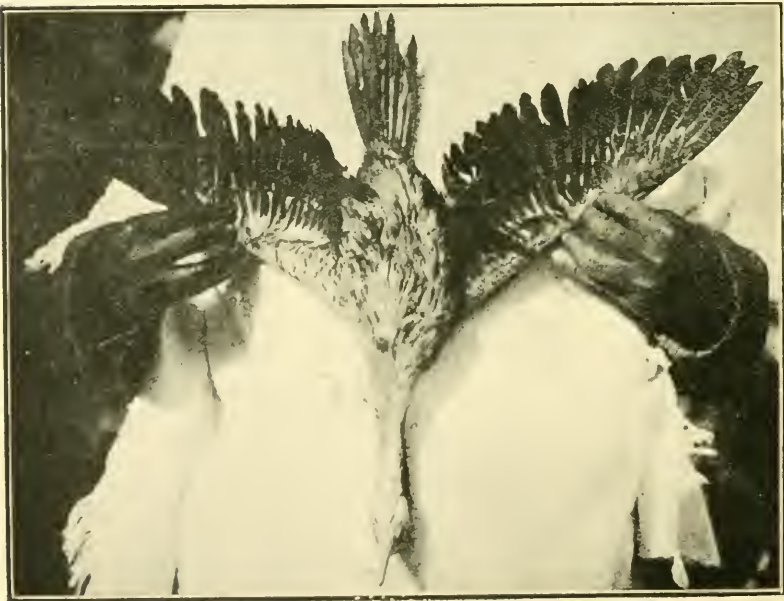
The plates illustrating Key 6.

Difference between the Ducks and some birds commonly mistaken for them.

[BIRDS COMMONLY MISTAKEN FOR DUCK.



The Coot (*Fulica atra*).



The Little Cormorant (*Phalacrocorax javanicus*).

parts, (a) in which the number bagged by each individual gun is noted, and (b) in which the total bag for all the guns is classified under the different species composing it. On one of these occasions there was a Distinguished Foreign Guest. "How many did you get?" he was asked at lunch. "Forty." "Good" said the recorder, since good it *was* for an unfavourable, stormy day. "What kinds were they?" "Oh, the usual kinds," answered the D. F. G. easily "*including twenty-five Black Duck.*" Now it was a long time before the "bag" was brought in, but certain suspicions which refused to be comforted had been aroused in the bosom of the recorder. On the other hand, courtesy demanded that forty, as announced, should be scored up to the D. F. G. The trouble, it was felt, was going to begin when those "Black Duck" had to be entered up in the printed columns provided for all the known game birds obtainable and the whole classified result fallied with grand total of the bag. And so it was. The "Black Duck" were found to be all Coots and Cormorants, and they had to be put down as "errors of classification" in a new and separate column to themselves. *But the D. F. G. never knew.*

A glance at the accompanying plates will be the best way to visualise the general differences of shape and colouring in these undesirables as against the sportsman's true game, the Ducks. Generally speaking, the Ducks* can be distinguished from all other Indian birds by the following characters. The bill is straight and armed at the edges of both chaps (*mandibles*) with a row of transverse ridges or teeth (*lamellae*) and the feet have moderate or short shanks (*tarsi*) and three toes in front webbed together, and a small, nearly or quite useless toe behind, not connected with the front toes. The Coots and Grebes (the Dabchick is the smallest of the Grebes) have beaks and feet very unlike those of the Ducks, the toes* "not being webbed together but provided each with a separate and individual web," while the Cormorants have, besides a dissimilar beak, a "hind-toe well developed and joined to the front ones by an extension of the web which unites these." Specially remarkable in the Ducks are the long feathers ("tertiaries") that bridge the space between the wings and the body, allowing no room for the passage of air with consequent loss of power in flight at this point.

The following peculiarities too are to be noted:—

The Coot (*Fulica atra*) has all over dark-grey or blackish plumage. His length is 16 inches. He is rather like the Ducks in his habits and he flies strongly and well enough, but nothing like as fast as the Ducks generally

* Finn, "Water Fowl of India and Asia."

and he rises with difficulty, flapping along the surface for many yards by the aid of his feet. He has a white bill and frontal disk.

The Grebes (*Podicipes*) have very short round wings and an almost rudimentary tail. They very rarely leave the water, though they are not bad flyers, once they are off it. They are expert divers. The Great Crested Grebe is 22, and the Dabchick only 9, inches long. The latter species has been mistaken for a duckling.

The Cormorants, the commonest species of which is the Little Cormorant (*Phalacrocorax javanicus*), are diving fishers with black or greyish plumage on the upper parts and very often on the lower also. They have longish necks and bills and largish tails with stiff feathers. The Little Cormorant is about 20 inches long. He has a powerful sustained flight, but also rises with difficulty, flapping for some distance along the surface. The Cormorants sail occasionally in mid-air, with wings outspread, the Ducks never.

CHAPTER V.

The Thirteen Species Dealt With.

9. The Ducks may conveniently be divided into three classes, *viz.*, the Grey Ducks, the True Ducks and the Diving Ducks (Pochards*) (see Key 1 below, col. 2). The Spotbill, the only representative dealt with of Mr. Oates' "Grey Ducks," has a less pointed wing than the "True Ducks." The latter are highly migratory and require wings fitted for prolonged flight: the former species is resident and has developed a more blunted and less efficient type of wing. The Teal, which have simply earned a separate popular name on account of their smaller size, are included in the True Ducks. The wings of the Diving Ducks are shorter, their bodies are rounder and their feet placed further back than in the other two classes, and their down and feathers are thicker and more impervious to wet, all characteristics that adapt them specially for taking their food, and diving, under water.

The difference between the Pochards and the True Ducks is an essential one, and will be traceable through many of the points and habits described, such as Flight, Feeding, Cries, etc.

10. Thirteen species are dealt with. These are the commoner Duck to be found in a big shoot on large sheets of water in Upper India. Others might have been added, but the intention is that this little book shall not

*Pronounced "Pokard," "Poker," says Hume, is Norfolk dialect for "diver."

Division of
the Ducks
into three
main classes.
(Key 1.)

Thirteen
species dealt
with.

BIRDS COMMONLY MISTAKEN FOR DUCK.



The Great Crested Grebe (*Podiceps cristatus*).



The Dabchick, or Little Indian Grebe (*Podiceps alpennis*).

be overloaded. Sportsmen, it is hoped, may care to carry out observations of their own on the same lines for other and rarer varieties.

The order in which the birds will be treated will always be that in the Summary Key 1 below *viz* :—

- | | |
|-------------------|--------------------------|
| 1. Spotbill. | 8. Shoveller. |
| 2. Mallard. | 9. Marbled Duck. |
| 3. Gadwall. | 10. Red-crested Pochard. |
| 4. Common Teal. | 11. The Pochard. |
| 5. Wigeon. | 12. White-eyed Duck. |
| 6. Pintail. | 13. Tufted Duck. |
| 7. Garganey Teal. | |

SUMMARY, KEY 1.

Popular name in Fauna of British India, Birds, with number.	Class.	Latin Name.	Colour of Speculum. A. Alike in both Sexes. U. Unlike.	Other specially Distinctive Feature.	R B M A R K S (see Note below).
1	2	3	4	5	6
1. Spotbill 1583 ...	I Grey Ducks ...	<i>Anas poeclilorhynchos</i>	Green. A ...	Bill black, vividly spotted yellow at tip and base.	L.D.
2. Mallard 1592 ...	...	<i>Anas boschas</i> ...	Purple blue. A ...	Four middle tail feathers black and curled up.	L.B.
3. Gadwall 1595 ...	...	<i>Chaulestasmas streperus</i> .	Brown-to-Black and white. A ...	Middle wing coverts chestnut ...	L.D.
4. Common Teal 1597	...	<i>Nettion crecca</i> ...	Black and green. A ...	Head green (or purple and chestnut in patches.	S.B.
5. Wigeon 1549 ...	II True Ducks ...	<i>Mareca penelope</i> ...	Black and green or entirely brownish, none in female.	Head chestnut ...	M.D.
6. Pintail 1600 ...	...	<i>Dafila acuta</i> ...	Green (or bronze) with cinnamon bar above. U. generally absent in female.	Middle tail feathers lengthened ...	L.D.
7. Garganey Teal 1601.	...	<i>Querquedula acuta</i> ...	Pale greyish-green (or brown) and white. A.	Wing coverts "blue" or lavender grey.	S.B.

8. Shoveller 1602 ...	...	<i>Spatula clypeata</i> ...	Green. A ...	...	...	Bill twice as broad at tip as near base.	L.B.
9. Marbled Duck 1603 ...	...	<i>Maremaronetta angustirostris</i>.	...	...	...	Upper plumage uniform marbled dull greyish.	M.D.
10. Red-eyed or Pochard 1604.	III Diving Ducks or Pochards.	<i>Netta rufaa.</i> ...	White or pale grey. A ...	...	...	Head red and fully crested	L.B.
11. The Pochard 1605 ...	...	<i>Nyroca torina</i> ...	Asby grey. A ...	...	...	...	M.D.
12. White-eyed Duck 1606.	...	<i>Nyroca ferruginea</i> ...	White. 2 ...	...	...	Eye of male has white iris	S.D.
13. Tufted Duck 1609 ...	...	<i>Nyroca fuligula</i> ...	White. A ...	...	...	A pointed crest of narrow feathers	M.D.

Note (i) The classification, which is that of Mr. Oates in his "Game Birds of India," is useful for working purposes, but Mr. Oates puts No. 13 in a different class, the Scaup Ducks, from Nos. 10 to 12.

Note (ii) L. denotes Large in size.

M. " Medium "
S. " Small "
B. " upper plumage in adult Brilliant.
D. " " " " " Dull.

Vernacular
names.
(Key 20)

11. In Key 20 below (cols. 2 and 3) will be found the Hindustani and Hindi names of the United (old North-West) Province and Sindh as given by Hume and Marshall in the "Game Birds." The transliteration and spelling is reproduced unaltered. It is by no means above reproach, even according to ancient pre-Hunterian principles, for even the same word is spelt in different ways, etc., etc. Possibly this does not matter, since few of the words, except the simplest, will be found in any Dictionary. A nodding acquaintance with the local names is worth cultivation, since the sportsman who knows them will at once be on better terms with his coolies and *shikaris*. There are now many excellent glossaries of local dialects, to which reference may be made. The subject is not one to which the standard books have paid much attention.

Where the vernacular names convey anything to the European with a smattering of the vernaculars, they will be found mostly to be based on some simple feature of colouring. Thus we have the "Blue Head" (Mallard) and the "Red-Head" (Red-crested Pochard and the Pochard), the "Little Red Head" (Wigeon), the "Red Bill" (another name for the Red-crested Pochard) and the "Pied Duck" (Tufted Duck). The Sindhi names for the Red-crested and ordinary Pochard mean also "the Red Duck." But vernacular nomenclature is very primitive. We have already seen that no less than three birds are hardly distinguished at all by name, and *the* Pochard and the White-eye, to judge by Hume's recorded names, are supposed to be male and female of the same species. Three birds again, the Common Teal, the Wigeon and the Garganey, which bear little enough resemblance to one another except in size, are all called *Patari*. It is a mistake, though, to suppose that the local product does not appreciate a picture or remember a name, if anyone, will take the trouble to explain them to him. It was the surprise of the writer's life to find an unlikely-looking *shikari* on a well-known *Jhil* in the Gurdaspur District of the Panjab whom you could not puzzle in regard to the English titles of the common Duck. Asked how he had come by his knowledge, the man replied that an European sportsman had once made a stay of several days at the place; he had a book with coloured pictures in it (how the shade of Hume must have rejoiced!), which, on being asked, he had shown to the *shikari*, repeating the English names till they were understood.

Col. 4 of Key 20 gives the current names in Western Panjabi. The resemblance to Hume's Sindhi will be apparent. There is obviously much confusion in the popular mind between the last four species.

KEY 20.

English.	United Provinces Hindi or Hindustani.	Sindhi.	Western Panjabi.
1	2	3	4
1. Spotbill ...	Garampai, Gugra, Bata	Ilunjur ...	Ilanjar.
2. Mallard ...	Nilsir ...	Niroji ...	Nil; f Nirgi, Missi.
3. Gadwall ..	Mila, Beykhur, *Bhuar	Burd ...	Buhir.
4. Common Teal	Kerra, Lohya kerra, Putari, *Souchuruka.	Kardo ...	Kappa, Kappi.
5. Wigeon ...	Pea-san, Patari, *Pharia, *Chota Lalsir.	Parrow ...	Faraha.
6. Pintail ...	Sanh, Sink-par ...	Drighush, *Kokarali	Dargosh.
7. Garganey Teal.	Chaitwa, Patari ...	...	Tetri.
8. Shoveller ...	Tidari, Punana, Tokur- wala, *Ghirah.	Alipat ...	Gahna.
9. Marbled Duck.	...	...	Chohini, Chuhi.
10. Red-crested Pochard	Lal-choonch, Lall-sir ...	Rattoba ...	Ratba, Lalsir.
11. The Pochard	Poorar nur, Lall-sir ...	Rutubah ...	Ratba, Torinda, Burrara.
12. White-eyed Duck.	Karchiya, Boorar mada	Burnu ...	Burnu, Burrara
13. Tufted Duck	Dubaru, Ablac, *Rah- wara.	Turando ...	Runara, Faraha.

12. The *speculum* (See Key 1) is the exposed portion of the secondary† quills with their longer coverts, distinguished by conspicuous and often metallic colouration. It is not visible from below but is so remarkable a feature of the Duck family and so useful as a means for superficial distinction between the species that it has been included in this Key. The *Speculum*.

NOTE.—The spelling in Cols. 2 and 3 is that of “the Game Birds of British India, etc.” unaltered.

* From the Fauna.

† NOTE.—The “secondaries” may be taken to mean all the quills of the wing, other than the first ten or eleven counting from the tip inwards, which are the “primaries.” The secondary quills spring from the forearm (*radius* and *ulna*).

"A theory has been advanced," says Finn, "to the effect that different markings on the wings of allied birds are 'recognition marks' whereby the individuals of each species are enabled to know their own kind, and hence verify the proverb about birds of a feather sticking together. Nevertheless the Ducks which furnish such excellent examples of differing wing-markings, also furnish evidence which is rather unfavourable to this recognition-colour idea. In the first place, several of the Pochards agree in having the same wing-pattern, and the flight of these is certainly not quite the same. - And, secondly, the wing bar is not *always* constant in the same species in all its individuals. The female Widgeon seldom has one, and it is generally absent in the female Pintail, though I knew at one time in India of no less than three female individuals of this species which acquired it, though without it at first. Also the female Garganey gets an approach to this marking with advancing age; so that it would seem that these two species are now acquiring the marking, which is not yet fixed."

One part from the "recognition mark" theory with regret. It seems to help to explain the wonderful precision of the movements of the flocks and the time they keep. But, points out Finn, if it were so important to the birds to know each other, the slower, weaker females would need to show their nationality more than the males, the more so as they are the members of the species which are so difficult to distinguish as to render a special recognition mark necessary. Finn inclines to the conclusion that nature intended the marking as an ornament, as indeed it is. "It is in some cases at any rate," he says, "displayed in courtship, and that no doubt is the chief use of its presence."

13. Only one of the thirteen, *vis.* the Spotbill, is a common resident breeding in Upper India, a fact of interest to the gunner because the bird has not the same dense plumage as those that come to India from colder climes and does not accordingly carry as much shot as other duck of equal weight. The Marbled Duck is not known to breed in Sind, but is probably of limited migration.

Throughout the winter, a good deal of movement goes on within India. Thus, before Christmas, the sportsman in the Western Panjab may be shooting, besides the pretty constant Shoveller, Gadwall and Common Teal, mostly White-eyed and (later) Mallard while, after Christmas, on the same water the birds may be mainly Mallard, *e.g.*, *The* Pochard, the White-eye and the Tufted Duck. Local, not less than complete seasonal, migration depends on food supply.

14. It may be of interest to tabulate (see below) (the approximate dates of arrival in and departure from the

Residents and
migrants.

Dates of
arrival and
departure.

plains of Northern India of the various Duck. These times will, of course, vary very much with the nature of the seasons in India and according to locality. "As welcome as on the mountains the feet of him who bringeth glad tidings" (thus does Col. Tickell, an old-world ornithologist and nature-lover, do justice to the sportsman's feelings at the beginning of the shooting season) "are the first flights of the Water Fowl which announce to the nearly-exhausted European the approach of the delicious 'cold season' of India. Riding slowly across the open meadows or the treeless uplands, now and then breathing his Arab and his 'long dogs' in a spurt after a "lomree" (fox) as it returns from its night rambles to 'earth' and inhaling with cheered spirits the cold breezes of early morning, the horseman sees across the dappled sky long lines of clamorous Geese or swift-flying Duck hurrying up from the horizon and passing overhead, as if fraught with messages of comfort and encouragement from the colder regions to the parched torrid zone. Some pass grandly overhead, mere specks and lines far up in the blue vault, bound to distant waters further south; others with a satin rustle of their rapid wings cleave the air so closely by that the observer discerns the species as they rush past and recognises familiar forms associated with recollections of snowy moors and ice-bound pools 'at home' in far England."

The dates are mainly based on Hume. It is a curious point that many of the species that arrive earliest, like the Common Teal and Gadwall, also stay the latest and *vice versa*, the Pintail, which rarely arrives before November, being seldom seen after the first of April.

No.	Bird.	Approximate Arrival (earliest).	Dates of Departure (latest).
1.	Spotbill ...	Resident ...	...
2.	Mallard ...	Middle to the end of October.	Before latter half of April.
3.	Gadwall ...	Latter half of October	Late March to first week in May.
4.	Common Teal...	Latter half of Septem- ber.	Sometimes well into May.
5.	Wigeon ...	End of October ...	End of March or April.
6.	Pintail* ...	Rarely before Novem- ber.	Very rarely after be- ginning of April.
7.	Garganey Teal	Towards close of August or early September.	End of March or first half of April.

* NOTE.—Pintail have been shot in the Western Panjab as early as the 2nd October and as late as the 6th April.

No.	Bird.	Approximate Arrival (earliest).	Dates of Departure (latest).
8.	Shoveller ...	Latter end of October	End of April.
9.	Marbled Duck*	Late October or early November.	April or even late May.
10.	Red-crested Pochard.	Latter half of October	Never after the end of the first week of April.
11.	The Pochard ...	Latter half of October	Probably beginning of April (Oates).
12.	White-eyed Duck.	Last week of October...	March.
13.	Tufted Duck ...	End of first half of October	About end of first week of April

Birds with
names that
help to
identi-
fication.
(Key 2.)

15. By no means all the names, popular or scientific, English, Latin or Greek, with which birds have been saddled help to identification. Among the Ducks here dealt with, Mallard, Gadwall and Garganey are English names that convey nothing to the ordinary person. No Greek or Latin scholar is likely, on the face of them, to make much out of some of the names invented or imported from the dead languages, such as *Nyroca*. There are however some names in all the tongues laid under contribution that do point to some permanent and distinctive characteristic of the bird, and it may be worth while to run through these.

Plumage accounts for Pintail in the English and *acuta* in the Latin name, the bird really having long, pointed "pin" feathers in his tail; also for Marbled Duck and *marmoronetta*, from the dappled plumage of this species; also, for obvious reasons, for Red-crested Pochard; and for *acuta* in the name of the Garganey Teal, from the long, pointed bluish-black, white-shafted outer scapulars (shoulder-feathers); also for *ferruginea* in the Latin name of the White-eyed Duck, from the deep rusty-red brown head and surrounding parts; also, for obvious reasons, for Tufted Duck; and, lastly, for *fuligula* in the Latin name of the Tufted Duck from the black colour of the upper parts.

* *Note.*—It is not at all unlikely, says Oates, that some birds of this species may remain in the North-West parts of India during the Summer.

Three of our Ducks derive names from the *shape and colour of their beaks*, viz., the Spotbill (which has the beak black, vividly spotted yellow at base and tip) for whom the ornithologists have invented the wonderful equivalent *poecilorhynchus* for his popular English name: the Shoveller (*spatula* in the Latin) because he has a bill which you may call either a shovel or a compounder's spatula; and the Marbled Duck, which has a very narrow bill with two sides parallel, which deserves the Latin name *angustirostris*.

The *colour of his eye* is the obvious explanation of the White-eyed Duck's name.

Habits supply the reason for the names (some none too obvious) of the following, viz., the Diving Ducks as a class are called "Pochards" (pronounced Pokard) because, as Hume points out, Pokard means "diver" either in Norfolk dialect or in Old English. *Streperus* is quite apt in the Latin name of the Gadwall, pointing to the incessant chatter which the birds keep up when feeding. Wigeon is onomatopoeic, being an attempt to reproduce by the human tongue the curious call of the bird (see chapter XII and Key 18).

16. Something may be said as to where the birds which are the object of the sportsman's attentions may be found during the day, a time when most of them are not feeding but resting.

Kind of water on which found. (Key 3.)

Of all the species treated, the Gadwall and the Common Teal are perhaps the most ubiquitous. Any piece of water, large or small and of whatever kind, be it river, pond or marsh, seems to suit them. The Pochards are birds of the open water, and none more so than the Red-crested who will lie out in wide open stretches without a scrap of cover. The other Pochards are not averse from vegetation, but prefer the deeper *jhils*. The Spotbill and Shoveller are to be found on the smaller waters. The Shoveller is *par excellence* the bird of the village pond. Not that he is not to be found almost anywhere else besides, but, if he does visit the larger *jhils*, he will be met near the shore. The waters the Spotbill likes best are the small weedy ones. Of the remaining varieties, which have not been mentioned above, it may be said that they are mainly birds of the larger broads and marshes that have more or less cover, at any rate on the edges; among them, the Mallard, Common Teal and Garganey are also to be found on rivers, as are the Spotbill and the Gadwall. That wary bird, the Pintail, distrusts high cover, and prefers the protection of low water-plants from which it can easily discern the approach of any danger.

NOTES ON INDIVIDUAL SPECIES.

Spotbill.—Their haunts seem to vary very much, says *Stuart-Baker*. Probably they prefer tanks, *jhils* and small pieces of water which are well-covered with weeds, and they seldom resort to large pieces of water. They inhabit the smaller *jhils* which are surrounded near the margin with jungle, and here they may be seen all asleep, except one or two which are on sentry-duty near the edge. In the District of Mymensingh however they are found on the vast *bheels* which stretch for miles in every direction and here also they breed in great numbers. They are also found, though I think but rarely, on small quickly-flowing streams in forest. On the other hand, on some of the bigger rivers they are not uncommon.

Mallard.—Marshy places, says *MacGillivray*, the margins of lakes, pools and rivers, as well as brooks, rills and ditches, are its principal places of resort at all seasons.

Gadwall.—You find them equally, says *Hume*, in the largest rivers and the smallest hill streams, in huge lakes and small ponds, in open water, as at the Sambhar Lake, where not a reed or rush is to be seen and in tangled swamps where there is barely clear water enough to float a walnut.....On rivers they are generally to be seen snoozing on the bank during the day, and then they commonly leave these towards sunset for feeding grounds inland. In broads they keep, if at all disturbed, well out of gunshot towards the centre, sometimes in clear water, more often skulking in low water-weeds; but in unfrequented places they may, even during the daytime, be found walking on the shore or paddling in the shallows round the edges of the tank, feeding busily with their tail-ends bolt upright and the rest of them hidden by the water.

Common Teal.—Where habitually shot at, they spend the day on some large river or sheet of water and feed chiefly at night in wet fields, swamps and the smaller *jhils*, changing their quarters for this purpose about sunset, and there is no species more commonly bagged in flight-shooting (*Hume*). Occurs on almost every piece of water, whether large or small, river, pond or marsh (*Oates*).

Wigeon.—In Upper India, says *Hume*, we habitually meet them on good sized pieces of water, some portions of the shores of which are smooth and turfy. They are excessively rare on bare lakes like the Sambhar. On small ponds I have never once seen them. Nor have I, except very rarely, seen them on our large rivers, but they are not so uncommon in smaller rivers flowing through meadow-like turfy flats.

Pintail.—In the daytime they frequent large lakes and *jhils* and rest in the centre of wide, comparatively open pieces of water, shunning such as have thick cover of reeds or similar heavy jungle, yet resorting always to those which have the surface covered with lilies and the smaller water plants, amongst which they can lie well concealed, yet able to discern at once the approach of anything to their vicinity. During the night they do not leave their quarters till very late—they visit the smaller *jhils* and tanks, the rusly banks of the nullahs and canals and similar places, where they feed, but the first glimmer of dawn finds them on the wing once more *en route* to the larger waters. Big rivers they do not seem to like. Small rivers, if of clear and quick-running waters, are no more pleasing to the Pintail; but small creeks of almost still water and canals which have vegetation about them, are visited for the purpose of food, and occasionally a flock may be put up from such places in the daytime. (*Stuart-Baker*.)

Garganey.—The Garganey haunts almost any kind of water, says *Stuart-Baker*, not, as a rule, frequenting small, quick-running streams or small, clean, tanks and ponds, and being specially partial to wide stretches of fen or *bheel* well covered over their greater extent with weeds yet having fairly extensive patches of clear water dotted here and there over their surface. During the day they keep almost entirely to the larger sheets of water or so, sometimes to the larger rivers, such as Indus, Ganges, etc., where they float in the centre in dense, closely-packed masses. They feed in the smaller tanks and *jhils* and also in the paddy-fields and on various young land-crops.

Shoveller.—As regards its haunts, says *Stuart-Baker*, they are everywhere and anywhere, but it does not care for open deep water and prefers small creeks, ponds, *jhils* and tanks which are covered with vegetation, and also stretches of shallow water with plentiful cover and a muddy bottom. At the same time I have shot them in the very centre of large, open *bheels* and once on a small hill stream. To the shores they stick, says *Hume*; into the open water they never seem to struggle by choice; and, if you watch them, they are for the most part, either dozing on the brink or paddling slowly in the shadows with their entire bills and more or less of their heads under water, their heads working from side to side all the while like a Flamingo's or Spoonbill's. Commenting on this, *Stuart-Baker* says he has seen the Shoveller in open water, but this only rarely and only during the heat of the day when the birds wish to sleep.

Marbled Duck.—Its favourite haunts, says *Hume*, in Sind were broads thickly grown with rush in which it fed and sported, comparatively seldom showing itself in the open water.

Red-crested Pochard.—They are open-water birds by choice, frequenting large sheets of water unobstructed by surface-weeds, reeds, or water-plants, except about the shores or banks. Of course, where they are most common, a few birds may be met with in any kind of water, but it is rare for any large flock to be found on vegetation-covered swamps, small dirty *jhils*, etc. (*Stuart-Baker*.)

The Pochard.—There is practically no kind of water, notes *Stuart-Baker*, that they will not visit *sometimes* in greater or smaller numbers, but, preferentially, they leave alone shallow *jhils* and waters and also such as have the vegetation everywhere dense; on the other hand they do not care for *quite* open water without vegetation of any kind whatever.

White-eyed Duck.—The kind of water preferred by the Pochard is also that which forms the favourite resort of the White-eyed Pochard, says *Stuart-Baker*. I have, however, he continues, found them in all and any sort of water. Where there are wide stretches of water, clear here and there in patches, but for the most part covered with water-plants, and with shores thickly covered with weeds, etc., the White-eye assembles in vast numbers, but not in very large flocks.

Tufted Duck.—Essentially requires, says *Stuart-Baker* open water and in preference resorts to wide expanses of water of some considerable depth in the centre though more or less weed and rush overgrown round the shores. Not often to be found on open tanks whose shores are free of jungle, nor on rivers, except where these debouch into the Plains and the duck are entering or leaving India.

SUMMARY, KEY 3.

A.—Ubiquitous.

Gadwall.

* Common Teal.

B.—Birds of the Open, Bright Water.

Red-crested Pochard.

C.—Birds of the Larger Waters.

* Mallard (fairly ubiquitous).

Wigeon (likes turfy banks).

Pintail (doesn't like deep cover).

* Garganey (often any kind of water).

* Note.—Found also on rivers.

Marbled Duck (rush covered swamps).

The Pochard
White-eyed Duck } (often any kind of water).

Tufted Duck (requires cover on banks).

D.—*Birds of the Small Waters.*

* Spotbill (likes much high cover).

Shoveller (often any kind of water, bar rivers; sticks to the shores).

CHAPTER VI.

Appearance.

17. How far is it possible to identify a bird by its general appearance in the air at a distance? Some very rough general indications are given in Key 4 at the end of this Chapter. If the most distinctive species are noted and remembered, the less conspicuous will be placed, with practice, later. Reference may be made to the other Keys and paragraphs on Size, Speed and Tricks of Flight but, above all, to that on Birds which show much White. Again, it may be said, it is the black-and-white presentment that the eye gets at a distance; colours, no matter how vivid close at hand, are not distinguished a long way off. Some or all of the points given in the Keys, etc., will, it is hoped, stick in the memory and the bird be identified.

General
appearance
in flight.
(Key 4.)

If shape and the presence of much white are to be the main guides, four of the large Duck are fairly unmistakable, *viz.*, the Spotbill, with his long neck and uniform grey colour; the Mallard, with his heavy build and (in full plumage) green head and white collar; the Shoveller, with his light build, big, mis-shapen bill and (in full plumage) white breast; and, lastly, the Red-crested Pochard, a bird lightly built for a Pochard, with a crest that makes his head look big, and with white on the wings and flanks. Among the Duck of medium size, the Wigeon has white on the wings and abdomen, while the Tufted Duck, a compact tubby little fellow, has a vivid contrast in his black head, throat and upper-breast and his white abdomen and flanks, his wings also being marked with white. Of the small Duck, the White-eye is the most conspicuous. He too is dark (rusty-red) and white contrasted below—head and throat dark and breast white—and he has white on his wings.

As a class, the Diving Ducks are, and look, more heavily built than the True Ducks.

**Note.*—Found also on rivers.

On the water, although the point hardly comes within the scope of this work, the appearance of some Ducks is worth noting. The Pintail, owing to his slender build, long arching neck and raised tail, looks more taking aloft than any other species. The Gadwall swims lightly, more so than the Mallard. The Mallard on the water inclines his tail a *good deal upwards*. Both *the* Pochard and the Tufted Duck swim deep, the former particularly so with an appearance of being down at the stern. Something of the carriage of the birds on the water may be gathered from the Plates in these articles, in which are shown many of the species dealt with in this book besides a few others that are not.

SUMMARY, KEY 4.

A.—LARGE DUCK.

Spotbill.—Long neck and uniform grey plumage.

Mallard.—Burly in appearance; male in full plumage has green neck and white collar.

Shoveller.—Spatula-shaped bill; white breast. Lightly built.

Red-crested Pochard.—Crested head; white on wings and flanks. More lightly built than Pochards in general.

B.—MEDIUM-SIZED DUCK.

Wigeon.—White on wings and abdomen.

Tufted Duck.—White on wings, abdomen and flanks; black of head, throat and upper breast contrasts with white of abdomen. Very compact and tubby.

C.—SMALL DUCK.

White-eyed Duck.—White on wings and abdomen; white of abdomen contrasts with rusty-red of head and throat. The smallest of all the Pochards.

CHAPTER VII.

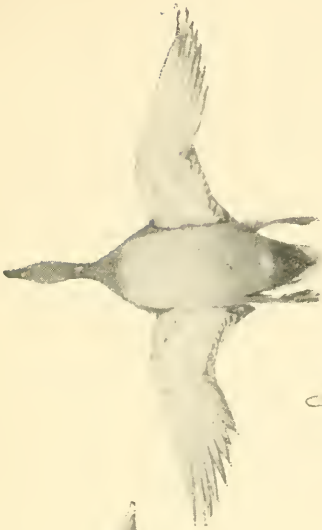
Size.

Size. (Key 5.)

18. Size, or length (Col. 5, Key 1 and Key 5) is the distance from the tip of the bill to the end of the longest tail-feather. The size adopted is the *maximum* given in the Fauna, for it sometimes happens that the specimens from which observations are there taken differ considerably, *e.g.*, the length of the Pintail is given as 22 to 29 inches. Most females are smaller in the Duck tribe than males. Class C of Key 5, "Birds under 16 Inches in Length" includes, not only the Teal, but the White-eyed Duck, which is only as large as the Garganey. This should not lead the reader to believe that there is any generic affinity, between the White-eye, which is a Pochard, and the Teals which are True Ducks of small size. (See Chapter V.)

COLOURATION FROM BELOW.

PLATE I.



Gadwall.



Pintail.



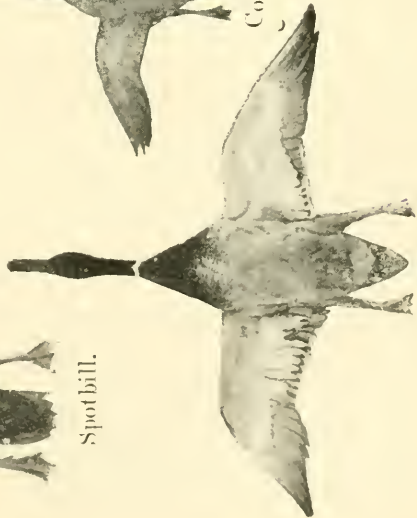
Wigeon.



Common Teal.



Spot-bill.

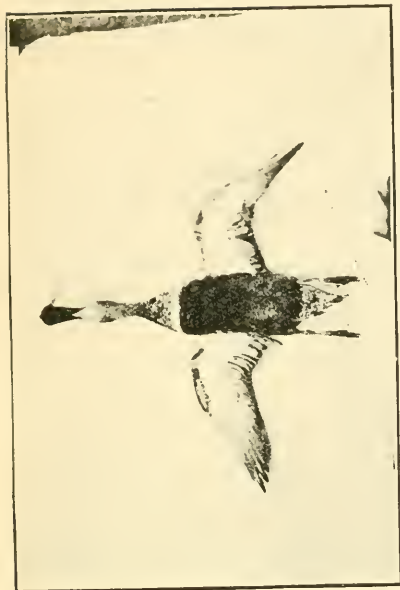


Mallard.

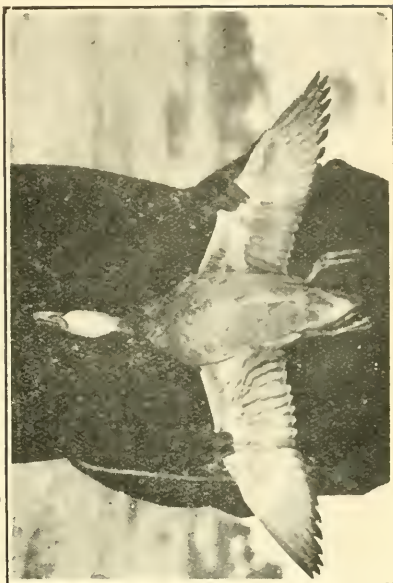


COLOURATION FROM BELOW.

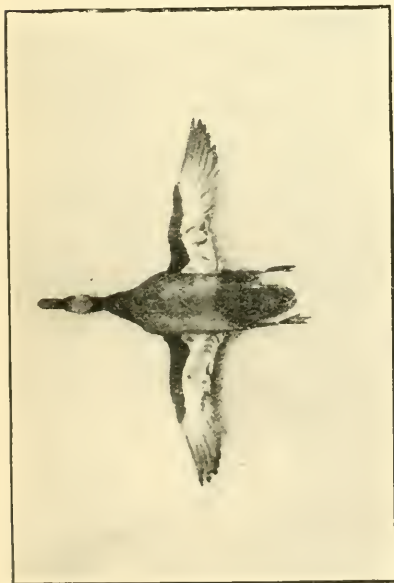
PLATE II.



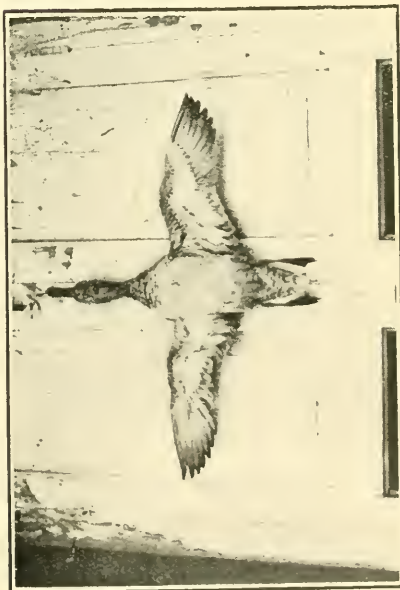
Shoveller.



Red-breasted Pochard (female).

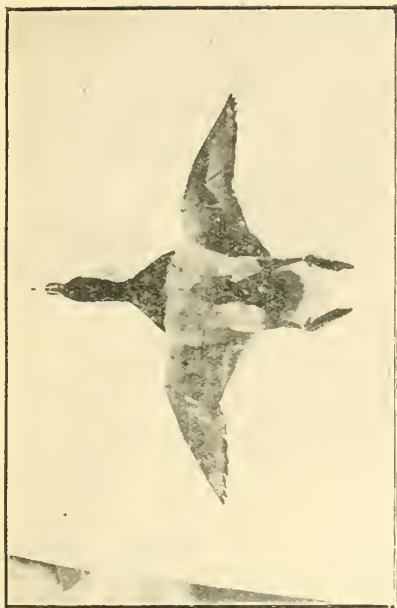


Garganey Teal.

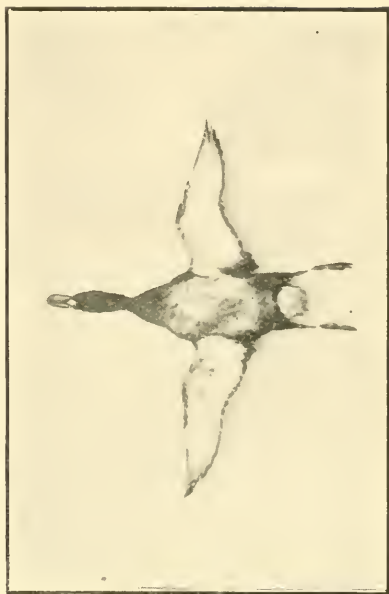


Marbled Duck.

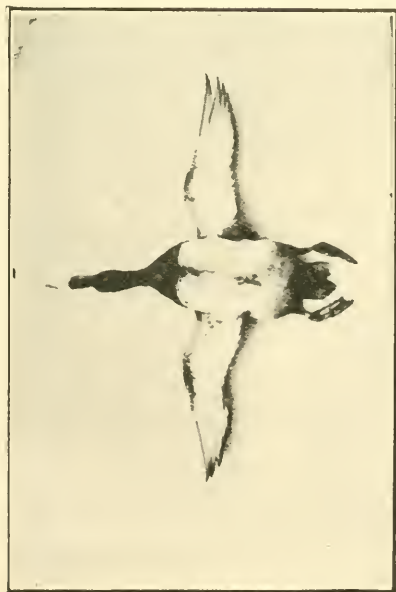
COLOURATION FROM BELOW.
PLATE III.



The Poehard.



White-eyed Duck.



Tufted Duck.



KEY 5.

The division is into 3 classes, *viz.*—

A.—Large.—20 inches in length and over.

B.—Medium.—16 inches and over.

C.—Small.—Under 16 inches.

A.—Large.

Spotbill.	|	Pintail.
Mallard.	|	Shoveller.
Gadwall.	|	Red-crested Pochard.

B.—Medium.

Wigeon.	|	The Pochard.
Marbled Duck.	|	Tufted Duck.

C.—Small.

Common Teal.	|	Garganey Teal.
White eyed Duck.		

CHAPTER VIII.

Colouration.

19. Colouration is a very fallible guide. If one only had fully plumaged males to deal with, there would be little difficulty. Most of the Ducks however, even adults, only put on their bright colours by about the end of February (see further on). The chief description of the colouration throughout is that *as seen from below*, an idea which, it is believed, Mr. C. H. Donald in his "Raptors of the Panjab" was the first to develop. That from underneath, at any rate, is the usual view presented by the bird in the circumstances in which this book mainly aims at describing him.

Colouration
from below.
(Key 6.)

Where the general plumage *is* dealt with, it will be that of the adult male in full dress. If once a thorough acquaintance is gained with the males, identification of the females is not difficult. In describing colours and patterns, only the simplest words have been used. Old favourites of the Bird Books, such as "cinereous" and "vermiculated," have been avoided, not that we need scoff at them, since every scientific book requires its own exact, technical language. This treatise does not profess to be scientific, only to put some rough, working guides of various kinds within the reach of the practical sportsman.

KEY 6.

Name of Bird.	Head.	Throat.	Breast.	Abdomen.	Flanks.	Lower tail coverts.	Under wing.
1. Spotbill	... All lower parts white, spotted larger on flanks.						
2. Mallard	... Dark green ...	Dark green with white collar.	Chestnut	Whitish, grey speckled.	Greyish speckled.	Black	White, with quills and lower margin grey.
3. Gadwall	... Grey-brown	... ..	Grey, boldly speckled black.	Greyish black	Brownish	Do.	White with margin grey, (darker near body.
4. Common Teal	... Dull red, with green eye-band		Whitish, spotted	Greyish white	Grey black speckled.	Do.	White, tips of primaries darker.
5. Wigeon	... Brownish	... ..	Wine-coloured, speckled.	White	Finely speckled black and white.	Do.	Grey with white centre.
6. Pintail	... Black to brown	White	White	White, grey below.	Buff to grey	Do.	Grey, with upper margin and quills darker.
7. Garganey Teal	... Brown, streaked white	... ..	Mottled brown and black.	White, darker below.	White, pencilled black.	Buffy white with brown spots.	Grey, with broad dark upper margin and quills

8. Shoveller ...	Green black ...	White ...	Chestnut ...	Chestnut ...	Black ...	White, a broad lower margin and outer quills grey.
9. Marbled Duck ...	Plumage uniform dull-greyish, darker above, marbled and mottled, rather like that of a Sandgrouse.					
10. Red-crested Pochard.	Red ...	Blackish grey ...	Grey ...	White ...	Brown ...	White, only outer primary quills and lower fringe grey.
11. The Pochard ...	Chestnut ...	Brown to black ...	Do. ...	Grey ...	Do. ...	White, lower margin and quills grey.
12*. White-eyed Duck	Dark chestnut ...	White ...	Brownish ...	Dark chestnut.	White ...	White, with grey margin.
13. Tufted Duck ...	Black ...	Black, lighter below.	White ...	White ...	Black ...	White, with darker margins.

* NOTE.—Never appears to go into undress.

Moulting
and change
of Colour-
ation.

20. Moulting and change of colouration in the Ducks are both remarkable, and the two things require to be distinguished from one another.

Colouration depends both on sex and age. Females are generally much duller than males. Young males, after passing from the downy stage, assume the plumage of the adult female. They then, subject to what is said about moult below, "commence to assume the plumage of the drake, and resemble him closely by the end of the first winter; but they do not acquire the mature, brilliant plumage of the perfectly adult drake till about the end of the third year."

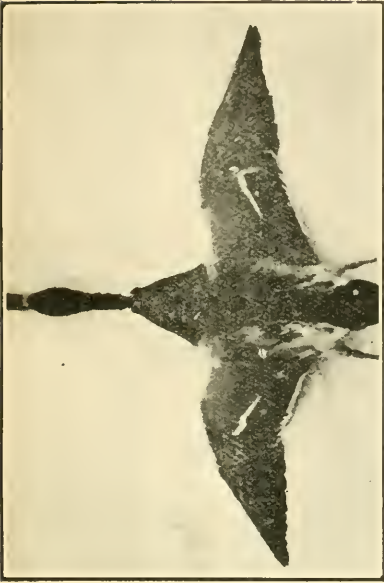
In the matter of the moulting of the Ducks, the fact is to be grasped that, whereas the females of *all* Ducks and the males of the resident species here dealt with have a single moult only, *viz.*, the usual autumn change, the males of all the migratory species undergo a double moult, *i.e.*, the usual autumn change *plus* a special post nuptial one. "The males" in fact "pass through a lengthened operation lasting probably four months. As soon as the female has commenced incubation, the drakes retire and flock together in the quietest spots they can find. They there commence a moult of the feathers of the head, neck and body and emerge from this operation in a plumage which very closely resembles that of the female. As soon as this has been accomplished, the drakes moult their quills. They then cast the plumages of the head, neck and body again, and resume their ordinary brilliant male plumage." To the above account, which is that of Oates in his *Game Birds of India*, it is only necessary to add that the resumption is very gradual, for while he states that "drakes in the plumage of the female, or in post-nuptial plumage.....are very seldom seen or shot," drakes in partial undress are of course to be met with for the greater portion of the early shooting season. "The feathers of the wing," writes Pyecraft, "are the first to be renewed, next those of the flanks and under-parts, then those of the lower part of the neck and back, and finally of the head and neck, the new feathers appearing one or two at a time among those of the plumage which is being replaced, not in uniformly affected patches."

The accompanying photos show the upper and lower sides of a specimen of a male Mallard and a male Wigeon, both shot early in November. The following points should be noted. *viz.*:—

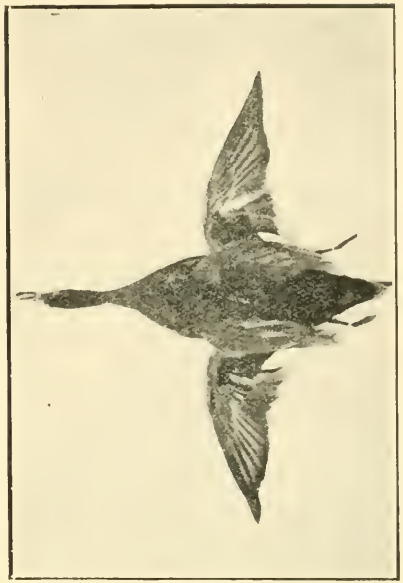
In the Mallard—the dark green of the head is a mask only and does not cover the whole head and neck as far as the white collar, as in the mature bird. The white collar is indistinct and does not run right round the back of the neck. The back and under-parts are darker than in the mature specimens. There were no curled feathers in the tail.

MOULTING AND CHANGE OF COLOURATION.

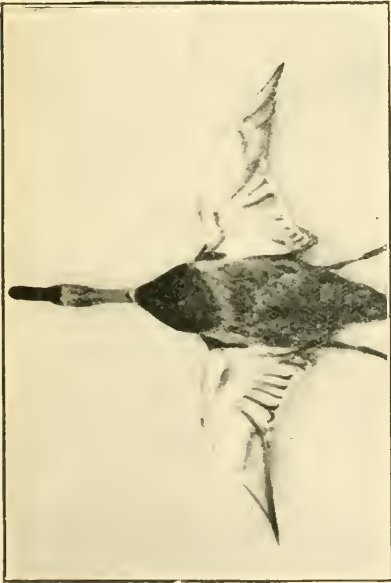
(See para. 20.)



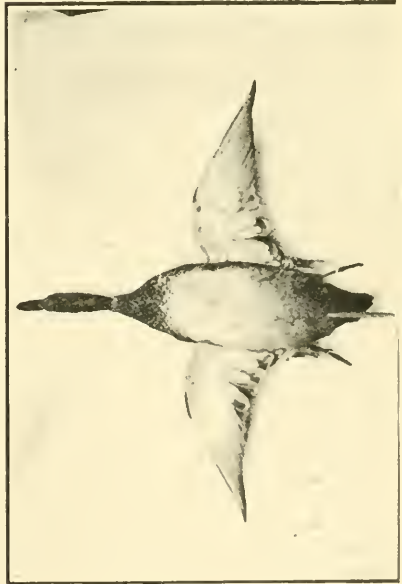
Immature Mallard (upper).



Immature Wigeon (upper).



Immature Mallard (lower).



Immature Wigeon (lower).

In the Wigeon—the colours in the cream blaze and chestnut head are not bright. There are no white shoulder patches and no white on the lower back, as in the mature bird.

21. Only two of the thirteen species dealt with have the flanks, or sides of the body, and the lower plumage of one uniform colour, *viz.*, the Spotbill and the Marbled Duck; in the rest, whether True or Diving Ducks, the colouring of these respective portions is different.

Index
colouring
of lower
plumage,
flanks and
under
tail-coverts.
(Key 7.)

All the species of True Duck treated have in the male the under tail-coverts black except the Garganey: so have the Spotbill and the Tufted Duck.

KEY 7.

I. Having lower plumage and sides of body of one uniform colour throughout.—

Spotbill.

Marbled Duck.

II. Having lower plumage and sides of body different.—

All the True Ducks except the Marbled Duck.

The Pochards.

I. Having the under tail-coverts black (in the Male) —

All the True Ducks (except the Garganey Teal).

II. Having the tail-coverts barred across.—

Marbled Duck.

22. Oates, who examined a large number of Ducks, from all parts of the world and not the Indian ones only, has pointed out how important a clue to the determination of Water Fowl is the pattern of the primaries*.

Classification
according to
pattern of
the primary
feathers.
(Key 8.)

All the resident Ducks, he says, and those Ducks the migrations of which are very limited or partial, have the primaries *uniform without a pattern*, *e.g.*, in the case of those birds with which we are here concerned, the Spotbill has the primaries nearly uniformly blackish and the Marbled Duck grey.

All the highly migratory and rapid-flying Ducks have the primaries *with the outer web of a very dark colour and the inner web of a drab colour with a dark tip*, *e.g.*, for our purposes, all the True Ducks.

* The "Primaries" are the first ten or eleven quills of the wing, counting from the tip inwards, the first very minute and difficult to discover. They arise from the finger-joints (*phalanges*) and palm (*metacarpus*).

The Pochards (and another class of Ducks with which we are not concerned have the *outer primaries similar to those of the True Ducks but the inner primaries of the same white or pale colour as the speculum, but tipped with dusky.*

The Scaup Ducks, in which Oates includes one of the species, *viz.*, the Tufted Duck, treated in this book: “have the primaries very similar to those of the Pochards, but the inner ones, instead of being white or of a pale colour on both webs, have only the outer web white or of a pale colour, the inner web being dark.”

KEY 8.

I. Primaries uniform without a pattern.—

Spotbill (Resident, or of limited migration). Marbled Duck.

II. Primaries with outer web of very dark colour and inner web of a dusky colour with dark tip.—

All the True Ducks—Highly migratory and rapid-flying.

III. Outer primaries as in II above, but inner primaries of same white or pale colour as speculum but tipped with dusky.—

All the Diving Ducks.

Exception.—The Tufted Duck, called by some a Scaup Duck, which has inner primaries with outer web white or much paler than the inner.

Similarity or
dissimilarity
of the sexes
in colouring.
(Key 9).

23. Among the surface-feeding Ducks, three species are alike in the colouring of the sexes, *viz.*, the Spotbill, the Gadwall and the Marbled Duck, while all the rest are unlike. The Diving Ducks have the sexes dissimilar, but there is not the broad difference that the True Ducks show, where nature, while endowing the males with brilliant colours, has left the females drab and inconspicuous by comparison. The most striking examples of the latter phenomenon among the Ducks treated are the Mallard, the Common Teal, the Wigeon, the Shoveller and the Red-crested Pochard.

KEY 9.

I. Sexes alike, or nearly alike.—

Spotbill. | Gadwall.
Marbled Duck.

II. Sexes dissimilar.—

The rest.

NOTE.—The Diving Ducks show however rather less difference between the sexes than most surface-feeders do

BIRDS THAT SHOW MUCH WHITE WHEN THEY FLY (upper view.)

PLATE I.



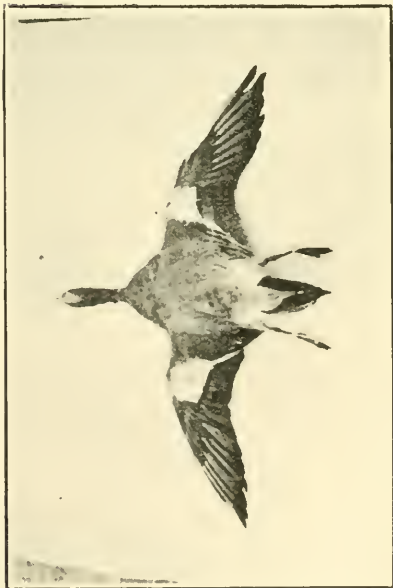
Gadwall.



Pintail.



Spotbill.



Wigeon.

BIRDS THAT SHOW MUCH WHITE WHEN THEY FLY.

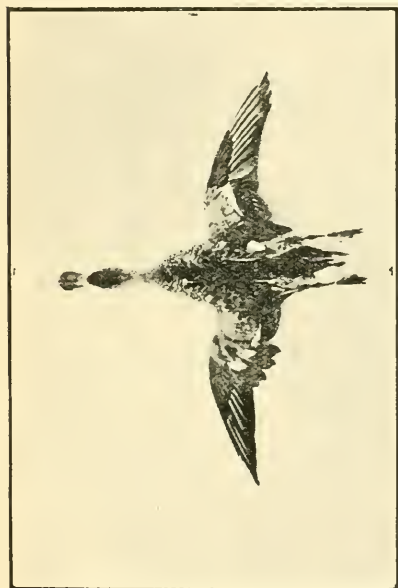
PLATE II,



Red-crested Pochard (female).



White-eyed Duck.



Shoveller.



The Pochard.



24. All the birds, among the species treated of, that show much white when they fly are noted, with details, in Key 10. This tell-tale white contrasting with a darker shade is to the writer's mind a helpful indication, as it is the first thing to catch the eye at a distance when colours are indistinguishable.

Birds that show much white when they fly. (Key 10.)

Those birds which are most conspicuous in the matter of *white about the body* are the Tufted Duck, the lower half of whose lower plumage is white, while the rest, as well as the upper, is black; the Shoveller, who has a white breast contrasting well, in full plumage, with a dark green head; the Pintail with white abdomen, breast and neck, and the Pochard, the whole of whose body, upper and lower, except for a chestnut head and dark breast, is very pale grey. The Wigeon also shows distinct white in places on the body.

Birds showing much *white on the upper side of the wings* are the Tufted Duck again, the Red-crested Pochard, the Gadwall and the White eyed Duck.

The Spotbill has a V-shaped bar across either wing following the contour of the body.

KEY 10.

NOTE.—W—On the upper wings.

A—On the abdomen.

B—On the breast.

F—On the flanks.

Spotbill—W (white outer webs and two secondaries make a V-shaped bar across the back).

Gadwall—W (white bar on secondaries) and A (whitish).

Common Teal—A.

Wigeon—W (white shoulders) and A.

Pintail—A, B and Neck.

Garganey Teal—A (grey W and F).

Shoveller—B.

Red-crested Pochard—W (white on shoulders, secondaries and inner primaries) and F.

The Pochard—A (speckled white).

White-eyed Duck—W (white on secondaries and inner primaries) and B.

Tufted Duck—W (white secondaries), A and F.

CHAPTER IX.

Flight.

Speed.
(Key 11.)

25. In the Remarks on Individual Species below will be found the observations of well-known ornithologists about the relative speed of the various kinds of Ducks. To the man with the mathematical mind, these will appear more or less all mere rule of thumb. It will convey little to him that the experts mostly agree that the Pintail is the fastest bird of all; he will want to know exactly what that means and he will fasten with avidity on Macgillivray's dictum that the velocity of the Mallard is "probably quite a hundred miles an hour." What is known, in actual accurate figures, about the speed of the Duck tribe, or of birds generally? Had Macgillivray anything to go upon in making his estimate?

To the latter question the answer is doubtless in the negative. The use of the word "probably" seems to give the case way. To the discussion of the former question let us bring a few modern instances. Homing-pigeons are said to have reached an authenticated speed of 60 miles an hour and have maintained a speed of fifty-five miles an hour for four hours in succession, but this is very exceptional even for these highly specialised our selected birds. Dr. Hankin, in his book "Animal Flight," finds that Vultures, whom no one would place among the swiftest of the birds of prey, reach a speed in gliding with flexed wings of 26 metres per second, or, say, slightly below 60 miles an hour. On the other hand there seems to be a tendency on the part of the layman to exaggerate bird speeds. Elaborate tests made by the "Field" in 1887 gave the following as the speeds, in the open, of the birds named, *viz.*—

Pigeon, 25·8 to 27·0 miles per hour,

Pheasants, 27·0 ,, 38·1 ,, ,,

Partridges, 27·6 .. 32·1

and it was remarked that these velocities might fairly be taken as the speed of birds rising to the gun and also of driven game when not aided by any wind.

Data published in the *Ibid* by Col. Meinhertzhagen, who took observations of the flight of birds in connection with his anti-aircraft duties during the War, show that the *steady* flight of the smaller *Passeres* varies from 20 to 40, and that of the Waders from 40 to 50 miles an hour. The ammunition makers work to an average speed of about 40 miles an hour, though they no doubt expect the man behind the gun to increase his forward allowance if he sees that he is up against something that is largely exceeding that pace. The rates stated by him for steady flight would, Col. Meinhertzhagen remarks, be accelerated greatly

for limited times on special occasions, as when a bird is frightened by an enemy or when it is pouncing on its prey. It may be added that "flex-gliding," as Dr. Hanks calls it, is not necessarily by any means the most rapid means of flight for all birds. The Peregrine, at top speed, flaps its wings in furious, incessant beats. The flight of Duck is always of the flapping variety without gliding or undulations. This is because of the heaviness of their "loading," a convenient formula used to measure and compare the weight lifted by birds per unit of supporting area. "*If" writes Hanks, "the total area of the two wings taken together were found to be 10 sq. ft. and if the weight of the bird were 20 lbs., then the loading would be 2 lbs. per sq. feet." Where the tail is large (as it is *not* in the Ducks), it should be included as well as the wings in the total supporting area. A comparison of the Duck tribe in this matter with some other birds is interesting, showing, as it does, that the Ducks have to lift a heavier weight even than the Vultures.

Bird.	Loading in lbs. per sq. ft.
The Duck tribe (average)†	2.28
The Kite (<i>Milvus govinda</i>) .. ..	.55
The Scavenger Vulture (<i>Neophron gingianus</i>) ..	.87
The White-backed Vulture (<i>Pseudogyps bengalensis</i>)	1.13
The Black Vulture (<i>Otogyys calvus</i>)	1.23
The Adjutant (<i>Leptoptilus dubius</i>)	1.54

Take it, however, as a basis of discussion that the ordinary speed of the average-paced Duck, say when fighting or not alarmed, is forty miles per hour. For this speed the ammunition-makers lay down, for practical purposes, an allowance of a foot for every five yards of range, or eight feet at forty yards. Now, in the circumstance specially considered in this book, *viz.*, shooting at birds driven from butt to butt by firing and kept away from distant harbourage by bombing or other means, it is obvious that a velocity much in advance of the average 40 miles an hour will often be attained. There is also the possibility of a following wind from the "light breeze" of 14 and the "steady breeze" of 21, to the "gale" of 40 miles per hour, to be reckoned with, the whole velocity of which

* Reprinted from "Animal Flight" by permission of Hiffe and Sons Limited.

† From Maxim's "Natural and Artificial Flight," as quoted by Hanks.

may be added to that attained by the bird. Very high rates of speed will not however be observed universally as, if the birds are not too wild, some of them will slow down occasionally in the neighbourhood of one or other of the butts in search of cover or when not unduly lusted. One thing is certain and that is that every rate of speed and every kind of behaviour will be exhibited. The hard thinker who reduces every shot to a delicate mathematical problem will have his work cut out to adjust his scientific notions of shot-gun ballistics to each particular case. Best of all will be the man who, having laid up in his inner subconsciousness certain simple lessons on the subject, adds them to a sound practical knowledge of the habits of even the individual species he has to deal with, and has them at his command so that brain, eye and muscles all co-ordinate to produce the required effect. Good shooting is largely a matter of instinct. The instinct is of course a trained one, but a happy result seldom admits of analysis. You *knew* you had done the right thing, even before the bird fell, and yet you cannot explain it. The old Scotch keeper in *Punch* who had been holding a butt with great credit in a Grouse drive, asked by a novice to expound how he did it, was only able to say that he "put it about their heads as they came in and about their tails as they went away"—sound enough as a statement of fact, but defective as an explanation of causation.

In the Key (No. 11) an attempt is made to fix an order of merit for the Ducks in the matter of speed. As said above, the Pintail is probably in a class by himself; the next fastest probably are the Common Teal, Gadwall and Tufted Duck. All the remainder may be lumped together; there is not much to choose in speed between them and the order, within this class, does not profess to be strictly one of merit.

NOTES ON INDIVIDUAL SPECIES.

Spotbill.—Fly swiftly when fairly off (*Outes*). In every sense one of the finest and most sporting of our Duck. (*Stuart-Baker*).

Mallard.—Flight very rapid and powerful (*Seebohm*). When in full flight, their velocity is great, being probably quite a hundred mile an hour. (*Macgillivray*).

Gadwall.—When you have got within shot, says *Stuart-Baker*, the Gadwall proves a thoroughly sporting bird; in full flight he is even faster than the Mallard.

Common Teal.—On the wing they are very swift. I doubt, says *Hume*, if they are swifter than the Pintail, but they are more nimble and will often escape a Peregrine when the Pintail would assuredly have been

victimised. They turn and twist with a rapidity second only to the Cotton Teal. Yields to no other Duck in the speed of his flight. (*Stuart-Baker*).

Wigeon.—Their flight is swift and powerful, *says Hume*, but not equal to that of the Pintail. On the wing they are certainly not as fast as either the Garganey or Common Teal. (*Stuart-Baker*).

Pintail.—Their flight, *says Hume* and *Stuart-Baker*, is exceedingly swift, probably faster than that of any other duck, and is very easily recognisable.

Garganey.—Their flight, *agree Hume* and *Stuart-Baker*, is little if at all inferior to that of the Common Teal.

Shoveller.—Fly with very great rapidity, *says Hume*, when well on the wing, in this respect quite equalling the Mallard.

Marbled Duck.—Flight less rapid than that of the Common Teal and Garganey. (*Hume*).

Red-crested Pochard.—They are strong flyers and go at a good pace. (*Stuart-Baker*).

The Pochard.—Their powers of flight, *says Stuart-Baker*, are not equal to those of swimming and diving; once on the wing, they go away at a good pace.

White eyed Duck.—When on the wing, *says Hume*, the flight of this species is fairly, but by no means very, rapid.

Tufted Duck.—This species, *writes Hume*, has, I think, an easier, smoother and more rapid flight than most of the other Pochards. When frightened, *says Stuart-Baker*, it flies at a great pace, nearly equalling the Pintail and exceeding most other ducks.

SUMMARY, KEY 11.

Four classes may be made, *viz.*—

A.—Very Fast.

B.—Medium Fast.

C.—Fast.

A.—*Very Fast.*

Pintail.

B.—*Medium Fast.*

Common Teal. | Gadwall.

Tufted Duck.

*C.—*Fast.*

Mallard.

Wigeon.

Spotbill.

Marbled Duck.

Shoveller.

Red-crested Pochard.

Garganey Teal.

The Pochard.

White-eyed Duck.

* NOTE.—There is not much to choose in speed between the bird in Class C, and the order is not strictly one of merit.

Tricks of
Flight.
(Key 12.)

26. Apart from the general interest of the subject at the present day, the phenomena of flight are worth the study of the sportsman who wishes to shoot with success. One would like to see an analysis of the flight of the Duck tribe by an expert on bird aviation like Dr. Hankin, but, unfortunately, his careful and scientific observations are mainly confined to the birds of prey. It is interesting to find him poking fun, in a book in which this is almost the only departure from serious business, at Hume for explaining the mystery of soaring flight by "levitation." Dr. Hankin does not seem to know Hume, at any rate under the initials A. O. H. The great Ornithologist was no doubt better at stating facts than expounding causation. Any how, he was hard to beat as an observer, and the Individual Notes in this paragraph alone are sufficient to vindicate him in this aspect. Remarks on the tricks of the various species will be found below; in general it seems only necessary to say that the True Ducks differ very conspicuously from the Diving Ducks when on the wing, and this is the point which should first be seized. "The flight of the latter is irregular as compared with that of the former. The pinions of the Diving Ducks beat faster, because more exertion is required to sustain and project their heavier bodies; they keep lower and are not to be seen so much against the sky; their light is hurried and anxious; they never wheel with the grace and certainty of Teal, but fly straight with all haste to the place which they appear to have chosen." (*Sir Ralph Payne-Galway*). Among the True Ducks, the palm for difficulty and general sporting characteristics must be given to the familiar little Common Teal. Even the beginner will be able to hit a party of them flying with his first barrel, but he will find the second a very different proposition. At the impact of the sound wave the whole lot twist away like lightning, altering their elevation and generally behaving in a way that takes one's breath away at first. The Pintail is the fastest of the Duck tribe, but he doesn't give one much opportunity or many shots. Of the remaining commoner Ducks, the Mallard and the Gadwall are fine fliers, the latter perhaps the more difficult to hit of the two.

REMARKS ON INDIVIDUAL SPECIES.

Spotbill.—The Spotbill, says *Stuart-Baker*, is in every sense of the word one of the finest and most game of our duck. Even larger on an average than the Mallard, it fully rivals that bird for the table and is, I think, more uniform in its good condition; this no doubt is due to the fact that it has not to overtax its strength in long migrations.

Mallard.—When disturbed from the water, they soon get fairly on the wing and fly straight away, slowly wheeling round, if necessary, so as to get up wind; but, as they rise from the surface, the direction of their flight forms a very small angle at first with the direction of the water and this is also the case when they alight. As they approach the water, they skim with expanded wings and drop feet-first perpendicular into it, with depressed tail and fluttering wings. (*Seelohm*.)

Gadwall.—As many writers have observed, reminds one much of the Teal in the manner of flying. (*Stuart-Baker*.)

Common Teal.—Flight rapid and flexible, *says Hume* (if I may coin an expression to represent the extreme facility with which the species turns and twists in the air). They have a habit after being flushed of suddenly dropping again which I have not noticed in our other Ducks.

Everybody must have noticed the clever way in which the survivors will suddenly alter their elevation by several feet to the impact of the sound wave of the first barrel and before the second can be loosed off.

In open waters, such as rivers, etc., and when on the wing, *says Stuart-Baker*, Teal often fly bunched and close together and form shots which much encourage the bad habit of shooting *into the brown*, quite small flocks often providing from half a dozen to a dozen teal to a couple of barrels of an ordinary smoothbore. Of course, even *into the brown* one must hold fairly straight.

Wigeon.—Seems to have no particular tricks of flight.

Pintail.—Darts by at more than railway speed, conspicuous by his long, pointed tail, long neck and white breast. (*Hume*.)

Garganey Teal.—Though in flight more direct, *says Stuart-Baker*, agreeing with *Hume*, the flocks seldom indulge in the swift dodgings and swervings of the Common Teal. "Shooting over the vast Jessore *Uheels* in boats which went in a thinly scattered line through them," *he adds*, "the difference between the flight of the two species was well shown. The Garganeys rose far ahead, swept round but once in a wide semi-circle and then went straight ahead, whereas the Common Teal often dodged in and out down the whole line, circled about two, three or more times, and then disappeared but often only to settle half a mile or so further on." "When flying," *he adds* "they do not struggle much, adhering very much to the dense closely-packed masses in which they rest during the day."

Shoveller.—They fly well; not so boldly perhaps as other Ducks, but not so low as the Drivers. (*Sir Ralph Payne-Gallway*.)

Marbled Duck.—The flight of this species, though Teal-like, wrote *Hume*, is less rapid and flexible than that of the Common Teal. It more nearly resembles that of the Garganey, but is less powerful and less rapid than that of this latter species. There is something of the Gadwall in it, but it wants the ease of this. It flies much lower too and, as already mentioned, much more readily resettles after being disturbed.

Red-crested Pochard. } No special remarks. All have
The Pochard. } the general features of Po-
White-eyed Duck. } chard flight noted in the
main text of the paragraph.

Tufted Duck.—Flight easier and smoother than most of the other Pochards. (*Hume*).

SUMMARY, KEY 12.

Mallard.—Rises with a bound at a very small angle to the water and, dropping skims with extended, fluttering wings, alighting feet-first.

Gadwall.—Flight very rapid, easy and Teal-like.

Common Teal.—Flight very rapid, and flexible. Alters elevation with great rapidity at the impact of the sound wave of the first barrel. Often fly very bunched.

Pintail.—Dashing, straight forward flight.

Garganey.—Fly closely packed.

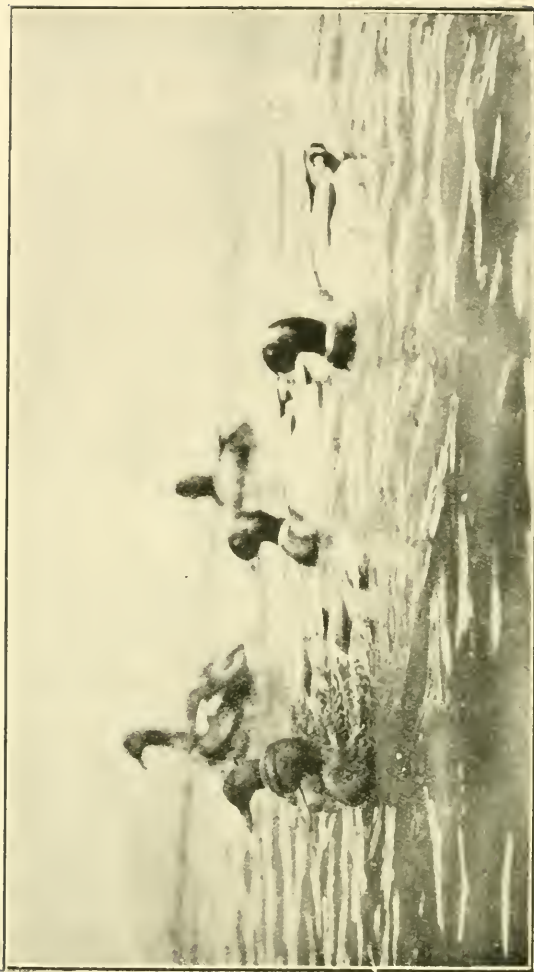
Marbled Duck.—Flight Teal-like, but less flexible, powerful, and rapid. Has something of the Gadwall in it, but wants its ease.

**Red-crested Pochard*.—Flight strong and heavy.

Manner of rising when surprised. (Key 13.)

27. One point about the flight of Duck, though not one which directly concerns the sportsman quietly placed in a butt, is the comparative speed with which the different species are able to rise from the water and get under way. One is not however always shooting from a butt; one is often stalking birds on the water for a first shot; and the point dealt with in this paragraph has a direct bearing on the wing-power of the bird. *Hume* is full of information on the subject. Firstly, he did not despise netting and the bird that gets up perpendicularly and rapidly must be flushed close to the standing net, or he will clear it. Secondly to the punt-gunner, as he was, the species make all the difference as to whether you should get a sitting shot or one just as the birds rise. "Some draw together and rise *en masse*, and these should only be taken when a foot above water; others, though drawing together,

**Note*.—The flight of all the Pochards is more hurried and irregular and at less height, but more direct, than that of the True Ducks.



Mallard's, two females on left and two males on right.

rise in succession, and these are best fired at *just* before they rise. Others, again, separate on any suspicion of danger, and at these a shot, however long, at the first sign that they are on the *qui vive* is most likely to tell."

The quickest birds off the water, probably, are the Gadwall, Mallard, Garganey and Tufted Duck, and the Spotbill, Shoveller and Marbled Duck are the slowest. The Pochards are bad risers, owing to the backward position of their feet, and they make a loud splashing noise when they rise in large numbers.

NOTES ON INDIVIDUAL SPECIES.

Spotbill.—Rise rather heavily, *says Hume*, and are as easy to shoot as old hens when they first fluster up out of the reeds.

Mallard.—On being surprised, *says Macgillivray*, whether on shore or water, they spring up at once with a bound, rise obliquely with a bound and fly off with speed.

Gadwall.—About the Gadwall, *Hume*, who has just mentioned the Grey Duck (Spotbill) and Mallard *in this order* says "*Like the former*, they spring up from land and water at a rather sharp angle and usually rise thus for twenty yards before sweeping off on a horizontal course" "*Former*" is surely a slip for "*latter*," as *Hume* is practically reproducing in slightly different language *Macgillivray's* remarks about the Mallard.

Wigeon.—They spring up more readily than the Pintail from the water or the ground and more perpendicularly than those, in fact in these respects they are almost equal to the Gadwall. (*Hume*.)

Wigeon.—*Hume* says they are as quick in rising as the Gadwall, writes *Stuart-Baker*. I should have given the palm to the Gadwall for quickness in getting off the water, but once up the Wigeon is quite as fast in getting away.

Pintail.—They rise less easily *says Hume*, and at a lower angle than Mallard and Gadwall.

Getting off the water, *writes Stuart-Baker*, they are less quick than some ducks, "*skittering*" along the surface for a few feet; they rise less abruptly also, but, once on the wing, they show to the greatest advantage.

Garganey.—The Garganey, *Stuart-Baker* (*confirming Hume's notes*), rise quicker off the water than the Common Teal, getting up obliquely and is quicker away.

Shoveller.—They rise heavily and slowly (*Hume*.)

Marbled Duck.—Their tendency in rising is rather Coot-like than Duck-like. (*Hume*.)

Red-crested Pochard.—They are very slow in getting off the water, *notes Stuart-Baker*, and take some time to get their pace up.

The Pochard.—Once on the wing, *writes Stuart-Baker*, they go away at a good pace, but they are slow off the water and awkward as well.

White-eyed Duck.—They rise, *says Hume*, with some little difficulty. If flushed from water, they strike it repeatedly with their feet, like Coots, but in a less exaggerated style. Rising out of the reeds, they fluster up and go off much like Partridges with a low, straight, flight, often dropping suddenly, almost Quail-like, after a short flight.

Rises very obliquely, *says Stuart-Baker*, nor does it rise high when well on the wing but generally flies within a few yards of the surface of the water, getting on considerable pace when once fairly away.

Tufted Duck.—Just as expert, *writes Stuart-Baker*, as are the rest of the Pochards on or in the water, it excels the majority of these in getting away from it. It rises with less fluster, noise and splashing than is caused by the rising of other Pochards, and also gets off the water more quickly and gets more quickly into its stride.

KEY 13

A.—*Quick at getting off the Water.*—

Mallard.		Garganey Teal
Gadwall.		Tufted Duck.

B.—*Medium at getting off the Water.*—

Wigeon.		Pintail.
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C.—*Slow at getting off the Water.*—

All the Pochards.		Shoveller.
Spotbill.		Marbled Duck.

The flight shooter and the field naturalist see the Duck tribe in the formations which they adopt for regular, systematic flight for long distances. The man in a drive will not have opportunity to observe this interesting phenomenon, since birds under fire or merely doing short journeys from one *jhil* to another by day do not take any particular formation: Everyone however will have seen some time or other, and in particular at the season of migration, how the Ducks tend to fly in V-shape, Y-shape or in "line." Ducks are not alone in this respect. Cranes, Storks, Geese, certain sea-birds and certain Waders do the same. But is it correct to say the formation is "line"? Probably, in all cases it will be found that the line is what is more correctly to be called *echelon*, which the Cavalry drill book defines as "a formation of successive and parallel units facing in the same direction, each on a flank, and to the rear, of the unit in front of it." From the simple echelon the V and Y formations seem to develop when the dressing of the line gives way.

Regular
formations
in flight.
Key 14)

Why should the echelon flight formation be usual in flocks of some species and not in others (among the Duck tribe, the Pochards prefer to fly *en masse*); and how are the former (as they evidently are, or the formation would not be employed) aided in their flight by such formation? These questions are asked and answered by Major Magrath in the Bombay Natural History Society's Journal of 1909. A little consideration, he says, will call to mind those species (see above) in which the echelon is in vogue, and also the flocks in which it is not seen or not noticeable, such as those of the smaller passerine species, the Gulls, Rooks and Lapwings and in coveys of Partridges or packs of Grouse, etc. If we bear in mind how species in both of the above categories fly in flocks, the suggestion will occur that the formation is intimately connected with uniformity and compactness of flocks, with weight and size of the component individuals, with velocity, with the powers of sustained flight required by migrant species and with capacity, in spite of size, for making headway in adverse winds: conversely, that it confers no advantage on flocks in which the individuals do not fly in very close proximity to one another, in which the formation is a loose and straggling one, in which the individuals, though fast fliers, have little power of sustained flight, and in those composed of birds whose small size offers comparatively little resistance to the air. The answer to the first half of the question must then, I think, lie in the characteristics of the different species of gregarious birds and the necessities of their existence. To the second half the answer must, I think, be sought for in the behaviour of the atmosphere on the passage at speed of a heavy body through it. A large or heavy bird in rapid flight in a still or moving atmosphere must continually displace a volume of air equal to its bulk and thus be the cause of a powerful indraught of air in its immediate rear. Behind the same bird flying against a high wind, if there is no indraught, there is yet a certain space in which the air is comparatively still. In the former case a bird immediately behind would be in a strong following wind, a state of things birds dislike intensely as it upsets their equilibrium. In the latter the bird would be to some extent in still air, necessitating a difference of effort of wing stroke. In both cases this would quickly lead to disintegration of the flock, accurate keeping of station and an equality of speed becoming impossible. It is probably the case therefore that echelon formation renders important aid to large birds in keeping the flocks intact when on the wing by enabling the individuals composing the same, while keeping close to each other, to avoid the air disturbances set up by those immediately in front, at the same time ensuring to each an uniform air-pressure and outlook to the front.

Apply the above to Latham's dictum that flocks of the Pochard have no particular shape in flying but are indeterminate and to Stuart-Baker's comment that flying *en masse* and not in line or V-shape would appear to be typical of all the true Pochards, and the explanation seems to be that the True Ducks of the pointed wing and powerful flight have evolved the echelon as best suited to their methods and purposes, while the short-winged Diving-Ducks of laborious flight find it of no special advantage to them. The danger of trying to lay down general rules in Natural History is thus well exemplified when two genera as closely allied can be found to differ so in one salient characteristic. Among the followers of the echelon formation even minor differences are to be seen—Pintail fly in very regular formation, changing position less than do most Ducks. (*Stuart-Baker*.) Wigeon fly in a line nearly always irregular and altering much in shape as the birds fly, the two ends generally thin, while towards the centre the birds are more numerous (*Stuart-Baker*), and they follow so close on the heels of their leader that it forms a distinguishing peculiarity. (*Meyer*.)

SUMMARY, KEY 14.

A.—BIRDS THAT FLY IN ECHELON OR V-FORMATION.

The True Ducks—especially Pintail—Very regular formation, changing position less than most and Wigeon—Generally fly in line formation, very close together, always irregular and altering much in shape as the birds fly.

B.—BIRDS THAT FLY EN MASSE.

29. *The Pochards*.—He will be a very cool hand, or an extremely acute observer who, in the hurry and heat of a big drive, will be able to take stock of and distinguish the sound made in overhead flight by the various species. There are however some kinds of Duck, especially the Pochards, whose wings are shorter than those of the ordinary Ducks, whose noise in flight is not to be mistaken by one who really knows. Few sportsmen-naturalists probably in this respect ever equalled Hume, who earned his experience from flight-shooting at night, and what he and others have noticed is certainly worth collecting and reproducing. Even Hume's practised ear, it is not superfluous to say, was sometimes deceived. "This last cold season," he wrote in *Game Birds of British India*, "coming down the Jumna at night, a bunch of fowl swept over us from astern and, as I fired, I set them down as Red-crests. The night was stormy, the lightning was flashing incessantly and there was a head wind with drizzling rain. One bird dropped

Distinctive noises in overhead flight (Key 15.)

dead (two others fell, but disappeared) and proved to be a common Pochard. The fact is that the wing-rustle varies a good deal according to whether the fowl are going with or against the wind and whether the air is dry and clear or loaded with mist and drizzle; and only a very practised fen-man can always be quite sure of every bird at all times by the sound of its wings."

Hume's remarks generally in this connection, given in his own vivid style, may be quoted. "To an old Norfolk flight-shooter the best part of the sport commences...when in cold, cloudy weather, such as we get about Xmas, it gets pitch-dark soon after sunset, and you shoot entirely by the whistle of the wings and at most catch, just as you fire, the faintest glimpse of a shadow just flitting across the gloom above. How the gun cracks at such a time! What a blaze of light it sheds, lightning-like, around for an instant, and then how pleasant, in the midst of the intense darkness that succeeds, to hear the one, two, three heavy thuds or splashes of the victims which in a very few moments your dogs will lay at your feet! It is just when it is too dark to see and when you have to shoot, judging not only direction and distance, but rate of flight also, by ear, that flight shooting becomes a real sport. But then for this you must not be posted on the far side of the *jhil*, where the birds will circle, but some distance on the near side, at a place where the birds will pass over with arrowy straightness, if also with arrowy speed. At no time, I think, does the sportsman feel a greater sense of elation than when standing thus in a clump of bushes, a cold wind and drizzling rain bracing his nerves, he succeeds in making flight after flight, as they swish past unseen, each steadily contribute its quota to his bag. But I suspect that, to make any hand of this night work, you must have practised it from childhood, and even then, no doubt, it is uncertain work. Sometimes you cannot hit anything, and sometimes, just as at billiards, you get your hand in and not a wing can hurtle past without paying the penalty." For this sort of shooting, good dogs are a *sine qua non*, but there are few people who are fortunate enough to possess them in India. Was it, by the way, his addiction to this method of flight shooting at night that makes Hume give the curious advice that "it is always wrong to fire at fowl coming towards you?" "You should, he says, always let them pass before drawing trigger." and he adds that the breast-feathers of a Pintail will turn comparatively heavy shot at very moderate distances. He did not know, evidently, the pleasure which the votary of the modern twelve bore feels when he takes an incoming bird neatly in the head. Any shooting is apt to be chancy when it is so dark that you cannot see

your gun barrels but only the bird. Hume is thinking more of registering a body hit *somewhere* than of making a clean kill. Pellets fired from behind will penetrate thick plumage better than pellets fired from in front because the former pass under the feathers which are no longer in a position to turn them. Anyone who cares for the niceties of shooting will, nevertheless, always try and take two in front of him.

NOTES ON INDIVIDUAL SPECIES.

Mallard.—The flight is very rapid and powerful and each stroke of its wings is distinctly audible even at some distance. (*Seebohm*.) His hard-quilled wings whistle against the air. (*Macgillivray*.)

Common Teal and Gadwall.—The Gadwall reminds one much of Teal as many observers have remarked, *writes Stuart-Baker*, in the swish-swish of the wings as the flock hurtles overhead.

Wigeon.—The flight of the Wigeon is accompanied by a much harsher rustle (than that of the Pintail) which can always be distinguished from that of the other fowl that I know. (*Hume*). Hume notes the peculiar rustle by the Wigeon in flying; this is very distinctive, and when close at hand sounds very different to the swish of the Mallard or the sound of other ducks' flight. (*Stuart-Baker*). When walking, swimming and flying, *says Hume*, they often utter a shrill "whew" (the origin probably of the name), a sort of whistle by which you may know them at any distance: it is not a clear, full whistle like a Curlew's, but a whistle—cry, rather discordant when heard by day, but not without its charms when uttered at night by large numbers, mingled with the call of many other species and mellowed by the distance and the multitudinous voices of wind and water.

Pintail.—When close to the hearer, *says Stuart-Baker*, the sound of their flight is quite unmistakable. Less noisy and whirring than that of most of their near relations, their flight has a soft swish-swish about it of a very distinctive character. Hume says, speaking of their flight, that it is a "low, soft, hissing swish," and thus describes it very exactly.

Garganey.—Whether it is only because one habitually meets them in such large flocks, *says Hume*, or whether it is really peculiar to them, I do not know, but certainly one associates the overhead flight of this species with a surging hiss, more even, sustained and rushing than that of any of our other ducks. Anyone who has stood under heavy round-shot fire knows the way in which shot hurtle up to you crescendo and die away as they pass; and just in this way (though the sounds are in a wholly

different key) does the swish of a large flock of Garganey surge up to you in the middle of the night and die away as they pass. I do not think, *says Stuart-Baker*, commenting on *Hume*, that it is because the birds are numerous or familiar that we think the sound distinct from that of other birds' flight. I remember when first introduced to the Garganey how I was struck with the pattering swish of their flight and then noticed how like a whistle it rose and fell as it approached and vanished.

Shoveller.—The flight of the Shoveller is not quite so rapid as that of other Ducks, but the pinions are moved rapidly and very audibly at even some distance. (*Seebohm*.)

Red-crested Pochard.—*Hume* notes their very characteristic wing-rustle, which, though resembling that of the Pochard, is louder and harsher. Their wings, he explains are short and, rapidly agitated, make a very distinct palpitating, rushing sound, by which even a single bird passing anywhere near one in the stillness of the night can generally be recognised.

The Pochard.—Their wing rustle, *says Hume*, is far more characteristic than that of the White eye, and I have seldom failed to recognise them by it, when I have shot them at night, before they came to hand.

The White-eyed Duck.—See under the Pochard above.)

SUMMARY, KEY 15.

1. *Mallard*.—"His hard quilled-wings give a whistling sound."
2. *Gadwall*.—Goes with a "Swish, swish" overhead.
3. *Common Teal*.—(As for Gadwall.)
4. *Wigeon*.—"Peculiar rustling flight and whistles 'whew.'"
5. *Garganey Teal*.—"Flies with a surging hiss, more even, sustained and rushing than any of our other Ducks."
6. *Shoveller*.—"Sound of the wings audible even at some distance."
7. *Red-crested Pochard*.—"A characteristic wing-rustle, like, but louder and harsher than that of the Pochard."
8. *The Pochard*.—"A peculiar whistling sound, wing-rustle far more characteristic than that of the White-eye."
9. *White-eyed Duck*.—(See under the Pochard.)

CHAPTER X.

Feeding.

Feeding
(Key 16.)

30. All the Ducks are more or less omnivorous, neither animal nor vegetable food coming amiss to them. Some incline more to the one and some to the other form of diet, the following, *viz.** Spotbill, Mallard, Gadwall (in particular), Wigeon, Garganey Teal, Marbled Duck and the Pochard being mainly vegetarians, while the following subsist chiefly on animal food, *viz.*, the Pintail, Shoveller and White-eye (in particular). As a general rule, those Ducks which are vegetarians are the best for the table, though the Pintail is a notable exception. The Pochards as a class, though their diving capacity would seem to suggest this, are not specially animal-feeders; all and in particular the Pochard, will eat vegetable diet, while the White-eye's food on the other hand is three-quarters animal.

The Duck tribe feeds both on dry land and in the water, though mainly the latter. The Wigeon frequently grazes, the Spotbill and Red-crested Pochard sometimes and the Common Teal rarely. In their aquatic feeding, the main difference is that the True Ducks feed on the surface while the Pochards dive, their conformation, with their legs placed further back than in the ordinary Ducks, particularly fitting them for moving under the water.

All the Ducks will feed by day, if undisturbed, some more, some less. The Pochards are essentially diurnal. From the nature of their avocations, quotes Oates from Chapman, the Diving Ducks are almost entirely day-feeding fowl, as they require light for their subaqueous investigations. Those which prey on animal food, living *crustacea* and other creatures which require catching—are exclusively diurnal in their habits; but one or two species, such as the Pochard, whose food consists of grass and vegetable substances, exhibit nocturnal proclivities. In the main however the Diving Ducks are of diurnal habits.....In short, they occupy by day the situations then vacated by the nocturnal Game-Ducks. The True Ducks, as Chapman says, feed by night, a great number that frequent rivers by day coming in land about dusk to feed in *jhils*. Often, remarks Hume, for some little time one particular piece of water, perhaps not half a dozen acres in extent, attracts the wild fowl of a country-side. Even the day feeders, writes Stuart Baker, are inclined to feed freely during moonlight nights, and this is perhaps more especially the case with such as graze on grass and young crops.

* NOTE.—The writer has found in the gullet of a dead Spotbill entire Lotus bulbs so large as to be with difficulty squeezed out.

From what has been said above about surface and deep water feeding it is obvious that the depth of the water at different times has a great influence on the choice of the habitat of ducks. Wigeon, it has been noticed, are "commoner in a dry year." Stuart-Baker's explanation is a simple one. "In very wet seasons the lakes, *jhils*, ponds, etc., all overflow their normal limits, and thus the edges of the shallow water cover ground on which no water weeds grow and on which the natural dry ground vegetation has been killed by the water. On the other hand, in dry seasons, the water recedes and much *jhil* vegetation which, under ordinary circumstance, would be in a few feet of water is within a few inches of the top and well within the grasp of the Teal (*sic*) as it feeds with only its tail end out of the water."

Detailed remarks on the individual species will be found below, but that oddity, the Shoveller, needs special mention here. He is equipped with a great spatula-shaped bill, on both chaps of which are a sifting-apparatus which leaves his captures of tiny animal life in while the water passes out. He is a poor diver, owing to the small size of his feet, and it is not his habit to go heads-down, tails-up in search for food. But he is a tactician and he benefits by the work of others, swimming round in circles above the place where the Diving Ducks are feeding below and taking the food that escapes them and comes to the surface.

NOTES ON INDIVIDUAL SPECIES.

Spruce-bill.—They are principally vegetable-feeders, and do a good deal of damage to rice, says *Stuart-Baker*, both when young and in the ear, trampling down a great deal more than they eat; they also, at times, eat all sorts of miscellaneous food, such as water molluscs, frogs, worms, insects, etc. *Woods* observes that the places where they feed can generally be detected at a glance from the state of the much-trampled blades of rice and numerous feathers lying about. He says that he has good sport by concealing himself in such places on bright moonlight nights and shooting the birds as they fly over.

Mallard.—Seeds of *Gramineæ* and other plants, says *Macgillivray*, fleshy and fibrous roots, worms, molluscs, insects, small reptiles and fishes, are the principal objects of its search. In shallow water it reaches the bottom with its bill, keeping the hind part of the body erect by a continual motion of the feet. When searching under the surface, it keeps the tail flat on the water, and, when paddling at the bottom, with its hind part up, it directs the tail backwards.

Gadwall.—They are almost entirely vegetable-feeders, says *Stuart-Baker*, subsisting much on wild and cultivated rice, water weeds, etc., and seldom varying the diet with animal food. A drake shot in Silehar was found to contain mass of small white worms in addition to some water-berries and half-ripe rice, but this in no way affected the flesh.

Common Teal.—They rarely feed on really dry land, says *Stuart-Baker*, but frequently in paddy-fields, etc., where there are a few inches only of mud and water. They are principally night feeders, but, where quite undisturbed, they feed during all but the hottest hours of the day, say from 11 A.M. to about 3 P.M. Their food is undoubtedly mainly vegetable, but they do not despise worms, insects, etc., which may come in their way. For the purpose of obtaining their food their diving is said not to extend beyond the peculiar semi-dive so often indulged in by the domestic duck, which leaves the tail end well out of the water. Even when it has finished feeding it remains in among the weeds, reeds, and other cover near the shore.

Wigeon.—They are of course, writes *Stuart-Baker*, strong and expert divers, but do not feed, I think, on any stuff which necessitates their going completely under water. Of two birds shot in Silehar, the stomachs contained nothing but the white tendril-like roots of a small water-plant which grows profusely where the water is only a few inches deep, and these the birds could obtain by merely standing on their heads, as it were, in the water. They graze a good deal, like geese, on young grass and also young crops and in addition to various other vegetable substances, eat water snails, worms, insects and shell-fish of sorts, this more particularly near the sea-coast, where they are often found in brackish estuaries or back-waters. *Morris* writes, "This species feeds principally on water-insects and their larvæ, small mollusca, worms, the fry of fish, and frogs; as also the buds, shoots and leave of plants and grass, and these it browses on in the daytime; but it chiefly seeks its food in the mornings and evenings and also at times in the night.

Pintail.—Their food, says *Stuart-Baker*, seems to consist of small and fragile shell-fish, but they also eat a large variety of other animal matter, and are also to a certain extent vegetarians. Unlike however the majority of the Ducks, which are more animal than vegetable feeders, the Pintail is among the very best of birds for the table.

Garganey.—Their staple diet, says *Stuart-Baker*, is vegetarian, and of vegetable matter, the staple varieties are rice, both cultivated and wild, various kinds of reeds and roots and the young leaves and shoots of various

surface growing water-plants. They also eat such animal matter in the shape of water-insects, worms, snails and shell-fish, etc., which force themselves on their notice.

Shoveller.—They feed, *says Sturt-Baker*, with bills and heads under water, running the former through the shallows in the mud and so collecting the numerous small forms of animal life which there abound and which, when the bill is lifted, are retained while the water filters out. They will eat almost anything, but at the same time animal food undoubtedly forms the major portion of their diet. Doubtless, *writes Hume*, in the more savoury localities such as the more aristocratic ducks frequent, insects and their larvæ, worms, small frogs, shells, tiny fish and all kinds of reeds and shoots of water-grasses, rushes and the like constitute their food; but, where they take up their abode on one of the village ponds, and the pond is a real dirty one, I can assert, from the examination of many recent killed birds, that it is impossible to say what these birds will not eat. All ducks are more or less omnivorous, but no other duck will, as a rule, frequent the dirty holes in which a pair of Shovellers will often pass the winter.

Shoveller.—Blanford remarks that it never appears to feed, like other ducks, with its head and breast immersed and its tail sticking up vertically. Newton notes its peculiarity of "swimming round in circles with its bill in the water above the spot where Pochards are diving and feeding beneath and sifting out the substances that float up when disturbed by the operations of the diving ducks." Shovellers, *says Oates*, are poor divers. Their foot is smaller in proportion to their body than that of any of the true Ducks. The larger the feet in the Duck tribe, the better they can dive.

Marbled Duck.—Their food, *says Hume* of Sind, is very varied here.....the major portion consists of leaves, shoots, rootlets, corns and seeds of aquatic plants, intermingled with worms, fresh water shells, insects of all kinds and their larvæ. I believe I found a small frog in the stomach of one.

Red-crested Pochard.—The fact is, *says Hume* that, though you may at times see it dabbling about in the water like Teal and Shovellers..... its normal habit and practice is to dive and I have watched flocks of them scores of times diving for an hour at a time with pertinacity and energy unsurpassed by any other wild fowl. Examine closely their favourite haunts, and you will find them to be almost invariably in just those waters in which they *must* dive for their food. Deep broads, where the feathery water-weed beds do not reach within several feet of the surface, not the comparatively shallow ones where the same weeds (the

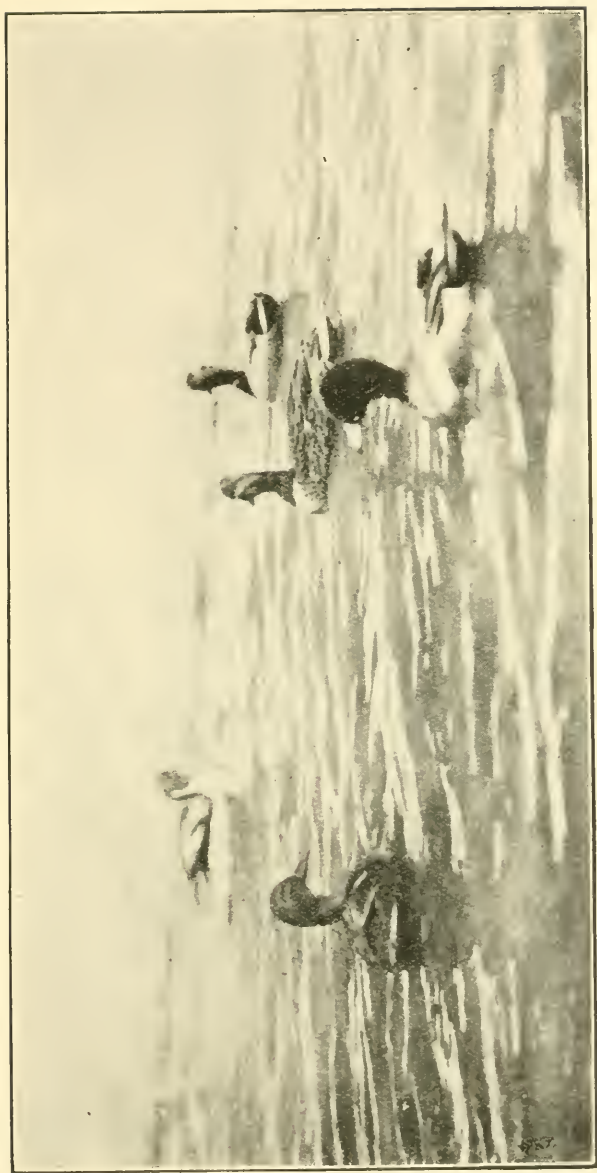
character of their leaves changed however by emergency) lie in thick masses coiled along the surface. This, *notes Stuart-Baker*, is certainly my experience, and I noticed in the Sunderbunds how very much this duck kept to the open, central portions of the huge *bheels* feeding there on and amongst the aquatic plants, especially on a long, trailing moss-like weed which grew several feet under water. Moreover, I have found in their stomachs the roots of plants which do not grow except in fairly deep water. They not only dive well and for long periods, but they also dive to no inconsiderable depth; and that it is a pleasure to them to dive is shown by their constant diving when at play, chasing one another both above and below the surface. They feed both by night and day but mainly in the early morning and evening; and, though the very much greater portion of their diet is undoubtedly aquatic, they have been known to feed on young crops on dry land. They are principally vegetable feeders, *adds Stuart-Baker*, but they sometimes feed on fish, shell-fish, water insects, etc.

The Pochard.—Principally night-feeders, *says Stuart-Baker*, they feed also throughout the day except in the hottest hours, where they are not interfered with. Hume once or twice caught them feeding on wild rice on land, but their feeding thus, comments the same authority, is I should think quite exceptional, and nearly all their diet is one obtained from fairly deep water amongst roots and similar things.

White-eyed Duck.—Omnivorous, like all ducks, this species probably makes its diet fully three-quarters animal, *writes Stuart-Baker*. Those birds, he goes on, which I shot in the Diyang and other hill-streams had all in addition to caddis-grubs, dragon-fly, larvæ, and similar articles), quite a number of small fish, some of them three inches in length. They were all, or nearly all, of the small "Miller's Thumb" species so common in every hill-stream. Doubtless these, from their sluggish disposition and their ostrich-like habits of hiding their heads under a stone and then resting in fancied security, fell a very easy prey to the active White-eye.

Tufted Duck.—Its food is almost entirely animal, *writes Stuart-Baker*, much the same in fact as that of the Scaup, but it is far more a fresh-water bird and far less a sea-bird than is that duck, though common enough on the coast-line along the greater part of its habitat. They feed principally during the day-time, but migrate and move from one place to another after sunset. They do not ever appear to have been found feeding on land, but, should they ever do so, the probability is that they only thus feed during the night.

They are very expert divers.



SOME SPORTING DUCKS.

Mallard, female (left foreground), Pintail (left background), Red-crested Pochard (right foreground) and Mallard, male (right background).

SUMMARY, KEY 16.*A.—Mainly Vegetable Feeders.*

Spotbill.	|	Wigeon.
Mallard.		Garganey Teal.
Gadwall (particularly).		Marbled Duck.

The Pochard.

B.—Mainly Animal Feeders.

Pintail.		Shoveller.
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White-eye (in particular).

A.—Sometimes feed on Dry Land.

Wigeon (frequently).		Spotbill.
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Common Teal (rarely).

B.—Feed in—

(i) Deep Water.	}	(ii) Shallow, on surface.
The Pochards.		The True Ducks.

A.—Mainly Nocturnal Feeders.

The True Ducks.		The Pochards.
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B.—Mainly Diurnal Feeders.

The Pochards other than *the* Pochard.

CHAPTER XI.**Size of Flocks.**

31. There is no subject on which is less easy to dogmatise than on the average size of the flocks in which any given species is found. Where the country and habitat are suitable, birds will keep together in large bodies; where they are not, birds break up into small parties and may even be found in pairs or singly. In the Key an attempt is made to show those species which habitually, on big waters in Upper India, keep to large, and those which habitually keep to smaller, flocks, where one hundred or over is called "large," but of course the generalisation is a vague one. "Flock," as used in the Individual Notes below, will be seen to be a term employed by most writers of the birds at rest and undisturbed, *e. g.*, in the daytime after feeding, or even on arrival in migration. These are the occasions when the birds mass together. Once they are fired at, even on the big lakes, the flocks tend to break up into small parties. The writer is here forcibly reminded of the dangers of generalisation when he recalls the behaviour of Spotbill on a certain grey day with a gale of wind blowing on one of the great waters of Northern India. His Key says that the Spotbill is a bird usually to be found in small parties and pairs, and

Rough
average size
of flocks
(Key 17.)

yet on this occasion one of the largest flocks he has ever seen under these conditions swept past him in the fusillade over fifty strong, so near and so packed as to yield three birds to two barrels.

These remarks on the size of flocks do *not* refer to the birds when flying to and from their feeding-grounds. They arrive at such places in small parties (rising higher in the air as they leave the river-bed, etc., which they may have been following) and return in larger flights.

The old-time wild-fowlers of England had, like the followers of other sports, *e.g.*, Falconry, a wonderful technical vocabulary of their own, in which there were appropriate names, not only for flocks of a particular size, but for collections of Ducks of a particular kind, or for parties of fowl on the water or in the air, as the case might be. These special names were—

A "trip" was a small number, say thirty to forty of Ducks or Geese.

A "bunch" was a similar party of Wigeon, Pochard or Teal.

A "knob" was a still smaller number of Wigeon, Pochards or Teal.

A "paddling" was a party of Ducks on the water.

A "team" was a party of Ducks in the air.

A "sord" or "snit" was a flock of Mallard.

A "company" was a flock of Wigeon.

A "flight" or "rush" was a flock of Dunbird (The Pochard).

A "spring" was a flock of Teal.

Ducks are essentially gregarious birds, but they show a clamish preference for their own species, the flocks being homogeneous. Some species will associate with others, yet this is the exception rather than the rule. The Common Teal, the Gadwall, even the Spotbill, are sometimes seen in company with other kinds of Duck, but the most sociable of all the species is the Shoveller. He is the vulgarian of the True Ducks, and perhaps finds, like human vulgarians, that he knows more folk than care to know him. There is an object, as noted in the preceding paragraph on Feeding, in his cultivating the company of the Diving Ducks. Where a single individual of one species, *e.g.*, the Wigeon, is found with others, of another species, the association is doubtless fortuitous, owing to the singleton having been temporarily cut off from his own kind.

INDIVIDUAL NOTES ON SPECIES.

Spotbill.—Usually met with in pairs or small parties, says *Hume*, but, where numerous, they may occasionally be seen in comparatively large flocks. Personally, I do not remember ever seeing more than a dozen of them together; and, though I have found from fifty to a hundred on a large lake like the Manchar, or the Najafgarh in the pre-drainage time, they have invariably been dotted about the lake in pairs, or in families (as I take it), of from three to ten individuals. Often, says *Stuart-Baker*, it is found singly or in pairs, and the flocks seldom number much over a dozen, though in rare instances they run up too as much as forty. Indeed Major *McIlroy* as quoted by *Hume*, had frequently observed flocks of at least a hundred, and these he had seen both on the wing and at rest. If they ever associate with other ducks, *Hume* says, they give the preference to Teal or Shovellers, and *Woods* writes to me, “I have often seen an old solitary Spotbill piloting a flock of Teal across a *jheel* and jungle. In such cases the Spotbill may have had the company of Teal thrust upon him whether he desired it or not.

Mallard.—Rarely seen in large flocks, says *Hume*, and almost invariably in small knots of three to ten in number, or towards the close of the season in pairs.

Gadwall.—In rivers and in small pieces of water, writes *Hume*, the Gadwall commonly occurs in small parties or from three to a dozen, but in large lakes I have seen them in flocks of several hundreds. They are very sociable birds, and may be found in company with every description of Water Fowl; even amongst Geese, who commonly keep all the smaller Ducks at arms length, I have seen pairs of Gadwall swimming about unmolested.

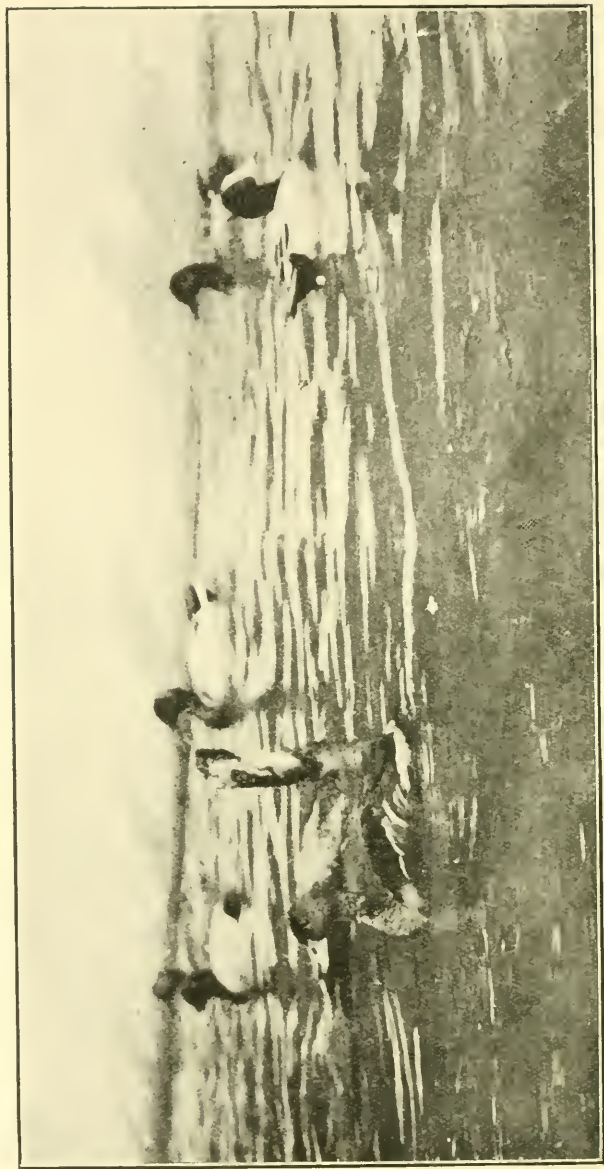
Common Teal.—Teal, writes *Stuart-Baker*, are extremely variable in the numbers in which they collect. Often they may be seen singly or in pairs, and at the same place flocks may be seen numbering hundreds, even thousands. The largest flocks appear to be met with in Sind and the north of the North West Provinces and the Panjab, and perhaps Northern Rajputana. In these places they are to be seen literally in flocks of many hundreds and frequently of thousands. On the Sunderbunds I think I have seen as many as five hundred in a flock; in the famous Chilka Lake I have been told of their rising in vast flocks which must have been nearly a thousand strong, and from other parts of India reports are given of flocks numbering hundreds. The most common-sized flocks over all their range may be somewhere between twenty and forty, and in Southern India, *i.e.*, from Mysore to Ceylon, anything over the latter number is

rare. Commonly I have observed, *says Hume*, that however large the flock that comes in, it alights about the banks of the lake or river in comparatively small detachments.

Wigeon.—They collect in very large flocks, *says Stuart-Baker*, sometimes numbering as many as seven or eight hundred individuals, but more often will be found in flocks of a hundred or so, and of course, where they are less common, in small flocks of a dozen or less, often in pairs or singly, but in the latter case always with some other duck.

Pintail.—Taken all round, *says Stuart Baker*, the Pintail is one of the commonest of Indian ducks, occurring sometimes in huge flocks, but more often in such as number 40 to 60 individuals. It is but rarely very small flocks are seen and solitary birds or pairs hardly ever. Where they are least common, flocks of only twenty or so may be met with frequently, but this is about the minimum number. As regards the maximum number, it is hard to give figures, but Hume speaks of thousands in a flock, other writers of many hundreds in a flock.

Garganey Teal.—As regards the numbers they arrive in, I have a special note, *Hume writes*, of having found a flock which I estimated to contain twenty thousand individuals at Rahun in the Etah district, on the 28th August 1865. Never before or since have I seen so huge a body of fowl of one kind, and I have noted that I bagged forty-seven of them beside losing at the time many wounded birds (I had no dogs with me) in the rushes. I had sent my gun-punt (built exactly on the lines of one of our Norfolk boats) a few days previously out there to see that it was all right for the coming season, and I had only taken with me a small but heavy Monghyr-made swivel-gun, carrying 8 ozs., to try. To my surprise, I found the thickest body of fowl—on the open part of the *jheel*—that I had ever seen. I loaded the swivel with No. 4 shot and worked up quite close to some of them and within some fifty yards of the main body, when seeing that they were all about to start, I fired and knocked over at least sixty; I actually secured forty-seven. “This,” *says Stuart-Baker*, “was thirty-five years ago, and I fear that flocks like this one are things of the past, though they may now and then be met with in very vast flocks. All through the Sunderbunds, and again on the Chilka Lake, they are often to be seen in flocks of thousands, and in Oudh, the North-West and Sind such flocks are by no means rare. As a rule over most of its north and north-western range, the flocks may roughly be said to average about and between one to two hundred. To the east, I think, they average smaller, and would put it somewhere between fifty and a hundred. Sm. II flocks of five or six, or even ten and



SOME DUCKS IN FULL DRESS.
Foreground.—Greater Whistling Teal (lower left), Large Cormorant (upper left) and Wigeon
(lower right).

twelve, are not, I think, at all commonly met with, while pairs and single individuals are hardly ever seen." They keep more closely together than any kind of Duck, dense packing being very characteristic of them.

Shoveller.—Although common over the major part of the country it visits, *writes Stuart-Baker*, it does not seem anywhere to be found in very large numbers and may often be seen in pairs or even singly. I do not remember ever seeing a flock which numbered over forty, and should imagine such a flock to be rare anywhere. "Never in flocks," *says Hume* "always in small parties." They are very social birds, *note Stuart-Baker and Hume*, and consort with Teal, Gadwall and other ducks.

Marbled Duck.—In Sind, *wrote Hume*, where I had abundant opportunity of observing it, I found the Marbled Teal invariably associated in large parties.

Red-crested Pochard.—In some parts of India, *notes Stuart-Baker*, they arrive in flocks of thousands. Hume writes in one place of "flocks of many thousands, and acres paved with them;" again "I rowed into a flock of this species several thousands in number." Reid also, after saying that though (in the Lucknow Division) he had come across them in small parties, as a rule of a dozen or so, yet "one morning I came across countless numbers on a *jheel* in the Fyzabad district closely packed and covering the whole surface of the water, with their red heads moving independently, while the breeze kept their crests in motion; a distant spectator might have mistaken them for a vast expanse of beautiful aquatic flowers." As a general thing therefore it would seem that the Red-crested Pochard likes to congregate in very large flocks, and it is only when the country is not very well suited to their wants that they split up into small parties, and, under these circumstances, very small flocks and even pairs and single birds may be sometimes seen.

The Pochard.—As regards the flocks it collects in, this would seem to depend almost entirely on the country it visits and its accommodation in the way of water. Thus, where there are huge *jheels*, morasses, and lakes covered in part with jungle and in part having open expanses of water of some depth, free of vegetation of a heavy character, they will be found in thousands; elsewhere they will be found in small flocks, pairs and rarely single birds. (*Stuart-Baker*.)

White-eyed Duck.—The flocks, *writes Stuart-Baker*, may number anything between half-a-dozen and over fifty, but even of the latter number there will be but few. They again the birds lie so scattered and far apart that they

keep rising in ones and twos, giving the impression that they are only consorting in pairs or very small flocks, and of course many single birds and pairs are really met with.

Tufted Duck.—Where suitable pieces of water are to be found, *writes Stuart-Baker*, the Tufted Pochard may be obtained in no inconsiderable numbers; at the same time it is unusual to find them in any but small parties and pairs, and single birds are to be met with more often than even such. Sometimes however they do consort in very large numbers, *vide Hume*, who says “single birds or small parties may be found on any broads in which the water is tolerably deep in some places, but the huge flocks in which they love to congregate are only met with on the large lakes.....At the Manchar Lake I once saw two enormous flocks. I have repeatedly seen similar flocks in old times at the Najafgarh and other vast *jhels* in the Panjab, the North-West Provinces and Oudh, and I should guess that at the Kunkrowli Lake in Odeypore there must have been nearly ten thousand, covering the whole centre of the lake. Such flocks as those, *comments Stuart-Baker*, are only to be met with in the Provinces mentioned: in the eastern provinces a flock of forty is very large and about all we may expect to meet with.

SUMMARY, KEY 17.

(As seen on big waters in Upper India.)

A —*Big Flocks of One Hundred or Over.*

Gadwall.	|	Garganey Teal.
Common Teal.	|	Marbled Duck.
Widgeon	|	Red crested Pochard.
Pintail	|	The Pochard.

Tufted Duck.

B —*Small Flocks.*

Spotbill (sometimes in pairs).

Mallard (often very small parties).

Shoveller (often pairs and singly).

White-eyed Duck (often pairs and singly).

CHAPTER XII.

Notes and Cries.

Distinctive
notes or cries.
(Key 18.)

32. The Ducks appear to have three main modes of expression, *viz.*, a feeding note, or chatter; an alarm-note and a call-note. The man in the butt will not hear much of any of these, except perhaps the second, as hidden birds first rise in fright at the opening of fire or nervously,

try to settle down again during the shooting. These things however are, if one has anything of the naturalist in one, worth some attention. In the Key only the alarm and call-notes are dealt with, but in the Remarks on Individual Species below is collected all that has been recorded by writers easily accessible in India.

Whatever the reason may be, the males of the Duck tribe all have a remarkable bulbous development at the base of the windpipe, the shape differing in different species. This peculiar formation is popularly supposed to have something to do with voice-production, but the theory is upset by the fact that the female Mallard, who has no bulb or "resonating chamber" in her throat, has a louder and clearer note than the male who has. Pycraft in his "History of Birds" thinks that the bulb is an organ which has become hypertrophied and is now undergoing, in consequence, a process of degeneration. It is certainly curious that the Diving Ducks, which have the bulb largest of all, do not even quack like the True Ducks but only have a typical grating note *kurr* delivered once or more, and are more silent in habit generally than the True Ducks.

Most of the True Ducks seem to keep up a constant chattering or jabbering while feeding; this has been specially noted of the Spotbill, the Mallard, the Pintail, the Garganey and the Gadwall, the incessant noise in the case of the last named being sufficiently noticeable to have earned the bird part of its Latin name, *viz.*, *streperus*.

Many Duck not only quack but whistle. Two species not dealt with in the present work, *viz.*, the Larger and Smaller Whistling Teal, derive their names from what seems to the layman a very induck-like sound; in the case of the Ducks dealt with here which have the two notes, the whistle seems to be the call and the quack the alarm-note. Even the authorities however are cautious in their pronouncements. Thus Hume (see below, Individual Notes), thought himself at issue with Lord Lilford about the note of the Common Teal; Stuart-Baker thinks them both right. There is, as might be expected, since the call-notes chiefly used by the birds when fighting at night, less information about these than about the alarm-notes. The Key summarises and reconciles what is to be got.

The note of the Wigeon, which he uses both when feeding, and when flying, deserves special mention. Hume's description of it is given elsewhere; Seebohm calls it a loud, prolonged whistle or scream, immediately followed by a short note. He renders it *mee-yu*; while the name "Widgeon" itself is another attempt at reproducing it.

Observers have noted a change of voice in the males at the breeding season. but that is a matter with which the present work has no concern.

INDIVIDUAL NOTES ON SPECIES.

Spotbill.—Their voices, says *Hume*, both when chattering to each other. when at rest or feeding, and when uttering their quacks of alarm, closely resemble those of the Mallard, but may always be distinguished by a greater sharpness; they are not so sonorous, but they seem to be emitted with greater force.

Mallard.—The male emits a low, rather soft cry between a croak and a murmur and the female a louder and clearer jabber. Both, on being alarmed, and especially in flying off, quack; but the quack of the female is much the louder. (*Macgillivray*.) The drake's is a hoarse, faint quack.

Gadwall.—They are more talkative birds than either the Grey or common Wild Duck, and when feeding in undisturbed localities keep up a perpetual chattering not unlike that in which the Mallard occasionally indulges, but shriller, feebler, and far more incessant. (*Hume*. *Finn* is not aware how the voice of the female differs from that of the male.

Common Teal.—Its quack or alarm-note is very similar to that of the Garganey, and may be represented by the syllable *knake*; but the call-note of both sexes is a sharp *krik*. (*Seebohm*.) The usual note is a subdued quack, but Teal also have a whistle used chiefly at night. (*Fauna*.) This Teal whistles and quacks, the female being responsible for the latter sound and the male for the former. (*Finn*.)

Wigeon.—Has probably derived its name from its remarkable* note, but, as usual in such cases, it requires a considerable stretch of the imagination to recognise the similarity. The cry of this Duck is a loud, prolonged whistle or scream, immediately followed by a short note. I can best represent it by the syllables *mee-yu*, the first very loud and prolonged, the last low and short. (*Seebohm*.) The female utters a low purring growl. (*Finn*.)

Pintail.—When undisturbed is a silent bird by day and rarely utters any sound, even when feeding; though, I have, says *Hume*, when lying up pretty close to them, heard a little low chattering going on, more like the low clucking of hens than anything else. But when alarmed by day, and pretty constantly by night, they utter their peculiar soft quack, such a note as one might expect a Mallard, not quite sure whether he meant to speak of

* In the male. (Author.)

not, to emit—quite different from the sharp quack of the Gadwall, softer and less strident than that of the Mallard but still not at all feeble, on the contrary audible at a great distance. The female, *Finn says*, utters a harsh unpleasant quack.

Garganey Teal.—Almost noiseless in flight, and in other respects a somewhat silent bird. Its quack is not so loud as that of the Mallard, but is in a slightly higher key; it may be represented by the syllable *knake*, whence the German name of this Duck, *Knak-Ente*. It is generally uttered singly, but sometimes twice. The quack is common to both sexes. (*Seebohm*.) The male has a peculiar inward guttural croak. (*Finn*.)

Shoveller.—Not a very noisy bird. The Duck *quacks* not unlike the domestic species; the voice of the drake is a little deeper; if we represent the former as *quaak*, the latter might be represented as *quauk*. On the wing, the note is a guttural *puck puck*. (*Seebohm*.)

Marbled Duck.—"Lord Lilford, an extremely careful observer," writes *Hume*, "says that they utter a low, croaking whistle; but I am sure I am correct in saying that they also utter a distinct, but rather hoarse, quack; time after time, before a duck has been flushed, amidst the babel of sounds that rises in the rushes as you first begin to push through them on some unfrequented and unpoached broad, I have singled out their note and correctly foretold that in such or such a direction there were a lot of Marble Teal." Stuart-Baker thinks the whistle and the quack are two distinct calls, as in some other duck.

Red-crested Pochard.—Their call-note, not very often heard by day unless they are alarmed, is quite of the Pochard character—not the quack of a Duck, but a deep, grating *kurr*. Occasionally the males only, I think, writes *Hume*, emit a sharp, sibilant note—a sort of whistle, quite different from that of the Wigeon and yet somewhat reminding one of that.

The Pochard.—Their note, rarely heard until they are disturbed, is very like that of the White-eye, but louder and harsher—*kurr, kurr*. (*Hume*.) Has a hissing voice. (*Latham*.)

White-eyed Pochard.—Their quack or note is peculiar, though somewhat like that of the Pochard, a harsh *kirr, kere, kirr*, with which one soon gets acquainted as they invariably utter it, *staccato*, as they bustle up from the rushes, often within a few yards of the boat. (*Hume*.) On the whole a very silent bird. (*Stuart-Baker*.)

Tufted Duck.—When alarmed and flushed, they occasionally emit the regular, grating Pochard call, *kurr, kurr*, but not so loudly, I think, as some of the other species. (*Hume*.) A silent bird on the whole. (*Stuart-Baker*.)

SUMMARY, KEY 18.

Alarm-note.

Call-note.

SPOTBILL.

Like Mallard, but sharper and omitted with greater force.

MALLARD.

Male has a hoarse, faint quack ; note of female is louder.

COMMON TEAL.

A subdued quack, *knake*. Like that of Garganey. | Male whistles. (*Finn.*) A sharp *krik* in both sexes. (*Seebohm.*)

WIGEON.

| A loud, prolonged whistle or scream, *mee-yu*.

PINTAIL.

Male, a peculiar soft quack, less strident than Mallard ; female, a harsh, unpleasant quack.

GARGANEY TEAL.

A peculiar guttural inward croak, *knake* generally once but sometimes twice, both sexes.

SHOVELLER.

Quacks like a domestic duck, the voice of the drake a little deeper. | A guttural *Puck, puck*.

MARBLED DUCK.

A distinct, rather hoarse quack. | A low croaking whistle.

RED-CRESTED POCHARD.

A deep granting *Kurr* *. | Occasionally a sharp, sibilant note (males only).

THE POCHARD.

Like that of the White-eye, but louder and harsher. | † A hissing voice.

WHITE-EYED POCHARD.

A harsh *kirr, kerc, kirr*, uttered *staccato*.

TUFTED DUCK.

Kurr, Kurr, the typical Pochard call, but not so loud as in some.

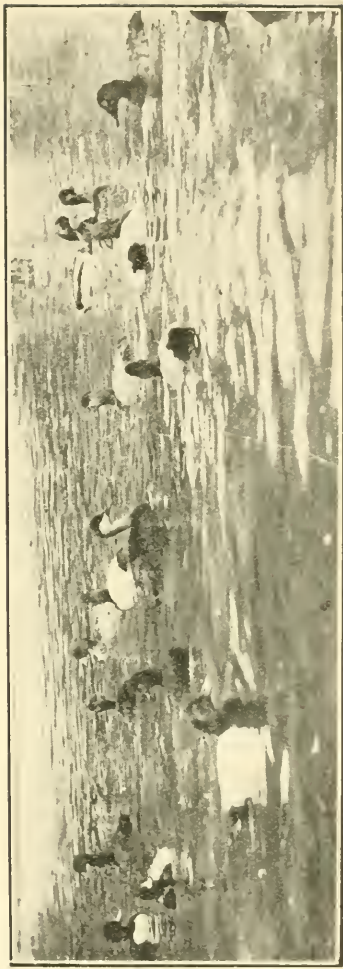
* Hume says this is also the call-note.

† *Note*.—Whether this is the call or the alarm-note is not clear.

“PADDLINGS” OF MIXED DUCK.



A “padding” of mixed Duck, Mallard (upper and lower left), Garganey Teal (left centre foreground), Pintail (centre middle background), the Poehard (left middle), Ruddy Sheldrake (right background) and the Poehard (extreme right).



“A Padding” of Mixed Duck.

CHAPTER XIII.

Behaviour under Fire.

33. It is not easy to write anything in the way of generalisation about the behaviour of the various Ducks under fire. The Pochards as a class, owing to their affection for large open stretches of water when resting, are less accessible than the other Ducks to the shore-shooter, but the habit is a recommendation in drives on big *jheels*. The Tufted Duck, though wild and shy, will keep to large pieces of water, never leaving them, according to Hume, till after dark. Even the tamest of the varieties will show distrust if much disturbed and shot at; it may however be said that the Pintail will *never* be seen after the first few shots on a big day, while the Shoveller will hang about till the bitter end. For wariness the Wigeon (when driven), the Red-crested Pochard and the Garganey Teal probably come next to the Pintail and not many of them will be found in the bag at the day's end, which will prove to consist mainly of Spotbill, Mallard, Gadwall, Common Teal, Shoveller, Pochard of all kinds other than the Red-crested, with a sprinkling, where they are at all common, of Marbled Duck.

Behaviour
under fire.
(Key 19).

No duck, it may safely be said, is *easy* to bring down. All are strong, fast and dense-plumaged enough to require to be hit well forward. For his size the Spotbill carries less shot than the other ducks, a fact that is explained by his having a lighter feather covering, being a resident, than the migratory species.

NOTES ON INDIVIDUAL SPECIES.

Spotbill.—They are not shy birds, says *Stuart-Baker*, and until they have been much shot at, can generally be approached near enough for a shot fairly easily. It is perhaps an easier bird, says *Stuart-Baker*, than most of its size and weight to bring down when hit, owing to its plumage being rather less dense than that of many other ducks.

Mallard.—Strong flyers and, if walked up, require straight shooting, as they rise with a bound straight up in the air.

Gadwall.—Though not as a rule a very shy bird, says *Stuart-Baker*, yet he is quite wide awake enough to make the getting within shot of him an interesting, if not difficult, job. Where too he has been much shot, all one's ingenuity and perseverance will be required before the game-bag can be made to assume the bulgy appearance it ought.

Common Teal.—Teal, says *Stuart-Baker*, often lie close enough to allow of constant shots at from 25 to 40 yards, and as they often scatter a good deal, even when

resting, two or three shots may be obtained at the same flock. In this way on large sheets of water, a good bag may be made before the birds get scared and leave altogether, or else rise far out of shot. Nowhere in Bengal have I found Teal to be of a very confiding nature, but that they are so in other parts of their Indian habitat is well known. Hume writes: "They are as a rule, when near met with villages, excessively tame—too tame to render shooting them possible, unless you really require them for food. Not only will they let you walk up to them when they are on a village pond, as close as you please, but when you have fired at them and killed two or three, the remainder after a short flight will again settle, as often as not well within shot. Nay, at times, though fluttering a good deal and looking about as if astonished, they will not rise at all at the first shot, despite the fact that some of their comrades are lying dead before them." They stand a fair amount of shot unless hit well forward, when a single pellet of No. 6 or 7, or even No. 8, may suffice to bring the bird to bag. (*Stuart-Baker.*)

Wigeon.—They vary very much in being wild or the reverse, says *Stuart-Baker*, but, taking them everywhere in comparison with other ducks they may be said to be cute, wary birds, but falling short in this respect of many of their kind. What adds too to the ease of getting shots at them is their habit of feeding almost throughout the day, their feeding taking them much to the edges of the *jheels* and lakes, where they remain amongst the reeds and vegetation. This of course hides the stalker and the stalked, and many shots may be obtained at Wigeon by walking round the borders of a lake, whilst most of the duck are away in the middle of the water, unapproachable except by boat, and often not by that. Not as hard to bring down as the Garganey or Common Teal, for they are less densely plumaged and can carry far less lead.

Pintail.—They are shy and wary, writes *Hume*, and leave a *jheel* almost at the first shot, or, if they do hesitate to change their quarters, circle round and round high out of shot. There is no driving *them* backwards and forwards from one piece of water to another, or one part of a lake to another, over sportsmen concealed behind screens or in rush clumps. You may kill a brace or so, but, directly they begin to find that shooting is going on in earnest, off they go, probably not to alight again for several miles. As a rule, says *Stuart-Baker*, they are extremely shy, wary birds, and are very hard to approach within gun-shot, but one or two people have found them to be quite the contrary. Captain Baldwin says that he found it an easy bird to approach even when feeding on open pieces of

water. This is somewhat confirmed by the fact that in Cachar the natives tell me they can get at Pintails far more easily than at other ducks, and it is true that they *do* bring in more Pintails in proportion than they do Gadwalls, Teal, etc.; at the same time I have personally found them to be the hardest to get at of all the ducks, and such of my friends as have given me their experience have found the same.

Garganey.—As to whether they are wild or tame, notes *Stuart-Baker*, opinions seem to differ very much. Theobald says, "They are not very hard to shot and are easily approached behind a screen of green boughs; sometimes a paper kite made in the shape of a hawk and flown over the tanks keeps the teal together and they will not leave the tanks, though fired at often." ...Reid says, that they are shy and wild when they first arrive (in Lucknow), but afterwards become tamer. Hume says that, they are never tame and generally decidedly wild. As far as *Stuart Baker's* own experience goes, the Garganey is one of the wildest of the duck tribe; even when the would-be shooter keeps behind screens, etc., they seem to be very cute and to be able to discern what is behind the screen quicker than many others of their kind, and they are not slow to profit by what they can discern: then too they keep much to fairly open water when resting.

Shoveller.—Even on large sheets of water, says *Hume*, when, after a tremendous fusillade, every other wild-fowl has temporarily quitted the lake, you will still find, as you prow round the shores to pick up the Snipe, continually find Shovellers rising before you from the weedy shallows well within shot. As a rule they are very tame and can be easily approached if the least caution is taken, says *Stuart-Baker*, and they have the reputation of allowing repeated shots to be fired at them before a flock will leave the piece of water they are frequenting.

Marbled Duck.—As a rule, says *Hume*, it does not at once rise when guns are fired, as the other Ducks do, but, if by chance it is at the moment outside of the rushes or similar cover in the open water, it scuttles into concealment as a Coot would do; and, if in cover already, remains there perfectly quiet until the boats push within 60 or 70 yards of it; then it rises generally one at a time and, even though fired at, not unfrequently drops into the rushes within a couple of hundred yards. When there has been a good deal of shooting on a lake and almost all the other duck and with them of course *some* of these are circling round and round high in the air, you still keep, as you push through the reeds and rushes, continually

flushing the Marbled Teal, and the broad must be small or the hunting very close and long-continued to induce all the Marbled Teal to take wing. Of course, where there is a little cover (though you never meet with this duck in large numbers), they rise and fly about with the other ducks, but their tendency in this respect is coot-like rather than duck-like. Individuals may take wing at the first near shot, but the great majority of them stick to cover as long as this is possible; and on two occasions I saw very pretty shooting, boats in line pushing up a wide extent of rush-grown water and the Marbled Teal rising in front of us at distances of sixty or seventy yards, like Partridges out of some of our great Norfolk turnip-fields; here and there a Shoveller or a White-eyed Pochard, both of which when disturbed, cling a good deal to cover, would be flushed, but there was not one of these to ten of the Marbled Teal.

Red-crested Pochard.—From a sporting point of view, says *Stuart-Baker*, the Red-crested Pochard is all that can be desired. About as smart as they make them, he seems to have special aptitude for judging the length of range of different guns; and a flock may be caught once, but seldom twice, whatever distance the gun may reach.

The Pochard.—Normally they would appear to be neither very shy nor yet very tame, says *Stuart-Baker*, but it takes very little shooting to make them most decidedly the former; and then, owing to their keeping so much in the centre of the water, they frequent, they are by no means easy to get within shot of.

White-eyed Duck.—No doubt, says *Stuart-Baker*, their manner of rising (in ones and twos) is a very admirable trait for any duck to possess, and the White-eye has other good points as well. As a rule it is a decidedly tame bird, still lingering in amongst the reeds and other jungle long after other nearly all other ducks have left, rising well within shot when disturbed and often not going far before again seeking the water. It requires straight shooting to kill outright, for it is a hardy, close-plumaged little bird and will take a lot of shot.

Tufted Duck.—However abundant it may be, says *Stuart-Baker*, of ordinary shooting rather than driving, the Tufted Pochard does not as a rule form a very large portion of a bag in a day's shoot. This is due to the difficulty, first, in approaching the birds—for they are decidedly wild and shy—and, secondly, in getting a shot when one has once got within reach. If the bird does not escape at once by diving, swimming or flight, it is sure to dive before at any rate the sportsman has had time to get

a shot, and, once it has seen him and had its first dive, it is very problematical as to whether he will ever get a shot again. It is worth remembering, should one come across a flock in any large piece of water, Hume's maxim that Tufted Pochards will not leave the water they are on till after dark.

SUMMARY, KEY 19.

A.—SHY BIRDS.

Pintail.—Clears off altogether after a few shots have been fired.

Wigeon.—(when driven).

Garganey Teal.

Red-crested Pochard.

B.—MORE CONFIDENTIAL.

Shoveller.—Hangs about the shores till the bitter end.

Tufted Duck.—Will keep to large pieces of water even in a fusillade.

White-eyed Pochard.—Keeps to cover and often rises by ones and twos.

Marbled Duck.—Keeps to cover.

Spothill.

Mallard.

Gadwall.

Common Teal.

Pochards other than the Red-crested.

PART III.

CHAPTER XIV.

Notes on Shooting.

Some
difficulties
in shooting
from a butt.

34. Full, it is hoped, by now of lore about the Ducks and their manners and customs, the tyro has at last got what he wished for, *viz.*, a chance to try his hand in one of the big Duck drives described in Chapter II. He may be a man with a fine eye and all the other natural advantages that go to make the good game-shot; if so, he is lucky, and before long he will have realised what is demanded of vision, brain and hand and be doing the right thing instinctively. Most people however are not so fortunate, and only learn to do reasonably well by long and careful attention and practice. Butt shooting, moreover, is, in itself, not too easy. It is one thing to be able to hit birds even the difficult ones, when you are standing in an easy, natural position with nothing else to think about except your shooting; it is quite another to bring Duck down from inside a small enclosure, the sides of which may be so high as to prevent your covering the birds that pass low down, or so low as to require you to crouch—in order to keep hidden—till the last moment, so that at the time of firing you are thoroughly cramped. It is wonderful how unintelligent in India often are the people on whom one has to depend for the minor details (if the construction and placing of a butt *can* be called a minor detail) of one's shooting arrangements. This cramped position in butt-shooting often makes one miss crossing shots at which one could hardly fail under better conditions and also accounts for people finding they are doing better at the directly-approaching birds. To the man then just beginning to think he was getting into the knack of shooting, don't be discouraged, the writer would say, by your large percentages of misses in these specially difficult circumstances. Think it out, and you will find that they *were* specially difficult and that even the best shots, if they are friendly and honest enough to tell you, also fired an immense proportion of cartridges to birds bagged. "I have frequently heard discussed," says Best in his "Indian Shikar Notes," "the question of what constitutes a good shot. I do not think that birds killed per cent. of cartridges fired is any criterion. Some people who are vain about their shooting take none but easy shots and think that they are good marksmen. If you know a man who always kills more birds than the average of other than men out, no matter where

he is placed, do not believe people who say he is lucky in having all the birds coming his way, nor should you worry about the number of cartridges he lets off (unless it is very abnormal). You will almost certainly find that the real reason of his supposed 'luck' is that he is a better shot, who takes more chances, and *kills his birds clean*." Wait till the very end of the season before you condemn yourself as incompetent. Then will be the time when the Quail are in at the ripening of the corn. Get hold of a man who keeps call-birds (there are always one or two in every large village); get him to put them out for you overnight in a nice bit of wheat country large enough to keep you and a pal busy for a couple of hours. Go out at daybreak with the aforesaid pal and a dozen smart village youngsters and take a line not more than fifty yards wide, quartering the fields so that you will keep the wild Quail which the call-birds will have collected for you on, and do not drive them off, the ground. Then, if you can't hit enough to make you happy, you may go home and sell your gun. You have everything in your favour now—the sun behind you at your choice, the knowledge that the birds are there, no weary wailing between shots, sufficient shooting—mostly straightaway shots—to keep your eye in and, above all a dark little bird that shows up against the yellow corn like a cricket-ball against a screen. A bad background is often half the difficulty in shooting. Who does not realise this that has shot that engaging little ruffian the *Sisi*, a tiny Partridge that haunts the rocky low hills of that Salt Range and Trans Indus country? He is the very colour of the rocks he lives on, so that, whether he runs or flies, he is extremely difficult to pick up with the eye. With him too you are presented with a neat dilemma. Either you advance at the same pace at which he saw you to the little rise from which he last took skilled stock of your movements and intentions, or you run to that spot (it may be sixty yards) like a stage. In the former case you will find that he has moved on a *little* faster than he thought you were going, when of course you will be out of range by the time you see him; in the latter, you will find your bird within range but yourself out of breath. It is however only the dilemma of butt shooting in the Duck-drive over again. Either you stand up so that you can shoot properly, in which case the birds see you and sheer off; or you take careful cover so as to let the birds come as near you as possible, in which case you are too cramped to shoot. Still, that is what happens in sport as in other things. You can't always have it both ways. Quail shooting is one of the few matters in which if you only manage things reasonably well, the odds are

nearly all with you. That is why it leaves such a pleasant flavour in the mouth by the time that the gums have got to be oiled up and put away till next season, and why it should not be omitted from the season's programme.

SOME POSITIVE ADVICE.

It is easy enough to tell the young sportsman what he should *not* do. The writer proposes to do that later. Is there however any positive advice that one can make him a present of?

Advantages
of a good
gun and good
ammunition.

35. First and foremost, the beginner should buy the very best gun and use the very ammunition that he can afford. He will find it more satisfactory, if money is short, to do less shooting with a good outfit than more with a bad one. Cheap bad cartridges account for more cripples and runners than many people realise. The price of English ammunition has, thank goodness, dropped from the war pitch, and it *pays* to import it of the best (a number of sportsmen can club together and, by ordering large quantities, secure substantial reductions), or buy it from the many dealers out here. Your gun should not only be the best your pocket can run to, but it should be perfectly fitted for you by an expert, who, watching your shooting, and equipped with all the appliances for the purpose, is able to give you something that does not knock you about by the time you have fired three or four hundred rounds. This is a very different thing, mark you, from loosing off a mere fifty or so. You can do that without discomfort—you can even hit quite a few birds—with a gun that does not quite fit, but the other is the real thing, and you must have experienced it to realise the pains that the badly-fitting gun can inflict. Finger are chipped, arm muscles bruised and, worst of all, the jaw so battered that the victim flinches from bringing it down on the butt as he should for every shot. The standard load for a 12-bore gun taking the $2\frac{1}{2}$ in. (shortest) case is 1 to $1\frac{1}{8}$ ozs. of shot and 42 or 36 grs. of Curtis and Harvey's Amberite or Smokeless Diamond, as the case may be. The cumulative effect of several hundred raps from such a charge, calculated though it is, to produce the maximum power with the least shock to man and gun, is not to be despised.

"Swing"
versus
"Carry
Forward"
method.

36. In a preceding paragraph mention has been made of the all-important matters of forward allowance, or "borrowing," as some prefer to call it. There are two ways in which this may be given in shooting, *viz.*, (i) "swing" and (ii) "carry forward." By swinging is meant keeping the gun moving with the object before, and even at the time of, pressing the trigger; by carrying forward

is meant firing into the air at the place where you judge the bird will be when the shot reaches that place. In the concluding paragraph the former method is advocated, so much so that care is taken to avoid the use of the word "aim," since in swinging there must be the initial alignment of the gun on the bird, but it is better termed "covering," or "moving the gun on the object," or anything that does not suggest deliberate aiming. For the swinging method it is claimed that it reduces the processes involved to three, *viz.*, (i) spotting the bird, (ii) raising the gun and moving it with, and on, the bird, and (iii) estimating in terms of the linear distance which the bird has to travel the time the shot will take to reach him. One factor present in the "carrying forward" method, *viz.*, the time taken to fire, may be eliminated, since pressing the trigger becomes automatic, being part and parcel of the general swinging motion. More than this, the man who, without swing, is going to try and cut in on the place where the bird *will* be has to perform a calculation before he even *begins* to do anything else, a calculation too which is unassisted by the muscular sense-guide derived from the proportionately-timed swing. Again, the getting ready to fire, divorced of the helpful swinging movement, takes longer than it otherwise would, which is no unimportant matter when it is realised that some persons take * six times as long as others to convert a visual image into a voluntary muscular action. Finally, it is urged, that in firing as you swing, you get the resultant of two forces, outwards and forwards, a further insurance against taking too little allowance.† Lord Walsingham, who no doubt was a man in whom both accuracy and rapidity of the expression of muscular sense was very exceptional, holds that "accuracy and rapidity in shooting depend more on the act of putting the gun to the shoulder than upon what movement is given it after it is there." His advice on how to deal with driven grouse is attached to sub-para IV below, but it is interesting to see that, while the above remark of his might seem to be good authority for the "carry forward" method, in the passages which have been underlined, he distinctly advocates swinging.

To sum up.—If we classify the possible kinds of shot into "cross," "quartering," "ascending," "descending," "approaching" and "retreating" shots, swing will be most needed on the first of all and the last two, but it can hardly be dispensed with in any. There seems in fact to be only one occasion stop which the ordinary man can

* Dr. Fleming on the "Physiology of Shooting," *Field*, February 19th, 1887.

† Badminton Library, "Shooting (Moor and Marsh)."

afford to neglect swing and that is when he simply *must* try and do without, *e.g.*, a snapshot among trees, etc., where the carry forward is his only hope.

Place to grip
with the left
hand.

37. The authorities favour a grip with the left hand thrown well forward along the barrel, nearly to the full extent of the arm, on the ground that by this means greater leverage is obtained and the movement quicker made than if the hand is held near the trigger guard.

Lord
Walsingham
on shooting
driven
grouse.

38. *The following is Lord Walsingham's advice in the Badminton book on shooting driven grouse:* "In shooting driven birds, select without hesitation, as they approach, that one which will first arrive within good killing range. Put the gun to the shoulder quickly as he reaches the required spot, directing it at the beak or well away in front of it, according to the angle of his flight, the pace at which he is going, and the distance the charge has to travel. If this is done correctly, the trigger may be immediately pulled. *If adjustment is seen to be required, it should be as instantaneous as possible, and will almost invariably consist of a quick swing forward to keep pace with the bird.* As the trigger is pulled, there should be no unsteadiness, no lifting or lowering, no flinching or jerking. *If the gun is in motion at the instant of firing, the movement should be maintained until the shot has left the muzzle;* if it is stationary, the recoil should not be allowed in the slightest degree to change its direction. As you pull the trigger, the eye should take up a fresh object, and the operation should be repeated; a man with good sight need not wait to see the effect of his first shot. He will be aware of this at the instant of firing, as it is well known that images are retained upon the retina for an appreciable moment after the eye is diverted."

What the
gun and
cartridges
can do.

39. *Find out what the gun and cartridges are meant to do.* The ammunition-makers have brought loading to a fine art, so that you do not need to bother about that. But *you* can make the mistake either of over-rating or under-rating your tools. Some people leave many birds, especially those above them, because they suppose them to be out of range. But overhead distance is extraordinarily deceptive. Says Richard Jeffrys in that fascinating book "The Amateur Poacher," "Men who are excellent judges of distance when it is a hare running across the fallow find themselves all at fault trying to shoot at any elevation. Perhaps this arises from the peculiarity of human eye which draughtsmen are fond of illustrating by asking a tyro to correctly bisect a vertical line, a thing that looks easy and is really only to be done by long practice."



A fair Sportswoman.

The regulation height for an overhead telegraph wire in Indian cities is about 22 feet, but if you were to assure the diffident sportsman that it is easily possible to hit Duck at four and five times that height, he would say you were a....., or perhaps one should say he would need some persuasion to make him believe it. On the other some expect the powder, which is made as quick as science will produce, to do the impossible. As stated in a previous portion of the book, with the best powders in common use, shot travels forty yards in one-seventh of a second and faster at shorter ranges; with a bird therefore travelling at right angles across the firer at a speed of forty miles an hour, the forward allowance should be one foot for every five yards of distance, *i.e.* eight feet for the forty yards. Now, as noted in Chapter IX, the speed of driven Duck may often be much greater than forty miles an hour, so one can hardly err on the side of holding too far ahead. It is safe to say that most birds going at high speed are missed behind.

The twelve-bore is the best all-round weapon, without a doubt, and, if one likes, one can buy them with chambers made to take long cases up to two-and-seven eighths inches with specially heavy "wild-fowl" charges; they will however of course not be as light as the ordinary gun that takes the two-and-a-half inch case. There are some men, and most ladies, who prefer the lighter sixteen-bore gun. If so, they must not expect it to do *all* a twelve-bore does.

40. The beginner will often enviously watch the skilled hand bringing down birds at what seem to him amazingly long ranges. He thinks this must have something to do with the size of shot the artist selects, but is surprised to find that the size is the same as what he himself is using. What is happening is that the good shot is putting the pellets in the right place, not making them go further or hit harder. A single cartridge contains from a little under 200 to a little under 300 pellets of the sizes commonly used for birds about the size of Duck. A single one of them, *if properly placed*, is enough to bring the bird down. What then is the best size to use? The large pellet, some argue, has greater penetration, but, on the other hand it presents, itself, a greater resisting surface to the matter it is meant to pierce. The big shot, again, many say, is likely to break a wing bone at long range where the smaller pellet would glance off. "Ah," replies the expert, "but you shouldn't hit a bird as far back as that; you should always take him in the head," a counsel of perfection to which few attain. There is no doubt whatever, though, that the most vulnerable portions of a bird are his head and neck, since these are very

Best size of
shot for
Duck.

lightly covered with feathers. A small pellet, therefore *if it strikes these spots*, is as likely to kill a Goose as a Teal. Sir Ralph Payne Gallway (see Chapter I) was able to bring down big Duck with No. 8. The best-protected portion, on the other hand, is the breast, where are situate the thick, strong pectoral muscles and dense plumage, and the breast—who does not know it that has fired at big and apparently slow moving birds like Geese?—is the very place where the second-rate shot, through making too little allowance, most often places his shot. Every one realises that more small, and less large, pellets go to the ounce. The number of shot for striking purposes is accordingly reduced by using the latter. In other words, the smaller the size of the shot, the better the “pattern” you get. The following table, extracted from Messrs. Curtis and Harvey’s “Shooters Year Book,” makes the position clear.

ONE OUNCE CHARGE OF SHOT.

Size of shot.	Number of pellets.	NUMBER OF PELLETS PLACED IN A 30 IN CIRCLE AT FORTY YARDS.	
		True Cylinder barrel (40 % pattern).	Full Choke barrel (70 % pattern).
4	170	68	119
5	220	88	154
6	272	109	190

It is obvious that No. 6 or No. 5, particularly with the choke barrel, delivers, an enormously larger number of pellets than No. 4. but butt-shooting is not, as already said, altogether in favour of their very accurate placing. Say what the small-shot expert will. Duck, when swerving away on seeing the danger that lurks in cunningly concealed shelter, offer an underneath shot in a very vulnerable position when the wings are spread. This is very often the beginner’s best opportunity and it is the occasion when big pellets tell. Sixes will do for Teal, but you are not shooting them only and you will be safer all round with Fours.

Practice.

41. It may be difficult for the man who has no special advantages to get sufficient practice. That is of course a serious obstacle, since the man who is not constantly using a gun cannot have that *feel* of the weight and the pull which counts for so much. In England there are the Shooting Schools and Club, where a man can practise and, above all, in the former be shown his faults with a view to their correction, and the keen sportsman is amply

repaid if he visits these occasionally when on leave Home. Even in this country, though, one can buy a clay-pigeon trap and "pigeons" pretty cheaply and one can even practise indoors, or out, swinging and pressing the trigger with spring cap dummy cartridges.

The writer, at the beginning of the season, has white-washed marks put at a suitable height on a wall in his garden, as below:—



Each circle is supposed to represent a bird in flight. The circles on the extreme right and left are each 8 feet from the centre (zero) circle, *i.e.*, the forward allowance which one ought to give for a crossing shot at forty yards: the vertical distance between the marks on any one vertical line is one foot, to assist the estimation of allowance for a rising or dropping bird. On the ground, distances of twenty and forty yards are marked. Ranges and allowances are thus stamped on the memory. Standing at the forty yards mark with one's eye on the twenty yards mark, one notes the "law" that should be given a bird if one does not wish to "plaster" him, and the figures 3 and 5 accustom the eye to the allowance to be given for ranges of less than forty yards. "Covering," *i.e.*, the open-eyed, instinctive pointing of the gun with both eyes concentrated on the mark, swinging, and trigger-pressing without check of swing can all be reduced to a sort of drill. Thus, for practice in the crossing shot, the shooter will pick any two marks and swing from left to right, saying to himself, "*cover O and fire, swinging, at S,*" etc., etc. He then reverses the direction of the swing, picking any two marks on any of the three horizontal lines, and firing the second barrel. He may next imagine that he is taking an ascending bird. He will pick any two marks on any one of the vertical lines, saying "bird at lower" and then swing up and fire, one barrel after the other, swinging, at the middle and upper marks. Similarly, for the dropping shot, the command will be "bird at upper," and he will swing down on the middle and lower marks. Firing the left barrel in immediate succession to the right without taking the gun from the shoulder should be practised.

42. Almost superfluous though it may seem, scrupulous cleaning should not be neglected. Many men who shoot in India have their official duties, so there is

Cleaning.

some, but not a complete, excuse for leaving the cleaning of one's gun to one's servant. The practice however does not pay in the long run. Barrels perish sooner than they should and the gun works stiffly from dirt and congealed oil. The man who leaves these important things to others moreover has only himself to blame if accidents happen. The writer remembers a very scared-looking sportsman who found one barrel—the only one he fired—quite enough for him for a long time on a certain day. What had happened was that his servant left the cleaning rag inside, so that it emerged with the charge on firing. That the gun did not burst is a tribute to the work of the modern producer of high-class weapons.

Optimism
and good
temper.

43. Fishing is perhaps an even better discipline for the temper than shooting. There is not *very* much that can happen in fishing for which you can blame others; mostly, if things go wrong, it is your own fault. Shooting opens a wider door for laying on others the reproach which one oneself deserves. It may be the beaters, or it may be the loader on whom one blows off steam. Lord knows they are trying enough sometimes, but one's misses are best forgotten at the moment—one may go over them at the end of the day if one likes and try to find the causes for them—and the spirit without doubt to cultivate is the one of cheerful optimism which says, "I didn't hit the last, but *I'm going to hit the next.*"

SOME NEGATIVE COUNSEL.

Now for some negative counsel.—

44. *Don't AIM at a moving object like a bird in flight.*

An aim in these circumstances means a miss behind, for the reason that the shot, unless the barrel is carried forward at approximately the same rate at which the object is moving, will strike at the place in which the bird, etc., was when you drew that careful bead on him and not where he has got to in the meanwhile. Duck in a drive, other than Teal when fired at, usually carry steadily on in the same plane, sheering off perhaps to left or right, if surprised by a sudden view of the shooter but not rising higher, to avoid him. On deciding to shoot at any bird, in whatever direction he may be moving in relation to your own position, merely cover him and then swing the barrels with the same motion as the bird is adopting,—to right or left, if the bird is crossing you, upwards if he is approaching, downwards if he is going away from you,—and at the same speed so far as you can judge it. If the bird is passing at less than a full right angle, the "quartering" shot, less allowance is required; similarly if the angle of his approaching or departing flight is acute

Negative
Counsel.

rather than obtuse. The subject of "lead," or forward allowance, has been already dealt with, but it is all important, and it is in the estimation of it, in all the varying conditions that birds in flight present, that practice and skill produce such gratifying results. Both eyes are best kept open, though there are people who shoot with one closed. Closing the eye as in rifle shooting tends to the habit of aiming. Moreover it is unnatural, takes time and is quite unnecessary because the gun maker has made your gun with a stock that enables you, on throwing it up, to get your "master" eye, *i.e.*, the one that controls the vision of both, directed along the centre rib, provided you get your cheek down to its proper position, *i.e.*, nicely bedded on the butt. Why limit your field of vision to that of one eye only? You want to see all round the gun and to take in as much as both eyes can command.

(ii) *Don't take too long a swing.* You have covered your bird, your eyes looking truly along the centre rib and you are moving the barrels with what you imagine to be the proper amount of forward allowance. When is the psychological moment during the swing to press (not pull) the triggers in order to fire both first and second barrel? The answer is "as soon as you have time to get in a quick, *instinctive* shot." The whole action is more like throwing a stone to hit a moving mark than the comparatively deliberate action of even the modern rifleman. "One of the strongest reasons for not swinging the gun over too long a radius" say Messrs. Curtis and Harvey "is that the muscles only work with full elasticity over a limited range. A gun cannot, for instance, be swung over a quarter circle without being checked in its movement by the gradually increasing tautness of the muscles as the end of the motion is approached."

(iii) *Don't "brown," if you see the birds coming closely packed.* Pick a bird each time, and, if you hit him, you may bring down others as well, thereby satisfying your greed, supposing you are that way inclined. Later on, if you have the true spirit of the thing in you, you will rejoice more over the one bird picked and cleanly killed than the two or three cripples which you only downed by mistake.

(iv) *Don't throw away your first barrel by careless shooting just because you know you have another in reserve.* You will get through quite enough ammunition, as it is, on a big day. Shoot as if *each* barrel in turn is all you have to depend on. A good many first barrels are missed because one is thinking more of the birds to follow than concentrating on the one that is being fired at.

(v) *Don't, in taking birds that are crossing from right to left, allow the right shoulder (if that is the one from which you fire) to drop.* This is why so many right-sided people miss more birds going in this, than in the contrary, direction.

(vi) *Don't take your birds too near.* Of course there are limits, but many people try, if they get the chance, to take their birds *under* the regulation forty yards. To think that near birds are easy is a delusion, and the mistake is the greater when they are approaching overhead. A high incomer gives you more time than a low one, counting from the moment when the bird is on a line to your eye which makes an angle of forty-five degrees with land or water up to that when he is exactly over you. If you do hit the near bird, especially with the choke barrel, you "plaster" him. This taking close in cannot of course be avoided sometimes, *e.g.*, when it is a choice between firing at short range or not at all, but this is where the good shot will prove superior to the indifferent, the former giving even more than the usual "lead" in order to place a pellet or two only and those well forward, while the latter fires just as he would at the longer distance and mangles his bird as the result. For the approaching high bird it is well to have the gun ready pointing upwards in the required direction well before the forty-five degree angle line is reached, since, if you wait till the bird reaches that position, he will be on and past you before the gun is even up.

(vii) *Having made up your mind which is the best size of shot for the particular bird you are after, don't change about from that to another, or others.* You will get more consistent results by sticking to a single size.

(viii) *Don't be greedy and try and do too much.* If you have two guns going, it is not necessary to fire all four barrels at every flock that passes. Unless you are a real expert, the result will be hurried shooting, worse often than if you had only a single gun.

(ix) A few special "Don'ts" may be added for buttshooters in particular, *viz.*:—

(a) *Don't despise protective colours in your clothing.* If your butt is built of Tamarisk twigs, a darkish green, and if it is made of yellow reeds, *khaki*, are the right colours for your hat and coat. A nicely pipe-clayed white *topi* is all very well at, say, a Race Meeting, but it tends to make the Duck give you a very wide berth.

(b) *Don't try and fire into the eye of the sun.* Your butt may face the wrong way, or more birds may seem to be going the sunny side of you,

bat withstand temptation and look in the direction that gives your eyes a chance. Have an intelligent loader, or orderly, in the butt with you, and tell him to look out too, but don't let him make you turn round to attempt the impossible.

- (c) *Don't disdain the use of certain little aids, such as good periscopic glare-glasses, etc., etc.* The physical strain imposed by a long day's butt-shooting is very great. Your gun-barrels will get uncomfortably hot. Wear an old glove on your left hand, or slip over the barrels one of the neat shields that the shops supply. Your gun is *supposed* to be a correct fit, but you may have a short, stumpy trigger finger or some special vice that leads to chipped joints, etc., a small point, but one that may make things unnecessarily uncomfortable. Here again the shops supply cunning contrivances of rubber and leather and you can select. Shooting should be a pleasure. "Why," then, what suits you best as the advertisements of the Patent Medicines say, "suffer pain?"

CHAPTER XV.

Hints on Organising and Arranging a Duck Drive.

45. For Duck shooting of the kind described in this book, the water, or waters, should be very carefully selected. A great number of considerations enter into the question. On some lakes Duck are to be found by day, on others by night (see the Chapter on Feeding Habits): few waters will retain their birds both by day and night. If one has to deal with a *jheel* on which the birds only stop by day, it is best to start shooting about 10 to 11 A.M. and continue as long as the birds remain, because a time will come in the afternoon when they will leave, for good, for the waters on which they feed at night. All who have closely shot any particular neighbourhood will know that, if one goes out at daybreak, one will find duck on small, shallow bits of water which they leave for the larger *jheels* when disturbed either by the early sportsman or by country folk, cattle, etc., after they get abroad in the morning. It is for feeding that the birds have visited the little ponds; it is for refuge that they seek the bigger

"Day" and
"Night"
Jheels.

waters. If one is lucky enough to find a *jheel* where Duck stay throughout the 24 hours, one can afford to knock off for lunch on the bank, but a number of boats moving about on the same water cause great disturbance.

Varying
conditions of
different
waters at
different
times.

46. Each particular lake should be shot when it is in the best condition to retain the birds on it. It is obvious that the same water cannot be shot at the same date every year, as rainfall and inundation vary considerably from year to year. At one time there will be too much water in one place and at another too little; the right time must be closely watched. Careful treatment, early, of surrounding smaller and shallower pools will have the effect of preserving for the close of the season any particular large and deep water. Thus, by concentrating attention before the end of January on the pools B, C, D, E, etc., etc., on the Map, the large lake A became, in a year of plentiful water, an asylum for the birds, resulting in good shooting right up to end of February.

Treatment
of main
versus
subsidiary
waters.

47. Once one has decided which water to shoot, the problem is twofold, *viz.*, how on the one hand to keep the birds on the place which one is shooting and how to keep them off the places which one is not. In certain years, and particularly early in the season, there is plenty of water everywhere and birds disturbed at anyone *jheel*, however important, have a number of other spots to go to. All arrangements in regard to the *jheel* selected should be made well in advance. The building of butts on the water and the making even of roads on the bank upsets the waterfowl. On some of the big waters fishermen have licenses to catch fish, and, if complete success is to be attained, these fishing operations should be suspended for as long as necessary. Arrangements can be made with the villagers to keep cattle and men away from particular waters at particular times. The shortest way should be taken from the bank to each butt, in order to minimise disturbance of the water by the boats going to the butts and this is a point to be remembered in constructing roads along the shore. Almost as important are the arrangements in regard to the waters which are *not* to be shot as part of the grand scheme. A complete survey should be made of these so that none remains unwatched. A big shoot has been known to fail because, early in the day, the birds all left the waters selected and known for one close by which the organisers of the shoot had omitted or forgotten. Briefly, sufficient, but not more than sufficient, arrangements should be made to prevent the birds from settling on small waters in the neighbourhood. This is not so easy as it sounds. Experience has shown that bombers and birds-searers often show too much zeal

Sketch map to Illustrate "Varying Conditions of Different Waters at Different Times" (para. 46).



SCALE 3 MILES=1 INCH.



and start too early in the day. An occasional visit every half hour from these operators to the *jheel* which they are guarding is better than their constant presence with continuous loud noise. Spectators and persons ready to pick up wounded birds also prowl about the banks, unless prevented. Duck flying in from the big water where the main shoot is going on see this multitude of interlopers at the water at which they are seeking refuge and, keeping high, give it a wide berth. Control is always difficult and one's arrangements are apt to fall off in the later period when they would be most effective and especially on a second day. If shooting begins, say, at 11 A.M., bombing and similar demonstrations should not start till noon and efforts should be made to keep up such disturbance as late as possible. One or two horsemen roaming round or a very few men advancing to put up the birds and then retiring for a time, to advance again later, are often sufficient. At the small *jheels* one or two hardy sportsmen of the kind that are content with less comfort than is provided for the occupants of the butts on the big water will however do what is wanted in these danger-zones much better than unintelligent Indian assistants. Enough has been said to show that at any rate arrangements should be made to shoot birds where they are likely, and not where they are unlikely, to be. Too much reliance should not be placed on information received from local officials or country people, as both classes are likely to be reticent or misleading in order to avoid trouble to themselves, or to think that what has served one year will necessarily be successful the next.

48. Nothing is more important than the correct number and siting of the butts. It is not desirable to put too many butts on any lake. There should be enough to prevent birds lying up undisturbed for long periods but not so many as to cause such excessive firing that the birds are prevented from trying to approach the butts generally or some particular ones. It is also unnecessary to say that butts should be placed out of range of each other. It is disturbing, to say the least of it, to have even spent shot pattering down on, or around, one. All butts should be visited beforehand and any unnecessary ones eliminated. The birds, when disturbed, or even when flying of their own free will, will be found to have, as it were, certain particular roads of their own over a *jheel*. These roads usually follow a line of cover, for the good reason that Duck by day are exposed to the attacks of all kinds of predatory birds, whom they can escape by seeking the shelter of trees, bushes, etc., growing in the water. There is no more interesting sight than the behaviour by day of the different species of ducks

Number and
siting
of Butts.

on a big water. Teal and Shoveller can afford to lie out in the open to some extent, probably because falcons and other birds of prey cannot swoop at quarry which is on the mud or in very shallow water. A miss or even a hit on mother earth would mean their striking something solid in their attack, resulting in damage to the attacker. The big Duck, including the Mallard, which is the special game of the Peregrine, lurk among the trees in the deep water, while the various birds of prey, like the hosts of Midian, prowl and prowl around, sitting in various attitudes of expectancy on commanding tree tops. Woe betide the unwary Duck that gives away odds, by a leisurely flight over the open water, to the Peregrine or the *Luggar*. The moral is to site all butts not too far from continuous cover of the kind above mentioned. Butts right out in the open water give poor sport; butts in the middle of close cover, on the other hand, demand quick and clever shooting, since the birds cannot be seen from a great distance. It is also difficult to retrieve the wounded birds which fall in thick cover.

Climatic conditions.

49. It is little use to attempt a big, organised shoot of the kind described in this book on a cold windy day. The brighter and warmer the weather, the more satisfactory will be the behaviour of the birds. After a calm night and a good feed, they will be reluctant to leave the water they have chosen for the day. On most Indian Game birds, those indigenous to the Country not excepted, the Indian sun seems to have a very sedative effect, whether they be Duck, Snipe, Bustard, Sandgrouse or Partridge. They feed when it is cool, but want to lie up when it is hot. In cold windy weather all are restless and disturbed, and the Duck will start flying high almost as soon as they hear the guns, eventually leaving altogether a *jheel* to which they would have stuck under more favourable climatic conditions.

When to fire the first shot.

50. The cream of the shooting comes in the first great rush immediately after the guns open, and nothing is more disappointing than to be left out of it owing to late arrival at a distant place. Calculations for "zero hour" should therefore be very carefully made and watches synchronised before starting out. The man who has the greatest distance to go to reach his butt should fire the first shot.

Some minor points.

51. The chapter may suitably close with a few remarks on points small in themselves, but all conducive, if attended to, to comfort or success. Boats should be carefully overhauled at the beginning of the season to discover if they are seaworthy; anyone, let alone a lady, is apt to feel uneasy in a leaky boat in deep water. A wicker stool, high enough for the average man to sit

on without much reducing his view over the sides of his shelter, saves fatigue on a long day, and, if it is hollow, of the ordinary Indian *mora* type, it comes in useful for holding surplus birds at the end of the day. But most sportsmen like to bring in their birds looking presentable and clean so far as possible, and, to ensure this end, the writer has found nothing better than a simple type of game-carrier in which the birds are secured one by one *by the legs, and not by the heads*, to nooses of strong twine attached to a stick with a handle to hold it by. On such sticks twenty to thirty birds can be carried clear of the ground, or hung up on the walls of one's butt or fastened to any vehicle by which the "bag" is sent home. These sticks are labelled with the name of the Gun to whom they belong and greatly facilitate identification and rapid counting later. If it is necessary for the guns to have clothes of "protective" colours, much more necessary is it suitably to equip the boatmen who pick up the birds hit. One boatman in a white turban is enough to scare birds away from any butt.

52. If all goes well and the hints in this Chapter have succeeded in their object, the results of a big shoot may well be surprising. "I had often *heard* of such shoots in India," wrote a grateful guest and competent shot after two days in which seventeen guns had accounted for two thousand three hundred Duck. "I little thought that I should ever be lucky enough to take part in one."

Conclusion.

THE KEYS.

	Page
1. A List of the Thirteen Commoner Species along with a Few Details ...	86
2. Birds with Names that Help to Identifi- cation ...	88
3. Kind of Water on which the Different Species are Found ...	89
4. Peculiarities of Appearance ...	90
5. Size ...	91
6. Colouration from Below ...	92
7. Index Colouring of Lower Plumage, Sides of Body and under Tail-coverts ...	94
8. Classification according to Pattern of Pri- mary Feathers ...	95
9. Similarity and Dissimilarity in Colouring of the Sexes ...	96
10. Birds that Show Much White when they Fly ...	97
11. Speed ...	98
12. Tricks of Flight ...	99
13. Manner of Rising when Surprised ...	100
14. Regular Formation in Systematic Flight...	101
15. Birds whose Wings Make a Distinctive Noise in Overhead Flight ...	102
16. Feeding ...	103
17. Rough Average Size of Flocks ...	104
18. Distinctive Notes and Cries ...	105
19. Behaviour under Fire ...	106
20. Vernacular Names ...	107

KEY No. 1, A LIST OF THE 13 COMMONER SPECIES OF DUCK.

1	2	3	4	5	6
Popular name in Fauna of British India, Birds with number.	Class.	Latin name.	Colour of Speculum. A=like in both sexes. U=Unlike in both sexes.	Other specially Distinctive Feature.	REMARKS. (See note at foot.)
1. Spotbill 1593 ..	I. Grey Ducks	<i>Anas poecilorynchos</i> ..	Green. A ..	Bill black, vividly spotted yellow at tip and base.	L.D.
2. Mallard 1592 ..		<i>Anas boschas</i> ..	Purple blue. A ..	Four middle tail feathers black and curled up.	L.B.
3. Gadwall 1595 ..	II. True Ducks	<i>Chaulelasmus streperus</i>	Brown-to-black and white. A.	Middle wing-coverts chestnut.	L.D.
4. Common Teal 1597 ..		<i>Nettion creca</i> ..	Black and green. A	Head green (or purple) and chestnut in patches.	S.B.
5. Wigeon 1599 ..		<i>Mareca penelope</i> ..	Back and green, or entirely brownish; none in female.	Head chestnut ..	M.D.
6. Pintail 1600 ..		<i>Daflia acuta</i> ..	Green (or bronze) with cinnamon bar above. U (generally in female).	Middle tail feathers lengthened.	L.D.
7. Garganey Teal 1601		<i>Querquedula acuta</i> ..	Pale greyish-green (or brown) and white. A.	Wing-coverts "blue," or lavender-grey.	S.B.

8. Shoveller 1602 ..		<i>Spatula clypeata</i> ..	Green. A ..	..	Bill twice as broad at tip as near base.	L.B.
9. Marbled Duck 1603 ..		<i>Marenonetta angustirostris</i>.	..	..	Upper plumage uniform marbled dull greyish.	M.D.
10. Red-crested Pochard 1604.		<i>Nettion rufina</i> ..	White, or pale grey. A.	..	Head red and fully crested.	L.B.
11. The Pochard 1605 ..	III. Diving Ducks, or Pochards.	<i>Nyroca ferina</i> ..	Ashy grey. A ..	..	..	M.B.
12. White-eyed Duck 1606		<i>Nyroca ferruginea</i> ..	White. A ..	..	Eye of male has white <i>iris</i> .	S.D.
13. Tufted Duck ..		<i>Nyroca fuligula</i> ..	White. A ..	..	A pointed crest of narrow feathers.	M.

The classification, which is that of Mr. Oates in his "Game Birds of India," is useful for working purposes, but Mr. Oates puts No. 13 in a different class, the Scaup Ducks, from Nos. 10 to 12.

Note.—L. denotes Large in size.

M " Medium " "
 S " Small " "
 B " upper plumage Brilliant in adult male.
 D " Dull " "

KEY No. 2.—BIRDS WITH NAMES THAT HELP TO IDENTIFICATION.

<i>English.</i>	<i>Latin or Greek.</i>
<i>A.—Names relating to Plumage.</i>	
Pintail (from the peculiar pointed tail-feathers).	<i>Acuta.</i>
Marbled Duck (from the general colour of the plumage).	<i>Marmoronetta.</i>
Red-crested Pochard (see Col. 8, Key 1).	
Garganey Teal	<i>Acuta</i> (from the distinct long, pointed outer shoulder-feathers).
White-eyed Duck	<i>Ferruginea</i> (from the deep reddish-brown head and neck and surrounding parts).
Tufted Duck (see Col. 8, Key 1)	<i>Fuligula</i> (from the black colour of the upper parts).
<i>B.—Names relating to Shape and Colour of Beak.</i>	
Spotbill (see Col. 5, Key 1)	<i>Loecilorhynchus.</i>
Shoveller (see Col. 5, Key 1)	<i>Spatula.</i>
Marbled Duck	<i>Angustirostris</i> (from the narrow bill with the two sides parallel).
<i>C.—Name relating to Colour of Eye.</i>	
White-eyed Pochard (see Col. 8, of Key 1).	
<i>D.—Names relating to Habits.</i>	
Pochard (generic name for the Diving Ducks) ("Pokard," means "diver" in old English or Norfolk dialect).	
Gadwall	<i>Streperus</i> (from the incessant chatter which the birds keep up when feeding).
Wigeon (an attempt at reproducing the curious call of the bird, "a sort of whistle by which you may know them at any distance").	

KEY No. 3.—KIND OF WATER ON WHICH FOUND.

A.—*Ubiquitous.*

Gadwall.

* Common Teal.

B.—*Birds of the Open, Bright Waters.*

Red-crested Pochard.

C.—*Birds of the Larger Waters.*

* Mallard (fairly ubiquitous).

Wigeon (likes turfy banks).

Pintail (doesn't like deep cover).

* Garganey (often any kind of water).

Marbled Duck (rush-covered swamps).

The Pochard
White-eyed Duck } (often any kind of water).

Tufted Duck (requires cover on banks).

D.—*Birds of the Small Waters.*

* Spotbill (likes much high cover).

Shoveller (often any kind of water, bar rivers; sticks to the shores).

* *Note.*—Found also on rivers.

KEY No. 4.—PECULIARITIES OF APPEARANCE.

A.—*Large Duck.*

Spotbill.—Long neck and uniform grey plumage.

Mallard.—Burly in appearance; male in full plumage has green neck and white collar.

Shoveller.—Spatula-shaped bill; white breast, lightly built.

Red-crested Pochard.—Crested head; white on wings and flanks. More lightly built than Pochards in general.

B.—*Medium-Sized Duck.*

Wigeon.—White on wings and abdomen.

Tufted Duck.—White on wings, abdomen and flanks black of head, throat and upper breast, contrasts with white abdomen. Very compact and tuffy.

C.—*Small Duck.*

White-eyed Duck.—White on wings and abdomen, white of abdomen contrast with rusty-red of head and throat. The smallest of all the Pochards.

KEY No. 5.—CLASSIFICATION ACCORDING TO SIZE.

The division is into 3 classes, *viz.*—

A.—*Large*.—20 inches in length and over.

B.—*Medium*.—16 inches and over.

C.—*Small*.—Under 16 inches.

A.—*Large*.

Spotbill.	|	Pintail.
Mallard.	|	Shoveller.
Gadwall.	|	Red-crested Pochard.

B.—*Medium*.

Wigeon.	|	The Pochard.
Marbled Duck.	|	Tufted Duck.

C.—*Small*.

Common Teal.	|	Garganey Teal.
		White-eyed Duck.

KEY No. 6.—COLOURATION FROM BELOW.

Name of Bird.	Head.	Throat.	Breast.	Abdomen.	Flanks.	Lower tail-coverts.	Under wing.
1. Spotbill ..		All lower parts white, spotted brown, and throat and larger on flanks.				Black ..	White, with quills and lower margin grey.
2. Mallard ..	Dark-green..	Dark-green, with white collar.	Chestnut ..	Whitish, grey speckled.	Greyish, speckled.	Do. ..	White, with margin grey, darker near body.
3. Gadwall ..	Grey-brown		Grey, boldly speckled black.	Greyish white.	Brownish ..	Do. ..	White, tips of primaries darker.
4. Common Teal		Dull red	Whitish, spotted.	Do. ..	Grey, black-speckled.	Do. ..	Grey, with white centre.
5. Wigeon ..		Brownish	Wine-coloured, speckled.	White ..	Finely speckled black and white.	Do. ..	Grey, coverts grey-speckled.
6. Pintail ..	Black to brown.	White ..	White ..	White, gray below.	Buff to gray ..	Do. ..	Grey, with upper margin and quills darker.

7. Garganey Teal	Brown, streaked white	Mottled brown and black.	White, darker below.	White, pencilled black.	Butty white, with brown spots.	Grey, with broad dark upper margin and quills.
8. Shoveller ..	Green-black	White	Chestnut ..	Chestnut ..	Black ..	White, a broad lower margin and outer quills grey.
9. Marbled Duck..	Plumage uniform dull-greyish, darker above, marbled and mottled, rather like that of a Sandgrouse.					
10. Red-crested Pochard.	Red ..	Blackish grey	Grey ..	White ..	Brown ..	White, only outer primary quills and lower fringe grey.
11. The Pochard	Chestnut	Brown to black	Do.	Grey ..	Do.	White, lower margin and quills grey.
12. *White-eyed Duck.	Dark chestnut	White	Brownish ..	Dark chestnut	White ..	White, with grey margin.
13. Tufted Duck	Black	Black, lighter below.	White ..	White ..	Black ..	White, with darker margins.

* None—Never appears to go into address

KEY No. 7.—INDEX COLOURING OF LOWER PLUMAGE, FLANKS (SIDES OF BODY) AND UNDER TAIL-COVERTS.

I. Having lower plumage and sides of body of one uniform colour throughout—

Spotbill.

Marbled Duck.

II. Having lower plumage and sides of body different—

All the True Ducks except the Marbled Duck.

The Pochards.

I. Having the under tail-coverts black (in the Male).

All the True Ducks (except the Garganey Teal).

II. Having the tail-coverts barred across—

Marbled Duck.

KEY No. 8.—CLASSIFICATION ACCORDING TO
PATTERN OF PRIMARY* FEATHERS.

I. Primaries uniform without a pattern—

(Spot-bill)
(Marbled Duck) (Resident, or of limited migration.)

II. Primaries with outer web of very dark colour and inner web of a dusky colour with dark tip—

All the True Ducks—Highly migratory and rapid flying.

III. Outer primaries as in II above, but inner primaries of same white or pale colour as speculum but tipped with dusky—

All the Diving Ducks.

Exception.—The Tufted Duck, called by some a Scaup Duck, which has inner primaries with outer web white or much paler than the inner.

* NOTE.—The "Primaries" are the first ten or eleven quill of the wing. Counting from the tip inwards, the first very minute and difficult to discover. They arise from the finger-joints (*phalanges*) and palm (*metacarpus*).

The "Secondaries" may be taken to mean all the remaining quills of the wing. They are actually those springing from the forearm (*radius and ulna*).

KEY No. 9.—CLASSIFICATION ACCORDING TO
*SIMILARITY OR DISSIMILARITY OF THE SEXES.

I. Sexes alike, or nearly alike.

Spotbill.

Gadwall.

Marbled Duck.

II. Sexes dissimilar.

The rest.

*NOTE.—The Diving Ducks show, however, rather less difference between the Sexes than most surface-feeders do.

KEY No. 10.—BIRDS THAT SHOW MUCH WHITE
WHEN THEY FLY.

W.—On the upper wings.

A.—On the abdomen.

B.—On the breast.

F.—On the flanks.

Spotbill.—W (white outer webs and two secondaries make a V-shaped bar across the back).

Gudwall.—W (white bar on secondaries) and A (whitish).

Common Teal.—A.

Wigeon.—W (white shoulders) and A.

Pintail.—A, B and Neck.

Garganey Teal.—A (grey W and F).

Shoveller.—B.

Red-crested Pochard.—A (white on shoulders, secondaries and inner primaries) and F.

The Pochard.—A (speckled white).

White-eyed Duck.—W (white on secondaries and inner primaries) and B.

Tufted Duck.—W (white secondaries), A and F.

KEY No 11.—CLASSIFICATION ACCORDING TO
SPEED.

Three classes may be made, *viz.* :—

A.—Very Fast.

B.—Medium Fast.

C.—Fast.

A.—*Very Fast.*

Pintail.

B.—*Medium Fast.*

Common Teal. | Gadwall.
 | Tufted Duck.

*C.—*Fast.*

Mallard.	|	Wigeon.
Spotbill.	|	Marbled Duck.
Shoveller.	|	Red-crested Pochard.
Garganey Teal.	|	The Pochard.

White-eyed Duck.

* *Note.*—There is not much to choose in speed between the birds in Class C, and the order is not strictly one of merit.

KEY No. 12.—TRICKS OF FLIGHT.

Mallard.—Rises with a bound at a very small angle to the water and dropping, skims with extended, fluttering wings, alighting feet first.

Gadwall.—Flight very rapid, easy and Teal-like.

Common Teal.—Flight very rapid and flexible. Alters elevation with great rapidity at the impact of the sound-wave of the first barrel. Often flies very bunched.

Pintail.—Dashing, straightforward flight.

Garganey.—Fly closely packed.

Marbled Duck.—Flight Teal like, but less flexible powerful and rapid. Has something of the Gadwall in it, but wants its ease.

**Red-crested Pochard*.—Flight strong and heavy.

**Note*—The flight of all the Pochards is more hurried and irregular and at less height, but more direct than that of the True Ducks.

KEY NO. 13.—MANNER OF RISING WHEN
SURPRISED

A.—*Quick at getting off the Water.*

Mallard.		Garganey Teal.
Gadwall.		Tufted Duck.

B.—*Medium at getting off the Water.*

Wigeon.		Pintail.
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C.—*Slow at getting off the Water.*

All the Pochards.		Shoveller.
Spotbill.		Marbled Duck.

KEY No. 14.—REGULAR FORMATION IN
SYSTEMATIC FLIGHT.

A.—*Birds that Fly in Echelon or V Formation.*

The True Ducks, especially *Pintail*.—Very regular formation, changing position less than most and *Wigeon*.—Generally fly in line formation, very close together, always irregular and altering much in shape as the birds fly.

B.—*Birds that Fly En Masse.*

The Pochards.

KEY No. 15.—BIRDS THAT MAKE A DISTINCTIVE
NOISE IN OVERHEAD FLIGHT.

1. *Mallard*.—"His hard :—gulls and wings give a whistling sound."

2. *Gadwall*.—"Goes with a "swish, swish" overhead.

3. *Common Teal*.—"As for Gadwall.)

4. *Wigeon*.—"Peculiar rustling flight and whistles 'whew'."

5. *Garganey Teal*.—"Flies with a surging hiss, more even, sustained and rushing than any of our other Ducks."

6. *Shoveller*.—"Sound of the wings audible even at some distance."

7. *Red-crested Pochard*—"A characteristic wing-rustle, like, but louder and harsher than, that of the Pochard."

8. *The Pochard*.—"A peculiar whistling sound." "Wing-rustle far more characteristic than that of the White-eye."

9. *White-eyed Duck*.—"See under The Pochard.)

KEY No. 16.—FEEDING.

A.—*Mainly Vegetable Feeders.*

Spotbill,	|	Wigeon.
Mallard.	|	Garganey Teal.
Gadwall (particularly).	|	Marbled Duck.

The Pochard.

B.—*Mainly Animal Feeders.*

Pintail,	|	Shoveller.
		White-eye (in particular).

A.—*Sometimes Feed on Dry Land.*

Wigeon (frequently),		Spotbill.
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Common Teal (rarely).

B.—*Feed in—*(i) *Deep Water.*

The Pochards,

(ii) *Shallow, on surface.*A.—*Mainly Nocturnal Feeders.*

The True Ducks,		The Pochard.
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B.—*Mainly Diurnal Feeders.*The Pochards other than *the Pochards.*

KEY No. 17.—ROUGH AVERAGE SIZE OF
FLOCKS.

(As seen on big waters in Upper India.)

A.—*Big Flocks of One Hundred or over.*

Gadwall.	|	Garganey Teal.
Common Teal.		Marbled Duck.
Widgeon.		Red-crested Pochard.
Pintail.		The Pochard.

Tufted Duck.

B.—*Small Flocks.*

Spotbill (sometimes in pairs).

Mallard (often very small parties).

Shoveller (often pairs and singly).

White-eyed Duck (often pairs and singly).

KEY No. 18.—DISTINCTIVE NOTES OR CRIES.

Alarm Note.	Call Note.
	<i>Spotbill.</i>
Like Mallard, but sharper and emitted with greater force.	
	<i>Mallard.</i>
Male has a hoarse, faint quack ; note of female is louder.	
	<i>Common Teal.</i>
A subdued quack, <i>knake</i> , like that of Garganey.	Male whistles (Finn). A sharp <i>krik</i> in both sexes. (Seebohm.)
	<i>Wigeon.</i>
	A loud, prolonged whistle or scream, <i>mee-yu</i> .
	<i>Pintail.</i>
Male ; a peculiar soft quack, less strident than Mallard ; female, a harsh, unpleasant quack.	
	<i>Garganey Teal.</i>
A peculiar guttural inward croak, <i>knake</i> generally once but sometimes twice, both sexes.	
	<i>Shoveller.</i>
Quacks like a domestic duck, the voice of the drake a little deeper.	A guttural <i>puck, puck</i> .
	<i>Marbled Duck.</i>
A distinct, rather hoarse quack.	A low, croaking whistle.
	<i>Red-crested Pochard.</i>
A deep grating <i>kurr</i> .*	Occasionally a sharp, sibilant note (males only).
	<i>The Pochard.</i>
Like that of the White-eye, but louder and harsher.	†A hissing voice.
	<i>White-eyed Pochard.</i>
A harsh <i>kirr, kere, kirr</i> , uttered <i>staccato</i> .	
	<i>Tufted Duck.</i>
<i>Kurr, kurr</i> , the typical Pochard call, but not so loud as in some.	

* Hume says this is also the call-note.

† NOTE.—Whether this is the call or the alarm-note is not clear.

KEY No. 19.—BEHAVIOUR UNDER FIRE.

A.—*Shy Birds.*

Pintail.—Clears off altogether after a few shots have been fired.

Wigeon.—(When driven.)

Garganey Teal.

Red-crested Pochard.

B.—*More Confidential.*

Shoveller.—Hangs about the shores till the bitter end.

Tufted Duck.—Will keep to large pieces of water even in a fusillade.

White eyed Pochard.—Keeps to cover and often rises by ones and twos.

Marbled Duck.—Keeps to cover.

Spotbill.

Mallard

Gadwall.

Common Teal.

Pochards other than the Red-crested.

KEY NO. 20.—VERNACULAR NAMES.

English.	United Provinces Hindi or Hindustani.	Sindhi.	Western Panjab.
1	2	3	4
1. Spotbill...	Garam pai, Gugra, Bata.	Hunjur ...	Hanjar.
2. Mallard...	Nilsir ...	Niroji ...	Nil, Nirgi, Missi.
3. Gadwall...	Mila, B e y k h u r , *Bhuar.	Burd ...	Buhir.
4. Common Teal.	Kerra, Lohya, kerra Putari, Souchu- ruka.	Kardo ...	Karra, Karri.
5. Wigeon...	Pea-san, P a t a r i , *Pharia, *Ghota Lalsir.	Parow ...	Faraha.
6. Pintail ...	Sauh, Sink-par ...	Drighush, *Kokarali.	Dargosh.
7. Garganey Teal.	Chaitwa, Patari ...	...	Tetri.
8. Shoveller	Tidari, Punana, To- kurwala, *Ghirah.	Alipat ...	Gahna.
9. Marbled Duck.	...	...	Chohini, Chohi.
10. Red-crest- ed Pochard.	Lal-choonch, Lall-sir	Rattoba ...	Ratba, Lal-sir.
11. The Poch- ard.	Boorar-nur, Lall-sir	Rutubah ...	Ratba, Torinda, Burara.
12. White-eyed Duck.	Karchiya, Boorar Made.	Burnu ...	Burnu, Burara.
13. Tufted Duck.	Dubaru, Ablac, *Rah- wara.	Turando ...	Runara, Faraha.

NOTE.—The spelling in Cols. 2 and 3 is that of "the Game Birds of British India, etc.," unaltered.

* From the *Fauna*.

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Driven duck /