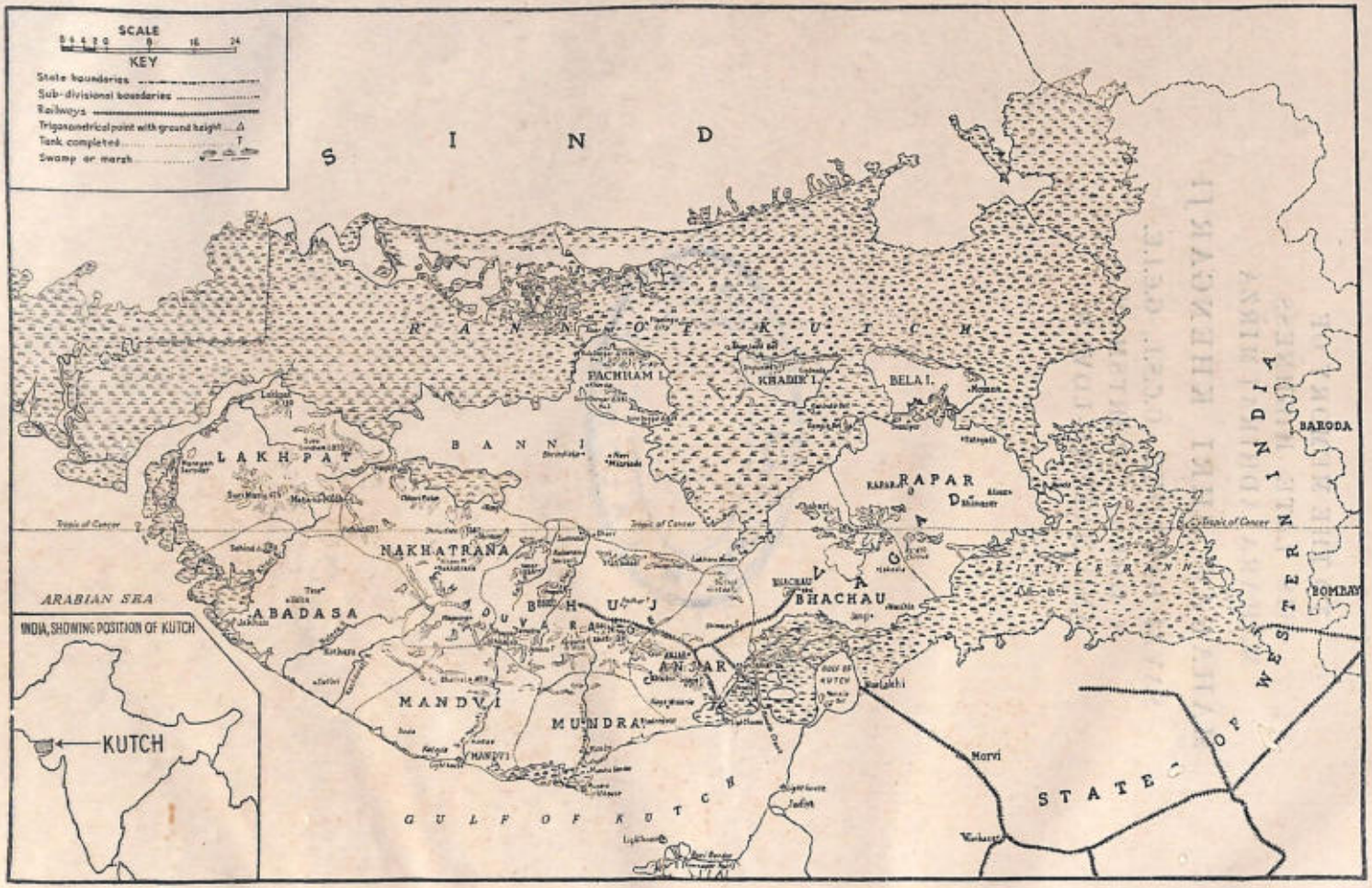


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8

TO THE MEMORY OF
HIS LATE HIGHNESS
MAHARAJADHIRAJ MIRZA
MAHARAO SHRI KHENGARJI
SAVAI BAHADUR, G.C.S.I., G.C.I.E.
A GREAT SPORTSMAN
AND NATURE-LOVER

ZOOLOGICAL GARDEN
CALCUTTA.


SCALE
KEY
State boundaries
Sub-divisional boundaries
Railways
Trigonometrical point with ground height
Tank completed
Swamp or marsh
S I N D
R A N N O F K U T C H
PACHHAM I.
KHADIR I.
BELA I.
B A N N I
LAKHPAT
RAPAR
NAKHATRANA
ARABIAN SEA
ABADASA
B H U J
BHACHAU
ANJAR
MANDVI
MUNDRA
Morvi
STATE OF
G U L F O F K U T C H
Tropic of Cancer
BARODA
BOMBAY
WESTERN INDIA
INDIA, SHOWING POSITION OF KUTCH
KUTCH

ZOOLOGICAL GARDEN
CALCUTTA.

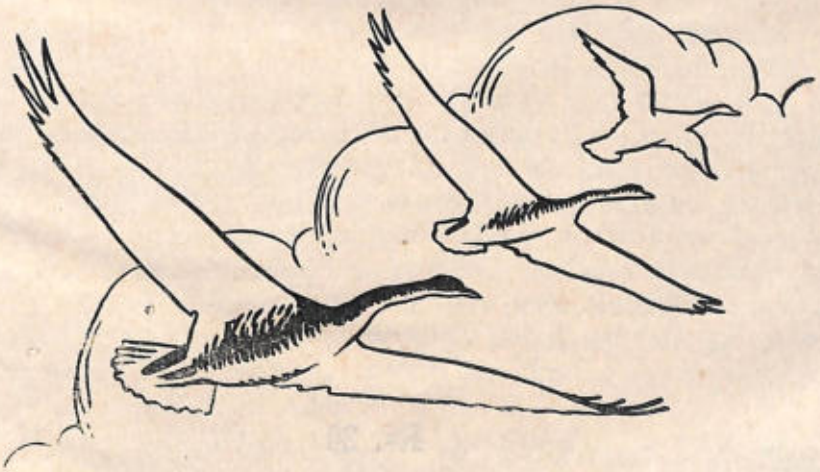
THE BIRDS OF KUTCH

BOOK NO.
598

BY

SÁLIM ALI

WITH THIRTY-TWO PHOTOGRAPHS AND
TWENTY COLOURED PLATES BY
D. V. COWEN



PUBLISHED FOR THE GOVERNMENT OF KUTCH
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PREFACE

THE birds of Kutch are fortunate in their rulers. The late Maharao Shri Khengarji was a great lover of birds, and the present ruler, Maharao Shri Vijayarajji, as well as the Yuvraj, M. K. S. Madansinhji, are both passionately fond of them. Under their solicitous care the bird-life is safe from the forces of destruction that are on the march and threaten to overwhelm it in many parts of India to-day.

It is particularly appropriate, therefore, that this handbook should be produced now, when the bird-life of Kutch is in its Golden Age as it were, and under the sympathetic auspices of an enthusiast like Maharao Vijayarajji. It was His Highness's personal interest and munificence that made possible the recent ornithological survey of Kutch State which has added so considerably to our knowledge of this interesting strip of country. The survey, made in August—October 1943 and in March 1944, provided me with the opportunity of getting acquainted at first hand with the natural conditions under which birds live in Kutch, and enabled me to undertake the authorsip of this book.

When a critical examination and detailed taxonomical work on the Kutch Survey collection becomes possible, certain changes in the sub-specific attributions *may* be found necessary ; but these can only be of minor significance. The excellent material brought together by the several recent ornithological surveys in different parts of India, now in the museum of the Bombay Natural History Society, and the thorough and painstaking taxonomical research on it by the late Hugh Whistler, have proved invaluable in the working out of the Kutch material. There is no knowing when the collections of the British Museum and other foreign museums—which have now been packed away and dispersed for safety—may again become available for comparative study. In the meantime it has been considered advisable to go ahead with this work, leaving a detailed systematic account of the survey as such, and any corrections that may be necessary, to appear elsewhere in due course.

History of Kutch Ornithology : Dr. Ferdinand Stoliczka, a geologist, was evidently the first person to make a systematic collection of birds in Kutch. On the basis of material collected by him (between November and February) and identified and named mostly by the veteran A. O. Hume, Stoliczka published a paper in the *Journal of the Asiatic Society of Bengal* in 1872—the first connected account of the birds of this area.[1] In Appendix A, I give a list of species recorded

[1] " Notice of the Mammals and Birds inhabiting Kachh," Vol. xli, pp. 211-258.

by Stoliczka and added to by Hume[1] from material obtained by his own collectors in Kutch, but not met with by me nor appearing in Lester's list.

Six years later—in 1878—the first edition of the *Birds of Cutch* was prepared by a Mr. Hugh Palin. From the Preface to this (dated July 20, 1878) by the then Dewan, Manibhai Jasubhai, it appears that this gentleman was an enthusiastic naturalist residing in the State at the time, who had undertaken to collect and classify specimens for a natural history museum proposed to be established in Bhūj. The idea of this museum had originated with the present ruler's grandfather, Rao Pragmuljee, during whose time some progress in the collecting of specimens had already been made. It will be seen that this takes the ornithological tradition of the ruling family yet one more generation back.

Palin's list was revised in August 1898 by Captain C. D. Lester of the 17th Bombay Infantry stationed in Kutch, but apparently it was not printed at the time. Before its publication in August 1903, Capt. Lester re-revised it and was able to add 44 species not recorded by Palin or himself before, together with descriptive and general notes on the others. Lester was a keen and observant naturalist. This is evident not only fom his revised bird list, but also from the various notes he contributed from time to time to the *Journal of the Bombay Natural History Society*. Some of these notes, in so far as they relate to Kutch birds, have been embodied in the present work. His *Birds of Cutch* (2nd edition) proved a helpful guide to bird lovers through the intervening years. It has been particularly useful to me as a check list in connection with the recent ornithological survey of the State.

Apart from the late Maharao Shri Khengarji—the discoverer of the only known breeding grounds of the Flamingo in India—and the present ruler,[2] from whose pen many illuminating notes on birds and bird-shooting in Kutch have come during the last 30 years or more, a number of keen bird students have resided in Kutch for longer or shorter periods since Lester's day and up to the present. They have all added to our knowledge in varying degrees, and I have made use of their published notes wherever desirable. Prominent among these contributors are Capt. A. T. H. Newnham (apparently a contemporary of Lester's), and Col. C. B. O'Brien, one time Resident at Rajkot.

1 *Vide* editorial comments on "Notes on the Avifauna of Mt. Aboo and Northern Guzerat" by Capt. E. A. Butler. *Stray Feathers*, Vol. iii (1875) pp. 437-500; Vol. iv, (1876) pp. 1-46).

2 His excellent article on "Goose-shooting in Kutch," originally published in the *Journal B. N. H. Society* in 1912 (Vol. xxi, pp. 678-679) is reproduced on p. 156 together with a postscript which His Highness has specially written at my request.

Sir Geoffrey Archer, K.C.M.G., the well-known chronicler of the birds of British Somaliland, spent a number of years in Kutch, particularly in the Khāri Rōhar-Kandla area between 1927 and 1942. He made a small but useful collection of bird skins and eggs, the latter of which he has presented to the museum of the Bombay Natural History Society. Unfortunately an important part of his bird collection had already been dispersed among foreign museums before I could examine it. In Appendix B I give a list of his species supplementary to mine. The identifications are as furnished by him.

The general plan followed in this book is more or less that of my *Book of Indian Birds* published by the Bombay Natural History Society, but with special emphasis on Kutch and the areas immediately adjoining. The sections into which each description is divided are: Size, Field Characters, Status and Distribution, Habits, and Nesting. So as to make the list more useful to the serious student, I have decided to end up each species with a paragraph giving the actual range of measurements—mostly Wing and Tail—taken from fresh specimens collected during the Kutch Survey, and such other taxonomical notes as might prove helpful.

As both coloured sketches and salient characteristics for field identification are provided, it was unnecessary to go into lengthy descriptions of plumage etc. All these particulars can be found in the 2nd edition of the *Fauna of British India* series on Birds by E. C. Stuart Baker, a reference to the relative volume and page of which is indicated under each species.

Owing to the heavy cost of colour printing it was impracticable to depict every bird in colour. It was therefore decided to illustrate only such as are not to be found in the *Book of Indian Birds* mentioned above. Reference to the plates in the most recent (3rd) edition of that book ("B.I.B.") are given. For various considerations certain species illustrated there have been repeated. A few other species—inconspicuous or of rare and unusual occurrence—have been omitted from the plates. Their absence is not likely to cause much inconvenience to users.

Experience has shown that in the matter of the general build and size of birds, a comparison with familiar and commonly recognised species gives a far more correct idea in the living bird than when expressed in inches. In this book I have used the same standards for comparison as previously, viz., Sparrow (6″), Quail (7-8″), Bulbul (8″), Myna (9″), Pigeon (13″), Crow (17″), Kite (24″), Duck (24″), Village hen or *murghi* (18-30″), and Vulture (36″).

I would like to express my thanks to Mr. W. T. Loke (of Malaya) who accompanied me throughout the Kutch Survey, and was such

a help both in the field and later in the museum. His enthusiasm for birds and proficiency with the camera have combined to produce some of the beautiful photographs that illustrate this book.

It was also fortunate to have been able to secure the co-operation of Mrs. D. V. Cowen, the artist responsible for the coloured plates. She is a happy find, and I look forward to seeing a great deal more of her work in future publications on Indian birds.

Bombay, April 1945. S. A.





Scrub-covered Bhūjia Hill—overlooking Bhūj City :
A veritable index of bird migration in progress



Photo *Author*

Chāduva : Hummocky scrub jungle with Prāgsar Tank in distance



Photo *W. T. Loke*

Māta-no-Madh : Stony hillocks with stunted thorn jungle and Euphorbia



Photo *Author*

Māndvi : The coastal sand-dune belt

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INTRODUCTION

The territory of Kutch proper (excluding a large portion of the barren Rann) lies between 22° 47′ to 24° N. and 68° 25′ to 71° 11′ E. on the west coast of India and covers an area of about 7,600 square miles. It is bounded on the north by the Great Rann with Sind beyond, on the east by the Little Rann with Gūjarāt beyond, on the south by the Gulf of Kutch with the Kāthiawār Peninsula beyond, and on the west by the open Arabian Sea. In the South-west Monsoon season, when the enormous waste expanses of the Rann are inundated the area becomes a veritable island, with no land communication with the neighbouring mainland. It is about 160 miles long from east to west, and 35 to 70 miles wide north to south.

Physiography : " Though on the whole treeless, barren and rocky, the aspect of the country is varied by ranges of hills and isolated peaks, by rugged and deeply cut river-beds, and by well-tilled valleys and tracts of rich pasture land. On the south, behind a high bank of sand that lines the seacoast, lies a low, fertile and well-cultivated plain from 20 to 30 miles broad. Beyond this plain the country is broken by three hill ranges : those of Kutch proper, of Vāgad in the east, and the Rann Islands in the north. The hills of Kutch proper spread widely in the west, but narrow towards the east, and contain one noticeable peak, Dhinodhar, about 1,000 ft. high, reputed to have once been a volcano. Two other peaks, Jhura and Vārār, rise to nearly 900 ft. In the Vāgad hills the elevation is inconsiderable. The hilly islands of the Rann contain their highest point in the island of Pachham ; the others, Chorad, Khadīr and Bēla, not exceeding 617 ft. South-west of Pachham island is an extensive low-lying tract known as the Banni, running almost parallel to the coast of Kutch for 65 miles. It is apt to be covered in times of high flood, and probably owes its origin to a bar of sand from rivers which flow north. . . "[1]

The Banni is a flat plain covered in large part with Lana and Lani bushes (*Sueda* and *Salsola*), about 12 inches high and in close-packed tufts of up to two feet in diameter. Portions subject to frequent inundation are under coarse grass, in parts dense and tall, in others scraggy and short. Scanty patches of thin kandi and babool jungle lie strewn about the edge of the Banni, and the leafless wild caper or kerad bushes are common everywhere. Dotted about at distant intervals are natural depressions in which rain water collects to form ephemeral ponds. These ponds, while they last, attract many birds from the surrounding country, for in addition to water they usually

[1] *Imperial Gazetteer of India*, 1908, Vol. xi, p. 75.

have a thick growth of rushes round their margins, and are ringed in by shady well-grown babool trees and other species of acacia, thus providing food and shelter as well. These tree-girt ponds, looming up like tiny green oases in the distance, and the bare salt-encrusted "pats" interspersed here and there, are features of the Banni landscape.

"There are no permanent rivers in Kutch, but during the rainy season (July to October) many streams of considerable size flow from the central ranges of hills northwards to the Rann and southwards to the Gulf of Kutch. For the rest of the year the courses of these streams are marked by a succession of detached pools. Owing to the porous nature of the upper soil, storage of water in ponds and reservoirs is difficult; but brackish water is readily found in rocks at no great depth from the surface, and wells of this kind are fairly numerous."

The Great Rann is a unique physiographical feature of Kutch. It calls for special notice not only because on it are situated the only known nesting grounds of the Flamingo in India, but also for the matchless facilities it offers for the observation of bird migration. It is an expansive billiard-table-flat strip of salt, barren, sandy waste separating the southern boundary of Sind from the northern boundary of Kutch, about 160 miles long east to west, and 80 wide north to south. During the rainy season the whole tract is frequently under water. "Some of the inundation is salt water, either driven by strong south winds up the Lakhpat river from the sea, or brought down by brackish streams; the rest is fresh, the drainage of local rainfall. The flood waters as they dry, leave a hard, flat surface covered with stone, shingle and salt. As the summer wears on and the heat increases, the ground, baked and blistered by the sun, shines over large tracts of salt with dazzling whiteness, the distance dimmed and distorted by an increasing mirage. On some raised plots of rocky land water is found, and only near water is there any vegetation . . . Unseasonable rain or a violent south-west wind at any period renders the greater part of the Rann impassable."[1]

Climate and Rainfall: "Along the seacoast throughout the year the climate is agreeable; and over the whole tract for nearly nine months it is cool and healthy."[1] The hottest and driest months are April and May when temperatures of 110° F. in the shade are not unusual, and when also violent dust storms are of frequent occurrence. In October, and until the cold weather has set in in November, the heat again becomes oppressive.

1 *Imperial Gazetteer of India*, 1908, Vol. xi, p. 85.

"Lying along the parallel line of the tropic of Cancer, Kutch is almost beyond the rain-bringing influence of the south-west monsoon."[1] The average rainfall is about 14 inches annually, but the coastal belt about Māndvi usually gets more. It is, however, subject to great vagaries and had remained consistently deficient for a succession of recent years, causing droughts and famine, and incidentally poor wildfowl seasons. In 1944, after a prolonged lapse, the rainfall has been abundant—even torrential—some parts of the country receiving over 30 inches within a fraction of the season, with the crops suffering in consequence.

Vegetation : As may be expected from the scanty rainfall and the sandy nature of the soil, the vegetation of Kutch is of the semi-desert type with a preponderance of xerophytic drought-resisting species. Except for some beautifully shaded gardens in Bhūj, Chāduva, Māndvi, Mūndra and elsewhere, large trees are few and far between. They are only found growing isolated or in small clusters in and around villages and tanks, or in the luxuriant "wādis" irrigated from deep wālls. These green dots, sprinkled here and there on the countryside, stand out in the distance in pleasing relief against the native background of drab stony hillocks and sun-scorched, shimmering sandy plains. They are the focal points to which the gasping feathered inhabitants of the neighbourhood repair to seek shelter from the mid-day heat. These trees, mostly planted by human agency, include Nim (*Melia azadirachta*), Jamun-leafed Banyan (*Ficus tsila*), Peepal (*F. religiosa*), Mango (*Mangifera indica*), Babool (*Acacia arabica*), with an occasional Tamarind (*Tamarindus indica*) and some others.

Among the natural-grown trees and shrubs, the commonest species are : Kālā Khair (*Acacia catechu*), Kandi (*Prosopis spicigera*), Khāri Jar and Mīthi Jar or Peeloo (*Salvadora persica* and *S. oleoides*), Liār (*Cordia rothai*), Gāngi (*Grewia populifolia*), Lūska (*G. villosa*), Seh (*Galvifolia*), Gūgar (*Balsamodendron mukul*), Igoria (*Balanites roxburghii*), Kūndēr (*Premna coriacea*), Kerad or Wild Caper (*Capparis aphylla*), "Buckthorn" (*Acacia farnesiana*), Bōrdi (*Zizyphus jujuba*).

Kāntāro Thōr (*Euphorbia neriifolia*), and less commonly Hāthālo Thōr or Prickly Pear (*Opuntia dilleni*) is plentiful on the stony hummocks, and Ak (*Calotropis*) on flat sandy ground. Kharsani Thōr (*Euphorbia tirucalli*), 10 to 15 ft. high, usually forms the hedges of the "wādis." In sandy river-beds and some tanks are found Lai (*Tamarix gallica*) and clumps of tall coarse Nal and Kal grasses (*Saccharum* and *Imperator ?*).

1 *Imperial Gazetteer of India*, 1908, Vol. xi, p. 85.

On sandy ground generally, and on the wind-blown sand-dunes of the coast, the soil-binding plant Khip (*Leptadenia spartium*) is a prominent species. On the latter a scraggy ground-cover of Khursōn (*Sericostoma pauciflorum*) and Moth grass (*Cyperus rotundus*) commonly occurs. In some areas Vingho (*Gymnosporia montana*) and Tānkāra (*Clerodendron phlomoides*) are plentiful.

Forests as such are non-existent in Kutch, but the Forest Department is making brave efforts against heavy odds to create them. A number of "rakhāls" or forest reserves have been established for fodder grasses and firewood. Under protection from the fuel-gatherers' axe, pleasant groves of babools have sprung up, and provide welcome shelter and feeding to many small insectivorous birds. One such "rakhāl" at Chāduva calls for special mention. It is the personal "pet" of the Yuvraj, M. K. S. Madansinhji, and covers a fairly extensive tract of sparsely-scrubbed stony hummock country, with two large bunded tanks (Prāgsar and Phārsar) in the catchment basins, and patches of babool and scrub jungle here and there. This rakhāl is for all practical purposes a wild-life sanctuary. Besides Nilgai, Pig, Chinkara and Hare in abundance, it holds a large population of partridges, both Grey and Black. It was in this area that the late Maharao Khengarji set down some Guinea Fowl imported from Somaliland. The experiment, which I understand was repeated a few years later, has not proved wholly successful. Although the birds are still holding out under stringent protection, and are known to lay and occasionally hatch out broods, their numbers are steadily dwindling. There is evidently some ecological factor (or factors) uncongenial to their increase. In spite of much care and solicitude on the part of the Yuvraj Saheb, the stock of Black Partridge in the Chāduva rakhāl is also said to have undergone serious depletion in recent years. Whatever other causes there may be operating towards this end, there is no doubt in my own mind that the House Crow is certainly a, if not *the*, most serious menace. As I have pointed out elsewhere the destruction to the eggs and young of other birds for which the crow is responsible is appalling. No retribution can be too drastic for this degenerate scoundrel, and I am convinced from experience that no measures for the protection or propagation of birds in this rakhāl—or anywhere else in Kutch—can succeed unless and until the crow is exterminated or kept under the strictest check.

The principal crops raised in Kutch are jowār, bājra, gowār beans (*Cyamopsis psoralioides*) and the pulse Kōrad (*Phaseolus aconitifolius*). In winter, some wheat, barley and gram are cultivated. Lucerne is largely grown for fodder in the "wādis." Its deep emerald-

green fields invariably provide food and shelter to passage migrants such as Grey Quails and Pipits during their temporary stop-overs, and to such of their numbers as winter in Kutch. Arable land lying fallow is everywhere covered thinly or thickly with small round clumps, about 12 inches high, of Javāso or Camel's Thorn (*Alhagi maurorum*), a plant whose peculiarity is that it retains a refreshing greyish-green colour even in the height of summer, when all the surrounding countryside is parched and drab.

Avifauna : Lying on the western fringe of the zoo-geographical region known as the Indian or Oriental, there is nothing distinct or peculiar enough in the resident bird-life of Kutch to separate it in any marked degree from that of the more or less adjacent dry areas of Sind, Northern Gūjarāt, Western Rājputāna or the northern portions of the Kāthiawār Peninsula. But stretching along the boundary between two of the five sub-divisions into which Blanford[1] has split this Region—namely between the Indo-Gangetic Plain and Peninsular India—it is more or less the transition zone for a number of sub-species. These intergrade so imperceptibly into one another hereabout that it is often quite impossible to place individual specimens, or even small series, with certainty. The Great Rann, however, seems to function as an efficient barrier to local migration. It is significant that in almost every case of " resident " birds or well known local migrants—e.g., the House Crow, Yellow-throated Sparrow, Purple Sunbird, Mahratta Woodpecker, and Common Green Bee-eater—the sub-species occurring in Kutch approximates more closely to that of Gūjarāt and Kāthiawār than to the paler races of these birds found in Sind and Balūchistān. From the similarity of ecological conditions between Kutch and Sind, one would otherwise have expected the case to be certainly the other way round. In Kutch, as in Sind, the dove-tailing of several purely Palæarctic resident species into the Indian avifauna becomes first noticeable : the Desert Lark (*Alaemon alaudipes*) and the Desert Courser (*Cursorius cursor*) are examples.

Bird Migration : But the chief interest of Kutch ornithology lies in the geographical position of this narrow strip of land relative to the mighty tide of migration that sweeps into India from beyond its northern and north-western boundaries, and out again, in the autumn and spring of each year. Apart from the migrants that come to spend the winter here and in peninsular India (the wild fowl etc), the area is of further importance in that it lies on the extreme eastern fringe of a broad stream of through migration that flows down from Central

[1] W. T. Blanford, *Phil. Trans. of the Royal Society*, Vol. 194, pp. 335-436, 1901.

and Northern Asia in a south-westerly direction in autumn, and *vice versa* in spring. This current passes over the North-west Frontier Province, Afghānistān, Balūchistān and Sind, beyond across the Arabian Sea and over Southern Arabia, into British Somaliland and Abyssinia. Thence it straggles down the eastern coast, even as far as South Africa. Most of these African-wintering species pass over Kutch during September and early October. They come over in great waves, as it were, " swarming " during their temporary sojourn, and are completely gone again all within the course of a few short weeks. The journey back to their breeding grounds is evidently performed (in the main, at any rate) over a somewhat different route since the birds are not met with in Kutch on their return passage in spring. Outstanding examples of these Africa-bound " through passengers " by the Arabian route are the Grey-backed Warbler (*Agrobates galactodes familiaris*), Indian Whitethroat (*Sylvia communis icterops*), Kashmir Roller (*Coracias garrula semenovi*), European Nightjar (*Caprimulgus europaeus unwinii*) and Spotted Flycatcher (*Muscicapa striata neumanni*).

Kutch also derives a substantial quota of its winter visitors and/or passage migrants into peninsular India from the NW and WNW, i.e., from Northern and Eastern Europe, and from countries of the so-called Middle East. The Rosy Pastor (*Pastor roseus*), Black-headed Bunting (*Emberiza melanocephala*), Grey-necked Bunting (*Emberiza buchanani*), Yarkand Short-toed Lark (*Calandrella brachydactyla longipennis*) and White Stork (*Ciconia ciconia ciconia*) are some of the species that travel by this route.

Kutch is a veritable cross-roads for all these migrational streams, and offers unlimited scope and possibilities for a well-planned study of Indian bird migration.

The bare and open nature of the terrain and the scantiness of the vegetation are distinct advantages. Data, which under other circumstances would have to be more or less conjectural and piecemeal, here stands out in graphic clarity. Especially suitable for observation stations is the northernmost portion of the Rann islands where the edge of the featureless desert meets the stony range of hills (Kāla Dōngar, Bhānjda Bēt, Chhaparia etc.) that runs in a more or less continuous chain along the north-eastern border of Kutch. For observations on the movements of migrating birds, to and from peninsular India, this venue is perhaps unique. Indeed I cannot think, and certainly do not know, of a better. The wide expanse of the Great Rann that separates Sind from Kutch *must* be crossed by all birds journeying on this sector of the route. There are no



On the edge of the Banni

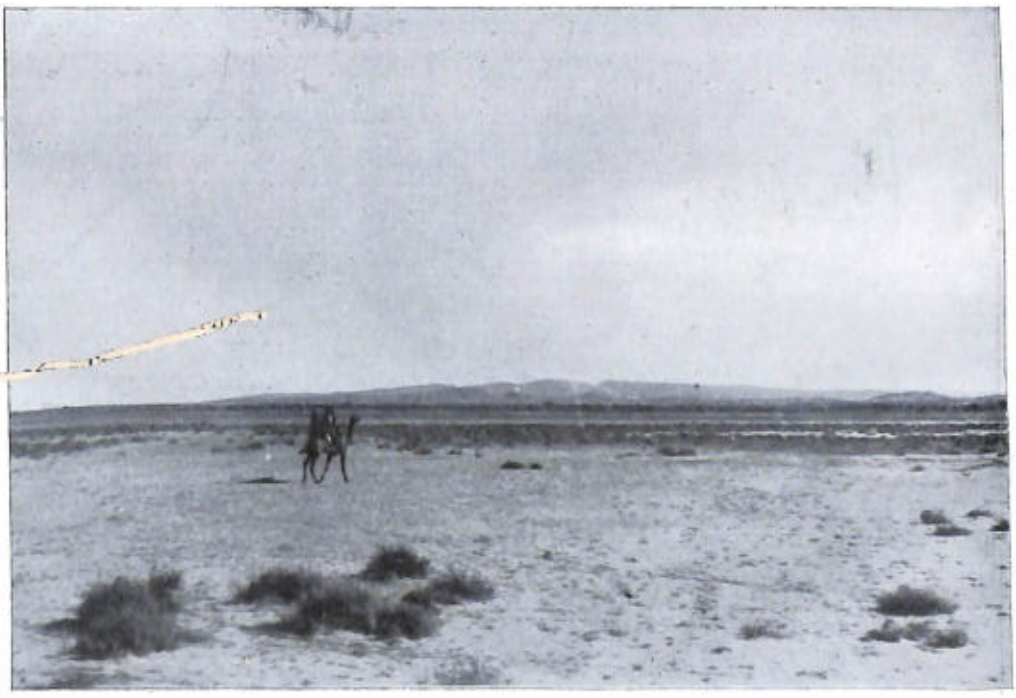


Photo *W. T. Lake*

The Banni



Photo Scheming Blackguards! *W. T. Loke*

The House Crow is one of the most serious menaces to bird-life in Kutch



Photo Marshall's Iora (male) at nest *Author*

natural distractions here to make the birds linger and thus create confusion and misgiving in the mind of the observer as to whether what he sees is actual migration in progress or not; and there is no obstruction to good visibility, save when a sandstorm is on.

I am confident that if a chain of observation posts was established, every few miles, from west (Lakhpat) to east, and particularly along the northern base of the barrier of hills—say, from Kuar Bēt across to Bēla Island—and manned at the appropriate seasons by competent and enthusiastic field ornithologists, data of the highest value could be procured. While encamped at Nīr on the N-E. point of Pachham Island, during the first three or four days of October (1943), I received ample assurance about this from the abundance of the species and numbers of birds that were passing over. It should not be difficult to enlist the co-operation of a small band of volunteers for this investigation and I commend the idea to field workers.

The following passage reproduced from Sir Geoffrey Archer's book (*Birds of British Somaliland*, Vol. 1, pp. 101-2) throws a sidelight on the extent of wildfowl migration that takes place over the Rann in spring. The episode is of considerable interest from the sporting point of view as well.

"In 1928 I was the guest of H. H. the Maharao of Kutch, and about the middle of February we were in camp close to the Rann of Kutch. We were stalking Blackbuck one morning in sandy desert country when our attention was attracted to waving lines of birds on the horizon. At first it seemed that they might be continuous flights of Sandgrouse on the wing, but closer inspection through binoculars revealed that they were Ducks. We rode on, and presently were rewarded with such a sight as seldom meets the eye: it was an entirely novel spectacle even for the Maharao. On a narrow and shallow arm of the Rann, which that year was heavily inundated so that the water stretched farther than the eye could reach, there was assembled such an aggregation of Pintail and Gadwall, with here and there a bunch of Shovelers interspersed, that the water was almost obscured from view by the birds' forms. Many acres were thus covered by hosts incomputable, and the sounds of splashing and the "creening" which emanated from this backwater as the birds fed and frolicked and welcomed new arrivals could be heard a mile away. Meanwhile, skein upon skein of Duck were on the wing, all coming off the Rann and following along the narrrow inlet. It was clear that Fortune had befriended us and that we were witnessing the migration of those finest of all game-ducks—the Pintail and Gadwall.

His Highness's opinion was that the birds flew too high to be

intercepted ; my view was that at all costs we should have a " crack " at them. There was a convenient sandy island covered with tamarisk in the centre of this inlet, and here, screened by the bushes, we took up our positions shortly after 3 o'clock in the afternoon—one on either side, thus covering the two channels. We had not disturbed the birds above, and there was still the same continuous stream of Ducks passing overhead! I timed their movements. Never less frequently than once in every three minutes a pack of Pintail or Gadwall, numbering anything from 10—40 birds, appeared above the Rann—with such regularity indeed that it seemed as though they might have been expelled from a trap—and they approached us rapidly, as do moving objects in a cinema. There was never a deviation of a hundred yards in their line of flight, and at times their passage was so continuous that ten or more skeins were visible in the sky simultaneously. And so the sport began, and raged fast and furious. Guns became too hot to hold : shots had to be fired through lower ranks of Shovelers to reach the higher and more speedy chocolate-necked, white-bellied Pintail drakes above. Now a brace and then a singleton would crumple up and fall, to be hastily " picked " and set up as decoys in the vain hope of bringing the migrating hosts down from the clouds. Some packs passed on their way unscathed owing to an empty gun. Others again passed directly overhead unmolested owing to towering altitude. But every now and again a hazard succeeded, and one of a pack (how seldom the leader!) would suddenly check in its course, stagger, and then nose-dive to the water 100 yards to the rear with a resounding splash. It was the real thing—duck-shooting at its best. And only the fading light at 5-15 P.M., brought to an end the finest flighting I have ever experienced and shut out from view a spectacle which I can scarcely hope to see again. Two hours of brisk shooting had produced, between the two of us, 156 Ducks of which all but a score were Pintails and Gadwall."

ZOOLOGICAL GARDEN
CALCUTTA.

ZOOLOGICAL GARDEN
CALCUTTA

COLOURED PLATES

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ZOOLOGICAL GARDEN
CALCUTTA.

THE RAVEN *

Corvus corax Linn.

Fauna, i, 21

SIZE. Slightly smaller than the Pariah Kite.

FIELD CHARACTERS. An enlarged edition of the Jungle Crow, glistening jet black all over with a particularly massive bill. Sexes alike. Its call-notes are quite distinct from those of the Jungle or House Crow, being a bell-like almost pleasant *prūk, prūk* etc.

STATUS AND DISTRIBUTION. Winter visitor. Rare. Only seen twice: a pair at Nīr (Pachham Island) flying S-W. over Kāla Dōngar, October 6, 1943, and a single bird on outskirts of Dholovira village (Khadīr Island), March 26, 1944. No specimen secured but they must either be the Punjab Raven (*C. c. laurencei*) or the Brown-necked Raven (*C. c. ruficollis*). Both of these are fairly common in winter in Upper Sind, but rare in Lower Sind. Between them the two races breed in Sind, Balūchistān and the countries of the Middle East.

THE HOUSE CROW

Corvus splendens splendens (Vieillot)

Fauna, i, 33

Local name: Kāgado.

SIZE. Slightly larger than the Pigeon.

FIELD CHARACTERS. Plate p. 3, B.I.B. A sleek, wide-awake glistening black bird with pale ashy-grey neck ("collar"), and black skull cap, face and throat. Sexes alike. Familiar to every town-dweller.

STATUS AND DISTRIBUTION. Resident and excessively common throughout Kutch.

HABITS. Apart from the beneficial scavenging it does in towns, the crow is an unmitigated pest and nuisance in Kutch. Its numbers everywhere are legion, and the devastation it does to the eggs and young of other birds is appalling. Large rabbles descend upon nest colonies of herons, egrets, spoonbills and other species (e.g. at Dēvisar Tank near Rūdra Māta, and Phārsar Tank, Chāduva) as soon as the owners have moved away at an observer's approach, and reap a rich harvest of the eggs and newly hatched chicks temporarily left unguarded. The birds alight on the edge of a nest—three or four crows to each—smash the eggs with deliberate hammer blows of their bills and swallow the contents. They are audacious, determined and absolutely without shame, and carry on their nefarious operations—tearing asunder helpless hatchlings and swallowing them like oysters, with studied callousness. Sometimes they do this under the very bill of the outraged parent, calmly hopping clear of an innocuous jab and completely engrossed in the work of demolition. There is no doubt that the House Crow is the most destructive single agency at work against the general bird-life of Kutch, and calls for prompt and drastic measures of suppression. The crow *must* die if other interesting species are to live. They are also destructive to jowār and bājra crops. Parties are commonly seen clinging to the stems and pecking at the grain on the cob, sometimes wrenching off the complete spike and flying off with it to devour at leisure.

Enormous numbers collect from all points of the compass to roost at night in favourite groves of trees, e.g. in the garden at Chāduva, and great noise and bustle prevails at sunset until the birds fall asleep.

* Species marked with asterisk, not mentioned in Lester's *Birds of Cutch* (2nd edition).

NESTING. By about the middle or end of March birds begin to pair off and may occasionally be seen sitting apart, tickling each other's heads and playing the delicate mutual attentions that mark the approach of the nesting season. Nesting apparently commences at the end of May or in June, as in Sind. Sir G. Archer's collection contains several clutches of eggs from Khāri Rōhar—June and July (1939). I found three nests—one with bird brooding—near Khargaria [illegible] August 10, and another containing three young about ten days old as late as October 3 (near Khāvda).

The nest is a platform of twigs etc. with a central cup-like depression lined with fibre. It is placed in babool, neem or peepal trees at any height above 10 ft. The eggs—four or five—are pale blue-green, speckled and streaked with brown. The Koel commonly parasitizes the nests of this crow. Several Koel's eggs have been taken from nests in the Khāri Rōhar neighbourhood by Sir Geoffrey Archer's collectors. Koel's eggs are somewhat smaller, but otherwise remarkably like the crow's to look at.

MEASUREMENTS ETC. Specimens collected in Kutch measure: 1 ♂ wing 284; 2 ♀ ♀ wing 266-269 mm. The Great Rann apparently acts as a barrier to the extension of the paler-collared Sind race *zugmeyeri* to Kutch, though ecological conditions here are closer to Sind than to Kāthiawār.

THE JUNGLE CROW.*

Corvus macrorhynchos Wagler

Fauna, i, 27

SIZE. Larger than the House Crow.

FIELD CHARACTERS. Plate p. 4, B.I.B. A uniformly glossy jet black crow with a heavy bill. Its cawing is deeper and hoarser than that of the House Crow. Sexes alike.

STATUS AND DISTRIBUTION. Apparently a fresh arrival from the Kāthiawār peninsula. I failed to meet it in Kutch during August, September and October, 1943, and also in March, 1944. According to Maharao Vijayarajji it was completely absent in Kutch till about five years ago but is now fairly on the way to establishing itself at Māndvi, where he has observed it breeding in Vijay Vilās grounds. A couple of pairs have also been noted by him about Bhūj. It will be interesting to watch developments in this process of "peaceful penetration."

Curiously enough the Tree Pie (*Dendrocitta vagabunda*) is absent from Kutch. It is not uncommon in parts of the Kāthiawār peninsula and in the afforested areas of the Indus valley and canal regions in Sind. Also in the northern portions of Gūjarāt. Although the Rann would normally appear to constitute a sufficient barrier to its extension, there seems no reason why, like the Jungle Crow, it may not at some time or other turn up in Kutch, and even establish itself in places like Māndvi and Bhūj and in their wooded environs.

THE WHITE-WINGED BLACK TIT

Parus nuchalis Jerdon

Fauna, i, 79

Plate 1, fig. 4.

SIZE. That of the Sparrow.

FIELD CHARACTERS. A small black-and-white sparrow-like bird. White outer

tail-feathers and white bar across wing conspicuous in flight and reminiscent of cock White-bellied Minivet. A prominent white patch on nape. Sexes alike. Pairs or family parties of three or four in dry, wooded country.

STATUS AND DISTRIBUTION. Resident, but patchily distributed. Met with only in Bhūj environs (Bhūjia Hill), Gōdsar, Tapkēshwari, Chāduva, Madhāpūr and Mātā-no-madh. Lester recorded it also from Doria and Soomrasir on the borders of the Rann, and from Koonria.

Outside Kutch limits its distribution is also curiously patchy. It occurs in Rājputāna and N. Gūjarāt, in the country about Sāmbhar Lake, Ajmēr and Deesa. A single specimen each has been taken at Nellore, Bangalore and Satyamangala (2000' —Biligirirangan Hills) in South India where it seems to be very rare.

HABITS. This dainty tit inhabits scrub jungle and stony, hummocky country well-wooded with babool and kandi trees and gūgar, gāngi and other bushes. The birds flit from tree to tree and move about the branches clinging to twigs upside down and in all manner of acrobatic positions in their restless search for insects and spiders. The individuals keep contact with one another by a clear musical whistling *Tee-whi-whi* or *Tee-whi-whi-whi* (or *See-pit-pit-pit-pit*) rather of the volume and quality of the Tailor Bird's calls. Besides these it has the usual joyous harsher *wheech*-ing notes of its better known cousin, the Grey Tit.

NESTING. The season is July and August. Some birds may begin earlier. The nest is in a natural hollow or in an old woodpecker- or parakeet-hole in the branch or trunk of a tree. Two found by me at Chāduva were both about 4 ft. up in a *Salvadora* and babool trunk respectively. The holes are lined with soft fibres and hair. From the first nest (August 20) which was under construction and empty, was obtained a large tangle of kutcha sewing thread with a needle attached ! The second, on August 21, contained chicks apparently five or six days old. Both parents were busy feeding the young, mostly on caterpillars and pupae. About 20 visits were paid with food in the course of two hours. When leaving they were observed to carry away a neat white packet of excreta on at least 12 occasions.

Very little is hitherto recorded concerning the nidification of this tit. The eggs have not been described, and how many constitute the full clutch is not known. On one occasion I counted three full-fledged young accompanying their parents.

MEASUREMENTS ETC. Specimens collected in Kutch measure : 6 ♂ ♂ wing 65-71 ; 3 ♀ ♀ 67-67.5 mm. All breeding examples (with gonads enlarged or incubation patch) have the white of the underparts conspicuously suffused with yellow. This is overlooked in published descriptions. Complete post-nuptial moult—September.

THE JUNGLE BABBLER *

Turdoides somervillei (Sykes)

Plate p. 16, B.I.B.

THE LARGE GREY BABBLER*

Argya malcolmi (*Sykes*)

FIELD CHARACTERS. Page 18, B.I.B.

Fauna, i, 191 & 200

The celebrated ornithologist A. O. Hume apparently saw specimens that had been collected in Kutch and even speaks of the latter species as not uncommon in the less desert portions here. (*Stray Feathers*, Vol. III, p. 472—1875). Lester does not

record either species in his list, nor did I come across them in the course of the recent bird survey which combed the State fairly thoroughly. This point is worth the attention of future investigators.

THE COMMON BABBLER

Argya caudata caudata (Dumont)

Fauna, i, 198.

Plate 1, fig. 5. Sindhi name: Hedo or Lailo.

SIZE. That of the Bulbul with a relatively longer tail.

FIELD CHARACTERS. An earthy-brown bird, dark streaked above, with long, narrow, graduated, loosely attached tail. Sexes alike. Always in flocks or "sisterhoods" of half a dozen or more on the ground.

STATUS AND DISTRIBUTION. Resident and very common in every type of country in Kutch.

Outside Kutch, this race (*caudata*) is resident throughout the dry plains and hills of India up to 4000 ft. elevation.

HABITS. The Common Babbler is certainly one of the most abundant and generally distributed birds in Kutch. Boulder-strewn hills with sparse clumps of kantāro thor (*Euphorbia neriifolia*), and arid semi-desert with a sprinkling of kerad (*Capparis*) and peeloo (*Salvadora*) bushes, as well as irrigated garden cultivation or wādis attract it equally. The sisterhoods spend their time on the ground scuttling under the sparse vegetation and hedges in search of insects. The loose tail is jerked up nervously every now and again, and sometimes carried partly cocked, making the birds look like overgrown wren-warblers.

On alarm they usually trust to their legs for escape. They are swift runners and when on the move their comparatively short legs make them look very like rats. The wings are short and rounded. Accordingly their flight is feeble and ill-sustained—a few rapid flaps followed by a glide on outspread wings and tail. On the wing they are curiously reminiscent of the Cheer Pheasant of the Himālayas in miniature!

They have a number of pleasant musical whistling calls, *tiririri* etc. Their food consists mostly of insects. Occasionally seeds and berries are also eaten, and the birds may invariably be seen probing into kerad flowers for the nectar.

NESTING. Lester gives the season as the "hot weather and rains." I found breeding in progress in August-September, and also in March. Odd birds doubtless breed more or less throughout the year as in other parts of India. The nest is a deep compact cup of grass and rootlets placed in a low thorn bush, preferably kerad, or kandi, seldom more than 5 ft. up. Three or four glossy, turquoise-coloured eggs form the clutch. Both birds share in nest-building, incubation and feeding the young. Its nests are commonly parasitized by the Pied Crested Cuckoo. On September 27 (Bhūjia) and October 4 (Kāla Dōngar) nearly full-fledged cuckoos, one and two respectively, were observed being tended and fussed over by these babblers.

MEASUREMENTS. Kutch Survey specimens measure: 1 ♂ wing 81; 1 ♀ 73 mm.

THE WESTERN YELLOW-EYED BABBLER

Chrysomma sinensis hypoleuca (Franklin)

Fauna, viii, 602

SIZE. Slightly smaller than the Bulbul.

FIELD CHARACTERS. Plate p. 24, B.I.B. A long-tailed bird, cinnamon and

chestnut-brown above, pure white below, with conspicuous orange-yellow eyelids, yellow legs and black bill. Sexes alike. Small parties in tall sarkan grass by streams, and in dry overgrown ravines etc.

STATUS AND DISTRIBUTION. Resident. Rare. Met with only at Rūdra Māta and Chāduva.

Outside Kutch limits, species resident throughout the plains and lower hills (up to about 5000 ft. elevation) of India proper, Assam, Burma and Ceylon. Four geographical races differentiated on depth of colouration.

HABITS. This babbler frequents the tall reeds fringing Khāri River near the Rūdra Māta rakhāl, and the overgrown thorn-scrub-covered dry watercourses among the stony hillocks in the Chāduva area. It is very wild and elusive. I did not meet with it elesewhere. The birds hop amongst the brushwood searching for insect food, clinging to twigs and reed-stems sideways or upside down in the manner of tits. The ordinary call-notes are a loud, clear, somewhat plaintive *cheep-cheep-cheep*, but in the breeding season males clamber to the top of a bush or tuft of grass and utter a loud and pretty song. The flight is feeble, jerky and undulating. Their food consists of spiders, grasshoppers and other insects, and caterpillars etc.

NESTING. In August the season is on. Gonads of specimens collected on August 19 and 21 showed that the birds were breeding, and males were then in full song. On September 8 parents were observed accompanied by full-fledged young. Lester records a nest with an egg discovered by his shikari at Mochira in August, 1897.

The nest is a neat, deep cup of grasses cemented on the outside with cobwebs. It is wedged into the crotch of a bush, or slung hammockwise between several reed-stems, usually under 5 ft. from the ground. Four or five eggs form the clutch. They are yellowish-white in colour, finely speckled with purplish-brown, and have a glossy texture. Both sexes partake in building the nest, incubation and care of the young.

MEASUREMENTS ETC. Kutch Survey specimens measure : 2 ♂ ♂ wing 64-69 mm.

MARSHALL'S IORA

Ægithina nigrolutea (Marshall)

Fauna, i, 344

Plate 1, fig. 2.

SIZE. About that of the Sparrow.

FIELD CHARACTERS. Female and male in non-breeding plumage chiefly greenish-yellow, with some black and white in wings and tail. Distinguished from the Common Iora of the greater part of India by the broad white tips to the blackish tail of both sexes at all seasons. Also by the larger extent of white in the wings. Pairs, in groves of trees, wādis and scrub jungle.

STATUS AND DISTRIBUTION. Resident. Common and generally distributed in wooded localities.

Outside Kutch it is found in Rājputāna, S. and S-W. Punjāb, N-W. F. Province, and parts of Central India and Eastern Bengal.

HABITS. Marshall's Iora is usually met with in pairs hunting for caterpillars and other insects amongst the foliage and branches of trees and bushes. The birds keep in touch with each other by a variety of clear mellow whistles and short musical chirrups. The sibilant whistling calls of the cock, especially during the breeding season, are rather more plaintive than those of the Common Iora, and reminiscent in

a way of the Quaker Babbler's. Their harsh notes of concern resemble those of the Wood Shrike.

At this season the cock indulges in a very spectacular courtship display before his mate. From his perch on a tree-top he springs straight up into the air for several feet, puffing out and exhibiting the glistening white feathers of his rump, and parachutes back to his perch directly or in spirals, looking like a ball of fluff.

NESTING. The breeding months are June, July and August. The nest is a compact little cup, about 2½" across, of soft grass and fibres neatly plastered on the outside with spiders' webs. It is worked into the crotch of a slender twig of a *Salvadora*, gūgar or similar bush, most commonly under 8 ft. from the ground. The eggs —two to four, normally three—are pale pinky-white blotched and stippled with purplish-brown. Both sexes share in nest-building, incubation and care of the young. Great attention is paid to nest sanitation. Almost every time after a chick is fed, the parent immediately tickles the youngster's vent with its bill. A neat, white packet of fæces is produced by the chick with an upward tilt of its posterior. Very often the parent swallows this directly, but sometimes flies away with it to be dropped at a distance.

MEASUREMENTS. Kutch Survey specimens measure: 4 ♂ ♂ wing 62; 2 ♀ ♀ 61-63 mm.

THE CENTRAL INDIAN RED-VENTED BULBUL

Molpastes cafer pallidus Stuart Baker

Fauna, i, 385

Plate 1, fig. 3. Sindhi name: Thar Bulbul Kutchhi: Bhilbhil.

SIZE. Somewhat smaller and slimmer than the Myna (8").

FIELD CHARACTERS. A lively smoke-brown bird with partially tufted black head, pale scale-like markings on breast and back, and a conspicuous crimson patch under the tail. Sexes alike. Pairs or family parties in gardens, wādis, fairly wooded rakhāls, as well as in stony, sparse scrub-and-cactus country.

STATUS AND DISTRIBUTION. Resident. Very common. Found side by side with and almost as numerously as the White-eared Bulbul.

Outside Kutch, species resident throughout the Indian Empire up to elevations of about 4000 ft. Five geographical races based on minor differences of size and depth of colouration. The same race occurs in Sind.

HABITS. The Red-vented Bulbul may be met with in the neighbourhood of human habitations as well as away from them. Its cheery notes are amongst the more familiar bird-sounds on the Kutch countryside. Its food here consists largely of kundēr, peeloo and other berries. Caterpillars, ants and insects are also eaten as is also the nectar of *Capparis* and various other flowers in season. On the gigantic spreading banyan tree at Wad near the Dhūnāra Customs Outpost (Pachham Island) a gathering of hundreds of these bulbuls was observed feeding on the ripe figs in company with mynas etc. (October 7). The complete absence of White-eared Bulbuls amongst them was noteworthy.

NESTING. The season is principally from May to August or September. The nest is a cup of rootlets etc., sometimes plastered on the outside with a little cobweb. It is normally placed under 6 ft. from the ground in a cactus clump, kandi, gūgar or some such bush. The eggs—three or four—are pinkish-white profusely blotched and stippled with purplish-brown or claret. Both sexes share in building, incubaton and care of the young. Much attention is paid to nest sanitation. Immediately after feeding

a chick the parent tickles the youngster's vent with its bill, swallowing up or removing to a distance the neat white packet of excreta the young produces in response.

MEASUREMENTS ETC. A ♂ obtained by the Kutch Survey measures: wing 95 mm. Complete post-nuptial moult takes place about September. At this period tails of many birds present a curiously graduated appearance while as yet the outside rectrices are not fully grown.

THE WHITE-EARED BULBUL

Molpastes leucogenys leucotis (Gould)

Fauna, i, 390

Plate 1, fig. 1. Sindhi name: Bhooroo Kutchhi: Jogido.

SIZE. Same as the Red-vented Bulbul.

FIELD CHARACTERS. A sandy brown bulbul, with partially tufted black head, black throat and "bib," glistening white ears and cheeks and a bright sulphur-yellow patch under base of tail. Sexes alike. Pairs or family parties in the neighbourhood of garden cultivation or wādis, in open semi-desert, as well as stony, sparsely scrubbed country.

STATUS AND DISTRIBUTION. Resident. Very common and equally numerous with the Red-vented species.

Outside Kutch this black-headed crestless form, *M. l. leucotis*, occurs in Sind, Gūjarāt, Rājputāna, Punjāb, N-W. F. Province and a large portion of North and Central India.

HABITS. This jaunty and vivacious bird is found in gardens and on the outskirts of villages, as well as in outlying uninhabited areas. It is particularly associated with kerad (*Capparis*) and peeloo (*Salvadora*) bushes and feeds largely on the fruit of these. It is fond of the nectar of *Capparis* flowers, and may invariably be seen probing into them. Berries of all kinds are eaten. Caterpillars and other insects are likewise relished, and the birds may frequently be seen picking off ants as they emerge from the ground. It has a number of pleasant, cheerful call-notes but nothing that can really be called a song. One at Dholovira (Khadīr Island) was heard imitating the Tailor Bird to perfection!

NESTING. The season is principally June to September. The nest is a neat, compact cup like that of the preceding species, made of twigs, rootlets and grass. It is placed in the fork or crotch of a twig in a kūndēr, kerad, gāngi or similar bush usually under 4 ft. from the ground. A nest at Rūdra Māta (September 8) containing three eggs was hung between reed-stems on a marsh bordering Khāri River. The eggs —three or four—closely resemble those of the Red-vented Bulbul in size, colouration and markings. Both sexes share in building, incubation and care of the young.

MEASUREMENTS ETC.—A ♂ obtained by the Kutch Survey has a wing 83.5 mm. As in the previous species, complete post-nuptial moult takes place about September.

THE PIED BUSH-CHAT*

Saxicola caprata bicolor Sykes

Fauna, ii, 26

Sindhi name: Pidi,

SIZE. About that of the Sparrow.

FIELD CHARACTERS. Plate p. 40, B.I.B. A jet black bird with white patches

on rump, abdomen and wings, the last particularly conspicuous in flight. The female is earth-brown with a rust-coloured rump. Pairs, around jowār and bājra cultivation, and reedy tank margins.

STATUS AND DISTRIBUTION. Presumably a rare winter visitor. First seen September 15 (Bhadrēswar—between Anjār and Mūndra). Thereafter at Bhachāu, Bhūj and Māndvi—but only about half a dozen examples in all.

Outside Kutch, species found practically throughout the Indian Empire, resident in some areas, seasonal visitor in others. Four races are recognised on the extent of white in the underparts of the male, and slight differences in size, especially of wing and bill.

This form, distinguished by the large extent of white on the abdomen, is resident throughout Sind, excepting the hills and the desert and semi-desert portions.

HABITS. The Pied Bush-Chat is usually met with singly or in widely separated pairs, perched on a bushtop or other exposed situation whence it darts to the ground now and again to pick up a grasshopper or bug. Sometimes it springs up into the air and captures winged insects like a flycatcher. The note commonly uttered is a harsh *chek, chek* etc. often followed by a subdued *trweet*. Breeding males have a pretty whistling song uttered from a perch or in the slow-flapping display flight, when the white wing-patches and rump are thrown into prominence.

Its food is entirely insectivorous.

MEASUREMENTS. Kutch Survey specimens measure: 1 ♂ wing 69.5; 1 ♀ 70; 2 ♂? (in brown female dress) 69-70 mm.; bill (of 4), 13·5-14·5 mm.

THE COLLARED OR INDIAN BUSH-CHAT

Saxicola torquata indica (Blyth)

Fauna, ii, 28

SIZE. Same as the last.

FIELD CHARACTERS. Plate p. 43, B.I.B. The black head, orange-brown breast, prominent broken white "collar" and white patches on shoulders and above base of tail form the highlights of the male's get-up. The female resembles the hen Pied Bush-Chat, but is streaked darker on the upper parts. Singly or separated pairs about reedy tank margins, cultivation, and among the sparsely *khip*-covered sand-dunes along the seacoast.

STATUS AND DISTRIBUTION. Winter visitor. Lester described it as a common cold-weather visitant throughout Kutch, but I found it decidedly scarce and patchy—and only in the Māndvi area.

Outside Kutch it is common in winter practically throughout the Indian Empire, breeding only in the Himālayas between 2000 and 9000 ft. elevation, April to July.

HABITS. Very similar to those of the Pied Bush-Chat. Of the same restless disposition and usually seen perched near the top of a reed-stem or khip bush, constantly flicking open its tail and up and down as it surveys the neighbourhood for grasshoppers, earwigs, beetles and other insect food.

Its voice and notes are also similar to those of the preceding species. The birds get their name "Chat" from their normal call-note which sounds exactly like the noise produced by rubbing two stones together.

MEASUREMENTS. The Kutch Survey specimen (♂) measures: wing 71 mm.

ZOOLOGICAL GARDEN
CALCUTTA.

THE PIED CHAT

Œnanthe picata (Blyth)

Fauna, ii, 42

Plate 2, fig. 4.

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. The female and immature male differ from the adult male (illustrated) in being dark sooty-brown where he is black. Young birds of both sexes are paler brown with the white of the underparts sullied with buff or pinkish and not contrasting sharply with the brown breast but grading into it. Singly on the outskirts of villages, broken, stony, hummocky country and semi-desert, both near and away from human habitations.

STATUS AND DISTRIBUTION. Winter visitor. One of the earliest migrants to arrive in Kutch. First noted August 5 (Bhūj), after which its numbers increased appreciably till by the end of that month it was one of the commonest birds on the countryside. By the last week of March it had become very scarce. According to Lester it disappears completely by April.

Outside Kutch it is found in winter in the Punjāb, Sind, Gūjarāt, Rājputāna and the drier portions of the N-W. Indian plains. It breeds in Afghānistān, Balūchistān, Irān etc.

HABITS. The Pied Chat is a very widespread and prominent species in Kutch between August and March. It is seen singly perched on a wall, rock or fence-post dipping forward violently from time to time like the Redstart or Brown Rock Chat. It descends to the ground every little while to pick up an insect and returns with it to the same or another perch nearby. Individuals stake out feeding territories to which they keep day after day throughout the season. This territory is jealously guarded against encroachment from food competitors such as robins and other chats. Conflicts are of frequent occurrence, and the intruders are usually chased and put to flight. Even whilst with us in its winter quarters snatches of rich typical chat-song are commonly heard. It is something like that of the Magpie Robin or Dhayal but feebler. The bird is a good mimic and takes off to perfection a great many species living side by side with it, such as the Swallow (twittering song) Common Babbler, Rufous-backed Shrike, Indian Wren-Warbler, Tailor Bird, Red-wattled Lapwing, Spotted Owlet and others. Its diet is purely insectivorous.

MEASUREMENTS. Kutch specimens measure: 2 ♂ ♂ wing 92-94 mm.; tail 66-68; 4 ♀ ♀ wing 86·5-80; tail 60-63 mm.

STRICKLAND'S CHAT*

Œnanthe opistholeuca (Strickland)

Fauna, ii, 44

SIZE. Same as the last.

FIELD CHARACTERS. Rather like the Pied Chat but with the entire underparts black. Rump, upper and under tail-coverts white. Tail white with broad black terminal band, the black extending a good way up the central feathers. In the female and young male the black is replaced by brown. The underparts are paler brown, grading into whitish on the abdomen. They are very similar to the female and immature male of the Pied Chat, but have rich brown ear-coverts.

STATUS AND DISTRIBUTION. Winter visitor. Very rare. Met with only once

(October 2)—a solitary bird—in semi-desert with *Capparis* bushes etc., on the edge of the Banni near Khāvda (Pachham Island).

Outside Kutch its winter range more or less overlaps that of the Pied Chat. It breeds in Turkestān, Afghānistān, N-W. F. Province etc.

HABITS. In no way different from those of the previous species. Here, as elsewhere, the bird was inordinately wild.

MEASUREMENTS. The only example met with and secured by the Kutch Survey (♂) measures: wing 95, tail 66 mm..

THE WHEATEAR

Œnanthe œnanthe (Linn.)

Fauna, ii, 48

(The name Wheatear means " white rump " which is a prominent feature of the bird in flight.)

SIZE. As last.

FIELD CHARACTERS. Male ashy or brownish slaty-grey with black wings and white tail terminating in a whitish-fringed black band. Supercilium and moustachial streak, rump and upper tail-coverts white. Ear-coverts and a streak under and in front of eye black. The female is more rufous brown, less slaty-grey, and has the ear-coverts brown and supercilium pale rufous instead of white. Wings and tail similar to male's. Singly, in open, stony semi-desert, flitting restlessly like other chats and uttering *chack-chack* etc.

STATUS AND DISTRIBUTION. Breeding in Europe, W. Asia to Turkestān, Irān, Irāq, Afghānistān, Balūchistān. Lester says it is fairly common in Kutch from the latter half of November till February. I did not meet with it at all, and it has never been authentically recorded within Indian limits except as a rare straggler from across our boundaries into Gilgit, N. Kashmir and extreme N-W. frontier. I have no doubt that Lester mistook the Isabelline Chat for this species. The former is not uncommon during winter, but does not figure in Lester's list.

THE DESERT CHAT

Œnanthe deserti atrogularis (Blyth)

Fauna, ii, 51

Plate 2, fig. 3.

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. A pale sandy-coloured bird with black wings and black tail (with concealed white bases invisible in the field). Ear-coverts, chin, throat and fore-neck chiefly black. Whitish eyebrow. White shoulder patches and pale whitish rump very conspicuous in flight. In the female the entire underparts are whitish-buff and brownish, without the black chin and throat. She may be differentiated from the Isabelline Chat by her black instead of black- banded white tail and whitish-buff instead of glistening white rump patch. Singly, on open sandy barren wastes littered with stones and sparse thorn-bushes.

STATUS AND DISTRIBUTION. Winter visitor. Earliest September 15 (Anjār); latest March 18 (Lakhpat). Not uncommon, but scattered and in small numbers throughout Kutch.



White-winged Black Tit at nest-hole



Photos *Author*

Red-vented Bulbul at nest



Photo *W. T. Loke*

Rufous-fronted Wren-Warbler with caterpillar for nest-young



Photo *Author*

Nest of the Red-winged Bush-Lark with fledged chicks (ca. natural size)

Outside Kutch it is found in winter in the plains country of N-W. India south to about Bombay and east to about Nagpur.

Breeds in N-E. Kashmir, Balūchistān, Afghānistān, Irāq, Irān etc.

HABITS. In its behaviour and habits the Desert Chat is typical of its other relations. It frequents the same terrain as Short-toed Larks and the Isabelline Chat and is often found side by side with them. It is usually seen singly perched on stones and bushes whence it descends from time to time to pick up an insect, sometimes running along the ground nimbly in its pursuit. The only note occasionally heard in its winter quarters is a loud *cht-tt-tt*.

MEASUREMENTS. The Kutch specimens measure: 3 ♂♂ wing 94-98, tail 64-66.5; 1 ♀? wing 91, tail 62 mm.

THE ISABELLINE CHAT*

Œnanthe isabellina (Cretzschm.)

Fauna, ii, 49

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. General colouration sandy brown above, pale buff below. Rump and upper tail-coverts glistening white, conspicuous in flight. Wing-quills dark brown. A dark line through the eye and narrow white eyebrow. Tail white with broad black terminal band about 1" wide. Sexes alike. Distinguished from the male Desert Chat by absence of black throat; and from the female by the large amount of white in its tail. Singly, on open, stony wastes and flat, sandy, broken country.

STATUS AND DISTRIBUTION. Winter visitor. Earliest September 11 (Khāri Rōhar); latest March 15 (Jakhāu). Sparingly distributed throughout Kutch.

Outside Kutch it winters in the plains of N-W. India east to about Benares and south to about Ahmadnagar. Breeds in the Palæarctic Region from Asia Minor to E. Siberia and N-W. China. Within Indian limits in British Balūchistān, N-E. Kashmir and Ladākh.

HABITS. Not appreciably different from those of the Desert Chat.

MEASUREMENTS ETC. Kutch specimens measure: 2 ♂♂ wing 99-102; 1 ♀ 93 mm. Complete post-nuptial moult in September.

THE RED-TAILED CHAT*

Œnanthe xanthoprymna chrysopygia (De Fil.)

Fauna, ii, 52

Plate 2, fig. 1.

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. A sandy grey-brown chat with chestnut and black tail. Sexes alike. Singly, in open stony country around base of hillocks, and sparsely scrubbed sandy expanses.

STATUS AND DISTRIBUTION. Winter visitor. Earliest date October 1 (Banni near Khāvda); latest March 26 (Chhaparia Hills, Khadīr Island). Fairly common in the northern portions, i.e. Banni, Pachham and Khadīr Islands, especially along the edge of the Great Rann about the bases of Kāla Dōngar and Chhaparia Hills.

Outside Kutch it winters in N-W. India, W. Punjāb, Sind, W. Rājputāna, N. Gūjarāt and N. Kāthiawār. Breeds in Balūchistān, S. & E. Irān, S. Turkestān etc.

HABITS. Typical Chat. Perches on thorn bushes as well as on stones etc., and runs along the ground. Was everywhere being chased about and chivvied by its food competitor, the Pied Chat.

MEASUREMENTS. Kutch specimens measure: 2 ♂♂ wing 92.5-93; 2 ♀♀ 92 mm.

THE BROWN ROCK-CHAT

Cercomela fusca (Blyth)

Fauna, ii, 54

Plate 2, fig. 5.

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. A plain rufous-brown or sooty-brown chat with blacker wings and tail. Sexes alike. At rest very like the female Indian Robin when its tail is not cocked, but slightly larger and minus the bright chestnut undertail patch. In silhouette—both on the wing and while alighting—strongly reminiscent of the Blue Rock-Thrush. Singly or pairs, on rocky hillsides and cliffs, old forts and ruined temples, and also village houses.

STATUS AND DISTRIBUTION. Resident. Fairly common in suitable localities.

Outside Kutch the bird is a resident in the U. P., Central India and parts of the Punjāb and Rājputāna. It also moves about locally to some extent.

HABITS. The Brown Rock-Chat may invariably be met with in places like Bhūjia Fort, Rāpar Fort, Māta-no-madh and wherever there are rocky hills. It hops and flits about the battlements and rock scarps, now flying down to the ground to pick up an insect, now making off to another part of the rock face which offers better prospects of food. Every now and again the bird flexes its legs, partly spreads its tail and bobs the forepart of its body in a comical way. It may frequently be observed flicking open its wings and tail in order to stampede some lurking insect from its refuge in a crevice or hole by the sudden movement. Its food consists almost entirely of spiders, ants and other insects.

The ordinary call-notes of this chat are a harsh *chek-chek* etc. In the breeding season males have a rich, sweet thrush-like song, but perhaps less full and of something of the quality of the Striolated Bunting's vocal effort. The bird is an accomplished mimic besides. I have heard it take off to perfection the calls and songs of the Yellow-eyed Babbler, the Cuckoo-Shrike and Tickell's Blue Flycatcher.

The birds are tame and confiding. They perch freely on rooftops in a noisy village and will often even enter the verandahs and rooms of inhabited houses to pick up some tit-bit or escape from the mid-day heat.

NESTING. The season commences in March/April and continues till July/August. The nest is a shallow cup or pad of rootlets, rags, hair, grass etc. It is placed in a hole or niche in a rock or wall, or under the rafters of a building, deserted as well as occupied. The eggs, usually three but occasionally four, are pale blue or bluish-green generally with reddish specks and blotches forming a ring at the broad end Both sexes share in nest-building, incubation and care of the young.

MEASUREMENTS. Kutch specimens measure: 2 ♂♂; wing 87; 1 ♀ 86 mm.

THE BLUETHROAT

Cyanosylvia svecica (Linn.)

Fauna, ii, 85

Plate 2, fig. 2.

SIZE. About that of the Sparrow.

FIELD CHARACTERS. A sprightly robin-like bird hopping on the ground with cocked-up tail. In flight orange-chestnut rump and tail particularly conspicuous. The illustration shows the male in summer plumage which is attained shortly before the birds leave us for their northern breeding grounds. The male, when it first arrives, and the female look rather alike. Their lower plumage is chiefly buffish-white (without the blue throat or only with a few odd blue feathers on its sides), with a broad brown-spotted gorget or " necklace " across the breast. Singly, on damp ground with thick cover such as reedy tank margins, lucerne fields etc.

STATUS AND DISTRIBUTION. Winter visitor, not uncommon. Arrives in Kutch about 1st week October (as it also does in Sind). Last seen March 26, by which date the majority had left.

Outside Kutch the Bluethroat, in several confusing races, is found more or less throughout Europe, N. Africa and N. Asia. In winter practically all India and Ceylon. Within Indian limits one race breeds only in Ladākh : June/July.

HABITS. The Bluethroat should be familiar to every observant sportsman who has shot on Dēvisar, Bāmdai, Chāngdai and other reed-bordered tanks. When feeding it hops about quietly with cocked tail near the water's edge, stopping every now and again to pick up an insect. When alarmed, the tail is lowered and the bird skulks off in short swift runs, stopping and stretching itself upright after every few feet to watch the intruder, and then making another spurt forward. When walking up snipe it is not uncommon to put up a Bluethroat from in amongst the rushes. The bird flies off at top speed skimming over the reed-bed, deftly zig-zagging to avoid the stems and diving into them again a few yards beyond. On such occasions its orange-chestnut rump and tail provide a good clue to its identity. While with us, in its winter quarters, a harsh subdued *chur-r* or *chuck, chuck* etc. is the only note heard. Its diet consists exclusively of caterpillars, small beetles and other insects.

MEASUREMENTS. The only specimen procured by the Kutch Survey measures : ♂ wing 74 mm.

THE KASHMIR REDSTART

Phoenicurus ochruros phoenicuroides (Moore)

Fauna, ii, 76

SIZE. About that of the Sparrow.

FIELD CHARACTERS. Plate p. 44, B.I.B. A slim, black or brown and orange-chestnut bird constantly shivering its tail up and down and bobbing the forepart of its body. The male is black (largely ash-grey above) with orange-chestnut underparts from breast downwards. Tail and rump also this colour and particularly conspicuous in flight. The female is brown where the male is black and is also paler generally. Met with singly in stony, sparsely scrubbed country, outskirts of villages etc.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common and general, but not numerous. Earliest seen August 30 (Bhūj environs) ; latest March 31 (Bhūj environs).

Outside Kutch it winters in N-W. India, W. Punjāb, Sind, W. Rājputāna, N. Gūjarāt and N. Kāthiawār. Breeds in Balūchistān, S. & E. Irān, S. Turkestān etc.

HABITS. Typical Chat. Perches on thorn bushes as well as on stones etc., and runs along the ground. Was everywhere being chased about and chivvied by its food competitor, the Pied Chat.

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The ordinary call-notes of this chat are a harsh *chek-chek* etc. In the breeding season males have a rich, sweet thrush-like song, but perhaps less full and of something of the quality of the Striolated Bunting's vocal effort. The bird is an accomplished mimic besides. I have heard it take off to perfection the calls and songs of the Yellow-eyed Babbler, the Cuckoo-Shrike and Tickell's Blue Flycatcher.

The birds are tame and confiding. They perch freely on rooftops in a noisy village and will often even enter the verandahs and rooms of inhabited houses to pick up some tit-bit or escape from the mid-day heat.

NESTING. The season commences in March/April and continues till July/August. The nest is a shallow cup or pad of rootlets, rags, hair, grass etc. It is placed in a hole or niche in a rock or wall, or under the rafters of a building, deserted as well as occupied. The eggs, usually three but occasionally four, are pale blue or bluish-green generally with reddish specks and blotches forming a ring at the broad end Both sexes share in nest-building, incubation and care of the young.

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STATUS AND DISTRIBUTION. Winter visitor, not uncommon. Arrives in Kutch about 1st week October (as it also does in Sind). Last seen March 26, by which date the majority had left.

Outside Kutch the Bluethroat, in several confusing races, is found more or less throughout Europe, N. Africa and N. Asia. In winter practically all India and Ceylon. Within Indian limits one race breeds only in Ladākh : June/July.

HABITS. The Bluethroat should be familiar to every observant sportsman who has shot on Dēvisar, Bāmdai, Chāngdai and other reed-bordered tanks. When feeding it hops about quietly with cocked tail near the water's edge, stopping every now and again to pick up an insect. When alarmed, the tail is lowered and the bird skulks off in short swift runs, stopping and stretching itself upright after every few feet to watch the intruder, and then making another spurt forward. When walking up snipe it is not uncommon to put up a Bluethroat from in amongst the rushes. The bird flies off at top speed skimming over the reed-bed, deftly zig-zagging to avoid the stems and diving into them again a few yards beyond. On such occasions its orange-chestnut rump and tail provide a good clue to its identity. While with us, in its winter quarters, a harsh subdued *chur-r* or *chuck, chuck* etc. is the only note heard. Its diet consists exclusively of caterpillars, small beetles and other insects.

MEASUREMENTS. The only specimen procured by the Kutch Survey measures: ♂ wing 74 mm.

THE KASHMIR REDSTART

Phoenicurus ochruros phoenicuroides (Moore)

Fauna, ii, 76

SIZE. About that of the Sparrow.

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STATUS AND DISTRIBUTION. Winter visitor. Fairly common and general, but not numerous. Earliest seen August 30 (Bhūj environs); latest March 31 (Bhūj environs).

Outside Kutch the Redstart, in two races, occurs in winter in Assam and practically throughout India south to but excluding Travancore. Within Indian limits the race *phoenicuroides* breeds only in the mountains of Kashmir : May to August.

HABITS. The Redstart frequents shady overgrown nullahs among rocky hillocks and broken country as on Bhūjia Hill, groves of babool trees in the vicinity of tanks, and the wooded outskirts of villages and wādis. Patches of babool and kandi trees as amongst the sand-dunes near Māndvi also form favourite haunts. It flits about from perch to perch on the low branches of trees, flirting its tail ceaselessly. From time to time the bird descends to the ground to pick up an insect and then flies up again into another tree nearby. The notes most commonly heard while with us, in its winter quarters, are a sharp mousy *whit . . . whit . . . whit* etc. very like the intermittent squeak of an unoiled bicycle wheel.

Its food consists exclusively of insects.

MEASUREMENTS. Kutch Survey specimens measure : 4 ♂ ♂ wing 81-85 ; 1 ♀ 81 mm.

THE NORTHERN OR BROWN-BACKED INDIAN ROBIN

Saxicoloides fulicata cambayensis (Latham)

Fauna, ii, 111

Sindhi name : Kabari Pusri ; Kutchhi ; Kāri Buchak.

SIZE. Slightly larger than the Sparrow.

FIELD CHARACTERS. Plate p. 47, B.I.B. A familiar lively little dark bird with cocked tail and a bright rusty-red patch under it. Upper parts of the male dusky olive-brown, with a pure white patch on each shoulder, conspicuous in flight. Lower parts glistening black. The female is more or less uniformly dark brown with no white shoulder-patches, and paler chestnut under tail. Pairs, on open euphorbia-covered stony hummocks, near villages as well as away, and in almost every type of country.

STATUS AND DISTRIBUTION. Resident. Perhaps the commonest and most widespread species in Kutch after the House Crow, Pigeon, Sparrow and Common Babbler, but numerically not abundant.

Outside Kutch resident, in three races, throughout India up to an elevation of about 5000 ft.

HABITS. As elsewhere, so in Kutch, the Robin is a tame and confiding little bird. It may be met with in all types of country, both near and away from human habitations. In villages it hops about fearlessly on the rooftops descending now and again to investigate a roadside refuse heap for insects often within a few feet of the passers-by. It will even enter the verandahs and rooms of inhabited houses hopping unconcernedly on the floor to pick up an ant or other tit-bit. The tail is carried jauntily cocked and is jerked forward from time to time almost to touch the head. The ordinary call-note is a whistling *sweet . . . sweet* etc. Besides this it has a number of others not so musical perhaps as cheery—what may be termed its song. In the breeding season the cock utters these with great gusto when defying rival males. In the strutting, pouting and posturing that accompanies the challenge the white shoulder-patches and the bright chestnut feathers under the tail, sticking out in a fluffy bunch, are flaunted in the face of the adversary with utmost effect. The bird flies from one perch to another with slow deliberate wing-strokes, singing defiantly as he patrols his breeding territory.



Indian Robin (male)



Photos *Author*

Striolated Buntings at a water-hole

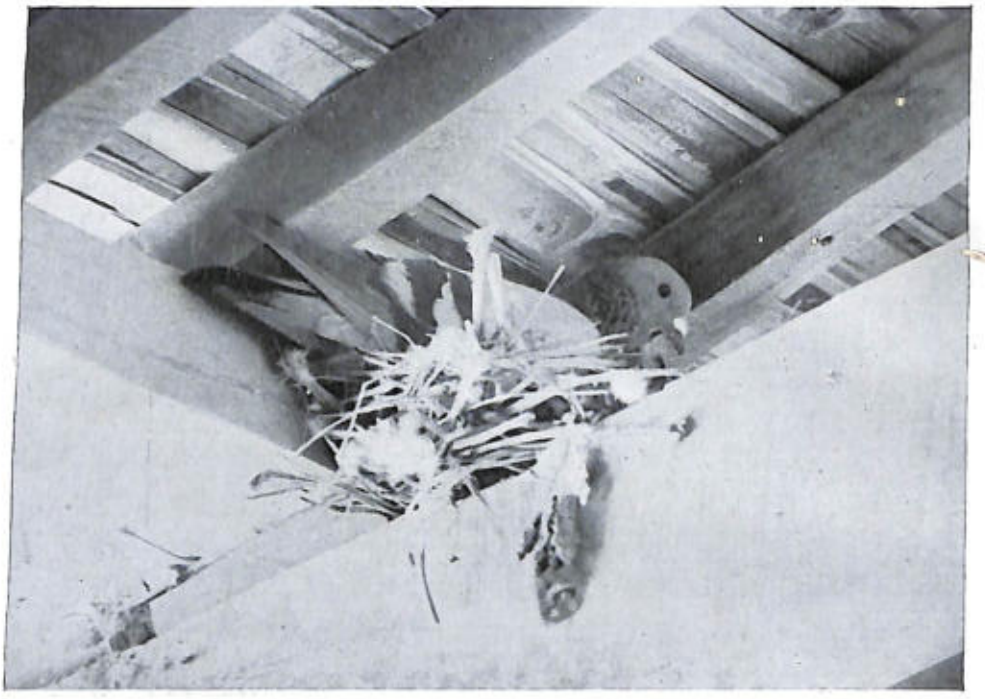


Photo *Author*

Typical nest of Blue Rock-Pigeon amongst rafters



Photo *W. T. Lake*

Pigeons at a Customs Outpost, filching grain from sacks

Its food consists exclusively of caterpillars, insects and spiders.

NESTING. The season commences in April and lasts till July or even August. Often two successive broods are raised or attempted. The nest is a rough cup of grass and rootlets lined with feathers or hair and commonly adorned with bits of tissue paper or snake slough. It is placed in a hole in a wall, a heap of stones or a rotten tree-stump. A derefict tin can or earthenware chatty always offers an irresistible nest-site. The eggs—two or three—are greenish white or cream coloured, speckled and blotched with reddish brown. Both sexes share in building the nest and tending the young, but the female alone incubates.

MEASUREMENTS ETC.. A specimen from Kutch (1 ♂ ad.) measures: wing 75 mm. Complete post-nuptial moult August/September.

THE BLUE ROCK-THRUSH*

Monticola solitaria (Linn.)

Fauna, ii, 174

SIZE. Between the Bulbul and the Myna.

FIELD CHARACTERS. Plate p. 55, B.I.B. A solitary bird usually seen perched bolt upright on a boulder on open stony hillsides and in stone quarries, or on ancient buildings and fort walls etc. Male: uniform bright leaden blue with dark brown wings and tail. Female: duller and more brownish above, pale buffy-white below, cross-barred with blackish. In silhouette and in fading light, both at rest and on the wing, easily confused with the Brown Rock-Chat which frequents identical spots.

STATUS AND DISTRIBUTION. Winter visitor. Rare. Earliest date September 21 (Rāpar); latest March 19 (Bhūjia Hill). It is surprising that this species should be so scarce in Kutch in spite of the eminently suitable facies available everywhere, e.g. the deep gullies and cliff-sides at Māta-no-madh and the numerous boulder-strewn hillocks in other parts.

Outside Kutch the Blue Rock-Thrush is found in winter practically throughout India. Within Indian limits the race *pandoo* nests at between 6000 and 9000 ft. elevation in Kashmir, Simla States and Garhwāl: April to June.

HABITS. The bird has the typical family habit of bobbing or bowing jerkily from time to time and flirting its tail. It is mostly silent whilst with us, but the male's sweet whistling song is sometimes heard shortly before the birds migrate to their breeding grounds.

THE EASTERN SPOTTED FLYCATCHER*

Muscicapa striata neumanni Poche

Fauna, ii, 202

Plate 3, fig. 2.

SIZE. About that of the Sparrow.

FIELD CHARACTERS. A greyish-brown flycatcher with dark-streaked crown. Whitish underneath, streaked with brown on breast. A whitish ring round eye. Sexes alike. Usually seen solitary, perched upright on the end of a low branch, and launching aerial sallies after winged insects. At a distance, both while at rest and on the wing, it is easily confused with the Yellow-throated Sparrow.

STATUS AND DISTRIBUTION. Autumn passage migrant en route to its winter quarters perhaps in Arabia or Africa. First observed September 1 (Bhūjia Hill); last October 7 (near Khāvda) by which date its numbers had again decreased

considerably. It is not uncommon at the height of passage, from about the 2nd to 4th week of September. Not wintering in Kutch, and none noted during the entire month of March. Presumably the return route to its breeding grounds in spring is different and misses Kutch altogether.

Outside Kutch this paler Eastern race is an autumn passage migrant also over the N-W. F. Province, Sind, Rājputāna and W. Kāthiawār. Breeds in E. Siberia, Turkestān, Afghānistān etc. Within Indian limits only in N. Balūchistān, Chitrāl and Gilgit: May and June.

HABITS. While in Kutch this flycatcher is seen in almost every type of country wherever there are small babool and kandi trees and thorn scrub—on stony hillsides and about villages and tanks. I have records from Bhūj environs, Chāduva, Nakhatrāna, Dhinodhar, Rūdra Māta, Tūna, Anjār, Bhachāu, Rāpar, and Wad (near Dhūnāra Customs Outpost, Pachham Island). The bird sits upright on the end of a branch with tail loosely depressed, rather like the Bush-Chat. Like the Bush-Chat also it twitches its wings and loosely wags its tail up and down from time to time. While at rest the slight fork in the tail enhances its resemblance to the Yellow-throated Sparrow. Besides capturing winged insects in mid-air in the usual flycatcher manner, it also frequently descends to the ground to seize a crawling one. Like other flycatchers it is purely insectivorous. While on passage the birds are silent.

MEASUREMENTS ETC. The survey specimens measure: 4 ♂ ♂ wing 85-92; 1 ♀ 82 mm. All these had finished complete post-nuptial moult. They were in fresh plumage and excessively fat—literally "balls of fat"!

THE RED-BREASTED FLYCATCHER*

Muscicapa parva parva Bechst.

Fauna, ii, 210

Plate 3, fig. 3.

SIZE. Somewhat smaller than the Sparrow.

FIELD CHARACTERS. A plain brown flycatcher with partly cocked black-and-white tail. The adult male has the breast, chin and throat bright chestnut as illustrated. In the female and young male the breast is pale ashy-fulvous and the rest of the underparts dull white. The tail is usually carried robinwise with the wings partly drooping at its sides. It is smartly jerked up from time to time to the accompaniment of a sharp *click-click*. Met with singly in groves of leafy trees about villages and irrigated wādis, and in large leafy banyan trees etc.

STATUS AND DISTRIBUTION. Winter visitor. Found in suitable localities throughout Kutch. Frequent, but not common or abundant. Earliest date October 3 (Khāvda), latest March 5 (Chāduva).

Outside Kutch this flycatcher, in two races, occurs in winter over more or less the whole of India. They breed over a wide area in Europe, Siberia and North and Central Asia. A third race, with the red breast bordered with black, breeds in Kashmir and winters in Ceylon; nowhere in between.

HABITS. This dainty little flycatcher affects shady well-foliaged trees. It flits among the branches making short agile sallies in the air, turning and twisting, to capture winged insects. Sometimes it will hover momentarily in front of a sprig or flower to investigate. Occasionally it also descends to the ground, jerks its cocked tail, takes a couple of hops to seize a crawling insect and flits back into an overhanging branch.



1. The White-eared Bulbul (p. 7)
2. Marshall's Iora (p. 5)
3. Red-vented Bulbul (p. 6)
4. The White-winged Black Tit (p. 2)
5. The Common Babbler (p. 4)



1. The Red-tailed Chat (p. 11)
2. The Bluethroat (p. 13)
3. The Desert Chat (p. 10)
4. The Pied Chat (p. 9)
5. The Brown Rock-Chat (p. 12)

The only note heard in its winter quarters besides the *click-click* which accmopanies the upward jerk of the tail, is a squeaky *whi-chrr*.

MEASUREMENTS ETC. Kutch birds belong to the typical Western race *parva* with the crown greyish and slightly different in colour to the back. The survey specimens measure: 5 ♂ ♂ wing 64-71; 1 ♀ 66 mm. They have all completed post-nuptial moult and are in fresh plumage. All examples were fat or very fat.

THE PARADISE FLYCATCHER*

Tchitrea paradisi leucogaster (Swains.)

Fauna, ii, 264

SIZE. That of the Bulbul excluding tail ribbons which are up to 15" long.

FIELD CHARACTERS. Plate p. 63, B.I.B. Adult male silvery white with two long ribbon-like feathers or "streamers" in the tail; glossy metallic blue-black crested head, black-and-white wings, and bright blue bill and eyelids. Female and young male chestnut above, with glistening black crest; greyish-white below. Very like a bulbul in general effect. The young male has chestnut streamers in his tail; the female is without.

STATUS AND DISTRIBUTION. Evidently a rare, straggling, passage migrant, as it appears to be also in Sind. Only a single example was met with and secured in Kutch during the entire Survey (Rāpar, September 29). It was in a scrub-overgrown dry nullah among stony hummocks.

The pale race *leucogaster*, to which the specimen (♀ wing 90 mm.) belongs breeds in Afghānistān, Turkestān and Kashmir and spends the winter in the plains of India south to Travancore.

THE WHITE-BROWED FANTAIL FLYCATCHER

Leucocirca aureola (Lesson)

Fauna, ii, 277

SIZE. About that of the Sparrow.

FIELD CHARACTERS. A cheery restless ashy-brown and black bird with a broad white forehead and eyebrows, white-spotted black chin and throat, and white underparts. Sexes alike. Its most striking feature is the conspicuously white-tipped tail, cocked and spread out like a fan with the wings drooping on either side of it as the bird flits and prances about lightly among the lower branches of a tree.

STATUS AND DISTRIBUTION. The Survey failed to come across this flycatcher. According to Lester it is "not common in Cutch, and generally frequents thin forest, jungle and gardens."

It is common and resident in the better cultivated and afforested areas of Sind, and is found more or less throughout India up to about 4000 ft. elevation.

THE GREY SHRIKE

Lanius excubitor lahtora (Sykes)

Fauna, ii, 285

SIZE. About that of the Myna with a relatively longer tail.

FIELD CHARACTERS. Plate p. 67, B.I.B. A silver-grey bird with longish black-and-white tail. Wings black relieved by a pure white patch or "mirror" which flashes conspicuously in flight. A broad black stripe from forehead and bill backward

across the eye to ear-coverts. Heavy, hooked black bill like a bird of prey's. Sexes alike. Seen singly, perched on exposed thorn-bushes in dry, open semi-desert country.

STATUS AND DISTRIBUTION. Resident and common throughout Kutch.

Outside Kutch it is found in Sind, along the base of the Himalayas to about 2000 ft. elevation, and throughout the drier portions of the Indian plains south to Belgaum, east to Calcutta.

HABITS. These shrikes appear to stake out feeding territories or beats to which they keep day after day, and which are jealously guarded against intrusion from members of their own as well as other species. The bird keeps a sharp look-out for prey from its exposed perch. From time to time it pounces down on some insect or lizard it has espied, and carries it off in its bill. The quarry is held under foot and torn limb from limb before being swallowed. Along with other species of shrikes it has the hawk-like habit of dropping from its perch when alarmed or suspicious and flying off on rapidly "vibrating" wings, flat and low along the ground for some distance and then rising steeply at the end to settle on another bush. Its usual call-notes are harsh and grating, but during the breeding season a very pleasing little tinkling " song " is uttered, rather like a tit's but more musical. The calls of other birds are also mimicked convincingly.

Its food consists of crickets, locusts and large insects as well as lizards, mice, and any sickly birds that can be overpowered. One has even been known to attack a wounded sandgrouse !

NESTING. March and April appear to be the principal months in Kutch, though as Lester implies and as is the case over much of its range, odd birds may breed at other seasons also. The nest is a deep compact cup of thorny twigs and grass lined with rags, wool or feathers. It is placed in a babool or kandi tree between 4 and 12 ft. from the ground. The eggs—three to six—vary considerably in colour and size. The commonest type is pale greenish-white, thickly blotched and spotted with purplish-brown, especially at the broad end.

MEASUREMENTS. The Survey specimens measure: 2 ♂♂ wing 108-111; 1 ♀ 105 mm.

THE BAY-BACKED SHRIKE

Lanius vittatus Valenciennes

Fauna, ii, 289

Sindhi name : Boro (—the deaf one).

SIZE. About that of the Bulbul.

FIELD CHARACTERS. Plate p. 68, B.I.B. Grey and white head with a broad black band across forehead, backward through the eyes to the ear-coverts. Back chestnut-maroon ; underparts white. The whitish rump and white patches or " mirrors " on the black wings are very characteristic in flight. Long, graduated black-and-white tail. Stout hook-tipped bill. Sexes alike. Seen singly in less arid tracts than the Grey Shrike, and especially in open babool jungle in the surroundings of villages and tanks.

STATUS AND DISTRIBUTION. Resident (?) and common throughout Kutch. According to Lester it disappears (from Kutch) from " the beginning of the hot season " to August. I have been unable to verify this personally. It seems more probable, however, that as in Sind the bird is resident in Kutch as a whole, but may be absent from certain localities seasonally. This presumption is supported by the fact that it breeds on Kāla Dongar in Pachham Island.

Outside Kutch the Bay-backed Shrike is found practically throughout India from about 6000 ft. in the Himālayas to Cape Comorin and from Afghānistān and Balūchistān to Western Bengal. In parts of its range it is subject to marked seasonal local migration.

HABITS. Except that it frequents less arid country than the Grey Shrike, there is no very marked difference in their habits. The note commonly uttered is a harsh *chur-r* but at nesting time it also has a pleasant little warbling song in which perfect imitations of the calls of numerous other birds are freely interlarded.

NESTING. The only record so far of its breeding in Kutch is provided by a nest I found on Kāla Dongar, October 5, built in a kandi tree about 8 ft. up. In its proximity was a brood of three partly fledged, stub-tailed chicks being tended by the parents. The wobbly unsteady flight indicated that they had just left the nest.

Elsewhere June and July are the principal months for eggs. The nest is a neat compact cup of grass, rags, wool and feathers, bound on the outside with some cobweb. It is placed at moderate heights in a small thorn tree or bush. The eggs—three to five—are smaller editions of those of the Grey Shrike and present the same range of variations.

MEASUREMENTS ETC. Kutch Survey specimens measure: 2 ♂♂ wing 86.5-88, tail 90-91; 1 ♀ w 86, t 86; 3 o? w 82-90, t 80-91. All except one adult male are in the confusing immature plumage. The tail is reddish as in *L. isabellinus* or *L. phoenicuroides*, but in most specimens there is some tell-tale grey in the upper tail-coverts. The absence of the white wing mirrors in the immature plumage adds to the confusion.

The full-fledged nestling taken on Kāla Dongar is greyish-sandy above, cross-barred on crown and back with blackish. The reddish tail is partly grown.

THE RUFOUS-BACKED SHRIKE

Lanius schach Linnaeus

Fauna, ii, 294

SIZE. Between the Bulbul and the Myna with a relatively longer tail.

FIELD CHARACTERS. Plate p. 71, B.I.B. Forehead and a broad black band backward through eyes to the ear-coverts. Head and upper back grey. Lower back and rump bright rust-red. Underparts whitish tinged with rusty. Tail black and rufous. Typical stout, hooked shrike bill. Usually a broad white patch on the black wing-quills conspicuous in flight. Sexes alike. Met with singly or in separated pairs in and about rakhāls and wādis and in fairly well-wooded parts.

STATUS AND DISTRIBUTION. Lester seems to imply that this shrike is an uncommon local migrant arriving in Kutch in August or September along with the previous species. It is certainly uncommon, but I have been unable to verify its status here. It was present and breeding in August and was noted till the end of the Survey—early April. In Sind it is said to be a permanent resident.

Outside Kutch it is found, in four races, practically throughout the Indian Empire up to about 8000 ft. elevation in the Himālayas. It is a resident in many portions, but only a seasonal visitor in others.

HABITS. The Rufous-backed Shrike affects better-wooded country than the previous species but otherwise in its habits it is typical of the group. It is an exceptionally good mimic and reproduces the calls of a great many other birds faultlessly. The imitations follow one another and are usually interwoven in the pretty little subdued

rambling song uttered during the breeding season. Its normal call-notes are loud, harsh and scolding.

NESTING. July and August appear to be the principal months in Kutch, but it may also breed earlier as it does in Sind. Nests taken in the Rūdra Māta rakhāl (August 8) and Chāduva (August 17) respectively were typical of the species—a thick-sided, deep, compact cup of fine twigs, tow-like vegetable down and grass, placed about 8 ft. up in the fork of a small thorny kandi (*Prosopis*) tree in jungle. The nest is draped on the outside with bits of cotton wool and other odds and ends that serve to give it a deserted and weather-beaten appearance. The former nest contained four naked chicks, the latter a clutch of six lightly incubated eggs. The normal clutch is three to six. The eggs are faint greenish white, sparsely speckled with umber brown all over, but densely at the broad end where the markings form a cap. They are somewhat smaller, but otherwise like those of the Grey Shrike and have the same range of variations.

Both sexes share in building the nest, incubation and care of the young.

MEASUREMENTS ETC. The Survey specimens measure : 2 ♂ ♂ wing 86-88, tail 92 (moult)-106 ; 2 ♀ ♀ wing 86-87, tail 95-100 mm. They are in very worn breeding dress and difficult to assign racially without more comparative material.

Immature plumaged birds may easily be confused in the field with various sub-adult plumages of the Isabelline and Rufous shrikes, but upper parts grey instead of rich brown.

THE RED-BACKED SHRIKE*

Lanius collurio Linnaeus

Fauna, ii, 298.

Plate 3, fig. 1.

SIZE. Same as the Bay-backed Shrike.

FIELD CHARACTERS. In adult male plumage (as shown in the plate) very like the Bay-backed Shrike from which it may be differentiated in the field by the absence of the white wing " mirrors " and by the large amount of white in the tail. Female like the male but duller ; some also russet brown above, buffish below. In immature plumage almost impossible to tell apart from immature *phoenicuroides* in the field. Seen singly in babool scrub about cultivation and in open thorn jungle.

STATUS AND DISTRIBUTION. One of the (presumably) regular migrants which fringe extreme western India on autumn passage through Arabia to their winter quarters in Africa. They either take a different route on return passage in spring or do not halt here again—at least as a rule, and in any numbers. A solitary bird observed at Dholovīra (Khadīr Island) on March 25 was certainly this species. Earliest date in Kutch September 15 (1943—Anjār) and thereafter frequent though not common at least until 1st week October.

Outside Kutch the Red-backed Shrike breeds all over Europe and Western Asia to Turkestān and Persia. It winters mostly in Arabia and down to South Africa.

HABITS. Not markedly different from other shrikes. It has the same harsh notes. I always found it exceedingly wild and difficult to approach.

MEASUREMENTS ETC. A Kutch specimen (ad. ♂) measures : wing 92, tail 78 mm. Excessively fat.

THE PALE BROWN SHRIKE

Lanius isabellinus Hemprich & Ehrenberg

Fauna, ii, 302.

Plate 3, fig. 5.

SIZE. Smallish—about that of the Bay-backed Shrike.

FIELD CHARACTERS. Pale sandy-brown above, buffy whitish below, with rusty-red rump and tail. The latter comparatively short as shrikes go. There are either no white "mirrors" in the wings, or very small if present. Sexes alike. Seen singly perched on bushtops etc. in open, sparsely scrubbed semi-desert, often on the fringe of cultivation.

STATUS AND DISTRIBUTION. Lester and also Capt. A. Newnham whom he quotes as having taken its eggs at Dēvisar, Mota Rūdra Māta, were most certainly mistaken over the identity of their bird. No authentic record of its breeding within Indian limits exists and it is of course only a winter visitor to the drier portions of N-W. India and Sind and Kutch (September to March). Specimens have been procured in Kutch in winter by Stoliczka. It may even be fairly common in the northern portions of Kutch at that season, but curiously enough none of the Survey specimens belong to this species! The bird is so similar in appearance to the Rufous Shrike (*L. c. phoenicuroides*) that the two are almost impossible to identify in the field. Except in perfect adult plumage their differentiation even in the hand is not easy. Thus many of my Kutch sight records may relate to either species.

It breeds on the Mongolian and Daurian Steppes to E. Turkestān.

HABITS. Not appreciably different from other shrikes.

THE RUFOUS SHRIKE

Fauna, ii, 303

Lanius cristatus phoenicuroides Severtz.

SIZE. Same as the last.

FIELD CHARACTERS. Very similar to the last except that in perfect plumage and with a good pair of binoculars it may sometimes be possible to detect that the crown of the head is slightly more rufous than the back and not uniformly sandy brown with it. In immature plumage stages it is almost impossible to tell this, the Pale Brown and the Red-backed shrikes apart. Sexes alike. Met with singly, perched on bushtops etc. in open semi-desert.

STATUS AND DISTRIBUTION. Lester obviously meant this form when he wrote of the Brown Shrike. The latter is a bird of well-wooded tracts and does not occur in Kutch or elsewhere in desert or semi-desert country. The Rufous Shrike is a fairly common winter visitor to Kutch (first noted early September) but largely as a passage migrant travelling through via the Arabian route to its winter quarters as far south as Abyssinia and the Sudan. On return passage in spring the birds must either take a different route, missing Kutch and Sind altogether, or the vast majority must pass through without stopping.

HABITS. Typical of the shrikes. The harsh call-notes *chur-rr, chur-rr* etc. are commonly heard at evening dusk, and often until quite dark.

MEASUREMENTS ETC. Kutch specimens measure: 1 ♂ wing 95, tail 81; 1 ♀ wing, 96, tail 80.5 mm.

THE WOOD SHRIKE

Tephrodornis pondicerianus (Gmelin)

Fauna, ii, 312

SIZE. About that of the Bulbul.

FIELD CHARACTERS. Plate p. 72, B.I.B. A plain greyish-brown bird with a dark stripe below the eye and a prominent whitish eyebrow. Short square tail. Hook-tipped shrike bill. Sexes alike. Pairs or family parties usually seen in babool and scrub jungle.

STATUS AND DISTRIBUTION. Resident. Not abundant but fairly common in the better-wooded parts of Kutch, e.g, Godsar rakhāl, Bhūjia Hill and environs, Chāduva, Rūdra Māta, Wanōthi rakhāl (near Māndvi), Māta-no-madh etc.

Outside Kutch, found in three races throughout India, Burma and Ceylon.

HABITS. The birds hop or flit among the branches, and follow one another from tree to tree, calling in rich liquid whistling notes—*weet-weet* succeeded by a quick interrogative *whi-whi-whi-whi?* Most of their food—beetles, grubs and other insects and spiders—is secured among the branches or from under the leaves and sprigs. Moths and winged insects are sometimes captured in mid-air in the manner of a flycatcher. The birds seldom descend to the ground to seize their quarry as the true shrikes habitually do.

NESTING. The season in Kutch appears to be mainly March and April, but it may continue longer. I found a nest with two chicks just hatched and one egg on Bhūjia, 1-4-44. Lester records one (without eggs) at Godsar in May 1896. The nest is a neat cup, about two inches across, composed of soft bark, fibres etc. cemented with cobwebs. It is usually draped on the outside with bits of papery bark, spiders' egg-cases etc., which conceal it effectively in its surroundings. It is placed in the crotch or fork of a leafless kandi (*Prosopis*) branch, mostly under 10 feet up. The eggs—normally three—are pale greenish-grey, speckled with some shade of purple brown, densely at the broad end where they form a ring. Both sexes share in building the nest, incubation and care of the young.

MEASUREMENTS ETC. Kutch birds are intermediate between the pale N-W. and Central Indian race *pallidus* and the darker (typical) peninsular race *pondicerianus*, but nearer the latter. The Survey specimens measure: 2 ♂ ♂ wing 82-83; 1 ♀ wing 82 mm.

THE WHITE-BELLIED MINIVET

Pericrocotus erythropygius (Jerdon)

Fauna, ii, 332

Plate 3, fig. 4.

SIZE. Slightly smaller and slimmer than the Sparrow, with a longish tail.

FIELD CHARACTERS. General effect of the male (illustrated) pied black-and-white with only the rump and breast orange-red. In the female the glossy black of the male is largely replaced by dark smoky brown. Forehead and lower plumage white; only rump orange-red. Pairs or family parties usually met with in dry, stony, broken country with peeloo (*Salvadora*), kerad (*Capparis*) bushes and kantāro-thor (*Euphorbia nañifolia*) clumps etc.

STATUS AND DISTRIBUTION. Resident. Common, but rather patchy.

Outside Kutch it is widely distributed in Rājputāna, Gūjarāt and practically throughout India except the extreme North-West.

HABITS. Family parties of four or five birds are usually seen flitting amongst the branches of thorn trees and shrubs, energetically searching for insects in the foliage, uttering a feeble *see-see* etc., and following one another from bush to bush. Their food consists of moths, small insects, caterpillars, grubs, spiders etc. Occasionally a bird will flutter airily in front of a sprig to get at the quarry within. At other times it will launch short aerial sallies after winged prey and capture it like a flycatcher in mid-air. When flying overhead from one patch of jungle to another its action is very reminiscent of a bunting or wagtail—a few rapid flaps of the wing followed by a glide, flaps... glide, flaps... glide, and so on. The calls of concern, for instance when its nest-young are in danger, are very like the *chit-chit-chit* of the Baya or Weaver Bird under similar circumstances, but somewhat more musical.

NESTING. Breeding is in progress during August and September. The nest is a beautiful little shallow cup of fibres, about two inches across, coated on the outside with cobwebs. It is fixed in the crotch or horizontal fork of a thin peeloo or kandi branch, 6 to 8 ft. above the ground. The normal clutch consists of three eggs, greyish-white streaked lengthwise with dark brown and pale levender.

Both sexes share in building the nest and tending the young; presumably also in incubation.

MEASUREMENTS ETC. The Survey specimens measure: 1 ♂ ad. wing 68, tail 75·5; 1 ♀ ad. wing 69, tail 76·5 mm.

THE LITTLE MINIVET

Pericrocotus peregrinus (Linnaeus)

Fauna, ii, 329

SIZE. Same as above. Slightly smaller and slimmer than the Sparrow, with a longish tail.

FIELD CHARACTERS. Plate p. 76, B.I.B. Adult male grey above with scarlet rump and black-and-scarlet tail. Chin and throat darker grey, breast scarlet, rest of underparts yellowish white. Wings blackish brown with some scarlet in them forming a band in flight. Females and young males have plain greyish-white underparts with yellow largely replacing the red elsewhere except rump which remains scarlet. Met with in pairs or small flocks amongst tree-tops in gardens, forest rakhāls, wooded wādis and also scrub jungle.

STATUS AND DISTRIBUTION. Resident. Fairly common except in treeless parts.

Outside Kutch it is found in five races throughout the Indian Empire, mostly in the plains but also the lower hills.

HABITS. Except that it is more a frequenter of gardens and groves and on the whole keeps to greener country, there is nothing particularly different in its habits from the preceding species. It is entirely arboreal.

NESTING. Breeding is in full swing in Kutch during August and September. The nest is the same neat little cobweb-plastered shallow cup as of the White-bellied Minivet and also built in identical situations. When attached and resting on the upper surface of a branch it looks exactly like a small knot or swelling at a distance. The normal clutch is of three eggs, pale greenish-white or creamy-buff, stippled with reddish-brown—often densely—and forming a ring at the broad end. The plumage of the nest young is barred brown and whitish, of the colour scheme sometmes known as "pepper and salt." When crouching low within the nest this pattern blends in a remarkable way with the nest and its supporting branches, completely obliterating the chicks from view.

MEASUREMENTS ETC. The Kutch specimens measure: 1 ♂ wing 64, tail 64; 1 ♀ wing 64, tail 67 mm. They belong to the peninsular form *peregrinus*, but show signs of intergrading with *pallidus*, the pale race occupying Sind and S-W. Punjāb.

THE BLACK DRONGO OR KING CROW

Dicrurus macrocercus Vieillot

Fauna, ii, 356

Local name: Kanchh Kālkanch Sindhii.

SIZE. About that of the Bulbul with a relatively longer tail.

FIELD CHARACTERS. Plate p. 84, B.I.B. A glossy jet black bird with longish deeply forked tail, the tips of the prongs curving outward to right and left. Hook-tipped, rather shrike-like bill. Sexes alike. Met with singly perched on a dry tree or bush-top, telegraph wire or other exposed situation in the neighbourhood of cultivation, gardens, forest rakhāls, wādis and grazing cattle.

STATUS AND DISTRIBUTION. Resident and fairly common generally, but evidently subject to considerable local movements. At the extreme N-W. point of Khadīr Island (March 26, 1944) at least 20 birds were observed during about 45 minutes (ca. 9.30 a.m.) arriving in loose twos and threes roughly from a N-E. direction and heading WSW towards Bhānjda Bet. They were flying about 20 ft. up, steadily and purposefully, over a wide expanse of open treeless Rann, totally unsuited to their normal requirements.

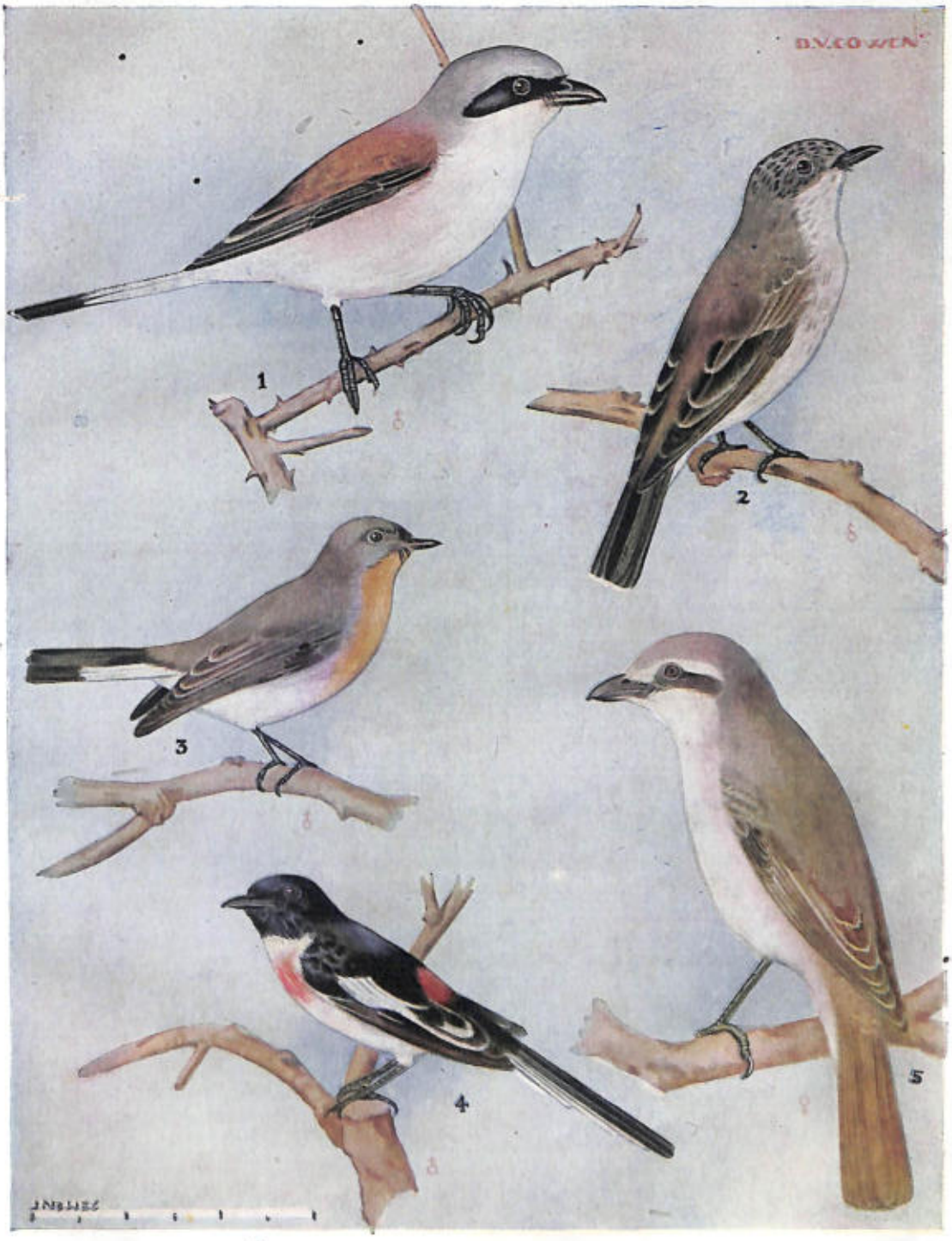
Outside Kutch, this drongo, in four races, occurs throughout the Indian Empire and Ceylon up to about 7000 ft. elevation in the Himālayas.

HABITS. The Black Drongo is a species that must be familiar to most people. It looks upon telegraph wires everywhere as put up for its own special benefit. No stretch of any length, particularly where running through cultivated tracts, is without its regular patrons. They afford admirable look-out posts whence to keep close watch on the movements of the insect population around. From time to time the bird descends to the ground to seize an unwary grasshopper or cricket, or launches into the air in swift pursuit of a locust or dragon-fly. Drongos are also commonly in attendance on grazing cattle for the sake of the insects disturbed by the animals. The birds may be seen riding complacently on the animals' backs, bobbing up and down with their movements, chasing and capturing the fleeing quarry and returning with it to the same or another perch close by.

From the vast quantities of injurious insect pests they destroy, the birds are highly beneficial in agricultural areas and deserve to be encouraged in every way.

It has a number of harsh scolding and challenging calls, some closely resembling the Shikra Hawk's.

NESTING. Courtship was noted in progress from about the middle of March. Lester gives the breeding months as April, May and June. Sir G. Archer took three clutches of fresh eggs (c/2, c/3, and c/2) at Khāri Rōhar on June 21 and July 15 (1939). The nest is a flimsy-bottomed shallow cup of fine twigs, grass and fibres roughly cemented together with cobwebs. It is placed in the horizontal fork of a branch near its extremity, 10 to 20 ft. from the ground. Three to five eggs are laid, normally whitish with brownish-red spots, but showing some variations. Both sexes share in building the nest, incubation and care of the young. The owners display considerable boldness in defence of their nest and will often attack and drive off large marauding birds encroaching within its proximity. The chivvying and buffeting of a kite by a pair of irate drongos, diving on it like lightning from above, rocketing into it from below and shooting into it from the flanks as they describe effortless rings



1. The Red-backed Shrike (p. 20)
2. The Spotted Flycatcher (p. 15)
3. The Red-breasted Flycatcher (p. 16)
4. The White-bellied Minivet (p. 22)
5. The Pale Brown Shrike (p. 21)



1. The Eastern Orphean Warbler (p. 32) 2. The Indian Great Reed Warbler (p.25)
3. The Indian Lesser Whitethroat (p. 33) 4. The Chiff-chaff (p. 34)
5. The Desert Warbler (p. 32)

round the bewildered fleeing enemy, is strongly reminiscent of a heavy bomber tackled by Spitfires. It is a spectacle to delight the heart of every bird-watcher.

MEASUREMENTS ETC. Kutch Survey specimens measure: 1 ♂ ad. wing 140 mm.; tail moult. 3 ♀ ♀ ad. wing 139-142, tail (only 1): central feathers 105, outer feathers 154 mm. They evidently belong to the peninsular Indian race *peninsularis*. Complete post-nuptial moult takes place in August. Most birds seen at that period have the outer tail-feathers partly grown, a phase that often puzzles people in field identification.

THE GREY-BACKED OR RUFOUS WARBLER*

Agrobates galactodes familiaris (Ménétries)

Fauna, ii, 386

Plate 5, fig. 1.

SIZE. Somewhat smaller than the Bulbul.

FIELD CHARACTERS. A plain brown bird with whitish supercilium, bright rufous rump and upper tail-coverts, and chestnut tail broadly tipped black-and-white. Underparts dull pinkish-white. The plale eyebrow and the black-and-white bordered red tail, often carried expanded and partly cocked, or fanned out on alighting after a short flight are its most characteristic features. Sexes alike. Seen singly in thorn scrub and thickets in dry, stony country.

STATUS AND DISTRIBUTION. Autumn passage migrant. Earliest seen August 30 (Bhūjia); elsewhere noted at: Nakhatrāna, Khāri Rōhar, Shināi Tank environs, near Bhadrēswar (between Anjār and Mūndra) Bhachāu, Nīlpar Tank environs (Rāpar), Khāvda, Nīr. Quite common till about 3rd week of September, thereafter fast decreasing; last seen October 7 (Kāla Dōngar, Pachham Island). Like the Red-backed Shrike, Spotted Flycatcher and several other species, this warbler passes through Kutch to its winter quarters in Africa via the Arabian route. It also seems to miss Kutch on its return migration in spring. During the whole of March and the first week of April I did not meet with it at all.

Outside Kutch it is an autumn passager south and south-westward through N-W. India, Punjāb, Sind, Rājputāna and the Kāthiawār Peninsula.

Breeds from South Caucasia to Irān, Irāq, Transcaspia, Turkestān, Afghānistān and Balūchistān: April to June.

HABITS. In its general behaviour the Grey-backed Warbler is very robin-like. It hops along over the loose stones on a scrub-covered hillside or amongst the lower branches of bare thorn thickets in a manner strongly reminiscent of the Indian Robin or Bluethroat. The tail is fanned out, cocked and jerked up from time to time, with the wings drooping at its sides.

During its temporary sojourn in Kutch, the bird is silent. Its food consists exclusively of insects.

MEASUREMENTS ETC. Kutch survey specimens measure: 5 ♂ ♂ wing 87-90; 3 ♀ ♀ wing 86-87 mm. All were excessively fat—"balls of fat"!

THE INDIAN GREAT REED WARBLER

Acrocephalus stentoreus brunnescens (Jerdon)

Fauna, ii, 389

Plate 4, fig. 2.

SIZE. About that of the Bulbul.

FIELD CHARACTERS. A large plain olive-brown warbler with an indistinct pale eyebrow. Paler underneath. Sexes alike. Seen singly—only in glimpses—amongst

dense reed and tamarisk-beds by tanks, and mangroves on tidal swamps. Occasionally in standing jowār and bājri crops away from marsh land. Very shy and noisy.

STATUS AND DISTRIBUTION. Status uncertain. Lester himself did not come across it in Kutch but was informed by Capt. Newnham that it bred there. I only met with this warbler once at Bhachāu, (September 17) and then again a pair at Khāvda on April 21 (1954). It may nest in such reed-beds as fringe the Khāri River at Rūdra Māta, and amongst the mangroves about Kāndla Creek and elsewhere. In Sind, where some breed, its numbers are augmented in winter by immigrants from outside, and such possibly is also the case in Kutch.

HABITS. This Reed Warbler is an inveterate skulker. It keeps to the thick cover of reeds and other vegetation and seldom permits a glimpse of itself except when it occasionally clambers up a stem to utter its loud song. When hopping from stem to stem within the reed-bed or thicket in search of its insect food it utters a harsh single *ké* every few seconds and also a loud *chur-r, chur-r*. These notes are usually the first, and often the only, indications of its presence in any locality.

Its song is distinctive and unmistakable when once heard., and possesses a peculiar ventriloquistic quality. It is hard and metallic and unmusical, but considering the explosive vigour with which it is uttered and the obvious "joy of living" it proclaims, it is not unpleasant to the ear. It is a very loud *Karra karra kareet kareet kareet* or *prit prit pritik* with many variations, but constant in the essential theme. When warbling the bird's throat swells out to reveal a patch of dark feather-bases. Also the bright orange-red inside the mouth then becomes conspicuous. When darting from one thicket to another it looks very like the Pale Brown Shrike in its flight and behaviour.

NESTING. Breeding season in Kashmir, Sind, Punjāb, Central India and elsewhere : June to August. Nest : a deep massive cup of reeds, coarse grass etc. slung between several upright partially submerged reed-stems, about two feet above water level. Eggs : three to six (normally four) greenish-, yellowish- or greyish-white, blotched with blackish-brown or dark chestnut brown, with some pale lavender markings.

MEASUREMENTS ETC. The only Survey specimen (♂ September 17) measures : wing 86 mm. It is in very worn plumage and undergoing heavy body moult. The wings and tail though badly frayed are as yet unaffected.

THE PADDY-FIELD WARBLER

Acrocephalus agricola (Jerdon)

Fauna, ii, 394

SIZE. Rather smaller than the Sparrow.

FIELD CHARACTERS. A small rusty olive-brown warbler with pale (whitish) underparts. A whitish eyebrow stretching from bill to behind the ear-coverts, and a pronounced rufous rump particularly noticeable in flight. Sexes alike. Seen singly amongst partially submerged reeds on the edge of tanks etc.

STATUS AND DISTRIBUTION. Winter visitor? It *may* prove a resident and breeding in Kutch as Lester was informed by Capt. Newnham—but on what evidence it is not stated.

Outside Kutch it is found after the rainy season and in winter in reed-beds and inundated standing paddy crops all over India, but whether as resident, local migrant or coming in from beyond our limits is uncertain.

HABITS. This warbler is mainly confined to the reed-beds and sedges standing in water on the edge of the various duck-shooting jheels, such as Dēvisar, Bāda, Bāmdai, Chāngdai and others. It hops among the stems, seldom giving a glimpse of itself except when a bird darts out chasing a rival, or as it clambers down a stem sideways to pick up an insect floating on the water. But the harsh little notes *chrr ....chuck* etc., constantly coming from within a reed-bed is sure sign of its presence. When flushed it skims over the sedges with a jerky, hurried flight spreading out its tail as it dives into them again a few yards farther on. As it does so, the rufous rump shows up prominently and discloses its identity.

Its food consists entirely of tiny insects picked off the water or on the reed-stems, and it sometimes launches short sallies into the air to capture them on the wing.

MEASUREMENTS ETC. Kutch specimens measure: 1 ♂ wing 58, 1 ♀ 56 mm. Both birds were very fat.

[Another species, the Moustached Sedge-Warbler (*Lusciniola melanopogon mimica*), is likely to be found in winter among the reed-beds of jheels side by side with the above. Its upper parts are streaked with blackish; the forehead and top of its head are black; and it has a a dark streak through the eye and conspicuous white eyebrow. Its habits are similar except that it sometimes descends to the marshy ground, hopping amongst the rootstocks of sedges etc., with tail cocked like the Bluethroat. It is a common winter visitor to Sind.]

THE INDIAN TAILOR BIRD

Orthotomus sutorius guzurata (Latham)

Fauna, ii, 410

SIZE. Smaller than the Sparrow.

FIELD CHARACTERS. Plate p. 91, B.I.B. A perky little yellowish-green olive bird with a rust-coloured cap and whitish underparts. The middle pair of tail feathers are long and narrow and the tail is habitually carried cocked. Sexes alike. Seen singly or in pairs in shrubbery: in gardens, wādis, forest rakhāls and in the surroundings of villages. Also in dry, sparsely scrubbed, stony, hummocky country with stunted thorn-bushes and euphorbia clumps.

STATUS AND DISTRIBUTION. Resident. Common.

Outside Kutch, found in Sind, Gūjarāt and Kāthiawār and throughout the Indian Empire up to about 5000 ft. in the Himālayas.

HABITS. The Tailor Bird inhabits every type of country in Kutch wherever there are any bushes. It is invariably present in gardens. The luxuriantly wooded Vijay Vilās grounds at Māndvi, and Sarat Bāgh and Agency Bungalow gardens in Bhūj provide some of its favourite haunts. It is a tame and confiding little bird and may commonly be seen hopping about with jauntily cocked tail among creepers growing against the trellis work of an inhabited bungalow, or in and out of the potted plants in the verandah often within a few feet of the inmates. Its loud cheerful calls *towit-towit-towit* or *prittik-prittik-prittik* etc. are familiar sounds on the countryside. Its diet is mainly insectivorous.

NESTING. The season here seems to be in the rains between June and August or September, when large-leafed monsoon plants make their appearance and provide suitable nest sites. The nest is a rough cup of soft fibres, cotton wool and vegetable down placed inside a funnel formed by folding over and stitching a broad leaf (or several leaves together) along its edges. The stitching material—strands of cotton or vegetable down—is cleverly knotted at the ends to prevent the sewing getting undone.

The normal site is under three feet from the ground. I suspect that in Kutch owing to the scarcity of suitable large-leafed plants, the Tailor Bird may be obliged to build a different type of nest also—a purse of woven fibres as its relations the Wren-Warblers usually do. I leave this point for other observers to verify.[1] The eggs—three or four—are pale reddish or bluish-white, usually spotted with brownish-red. Both sexes share in building the nest and care of the young, but apparently the female alone incubates.

MEASUREMENTS. The only Survey specimen, a breeding ♂, measures: wing 52, bill 14, tail 82 mm.

THE STREAKED FANTAIL WARBLER

Cisticola juncidis cursitans (Franklin)

Fauna, ii, 422

SIZE. Considerably smaller than the Sparrow.

FIELD CHARACTERS. Plate p. 92, B.I.B. A tiny bird dark-streaked fulvous brown above, whitish below, with a rufous rump and a white-tipped blackish tail which is spread like a fan in flight. Sexes alike. Usually several loosely together in areas of tall grass.

STATUS AND DISTRIBUTION. Resident, but also moving about locally to some extent under pressure of drought and rainfall conditions. Fairly common.

Outside Kutch found throughout the Indian Empire, plains as well as hills up to 5000 ft. elevation.

HABITS. This diminutive warbler affects patches of tall grass such as about the marshes among the sand-dunes in the grounds of Vijay Vilās at Māndvi, and around the margins of tanks, e.g. Rāval Pīr, Prāgsar (Chāduva) Bhīmsar (below Dhinodhar) and others. The first indication of its presence in a grass patch is invariably provided by its sharp call-notes *chip...chip...chip* etc.—very like the snip of a barber's scissors—uttered as the bird mounts in the air on its curious zig-zag rambling flight, when also its fan-shaped tail is conspicuous.

These activities are particularly brisk in the breeding season when several males may constantly be seen performing over their nesting grounds at the same time. The space of about a second separates one *chip* from the next, and the wandering "song flight" lasts for two or three minutes, after which the bird descends to a perch in the neighbourhood of its nest. The performance is soon repeated.

Its food consists of small insects and caterpillars.

NESTING. The season in Kutch is July and August after the rains have well set in and grass has grown to a foot or two in height. The nest is a deep oblong pouch with its mouth at the top, lined with vegetable down. It is made of grasses woven around with cobwebs and incorporating several of the supporting blades of the tussock in which it is concealed fairly low down. The eggs—three to five—are pale bluish-white, speckled with red and purple.

MEASUREMENTS ETC. Kutch Survey specimens measure: 2 breeding ♂ ♂ wing 52-54; 1 ♀ ad. 51 mm.

1 Since the above went to press, welcome confirmation of this has been provided by an autograph note of EHA's (E. H. Aitken) dated Dilyar, Sind, 28-2-1904. EHA discovered a Tailor Bird's nest at the end of a pendant branch of *Salvadora oleoides* in open sandhills country. It was woven like the nest of a Fantail Warbler (*Cisticola*) of various kinds of vegetable down, a number of the narrow leaves being sewn to it at the sides as supports. He also found a similar nest in a rose bush at Karachi.

ZOOLOGICAL GARDEN
CALCUTTA.

FRANKLIN'S WREN-WARBLER*

Franklinia gracilis gracilis (Franklin)

Fauna, ii, 425

Plate 5, fig. 2.

SIZE. Smaller than the Sparrow.

FIELD CHARACTERS. In summer (breeding) plumage, as illustrated, dusky grey above, whitish below with a broad diffuse band across breast. In winter (non-breeding) rather like the Indian Wren-Warbler (p. 37) but distinguishable by its dark-tipped tail. Sexes alike. Seen in pairs or flocks of five to eight in well-grown babool, *Salvadora* and kandi jungle with tall coarse grass undergrowth. Replaced in drier scrub country and semi-desert by the next species.

STATUS AND DISTRIBUTION. Resident. Fairly common in suitable localities, e.g. Rūdra Māta, Bhūjia, Chāduva, Nakhatrāna etc.

Outside Kutch found in several races throughout India including Gūjarāt and Kāthiawār but not Sind, Punjāb plains and the dry and desert portions of N-W. Frontier Province and Rājputāna.

HABITS. In the non-breeding season this warbler is met with in flocks of five to ten hopping among the twigs and foliage of moderate-sized trees, searching for small insects and caterpillars amongst the leaves and flowers. The members keep contact with one another by loud, pleasant tinkling notes. It never hops about on the ground after insects as the next species commonly does.

In the breeding season (and also occasionally at other times) the male constantly mounts to an exposed perch on a bare tree or bush-top and warbles excitedly. The song is a loud squeaky *Yousee-yousee-yousee-which-which-which*. The *yousee* portion of it starts feebly and is quickly repeated three or four times. It rises in pitch at each successive note and ends up loud and abruptly after the third or fourth *which*. Another turn in the courtship proceedings consists of a series of spectacular aerobatics when the bird rises and steeply nose-dives several times in quick succession to the accompaniment of its breeding song.

NESTING. Breeding was in full swing during August, and the principal months are doubtless July to September when the monsoon rains have given rise to the required large-leafed weeds. The usual nest is of the Tailor Bird type, in a rough cone formed by the folding over and stitching along its edges of a large leaf, or more often of two or three smaller ones together. A second type of nest is a deep cup or pouch woven out of grass fibres and lined with vegetable down on to which the surrounding leaves are loosely tacked with cobwebs etc. Normally the nest is situated between six inches and two feet from the ground. The full clutch consists of three or four eggs, glossy but very variable in colouration. They range from unspotted white or blue to pinky-white or bluish or greenish-white in ground colour speckled all over with reddish-brown, or with the markings concentrated in a sort of cap at the broad end only.

Both sexes share in building the nest, incubation and feeding the young.

MEASUREMENTS ETC. Kutch Survey specimens measure : 3 breeding ♂ ♂ (Aug./Sept.), wing 50, tail 46-49; mm ; 2 non-breeding ♂ ♂ (Mar./Apr.) w 48-49, tail 55-58 mm.

THE RUFOUS-FRONTED WREN-WARBLER

Franklinia buchanani (Blyth)

Fauna, ii, 429

Plate 5, fig. 5.

SIZE. Same as the last. Smaller than the Sparrow.

FIELD CHARACTERS. A small brown bird with longish tail rather similar to the Indian Wren-Warbler. Also confusable with Franklin's Wren-Warbler in winter dress. But the rusty-red forehead and crown and the white terminal fringe to its tail—conspicuous while it is fanned out as the bird alights on a bush—are always distinguishing features. Sexes alike. Seen in pairs or parties of five or six in dry, stony hummocky scrub-country or semi-desert.

STATUS AND DISTRIBUTION. Resident. Common all over Kutch.

Outside Kutch it occurs in Sind, Rājputāna, Gūjarāt, the Kāthiawār Peninsula and throughout the drier portions of North India, south to the Deccan and east to Western Bengal.

HABITS. Though occasionally met with side by side with Franklin's Wren-Warbler, this species is chiefly restricted to dry sparse scrub jungle. It loves patches of thorn scrub interspersed among cultivated fields. Here the birds hop among the thickets in search of caterpillars etc., loosely wagging their tails, or flit across from the base of one bush to another. Hopping on the ground—as they do with tail slightly cocked—is a habit that straightway distinguishes them from their more arboreal cousin, Franklin's Wren-Warbler. In the breeding season, particularly, the male mounts to a bare twig on a bushtop, and with tail spread out and partially cocked pours forth a vehement reeling, twittering song. In a general way this is reminiscent of the song of the Ashy Wren-Warbler, but distinct enough and unmistakable.

NESTING. The season in Kutch is evidently much prolonged. I found nests in March as well as in August and September, though Lester says it breeds from June to August. The nest is a well-woven oblong purse of grass fibres with a large admixture of cobwebs, open at the top and neatly lined or felted within with whitish vegetable down. It is well concealed in the base of a kerad or kandi bush, or a tussock of coarse grass, usually under 12 inches off the ground. The eggs—three to five—are variable in colour. A common type is greyish creamy-white finely stippled all over with reddish-brown, more densely at the broad end. Another type is a good facsimile of the egg of the House Crow in colour and markings.

Both sexes share in building the nest, incubation and care of the young.

MEASUREMENTS ETC. Kutch Survey specimens measure: 3 ad. ♂ ♂ wing 52-54; tail 53-66 mm.

SYKES'S TREE WARBLER*

Hippolais caligata rama (Sykes)

Fauna, ii, 442

SIZE. Smaller than the Sparrow.

FIELD CHARACTERS. An insignificant plain-coloured little bird with nothing particularly arresting in its general get-up. Mousy grey-brown above with a slight olive tinge, buffy-white below; a pale whitish eyebrow from the bill to just behind the eye. Seen singly hunting insects restlessly among the leaves and twigs of babool trees etc. and uttering a harsh *chuck...chuck* or *chur-r, chur-r* from time to time. Sexes alike. On the whole very like the Willow Warblers.

STATUS AND DISTRIBUTION. Possibly resident in small numbers, but very common as winter visitor and passage migrant. First observed August 8 (Rūdra Māta). Abundant from about first week of September on.

Outside Kutch it is found in winter throughout India east to Western Bengal and south into Ceylon. Breeds in Sind, Punjāb, Balūchistān, Afghānistān, Irān, Turkestān etc.

HABITS. Keeps to babool and scrub jungle in rakhāls and on the outskirts of villages and tanks. Also to jhao (tamarisk) bushes along river beds. Its diet consists entirely of tiny insects picked off the leaves and twigs. Occasionally it makes a short sally into the air to capture one on the wing. In the breedng season it has a loud and sweet song.

NESTING. So far not recorded breeding in Kutch. In Sind, March to May are the principal months for eggs. The nest is a neat but slightly built deep cup of fine tamarisk twigs or grasses, bound with cobwebs and lined with soft grass, feathers or hair. It is well concealed in a tamarisk bush or clump of tall coarse grass usually under 7 ft. from the ground. The normal clutch is of four eggs, variable in colour and markings. They are pale greyish, greenish or pinkish-white spotted, speckled and blotched with fine black, purple or red-brown scrawls and hair-lines.

MEASUREMENTS ETC. Kutch specimens measure: 7 ♂ ♂ wing 60-63. tail, 50-56, 3 ♀ ♀ w. 59-60, tail 52 (1 only); 60 ? w. 59-62, tail 49-56 mm. On arrival in autumn the birds are in very worn bedraggled plumage, but presently undergo a complete moult. In fresh winter plumage the upper parts are a uniform mouse-grey-brown with slight olive tinge. In this stage Sykes's Tree-Warbler can be readily differentiated in the museum (but not in the field) from the Booted Warbler (*H.c.caligata*) which is darker and more fulvous brown above. The latter, however, evidently does not occur in Kutch.

THE INDIAN WHITETHROAT*

Sylvia communis icterops Menetries

Fauna, ii, 447

SIZE. About that of the Sparrow.

FIELD CHARACTERS. Plain greyish rust-brown above, whitish below with a delicate vinaceous-pink wash on the breast and sides of the body. A narrow white ring round eye; white outermost feathers to tail conspicuous in flight. Sexes alike. Generally very like the Indian Lesser Whitethroat (Plate 6, fig. 4) but somewhat larger without the grey cap and with marked rufous edging to inner secondaries and greater wing-coverts, Seen singly in thorn bushes etc. in stony, sparse scrub-jungle.

STATUS AND DISTRIBUTION. Abundant autumn passage migrant through Kutch (as it also is in Southern Punjāb and Sind etc.) travelling by the Arabian route to its winter quarters in Egypt and N-E. Africa. First observed August 31 (Bhūjia). Literally swarming between September 8 and 18; thereafter progressively less. Last seen October 10 (Khāri Rōhar). On return passage in spring it either takes a different route or does not stop over in Kutch at all. Not a single example was observed between March 3 and April 3.

HABITS. During its temporary sojourn in Kutch this Whitethroat keeps to low thorn bushes for preference, and is seldom seen up in trees. It is partial to the sand mounds with tufts of kerad (*Capparis*) and other scrub, interspersed like islets amidst the open cultivated fields. Towards the middle of September the birds were so plentiful that driving in a car one or two were constantly being put up every hundred yards

or so among the roadside bushes all along the 35-mile stretch of road from Khāri Rōhar to Bhūj, and also between Anjār and Bhachāu. When flushed the bird darts away with a flurry, dodging and twisting in and out through the bushtops with great agility, often crossing the road in front of the car. While on passage here they seem to be completely silent. Their diet is entirely insectivorous.

MEASUREMENTS. The Kutch Survey specimens measure: 6 ♂♂ wing 73-77, tail 60.5-65; 3 ♀♀ w 73-76, tail 58-66, 1 o? w 74, tail 60 mm. All the examples are in freshly moulted plumage and were very fat.

THE EASTERN ORPHEAN WARBLER

Sylvia hortensis jerdoni (Blyth)

Fauna, ii, 448

Plate 4, fig. 1.

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. Slaty grey above, pale buffy white below with a black cap pulled down over the eyes and ears. Tail black, partly white-tipped, with the outermost feathers largely white and conspicuous in flight. In the female the cap is dark grey. Seen singly hopping about in small babool trees; also in thorn bushes in semi-desert, and on sparsely scrubbed stony hillsides.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common and general. First seen September 1 (Bhūjia); last, March 31 (Bēla Island).

Outside Kutch it is found in winter all over India, east to Chota Nagpur and south to Trichinopoly. Breeds in N-W. Frontier Province, Balūchistān and through Afghānistān, Irān and the countries of the Middle East to S-E. Europe.

HABITS. The Orphean Warbler is a shy and unobtrusive bird, usually seen skulking through thorny babool, kerad or kandi scrub hunting insects. It also eats tiny berries and is particularly fond of the nectar of kerad flowers. Along with its smaller cousins, the other whitethroats, it may regularly be seen probing for it into the orange-salmon blossoms of this plant. It conveys the pollen sticking to its forehead feathers to other flowers and doubtless does considerable service in cross-pollinating them. The forehead becomes golden with the heavy coating of pollen dust so that a flashing glimpse of the bird often renders its identity quite intriguing to the observer. It sometimes descends to the ground to pick up an insect.

A harsh, loudish *chuck* or *chur-r* is uttered as the bird moves about in the thickets, varied occasionally by a longer note *chichirichich*. But only those who have heard the magnificent song of the male at the breeding season can appreciate how aptly the bird has been named in English.

MEASUREMENTS: Kutch Survey specimens measure: 4 ♂♂ wing 79-84, tail 66-70; 1 ♀ w 83, tail 71.

THE DESERT WARBLER

Sylvia nana nana (Hemprich and Ehrenberg)

Fauna, ii, 449

Plate 4, fig. 5.

SIZE. Smaller than the Sparrow.

FIELD CHARACTERS. A smaller edition of the Grey-backed Warbler in many ways. Upper plumage sandy brown, lower pale buffy white. Rump, upper tail-coverts

and tail (largely) rufous, particularly conspicuous as the bird dives into a bush after a short flight. When hopping on the ground in and out at the base of a bush, it looks rather like a mouse. The tail is often spread out and partly cocked showing the white outermost feathers and tips, and emphasising the likeness to the Grey-backed Warbler. Sexes alike. Seen singly among sparsely scrubbed coastal sand-dunes.

STATUS AND DISTRIBUTION. Evidently winter visitor. Uncommon. Only met with (by me) among the sand-dunes on the Māndvi coast.

Outside Kutch it is found in winter through the more arid parts of Sind, Rāputāna, Punjāb and the N-W. Frontier Province. Breeds in the Aral-Caspian region, E. Persia and possibly the desert areas of Arabia and Palestine. The record quoted by Lester of Doig having found it breeding near the Allah Bund in the Rann of Kutch is now shown to be certainly erroneous. Neither is there as yet sufficient evidence of its breeding in Balūchistān as stated by Stuart Baker (Fauna, ii, p. 449).

HABITS. The Desert Warbler was met with in small numbers only among the undulating sand-dunes that line the seacoast at Māndvi, between the town and Vijay Vilās Palace. The birds kept to the barer dunes of rippled sand with sparse khip bushes (*Leptadenia spartium*) dotted here and there. They obtained their food—tiny insects—creeping amongst the twigs and stems of the bushes in the manner of the Lesser Whitethroat or hopping along the sand with partly erect and spread tail. Fragments of a pleasant little reeling song were uttered by a bird from the ground under the shelter of a bush, with its tail fanned out and cocked.

MEASUREMENTS. The only Kutch specimen, a ♀, measures: wing 57, tail 47 mm.

THE INDIAN LESSER WHITETHROAT

Sylvia curruca blythi Ticeh. & Whist.

Fauna, ii, 451

Plate 4, fig. 3

SIZE. Somewhat smaller than the Sparrow.

FIELD CHARACTERS. Earth-brown above, whitish below with a darker and greyer cap on the head which helps to accentuate the whiteness of the throat. White margins and tip of tail conspicuous in flight. Sexes alike. Seen singly creeping through leafy babool trees and thorn thickets in forest rakhāls, about wādis or garden cultivation, etc.

STATUS AND DISTRIBUTION. Winter visitor. Common and generally spread in Kutch. Earliest date September 15 (Anjār environs); latest April 2 (Khāri Rōhar).

Outside Kutch it is abundant in winter throughout the plains of north and peninsular India, east to W. Bengal and south to Ceylon. Breeds in Siberia and Manchuria, south to Ladakh and Kashmir.

HABITS. The Indian Lesser Whitethroat is a quiet and shy little bird, and although common and abundant in winter it seldom obtrudes itself upon the observer. It creeps about restlessly amongst the tangles of twigs and foliage searching for insects which comprise its food. From time to time it utters a subdued *tek....tek*. This sound, which may be closely imitated by a low clicking of one's tongue against the palate, is distinct from the harsh *chuck* or *chur-r* of Sykes's and several other tree-warblers. It is very fond of the nectar of kerad (*Capparis*) flowers and may regularly be seen hopping among these bushes and probing into the blossoms with its bill. The forehead feathers of most examples at this season are soiled and matted

with the nectar and pollen. The withethroats and tree-warblers have a characteristic habit, when hunting among the twigs and leaves, of lunging out with the bill at an insect just out of reach, nearly toppling forward in the attempt, and then steadying themselves on the perch with their wings.

MEASUREMENTS. Kutch specimens measure : 5 ♂ ♂ wing 61-68, tail 56-60 ; 6 ♀ ♀ wing 60-65, tail 52-58 mm.

THE SMALL WHITETHROAT*

Sylvia curruca minula Hume

Fauna, ii, 451

SIZE. Slightly smaller than the last.

FIELD CHARACTERS. Very like the Lesser Whitethroat and not always easy to distinguish from it in the field. Somewhat smaller, with the upper plumage paler and more sandy brown contrasting with the pale bluish-grey of the forehead, crown and nape. Sexes alike. Seen singly in thorn thickets in open scrub jungle etc.

STATUS AND DISTRIBUTION. Winter visitor. Common ? Easily confused with *blythi* and occurring side by side with it. Arrives and departs more or less about the same time as that race.

Outside Kutch found in winter in N-W. India, Punjāb, Sind and Rājputāna. Breeds in a more westerly portion of Asia than the preceding form, i.e., Transcaspia, E. Turkestān, Bokhāra, possibly Afghānistān etc.

HABITS. Not appreciably different except that this is perhaps more partial to low thorn bushes than to trees, and is also met with in semi-desert. Buckthorn thickets (*Acacia farnesiana*) lining the banks of dry nullahs are favourite haunts.

MEASUREMENTS. The only Kutch specimen (♀) measures: wing 61, tail 54 mm.

THE BROWN WILLOW-WARBLER OR SIBERIAN CHIFFCHAFF

Phylloscopus collybita tristis Blyth

Fauna, ii, 456

Plate 4, fig. 4.

SIZE. Smaller than the Sparrow.

FIELD CHARACTERS. A plain-looking active little bird seen singly or in twos and threes among reeds and sedges growing in water, riverain tamarisk jungle etc. Brown above with a slight olive tinge more pronounced on rump. Pale earthy-buff below. An indistinct dirty whitish eyebrow from bill to behind ear-coverts, and a dark streak through the eye. A small bright yellow patch on the edge of the closed wing, near the shoulder, sometimes visible and a good pointer to its identity. Sexes alike. Confusable with Sykes's Tree-Warbler, but its shorter bill and absence of any suggestion of white in the outer tail-feathers are points of separation.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common.

Outside Kutch found in winter (September to April) throughout the plains of N-W., N. and Central India, south to N. Kanara and east to Orissa. Breeds in N. Asia.

HABITS. This lively little warbler affects babool groves in the surroundings of tanks, wādis and cultivated fields, and tamarisk jungle in river beds. Its commonest haunts in Kutch, however, are the partially submerged reed-beds and sedges growing on the fringe of jheels such as Dēvisar, Bāda, Chāngdai and others. Here the

bird hunts caterpillars and tiny beetles on the dry lotus stalks or the sedges, clambering up to the top of one and then calmly transferring itself to the bottom of a neighbouring stem when this one bends down under its weight. It will also cling sideways on a reed close above the water and reach down to pick up a floating insect from the surface. Occasionally it will hover for a moment in front of a cluster of sedge flowers to investigate, and it frequently launches active little sallies into the air after winged prey. The call ordinarily heard in its winter quarters is a plaintive *tweet*, but just before the birds leave for their breeding grounds their characteristic song *chif-chaff, chiff-chaff* is sometimes heard.

MEASUREMENTS ETC. A Kutch Survey specimen (♀) measures: wing 57, tail 45·5 mm. Body moult in March.

THE GREEN WILLOW-WARBLER

Phylloscopus trochiloides nitidus Blyth

Fauna, ii, 473

SIZE. Smaller than the Sparrow.

FIELD CHARACTERS. Light olive-green above, rather brighter on rump; bright primrose-yellow below. A bright yellow eyebrow. Two yellowish-white bars across the wing and the generally greenish yellow colouration distinguish it at once from the browner Chiffchaff. Sexes alike. Seen singly in babool, kandi and other well-foliaged trees, in forest rakhāls, wādis and on village outskirts etc. Not in low undergrowth and thickets, or in semi-desert.

It is more than likely that other species of willow-warblers also visit or pass through Kutch in autumn and winter. They are all tiny birds, smaller than the Sparrow, largely brown, olive-brown or olive-green above and varying shades of yellow below. Many of them look confusingly alike and their proper identification in the field is a matter of some difficulty, and often impossible. While with us their songs—which are characteristically distinct and of great help in recognising the different species in summer—are seldom heard. But the simple call-notes they utter in winter as they move among the foliage of trees in search of food are also usually diagnostic. When once authenticated they provide as reliable a guide as any to recognising many of them in the field.

STATUS AND DISTRIBUTION. Presumably an autumn passage migrant as it appears to be in Sind. Not common or abundant. Earliest date September 26 (Rūdra Māta). None observed during the whole of March and first week April.

Outside Kutch the Green Willow Warbler passes through N-W. India and Sind in autumn and winters in the Deccan (?) and Western India from about Khandesh to Travancore. Also in Ceylon. Breeds in the Caucasus, Transcaspia, Irān and possibly Afghānistān.

HABITS. This warbler affects well-foliaged trees in Kutch, chiefly babool, kandi, banyan and others. As it creeps energetically among the leaves and sprigs in search of insect food it twitches its wings nervously from time to time in a characteristic way. Sometimes it hovers for a moment in front of a sprig to investigate, and it also captures winged insects in the air like a flycatcher. The call note normally uttered in its winter quarters is a sharp distinctive *chiwee*, but on first arrival in Kutch fresh from its breeding grounds a squeaky little song, *chi-chi-chiwee, chi-chi-chiwee* quickly repeated and of three or four seconds' duration, was also heard.

MEASUREMENTS. Kutch Survey specimens measure: 2 ad. ♂ ♂ wing 65, tail 47-49; 2 juv. o? wing 62-64, tail 46-47 mm.

THE STREAKED WREN-WARBLER*

Prinia gracilis lepida (Blyth)

Fauna, ii, 526

Plate 5, fig. 3.

SIZE. Much smaller than the Sparrow. The smallest wren-warbler in Kutch.

FIELD CHARACTERS. A tiny fulvous brown bird (a miniature Common Babbler in appearance) streaked on the upper parts with dark brown. Longish graduated tail tipped whitish preceded by a dark patch. Sexes alike. Pairs or scattered parties in tall grass bordering tanks, and among khip bushes on sand-dunes.

STATUS AND DISTRIBUTION. Resident. Patchy and not common. Observed only at Māndvi, in Bhūj environs (Dēvisar) on the Banni and on Khadīr and Bela islands (Great Rann).

Outside Kutch it is found in Sind, Punjāb, United Provinces, N-W. Frontier Province and also in Balūchistān and Afghānistān.

HABITS. Frequents tall coarse grass on the edge of swamps etc. (as among the sand-dunes in Vijay Vilās grounds and about Rāval Pir tank, Māndvi) and khip scrub on sandy ground about fields etc. The bird obtains its insect food on the grass and khip stems through which it creeps, jerking its loose-fitting tail up and down, and clambering to the top of a stalk every now and again to flit across to a neighbouring clump. The flight is jerky and deeply undulating and gives the same impression as in the Indian Wren-Warbler of the tail being too heavy for the bird to carry. Its song is a wheezy warbling—not a particularly musical performance—difficult to describe. It is uttered from near the tip of a reed stem or similar exposed situation, and the black inside of the singer's mouth is conspicuous while it is in progress. Except that this warbler is markedly smaller, the general resemblance in its song, habits and behaviour is very close to the Indian Wren-Warbler.

NESTING. The birds were observed breeding in July/August and also in March. The nest is a small oval pouch of fine interwoven grass strips bound with vegetable down and cobwebs, and lined with the same. It has a lateral opening at the top and is placed low down in the base of a grass clump. The eggs—three or four—are greenish or creamy-white, profusely blotched and freckled with reddish all over but more densely at the broad end where they form a ring or cap.

MEASUREMENTS. Kutch specimens measure: 3 ad. ♂ ♀ wing 42-45, tail (2) 59-60 mm.

THE JUNGLE WREN-WARBLER

Prinia sylvatica gangetica (Blyth)

Fauna, ii, 533

Plate 5, fig. 4.

SIZE. Slightly smaller than the Sparrow with a longish tail.

FIELD CHARACTERS. A typical wren-warbler with long graduated tail. In summer plumage (as illustrated) grey brown above with much white in lateral tail-feathers. In winter ruddy fulvous above and no white in tail but all the feathers except the central pair with pale tips preceded by a dark brown subterminal patch. Lower parts buffy white. Sexes alike; female slightly smaller. Seen singly or in pairs amongst thorn scrub and cactus clumps in dry stony hills and broken country.

STATUS AND DISTRIBUTION. Resident. Fairly common.

Outside Kutch, this race (North Indian) and the peninsular *sylvatica* between them are found from the Himālayas to Cape Comorin, west to Jodhpur and east to Midnāpur (Bengal). Not in Sind.

HABITS. The typical habitat of this wren-warbler in Kutch is stony hillocks and broken country such as on the sides of Bhūjia Hill, at Chāduva, Nakhatrāna, Māta-no-Madh and elsewhere. The bird draws attention to itself by its habit of mounting a cactus clump, a boulder or to some other exposed perch and pouring out its spirited but monotonous warbling. The song is merely a succession of the notes *p'ty, p'ty, p'ty, p'ty, p'ty* etc. rather like the Tailor Bird's but louder, and easily distinguishable from it. It is continued for two or three minutes at a stretch, and frequently repeated. Each *p'ty* is preceded by a curious subdued *pit* uttered in a different key and seeming to come from a different direction. The whole thing often sounds very like *pettigrew, pettigrew, pettigrew* etc.

While singing, the wings are drooped at the sides and the tail partly spread out exhibiting the white outer feathers conspicuously. The black inside of the mouth, acquired during the breeding season, also comes into prominence then. Sometimes the song is accompanied by a very spectacular courtship display. The male in his excitement takes off from his perch and performs a succession of quick-repeated steep nose-dives in the air, tumbling headlong groundwards, then rising up again for the next dive and so on, till he finally lands up on another bush nearby.

When agitated the bird hops about the bushes with a loud, quick-repeated *pit, pit, pit, pit* etc.

Its diet is purely insectivorous.

NESTING. July and August appear to be the principal months in Kutch. The nest is a largish globular structure of grass plastered on the outside with cobwebs and vegetable down, and with the entrance hole on the side. It is placed fairly low down in the centre of a thorn bush or grass tussock. The eggs—four to five—are pale greenish-grey finely and sparsely speckled with faint reddish-brown, the markings concentrated into a cap or ring at the broad end.

MEASUREMENTS ETC. Adult Kutch specimens measure: 2 ♂ ♂ wing 62-62·5, tail 75-82; 1 ♀ wing 55, tail 59 mm.

The underparts of the juvenile are suffused with bright yellow.

THE INDIAN WREN-WARBLER

Prinia inornata terricolor (Hume)

Fauna, ii, 534

SIZE. Smaller than the Sparrow. Between the Jungle Wren-Warbler and the Streaked Wren-Warbler.

FIELD CHARACTERS. Plate p. 96, B.I.B. In summer dull earthy-brown above with faint subterminal dark spots on underside of the longish graduated tail. Pale buff below. In winter more rufous above and tail markedly longer. Sexes alike. Seen singly or in pairs in tall grass ("Nal") and scrub around tanks etc., in standing jowār and bājri crops, and in khip bushes on coastal sand-dunes (Māndvi).

STATUS AND DISTRIBUTION. Resident. Common.

Outside Kutch, this race (North Indian) and two others occupy all India, plains as well as hills up to about 4000 ft. elevation.

HABITS. Typical of its cousins already described. The normal call-note is a sharp, rather plaintive *tee-tee-tee*, and the song uttered by the male from a bare branch

near the top of a tree or bush during the breeding season is very similar to that of the Streaked Wren-Warbler.

When suddenly disturbed off its nest, this and many of the other wren-warblers emit a peculiar *kit-kit-kit* as of electric sparks. There is some doubt as to whether this is produced by a snapping of the mandibles or by some trick of striking its wings together. Its food consists of insects and caterpillars.

NESTING. I found it breeding in August and September. Lester gives the season as June, July and August. The type of nest most commonly seen in Kutch is a combination of the stitched-leaf Tailor Bird type and another which is a longish pear-shaped pouch woven out of fine grass strips rather like a loofah in texture open or with a lateral entrance hole near the top. In this some green leaves are stitched on the outside of the structure serving rather to disguise the nest than to provide a funnel or cone to hold it. It is placed in bushes under 3 ft. from the ground. The eggs—three to five—are smooth and glossy in texture. They are a lovely greenish-blue in colour, speckled, blotched and pencilled with reddish-brown.

Both sexes share in building the nest and tending the young.

MEASUREMENTS. The Kutch specimens measure: 3 ♂ ♂ ad. (breeding) wing 51-54, tail 52-56 mm.

THE INDIAN ORIOLE

Oriolus oriolus kundoo Sykes

Fauna, iii, 6

SIZE. About that of the Myna.

FIELD CHARACTERS. Plate p. 113, B.I.B. A bright yellow bird with black in wings and tail and a conspicuous black streak through the eye. The female and young male are duller and greener with whitish underparts narrowly streaked brown on the breast. Seen singly or in pairs in gardens and wādis with large, densely leaved trees.

STATUS AND DISTRIBUTION. Winter visitor? Rare. Only five examples were met with between August 15 and September 15—three solos and a brace (Chāduva, Māndvi, Khāri Rōhar, Tūna). None during the whole of March. Col. O'Brien also observed a pair in Mirza Bāgh and his own compound in September 1922 and August 1923.

Outside Kutch it is rare in Sind and W. Rājputāna, but found more or less all over India, being resident in some localities and local migrant in others.

HABITS. The Indian Oriole is essentially a bird of gardens with groves of large well-foliaged trees such as are to be found in Vijay Vilās grounds at Māndvi and Sarat Bāgh in Bhūj. It does not like arid areas. As the birds fly from tree to tree with a strong dipping flight, or chase one another through the boughs, their brilliant plumage flashes gold in the sunlight and presents a charming picture against the dark green background. Their usual call-notes are a harsh *chee-ah*, but they also have a number of rich, melodious flute-like whistles, something like *pe-lo-lo* which are constantly uttered and which serve to notify their presence in a grove.

Their food consists of peepal and banyan figs, and other fruits and berries.

NESTING. There is no evidence that this bird breeds in Kutch, but it is quite possible that an odd pair may occasionally do so, crows permitting. Among the most likely places for a nest are the two gardens mentioned above, and also the one at Chāduva. But the last and Sarat Bāgh are so ridden by crows that chances of successful breeding are slight.

MEASUREMENTS ETC. The Kutch specimens measure: 2 ♀ ♀ wing 138-143 mm. On September 14 they were both fat and undergoing general moult—body, wings, tail. The birds were excessively wild, and evidently newly arrived on migration (or passage ?).

THE ROSY PASTOR OR ROSE-COLOURED STARLING

Pastor roseus (Linn.)

Fauna, iii, 29

Local name: Wyha.

SIZE. About that of the Myna.

FIELD CHARACTERS. Plate p. 118, B.I.B. A characteristically myna-like bird, rose-pink above and below, with glossy black head and breast, wings and tail. The hindcrown has a full, long crest of pointed feathers, not upstanding but conspicuous when the bird is singing. Sexes alike. Young birds pale brown with darker wings and tail, and no crest.

Seen in flocks in and around cultivation and grassland.

STATUS AND DISTRIBUTION. Winter visitor. Common and abundant between early August and end April. (According to Lester small numbers from 2nd or 3rd week in July to 2nd week May. Most abundant December-January.)

Outside Kutch a common winter visitor to all India, east to Bengal and irregularly and in small number south into Ceylon. Breeds in Eastern Europe, Western and Central Asia; May and June.

HABITS. The Rosy Pastor is one of our earliest "winter" arrivals and also one of the last to leave for its breeding grounds. It is absent from Kutch only for about two months in the year. When they first arrive the birds are seen in small parties, but as the season advances these grow into enormous swarms. Large numbers in packed flocks flight in from all directions every evening to roost in the noisy company of crows and mynas among the leafy trees in the garden at Chāduva below Prāgsar Tank. Their food consists of fruits and berries as well as locusts, grasshoppers and other insects. I observed them everywhere devouring large quantities of the green caterpillars that were swarming on and defoliating gūgar bushes (*Balsamodendron mukul*). They also fed extensively on the "kūtti" caterpillars that were blackening large areas of grazing land and doing considerable damage to pasture grass in rakhāls. A flock of Pastors hunting grasshoppers among the herbage that springs up in the rainy season is amusing to watch. The birds jostle one another in their eagerness, sometimes hidden by the grass as they chase the insects, but springing up every now and again to capture the quarry as it leaps into the air for escape. The grassfield is alive with the activity of chasers and the chased, and the seething mass of birds constantly flies forward a few yards in feverish attempts to keep up with and cut off the fleeing hordes.

Fruits of the liār (*Cordia rothai*), kūndēr (*Premna coriacea*), kerad (*Capparis aphylla*) and peelo (*Salvadora persica* and *S.oleoides*) form a large proportion of their food, and the birds are very fond of the nectar of kerad flowers. In spite of the not inconsiderable damage they must do to ripening jowāri, the Pastor on the whole appears to be a beneficial species in Kutch by virtue of the tremendous and wholesale destruction it does to insect pests.

The birds have the typical starling song consisting of a variety of harsh chattering notes intermingled with some pleasant warbling. This is more commonly heard as the season for their departure approaches. Dense masses collect to drink and bathe at puddles left behind in drying-up jheels.

Outward migration was observed in progress on March 25. Between 8-30 and 10-30 a.m., an intermittent stream of birds, in flocks of 40-50 each, was passing in a N. and N-W. direction over the extreme N-W. corner of Khadîr Island and across the Great Rann, at a height of between 50 and 100 feet.

MEASUREMENTS. Kutch Survey specimens measure: 2 ♂ ♂ ad wing 134, tail 69.5-73; 1 ad ♀ wing 129, tail 67 mm.

THE STARLING

Sturnus vulgaris Linn.

Fauna, iii, 31.

SIZE. Slightly smaller than the Myna.

FIELD CHARACTERS. A brilliantly glossy black myna-like bird with a purplish or greenish sheen, and finely spotted with whitish. Sexes alike but female somewhat duller. Flocks, on damp grassland.

STATUS AND DISTRIBUTION. Lester describes it as a rare cold-weather visitor. He only saw a dozen or so in Dudai nala (December 27, 1895)[1] and seven birds at Padar (February 23, 1896). I failed to meet with it in Kutch between August and early October (1943), and during the whole of March (1944).

Outside Kutch, a small race (*minor*) is resident and breeds in Sind and another in Kashmir. A number of other races from beyond our frontiers visit N-W., N. and Central India in winter—between October and March.

HABITS. Usually seen in flocks on the damp, grassy margins of jheels, sauntering or running about and digging with their bills for worms and insects. They are frequently in attendance on grazing sheep and cattle, capturing the grasshoppers etc. disturbed by the animals' feet. From time to time a flock rises into the air for no apparent reason and wheels round and round in a close-packed orderly mass before it resettles nearby to resume hunting. Their flight is swift and straight. It consists of a number of rapid beats of the pointed wings punctuated by a short pause.

Their diet consists largely of insects, but fruits, berries and grain are also eaten. While in their winter quarters, the birds are mostly silent.

THE BRAHMINY OR BLACK-HEADED MYNA

Temenuchus pagodarum (Gmelin)

Fauna, iii, 47

Local name: Powāi.

SIZE. Slightly smaller than the Common Myna.

FIELD CHARACTERS. Plate p. 122, B.I.B. A typical little myna with a glossy black head and long, lying-down crest. Upper plumage grey, lower reddish-fawn. Black wings and brown tail; the latter with whitish edging at tip conspicuous when the bird spreads it before alighting after a flight. Sexes alike. Young birds dull-coloured with a sooty-brown head and no crest. Seen singly, in pairs or parties of three and four in wooded country.

STATUS AND DISTRIBUTION. Resident. Uncommon and very local and erratic in its occurrences. Noted only at Bhūj, Chāduva, Nakhatrāna, Rāpar and Wad (near Dhūnāra Customs Outpost, Pachham Island).

[1] Recorded by him also in *Jour. B. N. H. Soc.* Vol. x, p. 331 (Jan. 1896).

Outside Kutch it is fairly common throughout India east to Bengal. Absent or patchy in the dry areas of N-W. India, and also from evergreen forest. In many localities it is locally migratory.

HABITS. The Black-headed Myna keeps to comparatively well-wooded tracts—babool groves etc.—in the neighbourhood of villages and rakhāls. It feeds on insects as well as banyan figs and other fruits and berries, and may be seen on the ground and in trees alike, often in company with common Mynas and Rosy Pastors.

Its normal call-notes are a merry creaking and chattering, but during the breeding season the male has a pleasing little song. While uttering this his crest is partially erected and the whole plumage frowzled.

NESTING. The season in Kutch, according to Lester, is June and July. He took two eggs at Pālera (near Rūdra Māta ?) on July 5 (1896). But activities evidently continue till much later. I observed birds carrying food for their nest-young at the middle of August, and an occupied nest as late as September 9. The nest is a pad of grass, rags, feathers etc., placed in a natural hollow or disused parrakeet's nest-hole in a babool trunk or branch. The bird may also use a hole in the wall of a building as it commonly does in other parts of its range. The eggs—three or four—are pale blue, unmarked. Both sexes share in building the nest, incubation and care of the young.

THE COMMON MYNA

Acridotheres tristis tristis (Linnaeus)

Fauna, iii, 53

Local name : Kābar.

SIZE. Between the Bulbul and the Pigeon (about 9").

FIELD CHARACTERS. Plate p. 125, B.I.B. A perky, well-groomed dark brown bird with black head, bright yellow bill, legs and bare skin around the eyes. A large white patch on the wing prominent in flight. Sexes alike. Seen in pairs and family parties about houses and cultivation.

STATUS AND DISTRIBUTION. Resident. Common throughout, except in arid uninhabited parts.

Outside Kutch common all over India and up to the elevation of most Himālayan hill-stations.

HABITS. The Common Myna is just as abundant and familiar in Kutch as it is elsewhere in India. It is invariably present about human habitations, whether town, village or outlying homestead. Like the Crow and the Sparrow it has thrown in its lot completely with Man's, follows close on his heels wherever he extends his settlement and is not slow to profit by his labours. It is thoroughly omnivorous in diet and, apart from its normal food of insects, banyan figs and other fruit, it will gladly eat kitchen scraps, grain filched in standing cultivation as well as from the threshing floors, and any other odds and ends it can procure. Parties are often seen in attendance on grazing cattle, the birds running in and out among the legs of the animals and hunting the grasshoppers they disturb in their progress. Large gatherings collect to roost every evening among the leafy trees in the garden at Chāduva which they share with crows and, in season, with Rosy Pastors. Great noise prevails before the birds fall asleep.

The Myna has a large repertoire of sharp creaking calls and chatter. One commonly heard is a loud, scolding *rādio-rādio-rādio* shrieked at the top of its voice with a marked foreign accent ! Sometimes it bobs its head ludicrously and, with bill touching breast and plumage fluffed out, utters what is presumably intended to be its love song : a series of curious *keek-keek-keek, kok-kok-kok, chur-r, chur-r* etc.

NESTING. SIR G. Archer collected c/3 and c/4 (fresh) at Khāri Rōhar on July 15 (1939). The season, as elsewhere, is principally between April and August, though as late as the middle of that month birds were still observed collecting building material. Usually two successive broods are raised. The nest—a collection of twigs, roots, paper, feathers and rubbish—is placed in holes in tree-trunks and walls, or between the ceiling and roof of a house. The eggs—four or five—are a beautiful glossy blue without any markings.

Both sexes share in building the nest, incubation and care of the young.

MEASUREMENTS. A Kutch specimen measures: wing 151 mm.

THE BANK MYNA

Acridotheres ginginianus (Latham)

Fauna, iii, 55

SIZE. Slightly smaller than the Common Myna.

FIELD CHARACTERS. Plate p. 126, B.I.B. Very like the last, but general colouration pale bluish-grey. The bill and naked skin around the eyes are orange-red instead of yellow; the wing-patch and tips of tail feathers pinkish-buff instead of white. Sexes alike. Seen in small parties about villages, especially by cattle pens.

STATUS AND DISTRIBUTION. Resident. On the whole uncommon and patchy. Possibly moving about locally to some extent.

Outside Kutch found over most of Northern India from Sind to Bengal, and south to about Bombay. In portions of the Himālayas up to about 3000 ft. elevation.

HABITS. The Bank Myna, though commoner and more general than the Brahminy, is by no means an abundant species in Kutch, and curiously patchy in its occurrence. It is confined to the vicinity of villages and most often seen about cattle pens and in attendance on grazing cattle on the outskirts. Occasionally the birds may be met with farther out on the countryside, but always near the outlying "wāndias" or herdsmen's encampments and their cattle kraals. Its voice is somewhat softer and pleasanter than the Common Myna's, and it is perhaps more of an insect-eater than its vulgar cousin, but otherwise there is no appreciable difference in the general habits of the two.

NESTING. On September 18 (Bhachāu) and September 19 (Chitrōd) small colonies of eight to ten birds each were observed nesting (mostly feeding nest-young) in holes down the sides of wells, with sparrows and pigeons as co-tenants.

The season elsewhere is principally between May and August. The birds nest in colonies occupying holes in embankments, revetment walls and the like. Where dug in soft earth cuttings, by the birds themselves, the tunnels are often several feet in length. The nest is a rough pad of grass, leaves and rubbish. The normal clutch is of three to five eggs, glossy pale blue without markings.

THE BAYA OR COMMON WEAVER-BIRD

Ploceus philippinus phillipinus (Linn.)

Fauna, iii, 67

SIZE. That of the House Sparrow.

FIELD CHARACTERS. Plate p. 130, B.I.B. Female, and male in non-breeding dress, dark-streaked earthy brown above, whitish below. Rather like the female House Sparrow, but with a stouter bill and a shorter square-cut tail.

In breeding dress the cock acquires a rich golden-yellow head and breast, and his back is suffused with the same bright colour. Throat and sides of head dark become brown. The hen retains the sober raiment of her maiden days. Seen in flocks around cultivation.

STATUS AND DISTRIBUTION. Resident. Common. Possibly shifting to some extent seasonally as in other parts of its range.

Outside Kutch this race (*philippinus*) with two others is found in suitable localities all over India, Burma and Ceylon.

HABITS. The Baya keeps to the cultivated and better-watered tracts in Kutch. Flocks are seen gleaning jowāri, bājra and other seeds on the ground, and occasionally they also raid ripening crops. The food of the adults consists almost entirely of grain and seeds ; that of young birds in the nest almost exclusively of soft-bodied insects—caterpillars, grasshoppers, moths etc.—brought in by the parents. Nectar of flowers like kerad (*Capparis*) is regularly eaten.

In the non-breeding season the birds are mostly silent except for a soft *chit, chit* heard as a flock flies off. While weaving their nests the cocks constantly utter a sparrow-like *chit-chit-chit* followed by a long-drawn wheezy *chee-ee* uttered in chorus to the accompaniment of much excited flapping of wings as the birds cling to their nests.

NESTING. The season is during the monsoon : July to September. The nests are the well-known retort- or bottle-shaped hanging structures compactly woven out of strips of coarse saw-edged grass such as Gum (*Panicum antidotale*). They are built in colonies of 5 to 50 or more on babool and kandi trees etc. The sites are capriciously chosen, and may be anywhere—on a stony hillside, in a scrub-covered nullah, by a jheel or out in open cultivated areas. A very favourite site here is on sprawling bushes growing out of the sides of a kutcha well and overhanging the water. The cock alone does the building work. When a nest is nearly completed a party of hens comes along to inspect the structure. If a hen approves of it she decides to stay on, and becomes the wife of the builder. While she is busy incubating her eggs the cock builds another nest nearby and inveigles a second prospecting female. In this way he may sometimes find himself the happy husband of three or more wives and the father of as many families, all at the same time. The normal clutch is of two to four eggs, pure white, unmarked.

MEASUREMENTS. 2 ♂ ♂ from Kutch measure : wing 70-72, tail 45-49 mm.

THE WHITE-THROATED OR PLAIN BROWN MUNIA

Uroloncha malabarica (Linn.)

Fauna, iii, 89.

SIZE. Smaller than the Sparrow.

FIELD CHARACTERS. Plate p. 134, B.I.B. A plain earthy-brown little bird with thick slaty-blue bill, pointed black tail, whitish underparts and white rump. Sexes alike. Seen in small flocks around cultivation and grassland.

STATUS AND DISTRIBUTION. Resident. Common.

Outside Kutch found in the drier parts of Ceylon, and all India (up to ca . 6000 ft. in the Himālayas) east to, but excluding Assam.

HABITS. This Munia is usually met with in the neighbourhood of open cultivation and sparsely scrubbed grazing land. The birds keep in small flocks which utter feeble chirruping notes as they hop about gleaning grass seeds on the ground. Occasionally a bird will clamber up a seeding grass-stem, bending it down to the ground with its weight and then picking out the seeds from the ear in an amusingly methodical way.

NESTING. Breeding was in progress during August, September and October and also in March, so evidently here as elsewhere the season is ill-defined and straggles more or less over the entire year. The nest is an untidy globular structure of fine flowering grasses with a lateral entrance hole, sometimes in the form of a short tube. It is placed in the centre of a thorny bush between five and eight feet from the ground. Large numbers of nests in all stages of construction or with eggs and chicks may be found within Bhūjia Fort walls towards the end of September. Old Baya nests are regularly used by this Munia as family dormitories, as well as for laying in. The normal clutch is of four to six eggs, white and unmarked.

MEASUREMENTS. Kutch Survey specimens measure: 1 ♂ wing 55, tail 48; 1 ♀ wing 55, tail 48 mm.

THE ROSE-FINCH

Carpodacus erythrinus (Pallas)

Fauna, iii, 134

SIZE. A trifle larger than the Sparrow.

FIELD CHARACTERS. Plate p. 138, B.I.B. Male beautiful crimson-pink. Female olive-brown above, whitish below; chin, throat and breast streaked with brown. The heavy conical bill and slightly forked tail are conspicuous features.

STATUS AND DISTRIBUTION. Only observed once, Ratāl April 17 (1945). According to Lester it is an uncommon cold-weather visitor to Kutch and "only to be met with in tolerably thick jungle."

Outside Kutch it is found in winter over the whole of India in two races. Rare in Sind.

THE TRUMPETER BULLFINCH OR EASTERN DESERT-FINCH

Bucanetes githaginea (Licht.)

Fauna, iii, 141

SIZE. About that of the Sparrow.

FIELD CHARACTERS. A sandy and rosy-grey desert-loving finch with a thick and short scarlet, orange or yellow bill surrounded at its base by bright rose-red feathers. Upper tail-coverts rose-pink. Female duller.

STATUS AND DISTRIBUTION. Not met with by me. I do not know how far Lester is justified in including this species in his Kutch list. He never came across it himself but merely writes "Said to occur in Kutch and Sind as a cold weather visitant only."

Outside Kutch it is a fairly common winter visitor to Sind and less common in parts of Rājputāna. Breeds in Afghānistān, Balūchistān and N-W. Frontier of India.

THE YELLOW-THROATED SPARROW

Gymnorhis xanthocollis xanthocollis (Burton)

Fauna, iii, 166

SIZE. That of the House Sparrow.

FIELD CHARACTERS. Plate p. 141, B.I.B. An unmistakable sparrow with a markedly forked tail. Light earth-brown above, whitish below, with a conspicuous chestnut shoulder-patch and two whitish bars on the wing. The lemon-yellow patch on the throat ("thumb impression"), visible at close range, is diagnostic. In the female the chestnut shoulder-patch is paler as also is the yellow throat which is

sometimes absent. Breeding males have the bill black. Pairs or small flocks seen in open lightly wooded country.

STATUS AND DISTRIBUTION. Resident and partly local migrant. Fairly common but patchy. Observed much commoner and more abundant in March than August to October.

Outside Kutch found (two races) practically all over India up to ca. 4000 ft. in the Himālayas. Absent in Assam. Locally common in Sind.

HABITS. The Yellow-throated Sparrow keeps in small flocks of 10 to 15 and is frequently met with in the neighbourhood of cultivation and villages, but it does not enter houses or live in such close contact with Man as the House Sparow does. It affects light jungle and scrub, and appeared partial to the stony broken country around the base of Chhaparia hills on Bela Island. Its food consists of grain, seeds and berries as well as insects. It was observed devouring extensively the green caterpillar defoliator swarming on gūgar bushes (*Balsamodendron mukul*) in September, largely assisted in the good work by House Sparrows. The birds are very fond of the nectar of kerad flowers (*Capparis aphylla*) and may invariably be seen probing into them. During the flowering season their foreheads become so yellow-stained with adhering pollen, that at a flashing glimpse their identity is sometimes quite intriguing. In flight, and when perched on a low branch in the distance, I have occasionally mistaken it for the Striated Flycatcher which it rather resembles.

Its monotonous chirping notes are similar to the House Sparrow's but somewhat pleasanter and easily distinguishable from them.

NESTING. Breeding was noted in progress from about the 3rd week in March. As elsewhere the season probably lasts till June. The nest is a collection of grass, wool, feathers and rubbish placed in a natural hollow or woodpecker-hole in a babool, kandi or peeloo trunk, 8 to 15 feet from the ground. The eggs—three or four—are pale greenish-white profusely spotted, blotched and streaked with dingy brown. Both sexes share in building the nest and tending the young.

MEASUREMENTS. Kutch Survey specimens measure: 2 ♂ ♂ wing 81-83, tail 47-53; 1 ♀ wing 80, tail 49 mm.

THE HOUSE SPARROW

Passer domesticus indicus (Jardine & Selby)

Fauna, iii, 170

Local name: Jhirakli.

SIZE. Smaller than the Bulbul (6″).

FIELD CHARACTERS. Cock chestnut and grey above, white underneath, with a black "bib" and white cheek-patches. Hen earthy-brown streaked with blackish and rufous above; whitish below. A ubiquitous and unfailing hanger-on of Man.

STATUS AND DISTRIBUTION. Resident. Common and abundant.

Outside Kutch found throughout the Indian Empire. This race occupies the whole of the peninsula.

HABITS. The Sparrow lives where Man lives: in town, village or outlying homestead. It is as abundant, noisy and impudent in Kutch as it is elsewhere, and its delinquencies here need no special cataloguing. But this makes it all the more necessary to extol the few but very important virtues it possesses so that they may receive due appreciation from the prejudiced. The bird destroys insect pests on a scale the magnitude of which it is impossible to assess, and it is of the greatest

help in keeping their numbers in check. During August and September (1943) there was a plague of green defoliating caterpillars of such proportions that almost every gūgar and gāngi bush within many miles of Bhūj was swarming with them and more or less completely denuded of their foliage. The attack was particularly severe on Bhūjia Hill where not a single gūgar bush was left intact. The nesting of House Sparrows was in full swing in Bhūj town (½ to 1 mile away); from early morning till dusk party upon party of the birds were observed shuttling back and forth between Bhūjia hillsides and the town, feverishly collecting and conveying the caterpillars to their nest-young. Hundreds of sorties were ceaselessly being flown and the effect upon the caterpillars must be devastating. Before carrying the load back to their young, the adults usually helped themselves to the insects also. A few days later the intensive traffic had ceased, but the bushes were now "seething" with juvenile sparrows who had flown out to the spot to do the massacre themselves.

NESTING. Breeding continues practically throughout the year but the greatest activity is certainly between March and September. Holes in the walls of houses, ruins and village fortifications, under the tiles in roofs, and down the sides of wells appear to be the most popular nest-sites in Kutch. Every well invariably holds its quota of nesting sparrows. The nest is a rough collection of straw, feathers and rubbish. The normal clutch consists of three to five eggs, whitish or pale greenish-white, marked with various shades of brown. Both sexes share in collecting the building material and in foraging for the young.

MEASUREMENTS. Kutch specimens measure: 1 ♂ ad. wing, 73, tail 52; 1 ♀ ad. wing 75, tail 52 mm.

THE GREY-HEADED BUNTING

Emberiza fucata Pallas

Fauna, iii, 198

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. A sparrow-like bird, slimmer and with a proportionately longer tail. Seen in flocks, feeding on the ground on seeds etc. in stony, sparsely scrubbed country. Rufous above with black streaks, whitish below with a chestnut band across upper breast. Head grey, streaked with black. A narrow, black gorget on foreneck, formed by the continuation and broadening of the moustachial streaks—one from either side of the base of the lower mandible—and enclosing the pale fulvous chin and throat. The outer tail-feathers are largely white and conspicuous in flight.

STATUS AND DISTRIBUTION. Not met with by me in Kutch. Lester lists it as "a cold weather visitant."

Outside Kutch it is a fairly common winter visitor to Northern and Central India. Breeds in the Himālayas from Kashmir to Garhwal.

THE GREY-NECKED BUNTING

Emberiza buchanani Blyth

Fauna, iii, 208

Plate 6, fig. 5.

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. The ashy-grey head, white ring round the eye, dark moustachial streaks and orange-yellow bill are pointers to the identity of this bunting.

Its flight, gait on the ground and general behaviour are very like the pipits'. The outer tail-feathers are also white, but the tail is noticeably forked. Sexes alike. Seen in flocks among loose stones on sparsely scrubbed hillsides and broken country.

STATUS AND DISTRIBUTION. Winter visitor. Common and abundant. Earliest seen August 30 (Bhūjia) ; latest April 21 (Khāvda).

Outside Kutch it is found in winter all over N-W. India, east to about Lucknow, south to Mysore. Breeds in Kashmir, Balūchistān, Afghānistān, Irān and westward to Altai : May and June.

HABITS. These buntings are seen in small loose parties frequenting stony hillsides with thorn scrub and cactus bushes. Their food consists of grass and weed seeds which are obtained by gleaning. Unlike the Black and Red-headed buntings they appear to leave crops alone. They are thirsty birds and invariably collect at waterholes to drink, chiefly in the morning and forenoon. The only call-note heard in their winter quarters is a low *click* uttered at intervals as the birds fly.

MEASUREMENTS. Specimens collected in Kutch measure: 1 ♂ wing 93, tail 77 ; 3 ♀ ♀ wing 82-88, tail 68.5-70 mm.

THE RED-HEADED BUNTING*

Emberiza bruniceps Brandt

Fauna, iii, 215

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. Plate p. 145, B.I.B. Male: a bright golden-yellow sparrow-like bird with golden rusty-brown head, throat and breast. Tail proportionately longer than the Sparrow's and noticeably forked. Female: ashy-brown above, pale yellowish below without the red head. Seen in large flocks about cultivation.

STATUS AND DISTRIBUTION. Winter visitor and/or passage migrant. Not common. First seen September 20 (Rāpar). None in March.

Outside Kutch it is a winter visitor to the greater part of continental and peninsular India. Breeds in Balūchistān, Afghānistān etc. : May/June.

HABITS. This bunting does not appear to visit Kutch in such abundance as it does other parts of India, e.g. the Deccan. The birds do considerable damage to jowār and bājra cultivation, descending upon the standing crops in swarms and filching the grain from the cobs. They also obtain their food by gleaning in harvested fields. When settled on the green trees surrounding the fields they look like a profusion of bright yellow flowers in the distance.

The only call-note heard in their winter quarters is a sparrow-like but musical *tweet* as the birds fly about.

THE BLACK-HEADED BUNTING*

Emberiza melanocephala Scopoli

Fauna, iii, 213

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. Plate p. 145, B.I.B. Male: orange-chestnut above, deep yellow below including cheeks, chin and throat. Rest of head black. Female: pale fulvous brown above, pale yellowish below without the black head. Seen in large flocks in and about standing cereal crops.

STATUS AND DISTRIBUTION. Winter visitor and/or passage migrant. Only met with in March (spring passage). Last date April 1. Locally abundant (particularly so at Chobāri, Bhachāu Dist., Wāgad) in the 4th week of March.

Outside Kutch found in the cold weather over a large part of continental and peninsular India, chiefly on the western side, south to Mysore. Breeds in W. Asia and E. Europe : May-June.

HABITS. Not differing from those of the Red-headed Bunting. The two usually keep apart, but mixed flocks are not uncommon. The *tweet* uttered by this species is indistinguishable from that of the last.

MEASUREMENTS ETC. Kutch specimens measure : 5 ♂ ♂ wing 92-99, tail 68-78 mm. All of them were excessively fat and obviously ready for emigration.

THE STRIOLATED BUNTING

Emberiza striolata striolata (Licht)

Fauna, iii, 217

Plate 6, fig. 1.

SIZE. About that of the Sparrow.

FIELD CHARACTERS. A pale rusty brownish bird with grey head streaked black and white. In the female this streaking is less. In flight the rufous wings are reminiscent of the Red-winged Bush-Lark's. Met with in pairs or small parties on stony sparsely scrubbed hillsides, and sides of dry outscoured gorges etc.

STATUS AND DISTRIBUTION. Resident. Common.

Outside Kutch it is resident over a large portion of N. and N-W. India, south to (at least) Aurangābād in the Deccan. Also Arabia, Palestine etc.

HABITS. The Striolated Bunting affects stony, sparsely scrubbed and broken country. It feeds on grass seeds gleaned on the ground, the bird hopping about rigidly like a sparrow in the quest. In the cold weather it often associates with the Grey-necked Bunting and like it does no damage to crops.

Numbers may invariably be seen together drinking at water-holes and puddles in the morning and forenoon.

Though resident in Kutch as a species its numbers were observed to increase markedly from about the 3rd week of September, presumably by immigrants from beyond our borders. By the end of March a considerable decrease had again taken place.

The song of the male, uttered from a rock or bushtop, is a clear whistling *which-which-wheech-whichy-which* repeated every few seconds. The first two syllables are short and the accent is greatest on the final *which*.

NESTING. The season in Kutch is apparently a protracted one. Breeding was in progress at least from early August and up till October 10, and then again in March/April. For the intervening period I have no information. The nest is a neat cup of soft grasses and fibres placed in a tiny niche on a ledge of rock, or on the ground under shelter of a stone, on arid stony hillsides etc. The eggs—three (or four ?)—are variable in colour, greenish-white to pinkish-white, blotched and freckled with reddish brown. They are on the whole rather like the eggs of the House Sparrow.

MEASUREMENTS. Kutch specimens measure : 3 ♂ ♂ wing 79-85, tail 55-60 ; 1 ♀ wing 75, tail 56 mm.



1. The Grey-backed Warbler (p. 25)
2. Franklin's Wren-Warbler (p. 29)
3. The Indian Streaked Wren-Warbler (p. 36)
4. The Jungle Wren-Warbler (p. 36)
5. The Rufous-fronted Wren-Warbler (p. 30)



1. The Striolated Bunting (p. 48)
2. The Yellow-headed Wagtail (p. 54)
3. The Black-headed Wagtail (p. 53)
4. The Red-rumped or Sykes's Striated Swallow (p. 51)
5. The Grey-necked Bunting (p. 46)

ZOOLOGICAL GARDEN
CALCUTTA

THE DUSKY CRAG-MARTIN

Riparia concolor Sykes

Fauna, iii, 237

SIZE. Slightly smaller than the Sparrow.

FIELD CHARACTERS. Plate p. 146, B.I.B. A uniformly sooty-brown bird with swallow-like wings and flight, but with a short square-cut tail. All the tail feathers except the middle and outermost pairs have a roundish white spot, conspicuous when the bird banks in the air. Sexes alike. Seen in small numbers about fort ruins, cliffs etc. often in association with swallows.

STATUS AND DISTRIBUTION. Resident. Fairly common but local.

Outside Kutch it is found throughout India (excepting Sind and the Punjāb) from the Himālayas to Cape Comorin, and from Rājputāna to W. Bengal.

HABITS. The Crag Martin may invariably be met with in such places as Bhūjia Fort, the temples and cliffs at Tapkēshwari, and wherever there are old fortifications and cliffs. The birds are usually perched on a ledge of rock or cornice of a building, or hawking tiny winged insects in the neighbourhood. They utter a soft *chit-chit* as they fly about.

NESTING. Breeding was in progress during August and September. The season in Kutch is evidently confined more or less to the rainy months when wet mud is available for nest-building. The nest is a deepish oval saucer attached like a bracket to a perpendicular wall or rock-face. It is composed of plastered mud-pellets and lined with fine grasses and feathers etc. Under the inner archway into Bhūjia Fort, in the outscoured niches in the cliffs at Tapkēshwari and up in the corners of the verandah of the pavilion overlooking the sea in Vijay Vilās grounds (Māndvi) nests new or old may always be seen. The eggs—two or three—are white, minutely spotted and speckled with reddish brown. Both sexes share in building the nest, incubation and care of the young.

MEASUREMENTS. Kutch specimens measure: 1 ♂ wing 110, tail 47; 1 ♀ wing 108, tail 45 mm.

THE COMMON SWALLOW

Hirundo rustica Linnaeus

Fauna, iii, 241

SIZE. About that of the House Sparrow.

FIELD CHARACTERS. Plate p. 149, B.I.B. Glossy steel-blue or purplish-blue above, pale pinkish-white below. Chestnut forehead and throat, the latter bordered by a broad glossy black pectoral band. Deeply forked "swallow" tail specially prominent in flight. Sexes alike. Seen in numbers, usually huddled together on telegraph wires in open country, or hawking winged insects over marsh-land and water.

STATUS AND DISTRIBUTION. Winter visitor. Common. Earliest date October 10 (Khāri Rōhar); latest April 24 (Kandla).

Outside Kutch found throughout India in winter. Two races. The European race (*rustica*) breeds in the Western Himālayas, the Eastern (*gutturalis*) in Sikkim and N-E. Assam: April to July.

HABITS. The food of swallows consists of tiny flying insects which the birds capture in the air or scoop up with their bills from the surface of the water. Their flight is swift and graceful consisting of a few rapid wing-beats followed by a glide.

They have a number of pleasant twittering notes uttered both on the wing and while at rest. The jolly little twittering breeding song of the male is seldom heard in the birds' winter quarters. When just arrived, and also when preparing to emigrate, these swallows collect in enormous swarms covering long stretches of telegraph wire, also on tree-tops and the ground.

MEASUREMENTS ETC. Kutch specimens measure: 2 ♀ ♀ wing 108-110, central tail 51-55, outer tail (only one) 68 mm. They apparently belong to the Eastern race *gutturalis*, but owing to moult cannot be placed with certainty.

THE INDIAN WIRE-TAILED SWALLOW

Hirundo smithii filifera Stephens

Fauna, iii, 245

SIZE. Same as the last. About that of the House Sparrow.

FIELD CHARACTERS. Plate p. 150, B. I. B. Glossy steel blue above with a chestnut cap; pure white below. Distinguishable from all other swallows by its glistening white underparts and two long fine "wires" in the tail. Sexes alike, but tail wires of female shorter. Seen in pairs or parties in open cultivation near water.

STATUS AND DISTRIBUTION. Resident. Fairly common, but local and not abundant.

Outside Kutch found from about 5000 ft. up in the Himālayas south to the Nilgiris, and from N-W. F. Province and Sind to Bengal.

HABITS. Except that it does not collect in such large gatherings and is even more partial to the neighbourhood of water (jheels, tanks etc.) and seldom met with away from it, the habits of this species do not differ appreciably from the last or from other swallows. It utters a pleasant *chit-chit* while hawking over a jheel or ploughed field. During the breeding season the male sings a pretty little twittering song—typical of the swallows.

NESTING. Breeding was in progress in Kutch in August-September as well as during March. Over its range as a whole, March to September are the most favoured months, and two successive broods are commonly raised. The saucer-shaped mud nest is similar to that of the Dusky Crag-Martin in material and architecture. It is attached under bridges and culverts, to cliffs flanking streams and frequently to rafters in the verandahs of houses. The normal clutch is of two to five eggs, similar to those of the Crag Martin—white in colour minutely stippled with reddish brown. Both sexes share in building the nest, incubation, and care of the young.

THE INDIAN CLIFF SWALLOW*

Hirundo fluvicola Jerdon

Fauna, iii, 246

Stoliczka obtained a specimen in Kutch but I record the species with some diffidence as I had no opportunity to confirm my only sight record.[1] Several birds were observed hawking insects high above Prāgsar Tank at Chāduva on September 30 (1943). This swallow is smaller than the Crag Martin, but with a similar short and more or less square-cut tail. It is glossy steel-blue above, whitish below boldly streaked with brown on throat and upper breast. Crown of head dull chestnut. Rump pale brown.

Excepting Sind it is found practically over the whole of India.

[1] Subsquently confirmed, Khāvda April 18 (1945).

SYKES'S STRIATED OR RED-RUMPED SWALLOW

Hirundo daurica erythropygia Sykes

Fauna, iii, 251

Plate 6, fig. 4.

SIZE. About that of the House Sparrow.

FIELD CHARACTERS. Glossy deep blue above, fulvous white below, finely streaked with dark brown. The chestnut half-collar on hindneck, the deeply forked "swallow" tail and the chestnut rump (which is conspicuous when the bird banks in the air) are points that confirm its identification. In the air the red rump sometimes looks very pale—almost whitish. Sexes alike. Seen in pairs or small parties in the neighbourhood of ruined buildings, old temples and stony sparsely scrubbed hillsides with natural caves and rock-overhangs etc.

STATUS AND DISTRIBUTION. Resident. Common.

Outside Kutch this race of the Red-rumped Swallow is found more or less over the entire Indian plains.

HABITS. Similar to those of the swallows described.

NESTING. Breeding was in progress during August and September. April to August is the principal season over the greater part of its outside range. The nest is a retort-shaped structure built of plastered mud-pellets stuck up against the ceiling of a cave, rock overhang, dome or verandah. It looks roughly as if a baya nest had been split in half all the way down and through the entrance tube, and one half of it stuck flat against the ceiling. The narrow entrance tube leads into a bulbous egg-chamber which is lined with feathers and vegetable down. Road culverts, and cellars such as under the ramparts of Bhūjia Fort are favourite nest-sites in Kutch. The nests are often usurped by the Common House Swift. When occupied by the latter they can always be recognised as such by the untidy mass of feathers sticking round the mouth of the entrance tube. The normal clutch consists of three or four eggs, pure white in colour and unmarked. Both sexes share in building the nest, incubation (?) and care of the young.

MEASUREMENTS. Kutch specimens measure: 2 ♂♂ wing 109-113, central tail 43-45·5, outer tail 73-76 mm.

THE WHITE WAGTAIL

Motacilla alba dukhunensis Sykes

Fauna, iii, 257

Local name for all wagtails: Khatriāni (=woman dyer).

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. Plate p. 157, B.I.B. A dainty, slim long-tailed bird, grey above, white below. Face white. Top and back of head black, as well as chin, throat and upper breast. In winter plumage, especially when it first arrives, the black "bib" is much reduced or wanting; the chin and throat are pure white like the underparts. The crown and nape are grey or flecked with black. Sexes more or less alike. Seen in loose parties on damp grassland, fallow fields, village outskirts etc.

STATUS AND DISTRIBUTION. Winter visitor. Not common or abundant. Earliest date August 24 (Vijay Vilās, Māndvi); latest March 30 (Bhimāsar Tank, Anjār.)

Outside Kutch found in winter over the greater part of India. Breeds in Western Siberia to the Caucasus and N. Turkestān: May-June.

HABITS. The birds run about on the ground picking up tiny insects, sometimes darting after them energetically in little zigzags, and constantly wagging their long tails up and down. Occasionally a bird will spring up into the air to capture one that has taken to wing. Their food consists entirely of small insects and molluscs.

The flight of this and other wagtails is a series of long undulating curves caused by alternate quick flapping and closing of the wings. It is accompanied by a characteristic sharp *chi-cheep, chi-cheep* etc., this being the only call-note heard whilst the birds are with us in winter. Large assemblages roost at night in reed-beds and leafy trees, often quite close to human habitations, sharing these with House Sparrows and other birds.

THE LARGE PIED WAGTAIL

Motacilla maderas patensis Gmelin

Fauna, iii, 263

SIZE. About that of the Bulbul.

FIELD CHARACTERS. Plate p. 154, B.I.B. A typical large wagtail, black above, white below. Head, chin, throat and breast black. A broad white supercilium. Black-and-white wings and tail. In the female the black portions are duller. Seen in pairs on banks of clear streams, tanks etc.

STATUS AND DISTRIBUTION. Resident. Local and not common.

Outside Kutch it is found throughout India from the Himālayas to Ceylon, and from Sind and Kashmir to Western Bengal.

HABITS. The Large Pied Wagtail is met with only near water, preferably clear, shingly or sandy smooth-running streams. I have observed it only on the Khāri at Rūdra Māta, on the Jura at Gōdsar, at Prāgsar Tank (Chāduva) and at a sandy stream near Anjār.

The birds run along the damp sandy bank picking up tiny insects and molluscs, or flit from stone to stone amidstream in the quest. They have a number of loud, clear and pleasant whistling calls, and during the breeding season the male sings sweetly from a rock. Its general habits are typically wagtail.

NESTING. Lester mentions his shikari bringing him a clutch of four eggs in May (1896). The season over most of its range is principally between March and September. The nest is a cup-shaped pad of rootlets, hair, wool etc. placed in a hollow or beneath a projcting rock, under the girders of a bridge spanning a river or some such situation, but always near water. The normal clutch is of three or four eggs, greyish-, brownish-, or greenish-white in colour, blotched and streaked with various shades of brown. Both sexes share in building the nest and feeding the young.

MEASUREMENTS. Kutch specimens measure: 2 ♂ ♂ wing 97·5-99, tail 100-104 mm.

THE EASTERN GREY WAGTAIL*

Motacilla cinerea melanope Pallas

Fauna, iii, 265

SIZE. That of the White Wagtail, but with a relatively longer tail.

FIELD CHARACTERS. Plate p. 153, B.I.B. Blue-grey above with a whitish supercilium and greenish-yellow rump; yellowish or buffy-white below, brighter yellow under base of tail. Tail black and white.

In summer plumage, just before the birds leave us, the upper parts become darker and more slaty, and the chin, throat and upper breast black. The supercilium is

broad, white and prominent, as also is the white moustachial streak. Sexes in winter more or less alike. In summer plumage the female has the black chin and throat flecked with white. Seen singly by streams etc.

STATUS AND DISTRIBUTION. Winter visitor (or passage migrant ?) Rare. Only a single bird seen and procured, September 16 (Bhimāsar Tank, Anjār).

Outside Kutch it winters throughout the Indian Empire. Breeds in eastern North Asia, south to Afghānistān and the Himālayas: May to July.

HABITS. The Grey Wagtail is almost invariably met with as a solitary bird at streams and puddles, and seldom away from water. Apart from this its habits are not appreciably different from those of the White Wagtail.

MEASUREMENTS. The Kutch specimen (♀) measures: wing 84, tail 87.5 mm.

THE GREY-HEADED YELLOW WAGTAIL

Motacilla flava thunbergi Billberg

Fauna, iii, 269.

SIZE. Same as the White Wagtail.

FIELD CHARACTERS. Recognisable in the field with certainty only in summer dress which is assumed just before the birds leave us at the commencement of the hot weather. Bright olive-green above, bright yellow below. Forehead, crown and nape dark blue-grey with blackish ear-coverts and cheeks. A faint whitish supercilium but not always present. Tail shorter than in the Grey Wagtail, black and white with with some yellow edging to the black feathers. In winter duller both above and below without the blue-grey on the head. Sexes alike, or almost so. Met with singly or in scattered parties on moist grassland, and on the marshy margins of tanks etc.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common.

Outside Kutch it is found in winter almost throughout India, more plentifully in the north. Breeds in Northern Europe and Western Siberia: May-June.

HABITS. This wagtail frequents moist or marshy ground covered with short grass, on the edges of jheels etc. Its other habits are similar to those of the species described.

THE TURKESTAN BLACK-HEADED YELLOW WAGTAIL*

Motacilla feldegg melanogriseus (Homeyer)

Fauna, iii, 272

Plate 6, fig. 3.

SIZE. Same as the White Wagtail.

FIELD CHARACTERS. In summer dress similar to the Grey-headed Yellow Wagtail, but with the crown, cheeks and ear-coverts deep black and practically no supercilium. Sexes alike. Met with in scattered parties on moist pasture-land on the edges of jheels.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common. Earliest date August 30; latest March 26.

Outside Kutch it is found in winter in two overlapping races, commonly in N-W. India and extending in smaller numbers south to about Belgaum. The two races between them breed in S. Europe, Asia Minor and eastward to Turkestān and Irān: April-June.

HABITS. Similar to those of the Yellow Wagtails described. They often accompany grazing sheep, running deftly in and out amongst the animals' feet, hunting the tiny insects disturbed by them.

MEASUREMENTS. The Kutch specimens measure: 2 ♂♂ wing 79, tail 70-72·5.

THE YELLOW-HEADED WAGTAIL*

Motacilla citreola citreola Pallas

Fauna, iii, 273

Plate 6, fig. 2.

SIZE. Same as the White Wagtail.

FIELD CHARACTERS. In summer dress (illustrated) male easily distinguished from all other Yellow Wagtails by its bright yellow head. Female and male in winter have the crown and back grey and the underparts yellow-washed. But they may be differentiated from other Yellow Wagtails in all plumage phases, whether seasonal or of age, by the presence of a broad yellow supercilium and a more or less yellow forehead. Seen in scattered parties (sometimes large swarms) near water, at irrigation tanks and jheels etc.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common. First seen October 3 (Khāvda, Pachham Island); last, March 30 (Bhimāsar tank, Anjār Dist.).

Outside Kutch it is found in winter, in three races, practically throughout India. Amongst them they breed over a large part of N. Europe, N. and Central Asia, south to and including Kashmir: May to July.

HABITS. The Yellow-headed is also essentially a water wagtail, inseparable from marshy land on the edge of jheels and streams, and about irrigation tanks. Numbers are commonly seen on partially submerged reeds and dry lotus stalks on such jheels as Bāmdai and Chāngdai (Māndvi Dist.), often at a considerable distance from the shore. This species obtains a good deal of its insect food on the stems and floating leaves, sometimes springing up into the air or launching sprightly sallies in pursuit of its quarry. Its general habits are otherwise typical of the group.

MEASUREMENTS ETC. A Kutch specimen (♂) measures: wing 86, tail 75 mm.

The black-backed race of this species, Hodgson's Yellow-headed Wagtail (*Motacilla citreola calcaratus*) also visits Kutch during winter. On March 9 several birds were seen on Bāda, Bāmdai and Chāngdai tanks (Māndvi Dist.) in part summer dress. The black back in summer plumage of the males of this race makes its identity unmistakable.

PIPITS

Besides the Indian Pipit (*Anthus rufulus*) which is resident, several other species are found in Kutch during winter. Most of them are birds about the size of the Sparrow, somewhat slimmer and with a longer tail that is constantly moved up and down like a wagtail's. In their general brown colouration and pattern they resemble the female House-Sparrow. They are usually met with in pairs or small scattered parties frequenting ploughed and stubble fields, fallow land or open, sparsely scrubbed stony country. They feed entirely on the ground chiefly on weevils and small insects but also some seeds, running about with great agility in the quest. They have the same gently undulating flight as wagtails, and the notes uttered on the wing—a feeble *pipit-pipit* or *tseep-tseep* etc.—are also similar to, yet easily distinguishable from theirs. When alighting after a flight, the white or whitish outer tail-feathers

of most species are conspicuous. Some of these pipits are easy enough to recognise in the field by their size, colouration and habits. Others are so alike superficially that it takes an expert to differentiate them.

THE TREE PIPIT*

Anthus trivialis Linn.

Fauna, iii, 279

SIZE. Slightly larger than the Sparrow.

FIELD CHARACTERS. Black-streaked sandy brown above; fulvous white below, heavily streaked with black on the breast. A distinct pale supercilium. Sexes alike.

STATUS AND DISTRIBUTION. Winter visitor (or passage migrant?) Evidently rare. Observed only once—Ratnāl, September 9 (1943): a single bird in a dry, sandy nullah shaded by babool trees.

Outside Kutch it is found in winter (in two races) more or less throughout India. Breeds in Eastern and Northern Asia, including the W. Himālayas: April to June.

HABITS. Feeds in damp cultivation and short grassland on the margins of jheels etc. Also under shady groves of trees. Flies up into branches when disturbed.

MEASUREMENTS ETC. No specimen was procured in Kutch, but two collected in the Amrēli Dist. of Kāthiawār belong to the typical race *trivialis*.

THE BROWN ROCK-PIPIT*

Anthus similis Jerdon

Fauna, iii, 286

Plato 7, fig. 7.

SIZE. About that of the Bulbul.

FIELD CHARACTERS. Readily distinguished from other pipits by its large size and the general rufous brown tone of its colouration. Sexes alike. Singly or scattered parties on stony ground.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common, but patchy and not abundant. First seen September 6 (Nakhatrāna); last, March 26 (base of Chhaparia Hills, Khadīr Island).

Outside Kutch found in winter (three races) over the greater part of India. Two of the races breed within Indian limits; the third is a winter visitor.

HABITS. Frequents sparsely scrubbed, dry, stony hummock country as well as fallow fields, and sand-dunes along the Māndvi coast. It has a peculiar hovering flight. When flushed the bird leaps a few feet up in the air and leisurely hovers in aimless zigzags before descending to the ground a few yards farther, or to perch on a bush-top.

MEASUREMENTS ETC. The Kutch specimens apparently all belong to the Himālayan race *jerdoni*, which is a shade darker above and more dark-streaked below than the Perso-Baluchi *decaptus*. They measure: 5 ♂ ♂ wing 98-105, tail 80-91; 2 ♀ ♀ wing 95-97, tail 80-81·5 mm.

THE INDIAN PIPIT

Anthus rufulus waitei Whistler

Fauna, iii, 290

SIZE. About that of the Sparrow.

FIELD CHARACTERS. Plate p. 158, B.I.B. Like the female House-Sparrow in colouration but slimmer, with a slenderer bill and longer tail of which the white outer feathers are conspicuous when the bird is taking off or alighting. A particularly long, slender and gently curved hindclaw is a pointer to its identity through field glasses or at close range. Sexes alike. Pairs or loose parties in open, sparsely scrubbed country, fallow land, ploughed and stubble fields, and about the dry margins of jheels.

STATUS AND DISTRIBUTION. Resident. Not common.

Outside Kutch found practically throughout India in three races. This pale race occurs in Sind and N-W. India.

HABITS. Typical of the pipits. During the breeding season the male indulges in a flight-song which consists of soaring and fluttering a few feet up in the air to the accompaniment of a feeble cheeping. The performer descends to earth after a couple of minutes.

NESTING. The season is evidently April to June. The nest is a shallow cup of fine grass, rootlets and hair—sometimes partially domed—placed on the ground in an old hoof-print of cattle or under shelter of a clod or grass-tuft. The eggs—three or four—are yellowish- or greyish-white, irregularly blotched and spotted with brown, more densely at the broad end. Both sexes share in building the nest and tending the young.

MEASUREMENTS. The Kutch specimens measure: 6 ♂ ♀ wing 84-85, tail 58-68.5 mm.

THE EASTERN TAWNY PIPIT

Anthus campestris griseus Nicoll

Fauna, iii, 293

SIZE. Slightly larger than the Sparrow.

FIELD CHARACTERS. In fresh adult plumage distinguishable from the Indian Pipit by being more sandy-coloured above, by the absence of all spotting on the breast and by a very pale wash of primrose yellow in the plumage, especially the underparts. In immature and worn plumages field identification with certainty almost impossible. Sexes alike. Met with in scattered parties on flat semi-desert with scanty vegetation, sparsely scrubbed sand-dunes along the coast, fallow land etc.

STATUS AND DISTRIBUTION. Winter visitor. Common. Earliest date September 6 (near Nakhatrāna); latest March 28 (Bēla Island).

Outside Kutch it is found in winter practically all over India. Breeds in Turkestān, Irān and Central Asia.

HABITS. Keeps more to stony and sandy semi-desert and less to cultivation than the Indian Pipit. Often frequents the same type of country as the Short-toed Lark and Grey-necked Bunting.

MEASUREMENTS ETC. The Kutch Survey specimens measure: 7 ♂ ♂ wing 89·5-93, tail 68-73; 1 ♀ wing 87, tail 70; 2 ♀ ? wing 82·5-91·5, tail 64-70·5 mm.

The other race of this pipit—Blyth's (*A.c.thermophilus*)—apparently does not visit Kutch at all, as it also does not seem to do N-W. F. Province, Punjāb, Sind and Rājputāna.



1. The Red-winged Bush-Lark (p. 60)
2. Wing of the Singing Bush-Lark (p.60)
3. The Desert Lark (p. 57)
4. The Short-toed Lark (p. 58)
5. The Rufous-tailed Finch-Lark (p. 63)
6. Sykes's Crested Lark (p. 62)
7. The Brown Rock-Pipit (p. 55)



1. The Wryneck (p. 65)
2. The Cuckoo (p. 66)
3. The Green Bee-eater (p. 71)
4. The Kashmir Roller (p. 71)
5. The Alpine Swift (p. 75)
6. The European Nightjar (p. 76)
7. Wing of the Indian Roller (p. 70)

ZOOLOGICAL GARDEN
CALCUTTA

THE DESERT LARK*

Alaemon alaudipes doriae (Salvadori)

Fauna, iii, 304

Plate 7, fig. 3.

SIZE. Between the Bulbul and the Myna.

FIELD CHARACTERS. A large sandy-grey coloured lark with whitish underparts black-streaked on the breast. Slightly curved dark bill and white legs. General effect on the ground between the Crested Lark and the Desert Courser. In flight, which is usually low above the ground, the broad white double band on the black wings is very conspicuous against the pale sandy background. Sexes alike, but female smaller. Usually seen in separated pairs running about on flat desert.

STATUS AND DISTRIBUTION. Resident. Confined to the Great and Little Rann, and to salt-encrusted " pats " on the Banni with sparse lāni bushes (*Salsola*) etc. Not abundant, but frequent.

Outside Kutch found within Indian limits only in Sind and Western Punjāb; beyond in Balūchistān, Afghānistān, Irāq, and Irān.

HABITS. This magnificent lark is met with only in the desert portions of Kutch. It runs about like a Courser, stopping now and again to pick up tiny beetles, along with an occasional seed, from the sunbaked salt-encrusted surface. Some examples are encountered, singly or in widely separated pairs, as far out as 10 or 12 miles on the absolutely bare and featureless Rann with not a stone or blade of grass to afford shelter from the fierce mid-day sun. It is a particularly swift runner and takes a good sprinter to overtake it if merely winged. The breeding male has a clear beautiful song of three mellow whistling notes, *tee-tee-tee*, followed by a prolonged one like that uttered by the Red-tailed Finch-Lark on the downward grade of its song-flight. From the top of the bush on which he is perched the bird springs a few feet up in the air every now and again and nose-dives in the manner of the Finch-Lark, singing the while and displaying the black-and-white pattern of his wings and tail to greatest advantage.

NESTING. No nest has actually been recorded in Kutch but from the condition of the gonads and the general behaviour of the birds it was obvious that breeding was in progress at least in September and early October. The season is either ill-defined or a very protracted one. Elsewhere it has been recorded breeding between March and May and eggs have been taken in Sind as late as July. The nest is a large untidy structure of sticks etc., with a deep cup in the centre lined with fine twigs, grass stems and feathers. It is placed in a diminutive bush or on the ground among sparse, coarse grass on a sand mound. The eggs—two or three—are white to pale buff, blotched, spotted and speckled with reddish-brown and faintly marked with lavender and grey. The markings are denser at the broad end where they roughly form a ring.

MEASUREMENTS. The Kutch specimens measure: 3 ♂♂ wing 126-136, tail 79-93; 2 ♀♀ wing 117-118, tail 75 mm.

THE SMALL PUNJAB SKYLARK

Alauda gulgula punjaubi Whistler

Fauna, iii, 319

SIZE. About that of the Sparrow.

FIELD CHARACTERS. Plate p. 161, B.I.B. A hen-sparrow-like bird with dark streaks on the brown upper plumage and on the fulvous breast. Differs from the Indian Pipit (with which it may sometimes be confused) in its rather squat build and

short tail, and in the long hindclaw being almost straight. Sexes alike. Pairs or scattered parties among "kan" grass on the borders and beds of drying-up jheels, in lucerne fields etc.

STATUS AND DISTRIBUTION. Resident, but subject to local movements. Not common.

Outside Kutch found practically throughout India. Several races.

HABITS. Owing to its remarkably obliterative colouration, and to its habit (different from the pipits) of squatting low among the grass when approached, the skylark is seldom observed on the ground except with special effort. It runs about in short spurts picking up seeds which comprise the major portion of its food. Small insects are also eaten. But the Skylark's chief claim to distinction lies in its wonderful song. It is uttered sporadically at all times of the year, and with particular exuberance during the breeding season. From time to time a male springs up from the ground and soars almost vertically skywards on fast fluttering wings—sometimes with the legs dangling below—singing feverishly as he rises, higher and higher till almost out of sight. There he remains suspended, hovering on rapidly vibrating wings, and continues to pour forth an unbroken stream of spirited, clear and melodious warbling. When after several minutes the performance is over, the bird descends in steps, until when within a few feet of the ground he shoots off at a tangent and comes to rest near the starting point. Several birds may often be seen up in the heavens above a grass field vying with one another in their vocal exhilarations. The song and the manner in which it is delivered is confusingly like that of Sykes's Crested Lark, and the confusion is enhanced by the fact that often both species may be up and singing at the same time! Both the songs are just as beautiful and prolonged and I find it difficult to differentiate between them with certainty. Usually, however, the Skylark's melody has no (or very few) imitations of other birds' notes interlarded in it. Also this species perhaps mounts higher in the air than its rival.

NESTING. According to Lester the season in Kutch is June and July, in which months he took eggs. The nest is a cup-like depression in the ground—or a hoof-print—lined with fine grass, and under shelter of a clod or grass-tussock. The eggs—two to four—are usually pale brownish-grey or whitish, spotted and streaked with brown.

MEASUREMENTS. Kutch specimens measure: 1 ♂ wing 93, tail 52; 1 ♀ wing 92, tail 54 mm.

THE YARKAND SHORT-TOED LARK

Calandrella brachydactyla longipennis (Eversmann)

Fauna, iii, 325

Plate 7, fig. 4.

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. Upper plumage sandy brown streaked with blackish; lower, dull white, the breast washed with brown and usually with a dusky patch on either side. A pale supercilium. Dark brown and whitish tail. Sexes alike. Seen in large flocks in winter on bare semi-desert etc.

STATUS AND DISTRIBUTION. Winter visitor. Common and abundant. First seen September 9 (Bhūj environs); last, March 30 (near Adēsar).

Outside Kutch, in winter, practically throughout India in two races. This race (*longipennis*) breeds in the Caucasus, Transcaspia, Turkestān, Afghānistān and E. Irān: April to July.

HABITS. In the winter months enormous flocks of this lark, densely packed as well as scattered and sprawling, are seen flying about all over the countryside. The birds frequent open stony scraggy grassland, flat bare "pats" among sand-dunes and in semi-desert country, fallow cultivation, the sun-baked margins of drying tanks and also dry tidal mudflats (as bout Jakhāu). The Banni is one of their favourite haunts. They feed on the seeds of grasses and of the scanty short-lived monsoon vegetation that has mostly died down again by the time the birds arrive. Large flocks fly out in the mornings to drink at selected spots on the edges of jheels etc.

While in their winter quarters the birds are silent. Just before their departure for their breeding grounds they are excessively fat—literally "balls of fat"—and are then largely netted and shot in N-W. India as an epicurean delicacy. They are popularly but incorrectly known as "Ortolans." The true Ortolan of Europe, so widely celebrated for the delicate flavour of its flesh, is the Ortolan Bunting (*Emberiza hortulana*) which does not visit Kutch.

MEASUREMENTS ETC. The Survey specimens measure: 3 ♂♂ wing 95-99, tail 57-59; 5 ♀♀ wing 88-90, tail 53-55 mm.

THE INDUS SAND-LARK

Calandrella raytal adamsi (Hume)

Fauna, iii, 331

SIZE. About that of the Sparrow.

FIELD CHARACTERS. Upper plumage greyish sandy, narrowly streaked with dark brown; lower, white with a few indistinct dark streaks on sides of breast. A white supercilium. Short black and white tail. Sexes alike. Met with in widely separated pairs or parties on bare tidal mudflats.

STATUS AND DISTRIBUTION. Resident. Not uncommon, but local and confined to tidal mudflats as at Kandla, Jakhāu and Lākhpat.

Outside Kutch found along the wide sandy banks of large rivers in N. India, and also on mudflats in the Indus delta. Two races.

HABITS. In food and general habits the Sand-Lark does not differ appreciably from the other species. The male has a short broken tinkling song consisting of a few notes ... pause... a few notes again... pause, and so on. The bird soars to a hundred feet or so to sing, and does not usually stay aloft for more than a few minutes. While singing he wanders about in the air in an aimless sort of way. His soaring is not attained by a continuous fluttering or vibrating of his wings as in the Skylark, but by intermittent series of rapid flaps and pauses. When the song is over the bird descends in steps with open but motionless wings and tail, hovering momentarily at every step in a way that is reminiscent of the Pipit's song-flight. In the last lap he shoots downward perpendicularly, flattening out when within a foot or two of the ground and landing on a clod. Occasionally the song is also uttered from a stone or mound.

NESTING. According to Lester the season in Kutch is June and July but it evidently breeds at other times also since gonads of specimens collected in September, and again in March, were very near breeding size. Fresh eggs have been taken in Sind in March. The nest is a small natural depression or hollow lined with grass, under the shelter of a diminutive shrub or stone, in open sandy waste land. The eggs —two or three—are pale grey or yellowish-white in colour, speckled and blotched with sandy grey, greyish-brown or pale reddish-brown.

MEASUREMENTS. The Survey specimens measure: 4 ♂♂ wing 80-89, bill 12-13·5, tarsus 19-19·5, tail 43-50 mm.

THE SIND RED-WINGED BUSH-LARK

Mirafra erythroptera sindianus Ticehurst

Fauna, iii, 342

Plate 7, fig. 1.

SIZE. About that of the Sparrow.

FIELD CHARACTERS. The large chestnut patch in its wing quills is the most striking feature of this lark. Sexes alike. Usually seen perched on a cactus or thorn bush, or running on the ground in sparsely scrubbed, broken sandstone and gravel country. Singly or small loose parties.

STATUS AND DISTRIBUTION. Resident. Common.
Outside Kutch this species (in two races) occurs practically throughout India.

HABITS. The Red-winged Bush-Lark loves stony and gravelly stunted thorn-scrub country with scanty grass ground cover. Here it is seen moving about quietly picking up weed seeds which largely comprise its food. The most characteristic habit of this lark is its spectacular song-flight which at once renders its identity unmistakable. From its perch on a bush-top a male suddenly flutters thirty feet or so straight up in the air, uttering a quick-repeated trilly *tri-ri-ri-ri* (or a mousy *si-si-si-si*). This is followed up immediately by a squeaky *wi-see..wi-see..wi-see..wi-see* etc., getting slower and tailing off towards the end. With this the bird parachutes down to the same or a nearby bush-top, wings motionless and stiffly outstretched in a wide V above the back, and legs dangling underneath. With a stiff breeze blowing the bird is sometimes carried backward—in "reverse gear"—and revolved this way and that in the air. The entire performance is over in 20 seconds, but in the breeding season it is repeated again and again every few moments. On the countryside one can hardly go far in any direction without meeting one or more males performing.

NESTING. June and July are given by Lester as the usual months in Kutch, but breeding was noted in progress also during August and September. In Sind, April to August appears to be the principal season. The nest is a deepish cup of grasses, usually domed and with a side-entrance near the top. It is placed on the ground under shelter of a small bush or clod. The eggs—two to four—are pale greyish-white, yellowish or stone-colour, profusely speckled, spotted and blotched all over with various shades of brown.

MEASUREMENTS. The Kutch specimens measure: 4 ♂ ♂ wing 73-82·5, tail 46-52; 1 ♀ wing 76, tail 47 mm.

THE SINGING BUSH-LARK*

Mirafra javanica cantillans Blyth

Fauna, iii, 334

Plate 7, fig. 2 (inset).

SIZE. About that of the Sparrow.

FIELD CHARACTERS. Differs from the Red-winged Bush-Lark in having only the outer webs of the wing quills and primary coverts chestnut instead of a large portion of both webs (which forms the conspicuous wing-patch in that species). Also the inner web of its outer tail-feathers is white as against brown and pale rufous.

On a good view it may be differentiated in the field from Sykes's Crested Lark (which it superficially resembles) by the less salmon-buff tone of its plumage and absence of any crest. Sexes alike. Seen in scattered pairs or parties in dry, stunted

scrub-and-bush country similar to that frequented by the last species. Also in tallish grass on the beds of drying-up jheels.

STATUS AND DISTRIBUTION. Resident, but curiously patchy and local. Less common than the last species.

Outside Kutch found locally over the greater part of Northern and Central India, and the Deccan.

HABITS. During the breeding season the song-flight of this lark is a remarkable performance. The male soars to a height of a hundred feet or so, hovers on quivering wings and sings in the style of the Skylark. It appears to keep aloft for much longer stretches and drifts here and there with the breeze over a considerable area. I timed one bird for 40 minutes, but cannot say when it had begun and how much longer it continued after my timing ceased. The song is a spirited performance—very like the Skylark's in tone and quality—but my impression is that it incorporates many more imitations of the calls of other birds. The Common Babbler, Tailor Bird, Franklin's Wren-Warbler, Rufous-fronted Wren-Warbler, Jungle Wren-Warbler, Wood Shrike, Red-winged Bush-Lark, Purple Sunbird, Rain Quail—in fact all the species living side by side with it—are clearly recognisable. The imitations follow one another in rapid succession without a break, and it is a wonder how the little singer retains his breath for this sustained and lively performance.

To my ear the song is almost indistinguishable from that of Sykes's Crested Lark, and confusion is heightened by the fact that both species may be found performing at the same time and above the same patch of grassland! Thus, unless a bird is shot whilst actually singing it is impossible to tell which is which in the heavens. My impression is that the only consistent difference between the two when hovering and singing is that the tail of Sykes's Lark is noticeably blacker, and the fact that in the Singing Bush-Lark the tail is gathered up into a narrow "rod" whereas in the other it looks somewhat broader (more spread). The song is sometimes also uttered from a bush-top. The flight-song of this or Sykes's Lark—or both (?)—was also heard at 10 p.m. and 4 a.m. during moonlit nights.

NESTING. From the gonads of specimens collected in Kutch, breeding was evidently in progress in August. Over its range as a whole the season is from mid June to mid September. The nest is a compact cup of grass lined with finer grasses, and more or less domed. It is placed on the ground in a grass tuft on the side of a nullah, or in thin scrub-jungle. The eggs—three or four—are greyish-, greenish- or yellowish-white densely spotted and blotched all over with various shades of brown.

MEASUREMENTS. The Survey specimens measure: 3 ♂♂ wing 75-81, tail, 49-55 mm.

FRANKLIN'S CRESTED LARK

Galerida cristata chendoola (Franklin)

Fauna, iii, 343

SIZE. Between the Sparrow and the Bulbul.

FIELD CHARACTERS. Plate p. 162, B.I.B. The larger size and prominent pointed, upstanding crest distinguish this lark from most others. Upper plumage earthy-brown streaked with blackish; lower pale fulvous streaked with brown on breast. Sexes alike. Seen in loose pairs or family parties of four or five in dry, open, sandy, sparsely scrubbed country, and about sand-dunes, on the Banni, etc.

STATUS AND DISTRIBUTION. Resident. Not uncommon.

Outside Kutch this, the Indian race, is found over a large portion of N-W. India, east to Bihar and south to the Central Provinces.

HABITS. The normal call-note of this lark is a pleasant *tee-ur*. Its courtship song is usually uttered from a stone or mound, or from a bush-top. Occasionally a modest song-flight is indulged in by the male. He flutters up a few feet in the air and flies about rather aimlessly over a circumscribed area on leisurely fluttering wings, singing his short and sweet song and then planing down on stiffly outspread slightly quavering wings to perch on a stone or clod. Compared with most other larks which soar or perform aerobatics whilst delivering their love-song, his is a colourless effort.

In food and other habits this species does not differ markedly from other larks.

NESTING. From the gonads of specimens collected, breeding was certainly in progress in August and September. Over most of its range March to June is the normal period. The nest is a shallow cup of grass lined with finer material or hair, placed in a slight hollow under shelter of a grass tuft or clod in open country. The eggs—three or four—are dull yellowish-white in colour, blotched with brown and purple. Both sexes share in building the nest and tending the young.

MEASUREMENTS. Kutch specimens measure: 2 ♂♂ wing 98-102, tail 56-56·5; 1 ♀ wing 98, tail damaged.

SYKES'S CRESTED LARK

Galerida deva (Sykes)

Fauna, iii, 347

Plate 7, fig. 6.

SIZE. About that of the Sparrow.

FIELD CHARACTERS. A small edition of Franklin's Crested Lark, but more rufous generally. The combination of a pointed crest and warm salmon-buff tone of colouration distinguishes it from the superficially similar Singing Bush-Lark. Sexes alike. Met with in loose pairs and scattered parties practically all over Kutch in open, stony, sparsely scrubbed country, or on the sun-baked grassy edges of drying jheels etc.

STATUS AND DISTRIBUTION. Resident. Common.

Outside Kutch found more or less throughout India excepting Sind and the N-W. F. Province.

HABITS. All that has been said under the Singing Bush-Lark concerning its song-flight etc. might well have been written for this species, so closely do the two resemble each other. I find it almost impossible to differentiate them with certainty up in the air. On closer scrutiny its song is perhaps slightly inferior to that of the Skylark, but also very similar to it in a general way. My impression, moreover, is that the Skylark soars higher than either this or the Singing Bush-Lark. Its song is the same unbroken string mostly of imitations of other birds' calls. The mimicry in many cases is extraordinarily convincing: the first intimation of the presence of the Yellow-eyed Babbler in the Chāduva area was provided by this lark in the course of its song, long before that species was actually encountered!

NESTING. Breeding was in progress in August and September. The season elsewhere is principally June to October. The nest is a shallow cup of coarse grass and fibres lined with finer material—rootlets etc. placed under shelter of a shrub or

grass tuft. The normal clutch is of three or four eggs, yellowish- or greyish-white, freely speckled all over with pale yellowish-brown or greyish-brown, more densely at the broad end.

MEASUREMENTS. The Kutch specimens measure: 5 ♂♂ wing 86·5-88, tail 50-54; 2 ♀♀ wing 78-80, tail 41-45 mm.

THE INDIAN RUFOUS-TAILED FINCH-LARK

Ammomanes phoenicura phoenicura (Franklin)

Fauna, iii, 350

Plate 7, fig. 5.

SIZE. Slightly larger than the Sparrow.

FIELD CHARACTERS. A squat, dark rufous-brown lark with a bright rufous tail ending in a black band. The tail which is slightly but definitely forked, is a conspicuous feature of the bird in flight. Sexes alike. Seen in pairs or small scattered flocks in open, stony country, ploughed fields, and in the neighbourhood of cultivation and irrigation tanks etc.

STATUS AND DISTRIBUTION. Resident, but subject to marked local movements. Much commoner in March-April than in August-September.

Outside Kutch this species (and race) is found over the greater part of peninsular and continental India south of the Ganges. Not west of a line from about Kutch to Hissar in the Punjāb.

HABITS. The Finch-Larks—both this and the next species—are remarkable for their spectacular aerobatic displays during the breeding season. The male constantly shoots up into the air to a height of fifty feet or more and steeply nose-dives in steps with his wings pressed in at the sides. At each step he suddenly pulls himself round to face skywards—standing on his tail, as it were. Using the momentum of the dive, and still with wings closed, he shoots up a few feet once again. On the crest of this wave he turns over and repeats the nose-dive a step lower, and so on until when perilously near to dashing himself to smithereens on the ground he flattens out with open wings and lands gracefully on a clod or stone. This performance is accompanied by his pretty rollicking song, each dive being marked by a long-drawn whistling note like the descent of a miniature "screaming bomb," but sweeter of course!

NESTING. Lester obtained its eggs in April (1896). The season in Kutch presumably is between February and April which are the principal months over the rest of its range also. The nest is a cup of grasses etc. placed in a slight depression in the ground—usually in a ploughed field—under shelter of a clod of earth or tiny shrub. The eggs—three or four—are creamy-white in colour, freckled and spotted with yellowish- or reddish-brown and inky purple, more densely at the broad end.

MEASUREMENTS. The Kutch specimens measure: 2 ♂♂ wing 105, tail 62-63·; 1 ♀ wing 100, tail 56 mm.

THE BLACK-BELLIED (OR ASHY CROWNED) FINCH-LARK

Eremopterix grisea siccata Ticeh.

Fauna, iii, 353

SIZE. Smaller than the Sparrow.

FIELD CHARACTERS. Plate p. 165, B.I.B. A squat, thick-billed sparrow-like bird—the male with black underparts, ashy crown, whitish cheeks and sandy upper

plumage. The female is sandy hen-sparrow-like all over. Seen in pairs or small flocks on the ground in dry, open country, fallow cultivation etc.

STATUS AND DISTRIBUTION. Resident. Common but subject to local seasonal movements.

Outside Kutch found all over India. Three races.

HABITS. This Finch-Lark usually keeps in scattered parties which run along the ground, body held low, in short zig-zag spurts—facing this way and that—in search of food. Its colouration matches the ground to perfection and the bird is difficult to see as long as it keeps still. Its flight is a series of rapid wing fluttering (as in hovering) followed by momentary pauses. Its song-flight consists of the same type of nose-diving stunts as described for the last species, and is delightful to watch. The aerobatics are accompanied by a sweet little song—a combination of pleasant warbling and long-drawn *wheech*ing notes. The song is also delivered on the ground.

NESTING. Breeding was in progress during August and September, but as elsewhere the season is probably ill-defined and continues more or less throughout the year. The nest is a tiny depression in the ground—or a hoof-print of cattle—neatly lined with fine grasses, hair or feathers. It is situated in open country and usually has a clod or small shrub for shelter. The eggs—two or three—are pale yellowish- or greyish-white, blotched and speckled with brown and lavender.

MEASUREMENTS. The Kutch specimens measure: 1 ♂ wing 74, tail 41; 1 ♀ wing 73, tail 38 mm.

THE PURPLE SUNBIRD

Cinnyris asiatica (Latham)

Fauna, iii, 396

SIZE. Much smaller than the Sparrow.

FIELD CHARACTERS. Plate p. 165, B.I.B. Male, in breeding plumage, a lovely glistening metallic black bird with short square-cut tail and a long, slender curved bill. Female, olive-brown above, pale dull yellow below. In non-breeding dress the male is like the female but with dark wings and a broad black stripe running down middle of breast. Seen singly or in pairs on flowering shrubs in all types of country.

STATUS AND DISTRIBUTION. Resident. Common.

Outside Kutch found practically throughout India. Three races.

HABITS. Although the Purple Sunbird eats tiny insects and spiders as well, its staple food is the nectar of flowers. Babool, ak, kerad, and gāngi besides numerous other wild as well as cultivated species, are in constant attendance during the blossoming season. The bird flits restlessly from flower to flower, clinging to them upside down and in all manner of acrobatic positions and probing with its slender, curved bill which is admirably adapted for the purpose. It is assisted in extracting nectar by the long, tubular tongue which can be thrust beyond the bill-tip. Sometimes a bird will hover in front of a flower, poised on rapidly vibratng wings, and probe into it. In its attempts to reach the nectar the bird conveys ripe pollen sticking to its forehead feathers from flower to flower and does considerabie service in cross-pollinating them.

A sharp *wich-wich* is uttered as it flits from bush to bush. During the breeding season the male has a pretty little song, *cheewit-cheewit-chewit* etc. delivered from an exposed twig. While singing he turns from side to side and nervously twitches open and shut his wings and tail.

NESTING. Breeding was in full swing during August and September. Over most of its range the principal months are March to May, but the season straggles

more or less over the whole year. The nest is an oblong pouch of soft grasses, bast fibres and cobwebs lined with vegetable down and draped with pieces of bark on the outside. It has a porticoed entrance hole at the side and is suspended from the tip of a branch in a bush or small tree, between three and six feet from the ground. The eggs—two or three—are greyish- or greenish-white, marked with various shades of brown and grey.

MEASUREMENTS ETC. The Kutch specimens measure: 3 ♂♂ wing 55-57, bill 18-19, tail 33-35; 1 ♀ wing 53, bill 18, tail 31 mm. They evidently belong to the peninsular race *asiatica* and not to the Sind and N-W. Indian *brevirostris*.

THE YELLOW-FRONTED PIED, OR MAHRATTA WOODPECKER

Dryobates mahrattensis mahrattensis (Latham)

Fauna, iv, 46

SIZE. About that of the Bulbul.

FIELD CHARACTERS. Plate p. 177, B.I.B. A typical woodpecker with long, pointed chisel-shaped bill and stiff wedge-shaped tail. Spotted black and white plumage with brownish-yellow crown, scarlet occipital crest and scarlet patches on abdomen and vent. The female lacks the scarlet on the head. Seen in pairs in and about wādis, forest rakhāls etc.

STATUS AND DISTRIBUTION. Resident. Fairly common but nowhere abundant. Outside Kutch found practically throughout India. Two races.

HABITS. In Kutch this woodpecker frequents wooded localities, such as they are, but is also commonly met with on bare, stony hillocks clinging to dry Kantāro Thor (*Euphorbia nivulia*) stems and hammering away on them in search of food. The birds fly from one tree or cactus clump to another, alighting low down on the stem and scuttling upwards in jerky spurts, tapping the bark at intervals to stampede insects lurking in the crevices or to discover the hidden galleries of boring beetles. The stiff tail is pressed against the stem and serves as a tripod for the body. The call-note commonly heard is a sharp *click, click* or *click-r-r-r*. The flight is swift and undulating attained by a series of rapid wing-beats followed by short pauses.

NESTING. According to Lester it breeds about March. The season elsewhere is principally from January to May. The eggs are laid in a hole excavated by the birds in the decaying stem or branch of a tree—kandi, peeloo, babool or others—at moderate heights. No lining is employed. The eggs—three in number—are glossy white, unmarked. Both sexes share in excavating the nest-hole, incubation and care of the young.

THE WRYNECK*

Iynx torquilla Linn.

Fauna, iv, 99

Plate 8, fig. 1

SIZE. Slightly larger than the Sparrow.

FIELD CHARACTERS. Silvery grey-brown above, streaked with black and fulvous; whitish below, with black arrow-head markings producing a finely cross-barred pattern. General colour scheme like Nightjar's. Sexes alike. Seen singly in stunted babool or kandi jungle, forest rakhāls etc., on trees as well as on ground.

STATUS AND DISTRIBUTION. Winter visitor. Frequent, but not abundant. Earliest date August 29 (Shedāta); latest March 15 (Jakhāu).

Outside Kutch found in winter over most of northern and peninsular India except the south. Breeds in Kashmir, Balūchistān and the greater part of N. Europe and N-E. and C. Asia : May-June.

HABITS. The Wryneck is a close relation of the woodpeckers. Like them it procures a large proportion of its insect food clinging to and scuttling up the trunks and boughs of trees. But it also frequently descends to the ground hopping about in spurts rather as the Indian Robin does, picking up ants which make up a considerable part of its diet. It also perches cross-wise on a branch like any ordinary perching bird. Its peculiar dipping flight and general movements both on the wing and on the ground are remarkably sparrow-like. At a flashing glimpse, while darting from one thicket to another, I have also mistaken it more than once for a Great Reed-Warbler. It is a shy and unobtrusive bird ; the only note occasionally heard in its winter quarters is a feeble, quick-repeated, high-pitched *chk-ch-ch-ch-ch*, rather like some of the smaller woodpeckers.

MEASUREMENTS. Specimens collected by the Kutch Survey measure: 4♀♀ wing 87·5-89, tail 64-66 mm.

THE CRIMSON-BREASTED BARBET OR COPPERSMITH

Xantholaema haemacephala (Muller)

Fauna, iv, 128

SIZE. Slightly larger and dumpier than the Sparrow.

FIELD CHARACTERS. Plate p. 181, B.I.B. A heavy-billed grass-green bird with crimson breast and forehead, and green-streaked yellowish underparts. Short, square-cut tail. Sexes alike. Seen singly or in loose parties on banyan and peepal trees in fruit.

STATUS AND DISTRIBUTION. Not met with by the Survey and must be extremely rare. Lester mentions seeing it at Rūdra Māta and Pālera.

Outside Kutch it is extremely rare in Sind but fairly common in Gūjarāt and Kāthiawār. Found throughout the greater part of India except the heavy-rainfall areas of the S-W.

HABITS. Producer of the well-known monotonous ringing call *tūk..*(2 seconds), *tūk..*(two seconds) and so on, *ad nauseam*, as of a distant coppersmith hammering on his metal. Entirely frugivorous.

NESTING. January to June. Three glossless white, unmarked eggs laid in hole in rotten branch excavated by the birds.

THE CUCKOO

Cuculus canorus Linnaeus

Fauna, iv, 136

Plate 8, fig. 2.

SIZE. About that of the Pigeon, but slenderer and with proportionately longer tail.

FIELD CHARACTERS. Ashy-grey above, whitish below, narrowly cross-barred with black. Sexes more or less alike. General shape, pointed wings and flight very hawk-like. Seen singly flying swiftly about the countryside.

STATUS AND DISTRIBUTION. Apparently a rains (breeding) visitor. Quite common during August and early September. Mostly gone by end September, and none observed in March-April.

Outside Kutch found in winter throughout India. Two (or three?) races. Breeds in Europe and Asia south to the Himālayas. Evidently also in Kutch and some other portions of peninsular India.

HABITS. The Cuckoo was met with in dry, stony, scantily scrubbed country as well as about cultivation and in forest rakhāls. In its flight, shape and colouration it is superficially so like a hawk that with the uncritical it normally passes for a "Bāz." Even an experienced man of the shikar department, who was out with me, consistently failed to recognise the difference between the two. Its food consists of hairy caterpillars and beetles. The well-known call, *cuckoo.. cuckoo* etc. is uttered by the male from a tree-top with tail partly cocked and wings drooping on either side, while the bird pivots lightly this way and that.

NESTING. Gonads of both the Survey specimens (August 9 & 17) indicated that breeding was in progress. The normal fosterers in Kutch are presumably larks and pipits. A number of Cuckoos were observed one afternoon (seven solos in sight at one time) on the bare stony hummocks round Jāmāra Tank (Chāduva) where Red-winged Bush-Larks, Sykes's Crested Larks and Indian Pipits were breeding. The parasites were flying about, obviously in search of nests to lay in. Now and again a bird would alight on the ground and purposefully walk a few paces to prospect before flying off again, in most cases chivvied and hotly pursued by a pair of larks or pipits. The eggs of the Cuckoo are variable in colour and markings, but they usually match in a remarkable way those of the species in whose nests they are deposited.

MEASUREMENTS ETC. The Kutch specimens measure: 1 ♂ wing 218, tail 152; 1 ♀ wing 213, tail 160 mm. They apparently belong to the Asiatic race *telephonus*.

THE PIED CRESTED CUCKOO

Clamator jacobinus (Boddaert)

Fauna, iv, 167

SIZE. About that of the Myna but with proportionately much longer tail.

FIELD CHARACTERS. Plate p. 185, B.I.B. Black above, including prominent pointed crest; white below. A white roundish patch on the black wings, and white tips to the black tail-feathers conspicuous in flight. Sexes alike. Seen singly or in pairs in forest rakhāls, in stunted jungle on stony hillsides etc.

STATUS AND DISTRIBUTION. Rains (breeding) visitor. Fairly common. Last seen October 5—a young bird recently out of nest and being tended by Common Babblers. All adults had evidently departed earlier.

Outside Kutch found throughout India, locally resident as well as seasonal migrant. Two races. The larger of these is believed to come from Africa for the S-W. Monsoon season, and breed in N. India.

HABITS. The birds proclaim their arrival and presence in a locality by chasing one another about and calling noisily—a loud, rather plaintive and metallic *piu.. piu..pee-pee-piu....pee-pee-piu*, or just a tinkling *piu....piu* etc. Their food consists chiefly of hairy caterpillars, beetles and other insects.

NESTING. From the state of their gonads the birds were clearly laying in August. The normal fosterer in Kutch is the Common Babbler with whose blue eggs those of the Cuckoo match closely.

MEASUREMENTS ETC. The Kutch specimens measure: 2 adult ♀ ♀ wing 143-147. It is impossible to be certain of the race to which they belong.

THE INDIAN KOEL

Eudynamis scolopaceus scolopaceus (Linn.)

Fauna, iv, 172

SIZE. About that of the House Crow, but slenderer and with a proportionately longer tail.

FIELD CHARACTERS. Plate p. 186, B.I.B. Male glistening metallic black with yellowish-green bill and bright crimson eye. Female brown, spotted and barred with white. Seen singly or in pairs in and about wādis, and in gardens with large trees (e.g., Vijay Vilās, Agency Bungalow, Sarat Bāgh, Chāduva etc.).

STATUS AND DISTRIBUTION. Resident. Fairly common in suitable places, but not plentiful.

Outside Kutch found throughout India except the N-W. F. Province.

HABITS. The well-known call of the Koel (incorrectly known to some as "Brain-fever Bird") is heard chiefly in the hot weather. It is a loud, shrill, shrieking *kū-oo..kū-oo* etc. rising in scale, higher and more frantic, till it breaks off abruptly at the 7th or 8th call, to commence all over again in a short while. Another note, uttered chiefly by the female as she dashes from one tree to another, is a sharp, quick-repeated *kik-kik-kik* etc.

Its food consists largely of banyan and peepal figs and other berries, as well as caterpillars etc.

NESTING. The Koel also belongs to the parasitic group of Cuckoos. Its normal fosterer in Kutch is the House Crow, and its laying has to coincide with the nesting season of that bird, in the rains. Sir Geoffrey Archer has taken many eggs—ones and twos—from crows' nests in the Khāri Rōhar neighbourhood in June and July (1939). In colouration and markings they closely match the eggs of the House Crow, but are somewhat smaller in size.

MEASUREMENTS. The Kutch specimens measure: 1 ♂ wing 182, tail 188; 1 ♀ wing 187, tail 175 mm.

THE SIRKEER CUCKOO

Taccocua leschenaulti Lesson

Fauna, iv, 185

SIZE. About that of the House Crow, but slenderer and with a proportionately longer and heavier tail.

FIELD CHARACTERS. A heavy-tailed olive-brown bird with the underparts largely pale olive-brown and dark rufous. Broad, white-tipped, graduated black tail. Conspicuous cherry-red curved bill with yellowish hooked tip. Sexes alike. Usually seen singly clambering in low thickets or stalking on ground like the Crow-Pheasant—in dry, broken country with thorn scrub and bush jungle (e.g., Chāduva, Gōdsar etc.).

STATUS AND DISTRIBUTION. Resident. Rare.

Outside Kutch, found practically throughout India. Three races.

HABITS. The Sirkeer Cuckoo is largely a ground-frequenting species. It is a feeble flier and usually trusts to its legs for escape, making its way swiftly over stones and through thorn tangles with lowered head and horizontally held tail. Its food consists of fruits and berries as well as lizards, grasshoppers, beetles and other insects. Except for some low chuckles occasionally uttered, it is a silent bird.

NESTING. Lester records taking its eggs at Gōdsar in July (1896). Over its range as a whole, the season is between March and August. The Sirkeer belongs to the respectable division of non-parasitic Cuckoos which do not shirk their domestic responsibilities. Its nest is a shallow saucer-like structure of thorny twigs lined with leaves. It is wedged into the fork of a cactus bush or some low tree. The eggs—two or three—are pure white with a chalky texture, and broad ovals in shape.

THE CROW-PHEASANT*

Centropus sinensis parroti Stresemann

Fauna, iv, 192

SIZE. Larger than the House Crow.

FIELD CHARACTERS. Plate p. 189, B.I.B. A clumsy, glossy black bird with conspicuous chestnut wings and heavy, broad, graduated black tail. Sexes alike. Seen singly stalking along the ground through undergrowth hunting for food.

STATUS AND DISTRIBUTION. Apparently non-existent in Kutch in Lester's time.[1] Now resident in small numbers in Bhūj (Sarat Bāgh), Chāduva and Māndvi (Vijay Vilās grounds) where, according to H. H. Maharao Vijayarajji, it was introduced from Jamnagar (as " Jamnagar Crow ") about five years back. Uncommon, but said to be on increase.

Outside Kutch found throughout India. Three races.

HABITS. This is another ground-frequenting species of non-prarasitic Cuckoo. It skulks its way through bushes and undergrowth in search of food, head lowered and tail slightly uplifted but almost trailing the ground. Its diet consists of grasshoppers, beetles, caterpillars, lizards, small snakes etc. It is highly destructive to the eggs and young of small birds and from this point of view its artificial introduction into Kutch seems unfortunate. The call is a deep, resonant *ook* repeated at slow but regular intervals. It is sometimes varied by a quick-repeated, rather musical *coop-coop-coop-coop-coop* from 6 to 20 times or more. Besides these, a weird medley of harsh croaks and gurgling chuckles is uttered, especially when the bird is annoyed.

NESTING. A female shot at Chāduva on August 18 was laying. The season elsewhere ranges between February and September. The nest is a large untidy globe of twigs and leaves with entrance on the side. It is placed in the centre of a thorny bush or tree fairly low down. The eggs—three or four—are white and unmarked, with a chalky texture.

MEASUREMENTS. The Survey specimen measures: 1 ♀ wing 195, tail ca 258 mm.

THE ROSE-RINGED PARAKEET

Psittacula krameri borealis Neum.

Fauna, iv. 204

SIZE. Slightly larger than the Myna, with a long, pointed tail.

FIELD CHARACTERS. Plate p. 190 (fig. 1), B.I.B. A slim grass-green parakeet with the typical short, heavy, deeply hooked red bill. The male has a rose-pink and black collar; female without. Seen in noisy parties and flocks in towns and villages, and outskirts of cultivation.

1. Though Stoliczka noticed a solitary example on the Jhura Hills at the beginning of November, 1871. (*J.A.S.B.*, xli, 1872).

STATUS AND DISTRIBUTION. Resident. Common and abundant.
Outside Kutch found throughout India. Two races.

HABITS. Rose-ringed Parakeets make their headquarters in groves of large trees (e.g., Sarat Bāgh, Bhūj) or in holes in the walls of houses and town and village fortifications (e.g., Bhūj, Anjār, Bhachāu etc.) whence flocks fly out to raid surrounding orchards and cultivation. They are highly destructive to fruit and to freshly sown or ripening crops of jowār, bājra and groundnuts. The birds clamber up and among the branches and stalks in the quest, or waddle along the ground in a freshly sown field. They may also be regularly seen on kandi trees (*Prosopis*) in season, biting into and eating the tender pods, and are likewise fond of the flowers and berries of the wild caper or kerad (*Capparis*). Their well-known sharp, screaming calls, *kee-ak . . . kee-ak . . kee-ak* etc. are uttered both on the wing and when at rest. During the breeding season the male performs a series of fantastic and ludicrous courtship antics, strutting, posturing, clawing the air, and prancing about his mate, the couple necking and billing from time to time.

NESTING. Breeding was in progress during August and September as well as in March and April. Lester mentions January, February and March ; so it would appear that the birds have no well-defined season in Kutch. The eggs are laid in holes in old fortification walls, and in walls of inhabited houses in towns and villages. Also in holes excavated by the birds in tree-trunks. Four to six eggs make a normal clutch. They are pure white, roundish ovals.

MEASUREMENTS. A Kutch specimen (♂) measures: wing 172, tail 239 mm.

THE NORTH INDIAN ROLLER OR BLUE JAY

Coracias benghalensis benghalensis (Linn.)

Fauna, iv, 224

Plate 8, fig. 7 (inset).

SIZE. About that of the Pigeon.

FIELD CHARACTERS. Plate p. 210, B.I.B. A gorgeous Oxford-and-Cambridge blue bird with biggish head, heavy bill, rufous-brown breast, and light blue abdomen and undertail. In flight the dark and pale blue portions of the wings show up as brilliant bands. Sexes alike. Seen singly in open country and near cultivation and irrigation tanks, perched on telegraph wires, fence-posts and bare trees.

STATUS AND DISTRIBUTION. Resident, but moving about to some extent locally with the season. Not common or abundant.
Outside Kutch, found practically throughout India. Two races.

HABITS. The Roller is usually met with perched in some exposed situation whence it can keep a sharp look-out for crawling prey. When the quarry is sighted the bird swoops down to seize it and usually settles on the ground for a moment or two before flying off leisurely to a nearby perch where it is battered and swallowed. Its food consists of grasshoppers and other large insects, as well as lizards and frogs.

As fair-sized trees with natural hollows in their trunks are essential for nesting purposes, it is likely that there is a general drift of the birds towards better-wooded localities as the season approaches. Unaccommodated individuals may even be obliged to move across into Kāthiawār or Gūjarāt for breeding. This bird has a variety of loud, raucous calls and shrieks and is particularly noisy and demonstrative during its courtship displays in which apparently both sexes partake to some extent. The birds indulge in a series of fantastic aerobatics, rocketing into the air,

somer-saulting and nose-diving to the accompaniment of harsh, grating screams and with their brilliant colours flashing in the sun.

NESTING. Birds were observed in nuptial display at the end of March (Bhūj environs). The season over its range as a whole is between March and July. The nest is an untidy collection of straw, rags and rubbish in a tree-hollow. The eggs—four or five—are pure white, glossy and rather roundish ovals.

MEASUREMENTS. A Kutch specimen (♂) measures: wing 185, tail 123 mm.

THE KASHMIR ROLLER*

Coracias garrula semenowi Loudon and Tschusi

Fauna, iv, 222

Plate 8, fig. 4.

SIZE. About that of the Pigeon. Same as the Indian Roller.

FIELD CHARACTERS. Easily distinguished on the wing from the Indian Roller by its uniformly black flight feathers instead of banded brilliant dark and light blue. Entire underside light blue instead of merely the abdomen and undertail. Seen singly, perched on stakes etc. in open country.

STATUS AND DISTRIBUTION. Autumn passage migrant over Kutch to its winter quarters in Africa *via* the Arabian route. Earliest seen August 17 (Chāduva). Plentiful between 2nd week and end September. Considerably less by October 7. No return passage noted between March 3 and April 5, so it presumably misses Kutch on Spring migration, as do the Red-backed Shrike, Spotted Flycatcher, Grey-backed Warbler and several other species. Breeds Transcaspia and Turkestān to Kashmir, Balūchistān, Afghānistān, N-W. Frontier Province: May-June.

HABITS. This Roller is a temporary sojourner in Kutch, stopping only to rest and feed before resuming its south-westerly passage. Isolated examples *may* possibly be found overwintering here. This species migrates during daytime, flying not in flocks but in a steady stream of loose singles spaced at about half-minute intervals and spread over a wide front. In food and general habits it does not differ from the Indian Roller.

MEASUREMENTS. The Kutch specimens measure: 1 ♂ wing 205, bill 37·5, tail 124; 1 ♀ wing 201, bill 36, tail 130 mm.

THE GREEN BEE-EATER

Merops orientalis orientalis Latham

Fauna, iv, 234

Local name: Chhōta Hajāmda.

Plate 8, fig. 3.

SIZE. About that of the Sparrow.

FIELD CHARACTERS. A slender, bright green bird with reddish-brown on head and hindneck. Central pair of tail feathers prolonged into blunt pins. Slender, long, slightly curved bill. Sexes alike. Seen in pairs or parties on telegraph wires, stakes or dead trees in dry, open country as well as cultivation.

STATUS AND DISTRIBUTION. Resident. Common, but moving about somewhat seasonally.

Outside Kutch found throughout India. Three races.

HABITS. From an exposed perch where the bird sits swinging its pointed tail slowly up and down, it darts after a winged insect, snaps it up in mid-air and circles gracefully back on outstretched motionless wings. Here the victim is battered to death and swallowed. Favourite perches are marked by quantities of disgorged indigestible insect remains littered underneath. Its food consists entirely of flying insects such as dragon-flies, wasps and bees. Its normal call-notes are a pleasant *tit-tit* or trilly *tree-tree-tree* like the jingle of tiny hawk-bells. Large numbers collect to roost in selected leafy trees and great noise and bustle prevails before the birds turn in for the night.

NESTING. Tunnelling activity was observed early in March. Lester gives the season in Kutch as April-May. The birds nest in individual pairs or scattered colonies, excavating horizontal tunnels in earth banks, sand mounds etc. The tunnel is from a foot to six feet in length and about 1½ inches in diameter. It expands at its extremity into an unlined egg-chamber. The eggs—four to seven—are pure white roundish ovals.

MEASUREMENTS ETC. The Kutch specimens measure: 1 ♂ wing 95, outer tail 71.5, central tail 141; 1 ♀ ? wing 88, outer tail 71, central feathers missing.

The Great Rann is the barrier dividing the pale Sind and N-W. *biludschicus* from this darker peninsular (typical) race.

THE BLUE-CHEEKED BEE-EATER*

Merops superciliosus persicus Pallas

Fauna, iv, 239

Local name: Bada Hajāmda.

SIZE. About that of the Bulbul.

FIELD CHARACTERS. Like the Common Green Bee-eater but distinguishable by its larger size and bluer lower plumage. It has a conspicuous white and blue cheek-patch, black stripe through the eye, yellow throat and chestnut upper breast. Sexes alike. Seen in small flocks and loose rabbles hawking insects around and over jheels.

STATUS AND DISTRIBUTION. Autumn passage migrant presumably by the Arabian route to its winter quarters in Africa. First met September 21 (Rāpar). Fairly numerous in 1st week October. Not noted on return passage between March 3 and April 5.

Outside Kutch it has been noted on passage as far south as Bombay and the Deccan. Breeds in Palestine, Irāq, Irān, Transcaspia, Afghānistān, Balūchistān and N-W. India (including Sind): March-June.

HABITS. Except when actually on migration this Bee-eater is almost invariably met with about jheels and irrigation tanks, and never far from water. Its flight is swifter and more graceful than the Green Bee-eater's. The call-notes *te-tew ?, te-tew?* are louder and deeper and easily distinguishable from those of the last. In general habits the two are otherwise very alike.

MEASUREMENTS. The Kutch specimens measure: 1 ♂ wing 146; 1 ♀ wing 150 mm.

THE INDIAN PIED KINGFISHER

Ceryle rudis leucomelanura Reichenbach

Fauna, iv, 246

Local name : Kirkiria.

SIZE. Between the Myna and the Pigeon.

FIELD CHARACTERS. Plate p. 218, B.I.B. A speckled and barred black-and-white kingfisher with the typical straight and stout dagger-shaped bill. Sexes more or less alike. Seen singly or in pairs by streams and tanks.

STATUS AND DISTRIBUTION. Resident. Not common or abundant.
Outside Kutch found throughout India. Two races.

HABITS. The most characteristic and spectacular habit of this kingfisher is its method of hunting. As it flies back and forth over the water it suddenly checks itself now and again "standing on its tail," as it were, on rapidly hovering wings to investigate a promising patch. As soon as a fish is sighted within striking depth, the bird hurls itself upon it literally a bolt from the blue—wings pressed in at the sides—often going completely under. It presently reappears above the surface with the victim in its bill and flies off to a nearby perch where it is battered to death and swallowed entire. Besides fish, it eats tadpoles and aquatic insects. Its sharp cheery notes *chirruk chirruk*, are unmistakable when once heard.

NESTING. According to Lester it breeds in February and March. The season over its range as a whole is October to March. Frequently two successive broods are raised. The birds dig a horizontal tunnel in steep earth banks of streams and water channels. At the end of this is a widened nest-chamber. Five or six eggs form the normal clutch. They are pure white in colour, round ovals and with a glossy texture.

THE COMMON KINGFISHER

Alcedo atthis (Linnaeus)

Fauna, iv, 250

SIZE. Slightly larger than the House Sparrow.

FIELD CHARACTERS. Plate p. 221, B.I.B. A lovely blue-and-green kingfisher with deep rust-coloured underparts, short stumpy tail, and straight dagger-pointed bill. Sexes alike. Seen singly by streams (e.g., Khāri at Rūdra Māta), mangrove-lined tidal creeks, and occasionally at tanks and jheels.

STATUS AND DISTRIBUTION. Resident. Not common, and moving about locally under stress of natural conditions such as drought.
Outside Kutch found in Europe, N. Africa and Asia. Throughout India in three races.

HABITS. This litle kingfisher is usually seen either perched quietly on a branch overhanging water or dashing off at top speed low over the surface from one corner of its beat to another. From time to time it bobs its head, turning it this side and that, and jerks its stub tail to the accompaniment of a subdued *click*. A sharp '*chi-che, chi-chee* is uttered as it flashes past.

Its normal method of hunting is to drop bill foremost upon its quarry from an overhanging perch, but occasionally it also does so from the air hovering like its larger pied cousin. Its diet consists entirely of small fish, tadpoles, and aquatic insects.

NESTING. The season in Kutch, according to Lester, is March to May. This corresponds fairly closely with what it is elsewhere. The eggs—five to seven—are laid in tunnels in earth banks of streams or sides of water channels. They are pure white in colour, roundish ovals with a high gloss.

THE WHITE-BREASTED KINGFISHER

Halcyon smyrnensis smyrnensis (Linn.)

Fauna, iv, 268

SIZE. Between the Myna and the Pigeon.

FIELD CHARACTERS. Plate p. 222, B.I.B. A bright-coloured turquoise-blue kingfisher with deep chocolate-brown head, neck and underparts and a conspicuous white "shirt front." Long, heavy, pointed red bill. A white wing-patch prominent in flight. Sexes alike. Seen singly at tanks, in forest rakhāls and about wādis—both near and away from water.

STATUS AND DISTRIBUTION. Resident. Uncommon.

Outside Kutch found over a wide area from Asia Minor across to Eastern China. Throughout India in two races.

HABITS. Differs from the other two kingfishers chiefly in the fact that it is less dependent upon the presence of water than they are. Its food is not confined to aquatic animals. In addition to fish and frogs it eats earthworms, grasshoppers and large insects, lizards, small mice and nestling birds. These are picked up from the ground in the manner of the Blue Jay. Its normal call is a loud cackling "laugh" uttered in flight as well as when perched. During the nesting season a chattering but not unmusical song is delivered from the tip of a tree or a similarly exposed situation.

NESTING. Lester gives May and June for Kutch. He himself took three eggs in July (1896) from the river at Gōdsar. Elsewhere the season is mainly March to July. The nest tunnel, as with the two previous species, is dug horizontally into the side of an earth cutting or bank, and terminates in a spacious nest-chamber. The normal clutch is of four to seven eggs, pure white and almost spherical.

THE EUROPEAN HOOPOE

Upupa epops epops Linn.

Fauna, iv, 308

SIZE. About that of the Myna.

FIELD CHARACTERS. Plate p. 228, B.I.B. A fawn-coloured bird with a conspicuous, full, fan-shaped crest and black-and-white zebra markings on back, wings and tail. Long, slender, slightly curved bill. Sexes alike. Seen singly or in scattered twos and threes, usually on the ground, in forest rakhāls, babool groves around tanks, wādis, and lightly wooded country about cultivation. Lawns in gardens (e.g. Vijay Vilās and Sarat Bāgh) are commonly patronised.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common between September and March. One of the earliest immigrants. First observed August 5 (Ratnāl); last, March 26 (base Chhaparia Hills, Khadīr Island).

Outside Kutch found in Europe, Africa and Asia. Practically throughout India in two (or three?) races. The typical race (*epops*) breeds in Europe and W. Asia—Afghānistān, Balūchistān and W. Himālayas to Nepal: April to June.

HABITS. The Hoopoe walks and runs about on its short legs with a quail-like but waddling gait. It probes into the sandy soil and mulch with bill partly open like

forceps, searching for insects, grubs and pupae. The crest is folded down when thus engaged, and sticks out in a point at the back, opposite the bill, making the head of the digging bird look like a miniature pickaxe. At the least alarm or excitement it is quickly fanned erect. During the greater part of its sojourn in Kutch the bird is silent, but its soft musical calls *hoo-po* or *hoo-po-po* are sometimes heard shortly before it departs for its breeding grounds.

MEASUREMENTS ETC. The Kutch specimens measure: 1 ♂ wing 150, bill 54, tail 99; 2 ♀ ♀ wing 142-145·5, bill 50-55, tail 95-100 mm.

I do not know on what evidence Lester includes the Indian Hoopoe (now *U.e. orientalis*) in his Kutch list. This race is almost impossible to differentiate in the field from the European Hoopoe, though of course its occurrence is not improbable.

THE ALPINE SWIFT*

Micropus melba (Linn.)

Fauna, iv, 324

Plate 8, fig. 5.

SIZE. About that of the Bulbul.

FIELD CHARACTERS. Dark brown above, white below with a distinctive dark brown band across the breast. Tail short and square-cut. Very long, narrow and pointed wings. Sexes alike. Seen in loose parties dashing about at terrific speed above hilltops.

STATUS AND DISTRIBUTION. Resident? or foraging wanderer from beyond Kutch limits? Uncommon and sporadic, appearing suddenly from nowhere and disappearing just as quickly.

Outside Kutch it is found fairly generally but irregularly throughout India. The resident race (*bakeri*) breeds in fissures of high cliffs at many places in the peninsula: December to March.

HABITS. This magnificent Swift is an extremely fast and sustained flier. Its normal cruising speed has been variously estimated at between 80 and 150 miles per hour. The bird is thus able to cover enormous distances in the course of a day's wanderings in search of food, and unless the roosting or breeding place is known to be in the neighbourhood it would not be unreasonable to assume birds coming over several hundred miles of country, working their way as they feed towards points just as distant. On two occasions (at Nakhatrāna and Bhūjia) parties suddenly appeared from nowhere, and after circling about, hawking insects over the hilltops for a few minutes, moved on and were lost in the distance in a remarkably short time. The birds usually spend the daylight hours in hawking insects high up in the air but descend to lower levels in cloudy overcast weather. They may sometimes be seen drinking at streams flying low with fluttering wing-beats above the back, like a butterfly, and scooping the water off the surface in their bills.

The structure of a Swift's foot—all four toes directed forward—makes it impossible for the bird to perch in the ordinary manner. It can only cling on to a rock face or some other rough surface, as shown in the plate.

THE COMMON INDIAN HOUSE-SWIFT

Micropus affinis affinis (Gray)

Fauna, iv, 332

SIZE. Slightly smaller than the House Sparrow.

FIELD CHARACTERS. Plate p. 231, B.I.B. A smoky-black little bird with white throat, white rump, short square-cut tail and long, narrow, tapering wings.

Sexes alike. Seen flying about gregariously about ancient forts and buildings, old walled-in towns etc.

STATUS AND DISTRIBUTION. Resident. Fairly common but patchy and local. Outside Kutch found somewhat patchily throughout India.

HABITS. The House Swift spends the day flying about at great speed in loose rabbles hawking tiny, winged insects. Its extraordinarily widened gape facilitates their capture in mid-air. Its merry twittering screams uttered as it shoots in and out of some ancient building where a nest colony has established itself, are familiar sounds. Its food consists entirely of winged insects.

NESTING. Breeding was in progress during August and September. Over most of its range the principal months are February to September, and two successive broods are commonly raised. The nests, usually built in colonies, are round untidy cups made entirely of feathers and straw cemented together with the birds' saliva. They are plastered helter-skelter along the angle of the wall and ceiling in buildings and porticoes, and under rock overhangs on hillsides. The entrance hole is often merely a slit between the wall and the nest. The retort-shaped mud nests of the Red-rumped Swallow (e.g., in the cellars or "cubby holes" in Bhūjia Fort) are freely appropriated by these Swifts. They can at once be recognised as such by the thick lining of feathers added by the Swifts which shows up at the mouth of the entrance tube. The eggs—two to four—are pure white longish ovals.

NIGHTJARS

The Nightjars or Goatsuckers are short-legged soft-plumaged birds with large owl-like heads, large shiny eyes and enormously widened gapes fringed with coarse, stiff bristles. Their colouration is of a complicated pattern of browns, greys, buffs and fulvous, mottled and streaked with black, providing a perfect camouflage while the birds squat motionless on the bare stony ground, or at the base of a bush where they spend the daytime. They are entirely crepuscular and nocturnal in their habits and are on the move only after dusk. Their diet consists exclusively of crickets and other insects, night-flying moths and dung-beetles etc. which are captured on the wing with the aid of their gaping mouths. Their flight is noiseless and peculiarly moth-like and erratic, but the birds are capable of turning and twisting in the air to avoid or skirt obstacles and "hedge-hop" with amazing speed and dexterity—now circling, now flapping, now sailing. From time to time they settle on a branch, tree-stump or stone and most of their distinctive calls are uttered from here. At least three species occur in Kutch, superficially so close to one another that it is difficult to suggest any reliable characters for differentiating them in the field with certainty. The only trustworthy guide is their individual call-notes, not to be confused with the low chuckles which most species utter on the wing. Once the calls have been verified by shooting calling birds they will be found of very real help.

THE EUROPEAN NIGHTJAR*

Caprimulgus europaeus unwinii Hume

Fauna, iv, 359

Plate 8, fig. 6.

SIZE. Between the Myna and the Pigeon, but slenderer.

FIELD CHARACTERS. The call of this Nightjar is said to be like the whir of a gigantic grasshopper. All the birds met in Kutch were silent except for an occasional subdued quick-repeated *chuck-chuck-chuck-chuck* of the quality and volume of a gecko's call.

STATUS AND DISTRIBUTION. Autumn passage migrant by the Arabian route to its winter quarters in Africa. First seen September 17 (Rāpar); last, September 24 (Rāpar). Fairly abundant about 3rd week September. None observed on return passage between March 3 and April 5.

Outside Kutch it is met with also on autumn passage in N-W. India—Sind, Punjāb etc. Breeds in Irān, Afghānistān, Turkestān to the Amu Darya river: March-May.

MEASUREMENTS. The Kutch specimens measure: 4 ♂ ♂ wing 176-192, tail 117-134; 2 ♀ ♀ wing 183-184·5, tail 126-130; 1 ♀ wing 179, tail 124·5 mm. All examples excessively fat.

FRANKLIN'S NIGHTJAR*

Caprimulgus monticolus monticolus Franklin

Fauna, iv, 370

SIZE. Between the Myna and the Pigeon but slenderer.

FIELD CHARACTERS. Call: a loud, sharp, penetrating single note, *sweesh* or *chweep* as of a whip-lash cutting the air, uttered at intervals on the wing as well as from a perch.

STATUS AND DISTRIBUTION. Presumably resident, but uncommon.

Outside Kutch found practically all over India. Breeds March to August.

NESTING. No information concerning Kutch.

MEASUREMENTS. The only specimen collected by the Survey is in moult, so not measured.

THE COMMON INDIAN NIGHTJAR

Caprimulgus asiaticus Latham

Fauna, iv, 372

SIZE. Noticeably smaller than the last two. About that of the Myna.

FIELD CHARACTERS. Plate p. 234, B.I.B. Call: *Chuk-chuk-chuk-chukr-r-r-r*, well described as the noise of a stone gliding over a frozen pond. Uttered from a perch.

STATUS AND DISTRIBUTION. Resident. Fairly common but not plentiful.

Outside Kutch perhaps the commonest Nightjar species in India as a whole.

NESTING. According to Lester it breeds in Kutch from April to June. Specimens collected by the Survey in August had just finished breeding. Elsewhere also the season is ill-defined, ranging between February and September. No nest is made, the eggs—usually two—being laid on the bare ground in forest rakhāls or open scrub and bush country. They are long, cylindrical ovals, pale pink to deep salmon in colour, spotted and blotched with reddish-brown and inky purple.

MEASUREMENTS. The Kutch specimens measure: 2 ♂ ♂ wing 142-148, tail 104 (one in moult).

THE INDIAN BARN- , OR SCREECH-OWL

Tyto alba (Scopoli)

Fauna, iv, 385

SIZE. Larger than the House Crow.

FIELD CHARACTERS. Plate p. 236, B.I.B. A typical owl with large round head, and a conspicuous ruff of stiff feathers surrounding a comically pinched white

monkey-like face. Golden-buff and grey above, finely stippled with black and white. A great deal of yellowish-brown about the shoulders and on wings. Underparts silky white more or less tinged with buff and usually spotted dark brown. Sexes alike. Seen singly or in pairs among ruined buildings, fort walls etc.

STATUS AND DISTRIBUTION. Apparently resident, but rare. Not met with by the Survey, but included in Lester's list, and also recorded by Capt. A. Newnham (*J.B.N.H.S.*, Vol. ii, p. 55—1887). Outside Kutch found throughout India—two races. This owl has an almost world-wide distribution.

HABITS. The Barn-Owl spends the daytime in the seclusion of some dark niche or hole in a wall and comes forth to hunt at evening dusk. It is purely nocturnal and greatly inconvenienced by sunlight. It is a great destroyer of rats and mice and thus a beneficial species to have about dwelling houses and barns. A harsh screech is uttered from time to time during its silent ghost-like flight. It also produces a variety of discordant screams and weird snoring and hissing notes, enough to make one's flesh creep if doubtful of the source.

NESTING. Lester mentions a pair which apparently bred regularly in Bhūjia Fort in January. Over its range as a whole there seems to be no fixed season. Holes in walls, and gaps between the ceiling and roof of houses provide suitable nest-sites. The eggs—four to seven—are laid on a rough pad of twigs, straw and rags. They are pure white, roundish in shape and with a smooth texture.

THE SHORT-EARED OWL

Asio flammeus (Pontoppidan)

Fauna, iv, 394

SIZE. Larger than the House Crow. Same as the Barn Owl.

FIELD CHARACTERS. Above, dark brown mottled with buff and rufous; below, buffy white, the breast and foreneck streaked blackish. Tail barred rufous and blackish. Facial disc buffy-white and brown. Two short "ears" or aigrettes above the head. Sexes alike. Met with singly in open grassy rakhāls and among the coastal sand-dunes at Māndvi, etc.

STATUS AND DISTRIBUTION. Winter visitor. Uncommon.

Outside Kutch it is found in winter practically throughout India. Breeds in Europe: April to June.

HABITS. The Short-eared Owl spends the daytime resting on the ground at the base of a bush or tussock of grass whence it is sometimes flushed in shikar beats. While most of its hunting is done after dark, the bird seems little inconvenienced by sunlight. When disturbed during daytime it often flies for considerable distances without apparent discomfort. Its wing-action is reminiscent of the Houbara's. One may occasionally be seen lying flat on its belly sunning itself with wings spread out. Its food consists of field rats and mice, as well as small birds, large grasshoppers and locusts.

MEASUREMENTS. A specimen shot in the Māndvi dunes by M. K. S. Fatehsinhji measures: wing 318, tail 137 mm.

THE INDIAN GREAT HORNED OWL

Bubo bubo bengalensis (Franklin)

Fauna, iv, 414

Plate 9, fig. 1.

SIZE. About that of the Pariah Kite.

FIELD CHARACTERS. A large brown and fulvous owl streaked and mottled with tawny-buff and black, with two conspicuous black "horns" or ear-tufts above the head. Sexes alike. Met with singly or in pairs in rocky ravines and steep-sided out-scoured water-courses.

STATUS AND DISTRIBUTION. Resident. Not common.
Outside Kutch it is found more or less throughout India.

HABITS. Though chiefly nocturnal, this owl may frequently be seen on the move till after the sun is well up. It spends the daytime in a shady niche of rock or overhung ledge on a steep river-bank. When disturbed the bird flies well and without difficulty in broad sunlight. Its usual call is a deep, solemn and resounding *Bu-bō* (2nd syllable prolonged) which, while not really loud, has a hollow, far-carrying quality. Besides this it utters a variety of growls and hisses and a throaty *tuck-tuck* (as of loudly clicking the human tongue against the palate) expressive of excitement, emotion or threat. Its food consists mainly of field rats and mice, but other small living things are also eaten.

NESTING. According to Lester the breeding months in Kutch are February, March and April. His shikari brought him a clutch of eggs from the deep rocky nullah east of Pālera in March (1896). Elsewhere the season is principally November to April. The eggs—three or four—are laid on the bare soil in natural recesses in earth banks, on ledges of cliffs or merely under the shelter of a bush. They are creamy white, broad roundish ovals with a fair gloss.

MEASUREMENTS. The only specimen collected by the Survey measures: ♂ wing ca. 425, tail 205 mm.

THE NORTHERN SPOTTED OWLET

Athene brama indica (Franklin)

Fauna, iv, 440

SIZE. About that of the Myna.

FIELD CHARACTERS. Plate p. 242, B.I.B. A squat little white-spotted greyish-brown owl with typical large round head, and large round forwardly-directed staring yellow eyes. Sexes alike. Seen in pairs or family parties in babool groves, overgrown steep-sided watercourses, ruined buildings and fort walls etc.

STATUS AND DISTRIBUTION. Resident. Common.
Outside Kutch found throughout India. Two races.

HABITS. This owlet is largely crepuscular and nocturnal, perhaps not so much because it is intolerant of sunlight as on account of the merciless persecution and chivvying it invariably receives from other birds as soon as it shows itself in daytime. At dusk it may be seen perched on a stake or telegraph wire whence it pounces from time to time on some unwary beetle, lizard or mouse on the ground. Its flight, like that of other owls and night-flying birds is completely noiseless. It is deeply undulating—almost saw-edged—consisting of a few rapid wing-beats followed by an oblique

dive with wings pressed to the sides. They are noisy birds and have a large variety of harsh, chattering, squabbling and chuckling notes, two individuals frequently combining in a duet.

NESTING. Lester mentions January and February, but specimens collected by the Survey in August were certainly breeding, so probably the season here is a long one and not sharply defined. Elsewhere the principal months are November to April. The eggs—three or four—are laid on a flimsy pad of grass, tow and feathers in hollows in tree-trunks or holes in ancient walls and roofs. They are pure white roundish ovals.

MEASUREMENTS etc. The Kutch specimens measure: 2 ♀♀ wing 162-163, tail 76-83 mm.

THE OSPREY*

Pandion haliaëtus haliaëtus (Linn.)

Fauna, v, 3

SIZE. About that of the Pariah Kite.

FIELD CHARACTERS. Plate p. 245, B.I.B. A dark brown eagle-like bird of prey with white and brown head. Underparts white with a conspicuous broad brown band (or " necklace ") across the upper breast. The latter provides a good distinguishing mark both when the bird is at rest and on the wing. Sexes alike. Seen singly about the seashore and tidal creeks (Māndvi etc.) and jheels.

STATUS AND DISTRIBUTION. Winter visitor. Not common.
Outside Kutch found in winter sparingly throughout India. Breeds in Europe: April to June.

HABITS. The Osprey lives almost entirely on fish. Its method of fishing is to fly up and down off-shore with slow deliberate wing-beats and short glides, scanning the water for any fish near the surface. Occasionally it hovers in mid-air like a kestrel to investigate more closely, legs dangling below in readiness. At a favourable opportunity the bird hurls itself headlong, wings pulled in, striking the water with a tremendous splash and sometimes going completely under. It emerges presently grasping the fish in its talons, and flies off with it to some favourite perch on a rock, or just to the shore, where the victim is torn to pieces and devoured. Fish of large size are sometimes struck which the bird finds considerable difficulty in struggling with and lifting clear of the water.

THE BLACK OR KING VULTURE

Sarcogyps calvus (Scopoli)

Fauna, v, 9

SIZE. About that of the Peacock minus the train.

FIELD CHARACTERS. Plate p. 246, B.I.B. A huge black vulture with deep yellowish-red naked head and neck, and legs. In overhead flight a whitish band on the underside of the wings is prominent, as are also the white patches on the upper thighs and near the base of the neck. When sailing, the outstretched wings are held above the plane of the back in a wide V. Sexes alike. Seen singly on the countryside.

STATUS AND DISTRIBUTION. Resident. Common, but not abundant.
Outside Kutch it is found throughout India.

HABITS. The King Vulture is normally met with in isolated ones and twos. Even at animal carcases where a crowd of other species has collected, seldom more than two or three individuals will be in evidence. For some obscure reason this vulture

has acquired a reputation for boldness and overbearing aggressiveness, of inspiring awe amongst its confreres and thus monopolising a carcase until it has had its fill of the choicest tit-bits. This reputation is wholly undeserved. In actual fact it is the timidest member at the vulture feasts. It keeps aloof of the jostling crowd, only venturing forward to tug furtively at a gobbet when the coast is clear, and withdrawing hurriedly again when overwhelmed by the press. There is hardly ever any suggestion of deference being shown it by other vultures.

NESTING. The season in Kutch is January to March. The nest is a massive platform of twigs, untidily lined with straw and leaves. It is placed on the roof or top of a kandi or babool tree 10 to 15 ft. high, in open country or among sand-dunes (e.g., at Māndvi). A single white egg is laid, roundish oval, thick-shelled and of a fine texture. During the long incubation period—about 45 days—the egg becomes considerably stained and discoloured through constant contact with the bird's body.

THE FULVOUS OR GRIFFON VULTURE*

Gyps fulvus (Habligl.)

Fauna, v, 11

Plate 18, fig. 1.

SIZE. Larger than the Peacock minus the train.

FIELD CHARACTERS. The enormous size and reddish-fulvous or cinnamon colouration of this vulture distinguish it from other species. Neck covered with straggly dirty-white down, and a ruff of fulvous feathers round its base. Sexes alike. Seen singly or in small numbers on the countryside at animal carcases. Also perched on trees, rocks or on the ground, or soaring high overhead.

STATUS AND DISTRIBUTION. Resident (presumably). Frequent, but not common or abundant.

Outside Kutch it is found commonly in N-W. India and south to Central India.

HABITS. Purely carrion-feeder like the other vultures. Its general habits do not differ from those of the White-backed Vulture described more fully later.

NESTING. No data available for Kutch. In N-W. India it breeds between November and April, building a rough platform nest of sticks and rubbish on ledges of cliffs. A single egg is laid, white in colour but sometimes spotted and blotched with pale reddish.

THE LONG-BILLED VULTURE

Gyps indicus (Scopoli)

Fauna, v, 16

SIZE. About that of the Peacock minus the train.

FIELD CHARACTERS. Very like the Fulvous Vulture; somewhat smaller but except in fully adult plumage, easily confused with it. General colouration dark to buffish earth-brown, not cinnamon. Darkish head and almost completely naked neck. In overhead flight adult distinguished from adult White-back by the uniform —not contrasting—colouration of the underside of wings and body; sub-adult birds almost indistinguishable. Sexes alike. Seen in loose gatherings at animal carcases, or majestically quartering the heavens.

STATUS AND DISTRIBUTION. Resident (presumably). Fairly common.

Outside Kutch found practically throughout India, but apparently not in Sind. Three races.

HABITS. Carrion feeding. Similar to other vultures.

NESTING. No data available for Kutch. Elsewhere the season ranges between November and February. Builds the usual rough stick platform nest on ledges of cliffs. In Assam and Bengal in trees. Lays a single egg, mostly unmarked white, but some with reddish or red-brown blotches.

THE WHITE-BACKED VULTURE

Pseudogyps bengalensis (Gmelin)

Fauna, v, 19

SIZE. About that of the Peacock minus the train.

FIELD CHARACTERS. Plate p. 249, B.I.B. A heavy dirty blackish-brown vulture with long, naked neck and head. At rest, or when banking in the air, the white back is conspicuous. In overhead flight a whitish band stretching along the underside of the wings serves as recognition mark. Sub-adult birds are chocolate-brown without the white back or underwing bands and are easily confused with the Long-billed Vulture. Sexes alike. Seen at wayside carcases, or perched ghoul-like on trees, or soaring gracefully up in the air.

STATUS AND DISTRIBUTION. Resident. The commonest vulture.
Outside Kutch it is found commonly throughout India.

HABITS. Vultures live entirely on carrion, their feet and claws being ill-adapted for striking down and lifting live prey like eagles and falcons. They are invaluable scavengers and of the greatest benefit in keeping the surroundings of villages clean and sanitary. An animal carcase cast out on the outskirts is promptly located by their watchful scouts who are constantly quartering the heavens. A hungry rabble soon collects to feast, and the carcase, which would otherwise rot and befoul the air, is disposed of in an incredibly short time. The birds gorge themselves so full that they are often quite unable to lift themselves off the ground. After a feast they are usually obliged to settle on nearby trees or on the ground, giving time for digestion to lighten their loads.

Besides the harsh, unpleasant screeching and hissing, and the raucous scraping noises that attend the feasting activities, vultures do not emit any notes or sounds.

NESTING. No precise data is available for Kutch, but it doubtless breeds here. The season elsewhere is principally October to March. The nest is a large untidy platform of sticks, lined with green leaves, placed high up in some large tree such as banyan or peepal. A single egg is laid—white in colour, occasionally speckled and spotted with reddish-brown.

THE WHITE SCAVENGER-VULTURE OR PHARAOH'S CHICKEN

Neophron perenopterus (Linn.)

Fauna, v, 22

SIZE. That of the Pariah Kite.

FIELD CHARACTERS. Plate p. 250, B.I.B. A dirty-white kite-like bird with black wing-quills and naked yellow head and bill. Young birds are dark brown, rather like the kite. In flight the wedge-shaped tail distinguishes it from kites, eagles and other Kutch vultures. Sexes alike. Seen singly or in twos and threes, about villages and outlying shepherds' " wāndias "

STATUS AND DISTRIBUTION. Resident. Frequent, but not common or abundant.
Outside Kutch it is found throughout India. Two races.

HABITS. This vulture keeps to the neighbourhood of human habitations. It is seen perched on a mound or stone on the outskirts, or stalking along with a comical, waddling, high-stepping gait. It is a useful and efficient scavenger, for besides carrion it will eat any garbage or offal dumped about the tumble-down jerry-built hovels that usually go to make up a village. Human excrement also forms part of its regular diet, and where sanitary arrangements are primitive and the population obliged to walk abroad in the mornings armed with their domestic *lota*, there is never any dearth of food for it.

NESTING. The season is principally between February and April. The nest is a large, filthy and shabby mass of twigs, lined with hair, rags and scraps of animal skins. It is placed in a niche in ruined buildings or old fort walls (e.g., Bhūjia), on ledges of cliffs (e.g., Chhaparia Hills and Kāla Dōngar), or in natural outscoured hollows in weathered sandstone scarps (e.g., Tapkēshwari). The eggs—normally two—range from white to pale brick-red in colour, and are blotched with reddish-brown or blackish, rather densely round the broad end.

THE PEREGRINE FALCON*

Falco peregrinus Tunstall

Fauna, v, 32

SIZE. Larger than the House Crow.

FIELD CHARACTERS. A fierce-looking falcon slaty-grey above, fulvous-white below, narrowly barred with blackish on lower breast and rest of underparts. Conspicuous black cheek-stripes. Sexes alike, but female larger. Met with singly, invariably in the neighbourhood of duck-shooting jheels.

STATUS AND DISTRIBUTION. Winter visitor. Not common.

Outside Kutch found in winter more or less throughut India in suitable places. Two races. A third race—the Shahin Falcon—is resident and breeds on precipices in the Himālayas and S. Indian hills.

HABITS. The Peregrine is pre-eminently a duck-hawk. It affects the vicinity of jheels and its food consists largely of wildfowl and coots. The falcon stoops at a flight of duck from above with incredible velocity, wings pressed to its sides. It thus breaks up the formation and strikes down in mid-air with its powerful hind claw a bird that has been isolated, bearing it away in its stride dangling limp from its talons. The tearing swish of its lightning dive and the spectacular manner in which the whole manoeuvre is executed leaves one agape with fascination. Its normal flight is swift and powerful, attained by rapid beats of its pointed wings.

THE RED-CAPPED OR BARBARY FALCON

Falco peregrinoides babylonicus Gurney

Fauna, v, 36

SIZE. Larger than the House Crow. About the same as the Peregrine.

FIELD CHARACTERS. Generally not unlike the Peregrine. Upper parts ashy-grey cross-barred with blackish. Tail barred ashy-grey and blackish. Narrow cheek-stripes. A broad rufous nuchal collar. Crown ashy-grey or rufous to light chestnut. Sexes alike, but female larger. Plumage phases very variable.

STATUS AND DISTRIBUTION. Lester rather diffidently records two specimens from Kutch shot and sent to him for identification by H. H. the Rao Saheb in February

1896. He says the shikaris told him they were "Shahin" and that he found *very* great difficulty in placing them. Sr Geoffrey Archer obtained a specimen, 1939-40.

Winter visitor to N-W. India (including Sind) east to the U.P., from Western and Central Asia through Irāq, Irān, Afghānistān and Balūchistān.

THE LAGGAR FALCON

Falco jugger Gray

Fauna, v, 37

SIZE. Larger than the House Crow.

FIELD CHARACTERS. Plate p. 253, B.I.B. A dark ashy-brown falcon with brown-streaked white underparts and narrow brown cheek-stripes running down from in front and below the eyes. Sexes alike, but female larger. In overhead flight the white breast and dark and white pattern on the underside of the long, pointed wings are pointers to its identity. Young birds are brown underneath. Seen in pairs in open country about cultivation and human habitations.

STATUS AND DISTRIBUTION. Resident. Fairly common.
Outside Kutch it is found practically throughout India.

HABITS. The food of the Laggar consists of pigeons, doves, and other birds as well as gerbilles, lizards and large insects such as locusts. Pairs often work in co-ordination when hunting down birds, stooping at and chasing the quarry in turns with great speed and determination. Its usual call-note is a shrill prolonged *whi-ee-ee*.

NESTING. The season is between January and April. The nest is a largish stick-platform with the central depression lined with leaves, straw e c. It is placed high up in a large tree such as peepal, standing on the outskirts of a village. Sometimes old crow and kite nests are added to and utilised. The eggs—three to five—are of a handsome pale stone or pinkish-cream colour, densely blotched and smudged with brick-red or reddish-brown.

THE HOBBY

Falco subbuteo Linn.

Fauna, v, 42

Plate 9, fig. 2.

SIZE. Slightly smaller than the House Crow.

FIELD CHARACTERS. A small falcon with slaty-grey upper parts. Underparts white with rust-coloured abdomen and thighs. Breast streaked with dark brown—not barred as in the Peregrine. Otherwise a good miniature of the Peregrine in flight and general lines. Sexes alike, but female larger. Seen singly in open wooded country, especially along the edge of the Rann.

STATUS AND DISTRIBUTION. Winter visitor. Not common, First seen October 10.

Outside Kutch in winter practically all India; mainly two races. Breeds in Europe and Asia, east to Japan, south to the Himālayas : May to July.

HABITS. The Hobby is usually met with as a solitary bird, but parties of three to six may sometimes be seen hunting over a small area. Its food consists of small birds, butterflies, dragon-flies, locusts etc. captured on the wing. It is somewhat crepuscular and may often be seen at dusk hunting Pipistrelle bats, stooping at them with great

speed and dexterity. One was observed chasing a tired-out Willow-Warbler just arriving on migration across the Great Rann. By keeping to the country about the base of Kāla Dōngar (along the edge of the Great Rann) at this season, these little falcons doubtless obtain a rich harvest of exhausted incoming migrants.

THE RED-HEADED MERLIN OR TŪRŪMTI

Falco chiquera chiquera Daudin

Fauna, v, 47

SIZE. About that of the Pigeon.

FIELD CHARACTERS. Plate p. 254, B.I.B. An elegant little falcon, bluish-grey above, white below, closely barred with blackish on abdomen and flanks. The conspicuous chestnut head is a dependable pointer to its identity. On the wing, the narrow white terminal edging to tail preceded by a broad black band, are other features to look for. Sexes alike, but female larger. Seen singly or in pairs, in wādis, forest rakhāls and open scrub country about cultivation.

STATUS AND DISTRIBUTION. Resident. Common.
Outside Kutch it occurs practically throughout India.

HABITS. The normal prey of this falcon is small birds up to the size of pigeons, gerbilles, mice, lizards and large insects. Male and female sometimes hunt in concert, one bird driving and rounding off the quarry while the other, employing "off-side" tactics, pursues and strikes it down. Its flight is straight and swift, close above the ground or just over the tree-tops, and attained by rapid beats of the pointed wings. Unlike other small hawks and falcons it seldom or never soars high up in the air. Its cry is a high-pitched squeal. During the breeding season the birds become particularly noisy and are truculent towards even bigger species than themselves that blunder into the proximity of their nest-tree.

NESTING. According to Lester it breeds in Kutch during March, April and May. Elsewhere January to March are the favoured months. The nest is a fairly well made platform or cup of twigs, lined with grass and roots. It is usually concealed up in the branches of a peepal or other well-foliaged tree standing in open country. The eggs—three or four—are pale reddish-white, thickly speckled with reddish-brown. In shape they are long and regular ovals.

THE KESTREL

Falco tinnunculus Linn.

Fauna, v, 61

SIZE. About that of the Pigeon.

FIELD CHARACTERS. Plate p. 257, B.I.B., but the underparts are shown too red and the head not sufficiently blue-grey. A small slender falcon with pointed wings and longish rounded grey tail, the latter with a broad black band across the tip. Brick red above, with black wing-quills and blue-grey head. Light buff below with brown spear-head spots. Female rufous above including head, cross-barred with black. Seen singly in open, sparsely scrubbed stony country, perched on a favourite mound or hovering aloft.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common but not abundant. First seen August 30 (Bhūj environs); last March 29 (Adēsar).

Outside Kutch found in winter throughout India. Three races, from Europe and Asia. Two of these breed within Indian limits: February to June.

HABITS. The Kestrel's food consists of field mice, lizards, crickets, locusts and other insects—and occasionally also young birds. Its characteristic method of hunting is to drop upon its quarry from the air. As the bird beats back and forth over its feeding ground at a height of a hundred feet or so, it suddenly checks itself now and again and remains poised stationary in mid-air on rapidly fluttering wing-tips, intently scanning the ground below for crawling prey. If the quarry is sighted it pounces upon it silently and bears it away in its talons. The notes normally heard are a sharp *ki-ki-ki* or *tit....weé* uttered on the wing, and sometimes when hovering.

THE INDIAN TAWNY EAGLE

Aquila rapax vindhiana Franklin

Fauna, v, 72

SIZE. Larger and heavier than the Pariah Kite.

FIELD CHARACTERS. Plate p. 258, B.I.B. An umber-brown bird of prey, sometimes very pale and almost fulvous white, sometimes almost blackish. The head is flat, typical of the eagles, the bill hooked and powerful (yellow cere conspicuous), and the legs feathered, down to the toes. Tail rounded like the vulture's, but relatively longer. Wings long, reaching almost to tip of tail when closed. In sailing flight they are held in a line with the body. Female larger than male. Seen singly or in pairs on trees, or soaring in open country about cultivation or sparsely scrubbed stony hummocks.

STATUS AND DISTRIBUTION. Resident. Fairly common but not numerous. Outside Kutch found throughout India.

HABITS. This eagle is frequently seen on the outskirts of villages scavenging or carrion-eating in company with crows and vultures. It sometimes kills hares and sick or disabled birds, but habitually prefers to live by piracy chasing kites, crows and the smaller falcons with speed and determination and depriving them of any morsel they have secured. It has a variety of loud raucous cackles and a distinctive guttural *kra* uttered as " war cry " when in pursuit.

NESTING : It doubtless breeds in Kutch though no specific data is available. Lester states in a general way that it lays in January and February. Elsewhere the season is November to March or April. The nest is a bulky platform of sticks and twigs, sometimes thinly lined with leaves and grass. It is usually placed on the roof or top of a babool tree standing by itself, and preferably near a village. The eggs—two or three—are white, sparsely spotted and speckled with reddish-brown.

THE GREATER SPOTTED EAGLE*

Aquila clanga Pall.

Fauna, v, 74

SIZE. Larger and heavier than the Pariah Kite.

FIELD CHARACTERS. A large, more or less uniformly blackish-brown eagle with the bases of the feathers sometimes showing through as white patches producing a spotted appearance. No paleness about head and no bars in tail. Young birds are difficult to identify in the field with certainty. In flight the wings are held in line with the body as in the Tawny Eagle. Sexes alike, but female larger. Seen singly or in pairs, perched on trees on the edge of jheels etc.

STATUS AND DISTRIBUTION. Winter visitor. Only observed once (March 13)—a single bird flying over the sand-dunes near Vijay Vilās, Māndvi. Probably it is com-

moner in Kutch than this record suggests, as it is in Sind and over most of India in winter wherever jheels are present. Breeds in Southern Europe and Asia. Its alleged breeding in Sind is still in some doubt.

HABITS. Largely a jheel bird. Feeds on frogs, fish, small mammals and birds. Frequently carries off wildfowl falling to a gun. Rather sluggish.

BONELLI'S HAWK-EAGLE*

Hieraëtus fasciatus fasciatus (Vieillot)

Fauna, v, 77

Plate 9, fig. 4.

SIZE. Slightly larger than the Pariah Kite.

FIELD CHARACTERS. A comparatively slender-built eagle, dark umber-brown above, white below with blackish streaks. Young birds are rufous underneath. In flight the wing-tips are slightly upturned. The closed wings do not reach to within two or three inches of the tail-tip. When overhead, the silvery white body and dark brown wings with greyish patches and streaks are suggestive. In young birds the body looks dark-streaked brick-red and the wings patchy grey and dark brown. Sexes alike ; female larger.

Nearly always seen in pairs beating over stony scrub-and-bush covered hummocks (e.g., Bhūjia Hill, Chāduva etc.)

STATUS AND DISTRIBUTION. Resident. Frequent, but not common or numerous.

Outside Kutch it is found in Southern Europe, N. Africa and Asia. Practically throughout India.

HABITS. Bonelli's Eagle is a game-killer and seldom or never eats carrion as the Tawny and some other eagles do. It is a bold and active hunter and powerful on the wing. Small wildfowl, partridges and pigeons are some of its usual victims, but happily its staple diet appears to be House Crows. If there is one bird that the crow fears and respects it is this eagle. The Survey specimen was shot while devouring a Pariah Kite chick about a month old. The eagle was perched on the edge of the kite's nest calmly tearing up its quarry, heedless to the frantic but innocuous stoops made at it repeatedly by the outraged parents.

NESTING. At the end of September an enormous old stick-nest on top of a bastion in Bhūjia Fort was being added to by a pair, both birds bringing in large sticks in their talons. The season over the greater part of its Indian range is November to February. The usual nest-sites are ledges of cliffs and lofty trees. The eggs—one or two—are white, sometimes faintly flecked with pale reddish, and more rarely well marked with light reddish-brown.

MEASUREMENTS. The only Kutch specimen (♀) measures : wing 490, tarsus 110, tail 254 mm.

THE BOOTED EAGLE

Heiraëtus pennatus (Gmelin)

Fauna, v, 79

Lester records a specimen shot by H. H. the Rao on July 24, 1896, and sent to him for identification. It was the only example he saw in Kutch. Not met with by the Kutch Survey, but Sir Geoffrey Archer's list shows two specimens collected by him in 1939-40.

The Booted Eagle differs from Bonelli's in being considerably smaller. Above, it is pale buffy-or rufous-white to blackish-brown ; below buffy white, dark-streaked on chin and breast. It also has a dark phase in which it looks rather like the Pariah Kite, especially on the wing, only its tail is not forked like the kite's. It is a winter visitor to the plains of India, but breeds in the higher Himālayas.

THE SHORT-TOED EAGLE

Circaëtus ferox (Gmelin)

Fauna, v, 93

SIZE. Larger than the Pariah Kite.

FIELD CHARACTERS. Plate p. 273, B.I.B. An earthy-brown thick-set eagle with a large greyish owl-like head. Underparts below the breast white, broadly barred with dark brown. Sub-adult birds have a confusing variety of brown plumages. Sexes alike, female larger. In overhead flight the general aspect of body and wings is silvery-grey, the darker head and dark bars across tail (usually three visible) being conspicuous. Through binoculars or at close range the unfeathered legs, and upwardly directed bristly feathers on the face are pointers. Seen singly, perched on trees or rocks, sailing over stony scrubbed hummocks and sand-dune country.

STATUS AND DISTRIBUTION. Presumably resident. Not common.
Outside Kutch it is found in C. and S. Europe, N. Africa, C. and S-W. Asia. Practically throughout India.

HABITS. This eagle preys mainly on snakes and lizards. Crabs, frogs and large insects are also eaten, as well as sickly or wounded birds and small mammals. When hunting it frequently hovers in the air like a kestrel but its movements are cumbrous and ungainly. An example sailing over the Māndvi dunes when shot at and hit promptly disgorged a snake that it had eaten. But instead of jettisoning it the bird transferred it to its talons in mid-air and continued its flight with the reptile dangling below ! A loud, screaming plaintive cry *pieeou, pieeou* is uttered during the breeding season when also a pair will indulge in remarkable tumbling and darting displays in the air.

NESTING. No data available for Kutch. Elsewhere it breeds between December and May. Nest of twigs lined with green leaves, in a moderate-sized tree standing in open scrub jungle. Only a single egg, pale bluish-white broad oval.

THE WHITE-EYED BUZZARD-EAGLE

Butastur teesa (Franklin)

Fauna, v, 104

SIZE. Between the House Crow and the Pariah Kite.

FIELD CHARACTERS. Plate p. 277, B.I.B. A small brown hawk with white throat, two dark cheek-stripes and a third central stripe running down from chin. Brown and whitish underparts and orange-yellow cere. The eyes, white or pale yellow, are conspicuous at close quarters. In overhead flight, under aspect of wings pure white with faint dark bars. A tiny white or whitish patch on the back of the head gives further confirmation of its identity. Sexes alike. Seen singly in open scrub country, and about wādis and forest rakhāls.

STATUS AND DISTRIBUTION. Resident. Fairly common.
Outside Kutch it is found more or less throughout India.

HABITS. This hawk lives on locusts, grasshoppers and other large insects, as well as lizards, frogs, mice and gerbilles. It is rather sluggish in its movements. Its usual method of hunting is to pounce upon its quarry from a look-out post and carry it off in its talons.

The bird may frequently be seen soaring in circles high up in the air along with larger birds of prey. Its brownish and white colouration and somewhat short and rounded wings then reveal its identity. A plaintive mewing call is uttered on the wing as well as when at rest, and the birds become particularly noisy during their breeding season.

NESTING. Lester had eggs, presumably of this species, brought to him by his shikari " in the spring of 1894." The season elsewhere is mostly between February and May. The nest is a loosely built unlined structure of twigs, much like a crow's, placed fairly high up in a thickly foliaged tree. The eggs—normally three—are unspotted greenish-white in colour, broad oval in shape and of a fairly smooth texture.

THE BRAHMINY KITE

Haliastur indus indus (Boddaert)

Fauna, v, 118

SIZE. About that of the Pariah Kite.

FIELD CHARACTERS. Plate p. 281, B.I.B. A bright rusty-red bird of prey with a white head and breast down to the abdomen. Young birds are chocolate brown and resemble the Pariah Kite. In this phase they may be distinguished from the Pariah Kite as well as from the young Scavenger Vulture (especially in overhead flight) by their *rounded* instead of forked or wedge-shaped tail. Sexes alike. Usually seen near water—river, jheel, seacoast or marsh-land.

STATUS AND DISTRIBUTION. Resident, but moves about locally with conditions of drought or monsoon inundation. Not common.

Outside Kutch it is found throughout India except in the N-W. F. Province.

HABITS. The Brahminy Kite is inseparable from the neighbourhood of water and marsh-land. Its food consists of land-crabs, fish, frogs, lizards and small snakes, but it also picks up any offal or refuse lying about village tanks or floating on the surface. Its call is a harsh wheezy squeal like that of a Pariah Kite with a sore throat.

NESTING. Lester had hard-set eggs brought in by his shikari from Pālera Tank in 1893. He does not say what month. Sir G. Archer's collection contains a c/2 (fresh) from Bhūj, March 13 (1939). E'sewhere the seas n is mainly December to April. The nest is a loose structure of sticks and twigs lined with green leaves, placed in the top of a large peepal or banyan tree, preferably growing near water. The eggs—usually two—are greyish-white, faintly speckled and blotched with pale dingy reddish-brown.

THE COMMON PARIAH KITE

Milvus migrans govinda Sykes

Fauna, v, 121

SIZE. Smaller than the Vulture—about 24".

FIELD CHARACTERS. Plate p. 282, B.I.B. A large brown hawk distinguishable from all similar birds by its forked tail, particularly conspicuous in flight. Sexes alike. Seen singly or gregariously, scavenging in towns and villages.

STATUS AND DISTRIBUTION. Resident. Common.
Outside Kutch it is found throughout India.

HABITS. The Pariah Kite is one of our most familiar birds, habitually frequenting the neighbourhood of towns and villages as well as outlying shepherds' wandias. It is seen perched on a housetop or tree, or wheeling in circles overhead, on the constant look-out for any scraps of food or refuse that may be thrown out. Its omnivorous diet makes it a useful scavenger, but it occasionally becomes a nuisance to poultry-keepers by its partiality for young chickens. Its call is a high-pitched screaming whistle, *ewe-wir-wir-wir-wir*, uttered from a perch as well as on the wing.

NESTING. The breeding season in Kutch is September to March or April. The nest is an untidy platform of sticks, rags and miscellaneous rubbish, placed in the top of some large tree growing in or near a village. The eggs—two to four—are dirty pinkish-white, more or less spotted and blotched with reddish-brown or blood-red.

The Black-eared or Large Kite (*M. m. lineatus**) also visits Kutch in winter in small numbers. Besides being larger and heavier and somewhat slower in flight, it may be differentiated by a conspicuous white patch on the underside of the wing combined with the normal forked kite tail. It usually keeps to the vicinity of jheels, especially near villages (e.g., Chāngdāi, Māndvi Dist.).

THE BLACK-WINGED KITE*

Elanus caeruleus vociferus (Latham)

Fauna, v, 125

SIZE. About that of the House Crow.

FIELD CHARACTERS. Plate p. 285, B.I.B. A small ashy-grey and white hawk with a black line above the eyes and black patches on the shoulders, especially prominent while at rest. The tips of the closed wings (black) extend beyond the short square-cut white tail. Sexes alike. Seen singly in scrub and sand-dune country (e.g., about Māndvi).

STATUS AND DISTRIBUTION. Presumably resident, but patchy and uncommon.
Outside Kutch it is found somewhat patchily throughout India.

HABITS. This dainty little hawk lives on locusts, crickets and large insects as well as lizards, mice, gerbilles and sickly small birds. It takes up its position from day to day on some favourite tree-top or stump whence it pounces upon any prey that shows itself on the ground. It flies low over its hunting ground and hovers cumbrously every now and again to investigate more closely. The normal flight is sluggish and alternated with short spurts of sailing. The wing action is slow and deliberate, reminiscent of the Blue Jay. It is a silent bird and its shrill squeal is only rarely heard.

NESTING. No data is available for Kutch. Elsewhere it breeds practically any time of the year, building a crow-like stick-nest in a small tree. The eggs—three or four—are yellowish-white, as a rule densely blotched with brownish-red.

THE PALE HARRIER

Circus macrourus (S. G. Gmelin)

Fauna, v, 128

SIZE. Somewhat less than the Pariah Kite, and much more lightly built.

FIELD CHARACTERS. Plate p. 286, B.I.B. A slender pale ashy-grey hawk with black tips to its long narrow pointed wings, especially conspicuous in flight. Relatively

long white tail with grey cross-bars. Female umber-brown with a buff-coloured owl-like ruff all round the neck. Seen singly, skimming airily over standing crops and grassland.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common. First seen August 24 (Māndvi) ; last, March 25 (Khadīr Island).

Outside Kutch in winter practically throughout India. Breeding E. Europe to C. Asia: April to June.

HABITS. The Pale Harrier lives on large locusts, frogs, lizards, rats and small birds. It quarters the ground in quest of food, gliding effortlessly on outspread motionless wings with the utmost ease and grace, skimming a few feet above the tops of the grass and standing crops. On March 25 a bird was observed on the vast featureless expanse of the Great Rann off Khadīr Island, beating methodically (and optimistically !) up and down and back again over three small clumps of drift tamarisk scarcely a hundred square yards in extent, and miles away from "land." This individual was doubtless working its way north towards its summer quarters. The Harrier does not ordinarily hover in the air like the Kestrel or Black-winged Kite. On sighting its quarry it checks itself dead in mid-air and wheels sharply round with wonderful agility to pounce upon it. It settles on the ground to dispose of the prey before resuming its beat. The bird always prefers to perch on a mound or on the bare ground rather than on a tree or bush.

MEASUREMENTS. A specimen (♀) collected in Kutch measures : wing 376, tarsus 67, tail 233 mm.

MONTAGU'S HARRIER

Circus pygargus (Linn.)

Fauna, v, 130

SIZE. Same as the last.

FIELD CHARACTERS. Somewhat darker grey than the Pale Harrier, but almost impossible to identify with certainty in the field. In the hand, the shorter tarsus—usually under 65 mm.—is a point for recognition. Female similar to that of the last species but darker.

STATUS AND DISTRIBUTION. According to Lester equally abundant in Kutch with the Pale Harrier during the winter months.

Outside Kutch it is a common winter visitor to N. India, south to about the Central Provinces. Breeds in Europe, Africa and W. Asia : April and May.

HABITS. Same as those of the Pale Harrier.

THE MARSH-HARRIER

Circus aeruginosus aeruginosus Linn.

Fauna, v, 134

Plate 9, fig. 3.

SIZE. Slightly smaller than the Pariah Kite and of slenderer build.

FIELD CHARACTERS. Adult male dark brown and rufous, with silvery-grey wings and tail. The female and young male are rather like the Pariah Kite, but slimmer, with a rounded (not forked) tail, and usually a whitish cap. Seen singly about jheels and marsh-land.

STATUS AND DISTRIBUTION. Winter visitor. Frequent, but not common. First seen September 10 (Kandla) ; last March 9 (Chāngdāi tank, Māndvi).

Outside Kutch found in winter all over India. Breeds Europe to W. Siberia : March to June.

HABITS. As its name implies, this harrier lives about swamps and jheels. Its food consists largely of frogs but any other small animals available here are seldom passed by. It is notorious with sportsmen for its habit of calmly making off with a snipe or teal that has dropped to their gun, heedless of their frenzied curses and gesticulations!

THE LONG-LEGGED BUZZARD

Buteo rufinus rufinus (Cretzschmar)

SIZE. About that of the Pariah Kite.

FIELD CHARACTERS. A heavy and extremely variable hawk ranging in colour from dark brown through reddish-brown and fulvous to pale sandy. Distinguishable aloft from other similar birds by the rounded, spread-out tail and by whitish patches near the tips of the broad wings. Sexes alike. Seen singly perched on a stone or mound—or tree—or soaring in wide circles overhead.

STATUS AND DISTRIBUTION. Winter visitor. First seen September 14 (1943—Shināi Reservoir). Much commoner in some years than in others.

Outside Kutch it is a common winter visitor to Northern India. Breeds S-E. Europe, to W. & C. Asia. Also W. Himālayas : March to July.

HABITS. The Buzzard is a heavily built hawk of sluggish habits. It is fond of semi-desert country, but is occasonally met with also in the neighbourhood of jheels. Its food in Kutch consists mainly of lizards and gerbilles which it hunts in the manner of the harriers, by pouncing on them from the air.

THE INDIAN SHIKRA

Astur badius dussumieri (Temm.)

Fauna, v, 149

SIZE. About that of the Pigeon.

FIELD CHARACTERS. Plate p. 289, B.I.B. A small familiar hawk, ashy blue-grey above, white below cross-barred with rusty-brown. Female browner above and larger. Young birds are brown and rufous above, broadly streaked with brown below. Tail with broad blackish bands. Usually seen in pairs in forest rakhāls, well-wooded gardens (e.g., Chāduva, Sarat Bāgh etc), about villages, wādis and cultivation. Sometimes soaring aloft in spirals when the small size, longish tail and short rounded wings are pointers to its identity.

STATUS AND DISTRIBUTION. Resident. Fairly common.

Outside Kutch found throughout India. Two (or three) races.

HABITS. The Shikra lives by hunting locusts, frogs, lizards, squirrels, gerbilles and small birds. Its tactics are mainly of Surprise. From a concealed perch in some leafy tree it swoops down and bears away its victims before they are aware of danger. Sometimes a small bird dodges the initial onslaught but is pursued with speed and determination until struck down. The normal flight consists of several rapid wing-strokes followed by a short glide. The bird generally flies close along the ground and shoots steeply upward to alight on a branch. Its call-notes are harsh and challenging, very like those of the Black Drongo. During the breeding season pairs indulge in

curious stooping, tumbling ad spiralling antics in the air. They become very noisy and constantly utter a sharp double *ti-tui*.

NESTING. Lester gives the season in Kutch as March and April. A female collected by the survey in August was certainly breeding. Sir G. Archer's collection contains a c/2 taken at Gaipadar. No date. Elsewhere the season is mainly March to June. The nest is an untidy structure of twigs lined with grass and roots placed in the top of a leafy tree, preferably one in a grove. The eggs—three or four—are pale bluish-white, sometimes faintly speckled and spotted with grey.

MEASUREMENTS. The Kutch specimens measure: 1 ♂ wing 206, tail 166; 1 ♀ wing 215, tail 172 mm.

THE CRESTED HONEY-BUZZARD*

Pernis ptilorhynchus ruficollis Lesson

Fauna, v, 167

SIZE. About that of the Pariah Kite.

FIELD CHARACTERS. Greyish-brown above, pale brown below, narrowly cross-barred with white. A short blackish crest at back of head. In overhead flight rather like the Short-toed Eagle—silvery-grey with dark markings, and two broad blackish bars in tail—but with longer neck and slenderer head. Sexes alike. In the hand the small scale-like feathers thickly covering the sides of the head, forehead and chin are a distinguishing mark. Seen singly in lightly wooded country. Also in groves of trees about villages and in gardens.

STATUS AND DISTRIBUTION. Resident (presumably). Not common. Patchy. Outside Kutch it is found throughout India except in Sind.

HABITS. The Honey-Buzzard is so called from its partiality for honey. It attacks the combs of wild bees and devours the honey as well as the larvae. The dense covering of scale-like feathers on its face is evidently a protection against the stings. It also eats frogs, small reptiles, mammals and birds, and is a notorious robber of other birds' eggs and nest-young. The normal flight of this buzzard consists of steady wing-beats and practically no gliding, but it frequently soars aloft in spirals and circles on motionless wings as many of the other hawks do. Its call is a high-pitched screaming kite-like whistle *whee-ee-ew*. For some reason it is unfailingly chivvied by crows!

NESTING. No data is available for Kutch. In northern and continental India the season is between April and June. The nest is the usual stick affair and has a neat central depression lined with green leaves. It is placed high up in a large tree either lone or one standing in a garden or orchard. Normally one or two eggs are laid, creamy-white profusely speckled and blotched with reddish-brown.

MEASUREMENTS. The only Kutch specimen a ♀—shot in Sarat Bāgh, Bhūj, by the Yuvraj, M. K. S. Madansinhji—measures: wing 400, tail 250 mm.

THE BLUE ROCK-PIGEON

Columba livia Gmelin

Fauna, v, 220

SIZE. Somewhat smaller than the House Crow (13").

FIELD CHARACTERS. Plate p. 293, B.I.B. A familiar slaty-grey bird with glistening metallic green and purple or magenta sheen on upper breast and round the

neck. Two dark bars on the wings. Sexes alike. Seen in colonies in wells and among old fortification walls. Also in newly sown fields of jowār etc.

STATUS AND DISTRIBUTION. Resident. Very common and abundant.
Outside Kutch found wild or semi-domesticated throughout India.

HABITS. The Pigeon is certainly one of the commonest birds in Kutch. Every well has a colony living in it, and old walls of village fortifications invariably hold a generous quota. The birds are not molested anywhere, with the result that they have become surprisingly tame and abundant. Large flocks gather to feed with impunity on the newly sown jowār, almost under the ryot's nose, and must obviously do considerable damage. Enormous numbers may also be seen after the jowār harvest in March on threshing and winnowing floors in the precincts of villages, gorging themselves on the grain. Their flight is swift, strong and direct. The usual call-notes are the well-known deep *gootr-goo, gootr-goo* etc., uttered with the head lowered and throat puffed out while the bird turns round and round.

NESTING. Breeding was in progress during August and September, and as elsewhere it probably continues more or less all the year round. Every available hole down the sides of wells, both dry and those in use, and every hollow and gap in old walls or under the rafters of houses, deserted as well as occupied, is used as nesting site. The nest is a scanty pad of twigs, rubbish and feathers. The normal clutch is invariably of two eggs—pure white and eliptical.

MEASUREMENTS ETC. The Kutch specimens measure: 3 ♂ ♂ wing 230-232, tail 110-115 mm. They evidently belong to the N-W. Indian race *neglecta* with the lower back and rump paler than the rest of the upper parts. But the possibility of admixture with domestic stock makes definiteness difficult.

THE LITTLE BROWN DOVE

Streptopelia senegalensis cambayensis (Gmelin)

Fauna, v, 246

SIZE. About that of the Myna.

FIELD CHARACTERS. Earthy-brown and grey above, pinkish brown and white below with a miniature "chessboard" in rufous and black on either side of the neck. Sexes alike. Seen in pairs or loose flocks in cultivation, about villages, and in scrub and stony, hummock country everywhere.

STATUS AND DISTRIBUTION. Resident. Very common and abundant.
Outside Kutch it is found in dry areas throughout India.

HABITS. The food of this as well as other doves consists entirely of seeds and grain gleaned on the ground. To this the green tender shoots of crops and grasses are sometimes added. When courting a hen on the ground the male follows her around with rump arched, head and tail lowered and throat puffed out. He bobs ludicrously in front of her as he calls, and hops stiffly closer when she tries to move away. His actions and behaviour now are strongly reminiscent of a *Calotes* or "Bloodsucker" lizard. Sometimes the male indulges in an aerial display, rising from a bush-top rather steeply on flapping wings and outspread tail, and volplaning down in an arc to another perch some distance away.

The call is a soft *coo-cooroo-rooroo.*

NESTING. The season was in full swing in August, September and October as well as in March and April. Lester says that it breeds throughout the year. The

nest is a ridiculously flimsy platform of twigs placed, often precariously, in a *Euphorbia* or other thorn bush seldom more than 4 ft. from the ground. Two eggs invariably form the clutch. They are pure white and eliptical.

MEASUREMENTS. The Kutch specimens measure: 1 ♂ wing 126, tail 102; 1 ♀ wing 127, tail 112 mm.

THE RING DOVE

Streptopelia decaocto decaocto Frivalszky

Fauna, v, 248

SIZE. Slightly smaller than the Pigeon.

FIELD CHARACTERS. Plate p. 297, B.I.B. A pale vinous-grey and brown pigeon, with a prominent narrow black half-collar on the hindneck. Sexes alike. Seen in pairs or flocks in open, cultivated country.

STATUS AND DISTRIBUTION. Resident. Very common and abundant.

Outside Kutch found throughout the drier portions of India.

HABITS. Not appreciably different from those of the last species. Very large numbers of this and the other doves sometimes collect to feed on grass seeds on the drying-up margins of tanks (e.g., Dēvisar). Not infrequently birds are also seen amongst the mangroves on tidal mudflats as between Kandla and Navlākhi.

Its usual call-notes are a deep and pleasant trisyllabic *kūk-koo-kook* repeated several times. When doing the display arc or glide in the air, a prolonged aggressive-sounding *koon-koon-koon* is uttered.

NESTING. Breeding continues more or less throughout the year. The nest is the typical scanty "two cross sticks" affair of doves, placed in a bush or small tree. Babool and liār (*Cordia*) are commonly patronised. This species, as well as the Little Brown and Red Turtle Dove, nest in great profusion within Bhūjia Fort walls. Invariably two eggs are laid, pure white with a glossy texture.

THE INDIAN RED TURTLE-DOVE

Oenopopelia tranquebarica tranquebarica (Hermann)

Fauna, v, 250

SIZE. About that of the Myna.

FIELD CHARACTERS. Plate p. 294, B.I.B. Male: Head and neck ashy-grey with a narrow black collar on hindneck. Mantle bright pinkish brick-red. Lower back and rump slaty-grey. Female: pale brownish grey, rather like a small replica of the Ring Dove. Seen singly or in small numbers and along with other doves, in forest rakhāls and thinly wooded country.

STATUS AND DISTRIBUTION. Resident. Common, but far less than the two previous species.

Outside Kutch it is found more or less throughout India.

HABITS. Similar to the last two, but seldom found in such close familiarity with Man as they. It may, however, frequently be seen in association with them gleaning seeds in outlying stubble fields or on the drying-up margins of tanks. Its call-notes are a somewhat harsh rolling *groo-gūrr-goo, groo-gūrr-goo* repeated several times quickly.

NESTING. Practically throughout the year, The nest is the usual flimsy stick platform. It is, as a rule, placed somewhat higher up in trees—10 to 15 feet from the ground. The normal clutch is of two white eggs.

THE LARGE, BLACK-BELLIED OR IMPERIAL SANDGROUSE

Pterocles orientalis (Linn.)

Fauna, v, 262

Plate 10, fig. 5.

SIZE. Larger than the Pigeon.

FIELD CHARACTERS. The largest of the sandgrouse normally found in India. Male : sandy grey-brown above. Chin, throat and a collar round the neck chestnut. A triangular black patch on lower throat, black gorget or pectoral band across upper breast, and black abdomen. Female : pinkish sandy-grey with no chestnut collar or black throat-patch. A black-and-grey bar across lower throat ; spotted breast. In flight the large size, black belly and white underside of wings are diagnostic features. Met with in parties and flocks of up to 40 or more in semi-desert country and fallow fields etc.

STATUS AND DISTRIBUTION. Winter visitor. Common in some years, scarce in others. Curiously local. Arriving about mid December ; departing about 3rd week of February.

Outside Kutch it is found in winter in N-W. India including Rājputāna and Sind. Breeds in Spain and Portugal, N. Africa and S-W. Asia to Afghānistān and Balūchistān : May-June.

HABITS. This sandgrouse spends the day in open, semi-desert tracts and fallow fields with a sparse sprinkling of bushes. The country around Rāpar is said to be amongst their favourite grounds. The birds move about on their short legs picking up grass and weed seeds as well as tender shoots. They fly out with great regularity in the mornings between 8 and 10 o'clock, and also in the evenings, to drink at favourite watering places often a considerable distance away. Large flocks converge on these spots from all directions at the accustomed hour, and good sport can be had as the birds fly to and from the water. They offer a large variety of shots but are exceedingly tough and need hard and straight hitting to bring down.

A chuckling call is uttered on the wing, described as *katarr* or *katarr-katarr*. It is not really loud but has the quality of carrying a great distance and announces the approach of the birds even before they can be seen.

In reply to my enquiries His Highness writes as follows : " For some reason—probably want of feeding owing to bad years—the migration of Imperial Sandgrouse (into Kutch) has been very feeble since 1930. In the good old days our bags varied from 40 to 60 birds. I am speaking from memory, but I do not remember one gun ever shooting 100 birds in a day, nor a day's bag with more than one gun to have been 150 birds."

THE PAINTED SANDGROUSE OR ROCK-GROUSE

Pterocles indicus (Gmelin)

Fauna, v, 264

Plate 10, fig. 3.

SIZE. Between the Myna and the Pigeon.

FIELD CHARACTERS. Readily distinguished from other sandgrouse by its small size, finely close-barred plumage, and absence of " pins " in the tail. The white forecrown of the male cut across by a black band, and the broad tricoloured chestnut, buff-and-black band across the breast are diagnostic features. Usually seen in pairs or small parties of five or six in stony, sparsely scrubbed hummocky country.



1. The Indian Great Horned Owl (p. 79)
2. The Hobby (p. 84)
3. The Marsh Harrier (p. 91)
4. Bonelli's Eagle (p. 87)



1. The Indian Button-Quail (p. 104)
2. The Spotted Sandgrouse (p. 98)
3. The Painted Sandgrouse (p. 96)
4. The Rock Bush-Quail (p. 101)
5. The Black-bellied or Imperial Sandgrouse (p. 96)

STATUS AND DISTRIBUTION. Resident. Fairly common.

Outside Kutch it is found over most of India excepting the Indo-Gangetic Plain, and the West Coast south of Bombay. Apparently also absent in Sind.

HABITS. This species is aptly called Rock-Grouse since rocky scrub-covered country forms its typical habitat. The birds walk about among the stones picking up their food which consists almost exclusively of seeds, berries and shoots; but occasionally termites and other insects are also eaten. Their colouration and pattern blend so admirably with their surroundings, that when squatting motionless the birds are difficult to locate even at a few yards' range. They get up when almost trod upon, with clucking *yek-yek-yek* notes and with a noisy flapping of wings, more like the "clapping" of a pigeon than the whir of a partridge. The flight is attained by rapid wing-beats, which, when the bird is going away from one in bad light, produce a peculiar "two stroking" effect. This species habitually comes to drink at favourite watering places well after sundown when it is almost too dark to see the birds unless silhouetted against the sky. At such times they look about the size of the Grey Quail, and the rapid vibrating action of the wings ("2-stroke") heightens the resemblance. Both when coming to and returning from water the birds fly low and constantly utter a distinctive *chirik-chirik*. As Col. C. B. O'Brien has pointed out they also emit a low chuckling note on the ground close to the water's edge. Frequently the expectant sportsman finds the air around him thick with these calls without so much as catching glimpse of a single bird! At a waterhole near Māta-no-Madh more than a hundred birds arrived to drink from the surrounding stony hillocks at dusk, flighting in parties of 6 to 12. During the daytime there had been no indication that the birds were so plentiful in the locality, but some of them possibly came from long distances. If the birds drink in the mornings they must also do so in the twilight of dawn since none are to be seen at water after daybreak.

NESTING. Breeding was in progress during March. Lester gives the season in Kutch as principally February and March. Elsewhere the chief months are April to June. The eggs are laid in a shallow scrape on the ground, in ravines and stony scrub jungle. The normal clutch is of three. They are a handsome cream to salmon-pink in colour, sparsely spotted with purplish-red and blotched with lavender or reddish-grey.

MEASUREMENTS. The Kutch specimens measure: 3 ♂ ♂ wing 174-188, tail 80-82; 1 ♀ wing 170, tail 74 mm.

THE COMMON SANDGROUSE

Pterocles exustus ellioti Bogdanov

Fauna, v, 271

SIZE. Somewhat smaller than the Pigeon.

FIELD CHARACTERS. Plate p. 298, B.I.B. A yellowish sandy-brown pintailed sandgrouse with a narrow black band across the breast and brownish-black belly. Cheeks, chin and throat dull yellow. Female streaked, spotted and barred with black all over except the chin. She also has a black band across lower breast. In overhead flight the dark body and dark underside of wings combined with pointed wings and tail help to distinguish this species. Seen in small flocks, usually up to a dozen or so, in semi-desert and fallow cultivation.

STATUS AND DISTRIBUTION. Resident. Common.
Outside Kutch it is found more or less throughout India.

HABITS. This is the commonest sandgrouse species in Kutch. It drinks regularly at fixed times and places—between 8 and 10 in the morning and then again in the early afternoon. Large numbers collect at the drinking places from miles out on the surrounding countryside. Its flight is strong and very swift, attained by rapid beats of the pointed wings. It is accompanied by the frequently uttered penetrating double note *kut-ro*. This sound possesses a far-reaching quality and may be clearly heard as the birds pass high overhead, often long before they come into view. Its food consists of grass and weed seeds.

NESTING. Breeding was noted in progress in August and September. Sir G. Archer's collection contains c/2 and c/1 taken also on September 4 and 5 (1939) in the Khāri Rōhar area. Lester gives the season as January to March, so evidently in Kutch, as elsewhere, there is no hard and fast period. The eggs—usually three—are laid on the bare soil in a shallow scrape made by the birds in open scrub country. They are of a greyish- or greenish-stone colour, profusely spotted and blotched with brown ; elliptical in shape and with a fair gloss. Both sexes incubate.

MEASUREMENTS. The Kutch Survey specimens measure : 1 ♂ wing 185, tail 114 ; 1 ♀ wing 177, tail 104 mm.

THE SPOTTED SANDGROUSE

Pterocles senegallus(Linn.)

Fauna, v, 273

Local name : Wăku-wăku.

Plate 10, fig. 2.

SIZE. About that of the Pigeon.

FIELD CHARACTERS. A sandy-brown sandgrouse with a long pin-pointed tail, distinguishable at once from other species found in Kutch by the absence of any black band across the breast. Chin and throat of male yellow, bordered with grey. The female is largely black-spotted, and has a yellow throat. Both sexes have a restricted black patch on the belly. Seen in flocks sometimes quite large, on open "pats" in semi-desert country (e.g., the Banni), mostly in winter.

STATUS AND DISTRIBUTION. Chiefly winter visitor. Particularly abundant in some years but very local. Evidently also resident in small numbers.

Outside Kutch it is found in N-W. India, Sind, Rājputāna, Punjāb. Extends westward through Afghānistān, Balūchistān etc. to Arabia and N. Africa.

HABITS. Not appreciably different from those of the Common Sandgrouse though it habitually comes to water in the morning possibly somewhat later than that species. Its double note call-note is admirably expressed by its local name *wăku-wăku*. This is constantly uttered in flight and carries a very long distance. It is reminiscent of the gurgling sound of a hookah being smoked.

NESTING. No positive data is available for Kutch, but M. K. S. Fatehsinhji informs me that for the last four or five years a few birds are being seen in the hot weather about Lakhara Velara on the border of the Great Rann. This is apparently something new ; so far the species was believed to be a winter visitor only. Of course there seems no reason why small numbers should not breed here as they do in Sind and the Punjāb. February, March, April, May, June and August are the months in which eggs have been recorded there. The full clutch is of three eggs which are laid on the bare ground. They are greyish- or yellowish-stone colour with sparse blotches

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and irregular spots or reddish- or yellowish-brown and scanty markings of pale inky purple.

MEASUREMENTS. Kutch Survey specimens measure : 1 ♂ wing 197, tail 161 ; 1 ♀ wing 192, tail 124.5 mm.

According to M. K. S. Fatehsinhji an example—the only so far—of the Large Pintailed Sandgrouse (*Pterocles alchata*) was shot in Kutch some years ago by Col. (then Capt.) A. H. Mosse. Details are lacking.

THE COMMON PEAFOWL

Pavo cristatus Linn.

Fauna, v, 282

SIZE. About that of the vulture excluding the train of the cock which is 3 to 4 ft. long.

FIELD CHARACTERS. Plate p. 301, B.I.B. Too well-known to need description. The gorgeous ocellated train of the adult cock is in reality not his tail but abnormally lengthened upper tail-coverts. The hen is smaller, lacks the train and is a sober mottled brown with some metallic green on her lower neck. She is crested like the cock. Seen in forest rakhāls (e.g., Chāduva) and near villages and cultivation.

STATUS AND DISTRIBUTION. Resident. Common. Wild as well as semi-domesticated.

Outside Kutch it is found throughout India.

HABITS. In Kutch (as in Gūjarāt, Kāthiawār, Rājputāna and elsewhere) the peafowl is strictly protected by sentiment and law with the result that it is abundant and in many localities has become more or less tame. It lives about human habitations and feeds in the fields, digging up newly sown grain or tearing up the tender shoots with impunity. It also destroys insects and reptiles, including snakes. Its loud ugly screaming call *may-awe* is heard commonly enough. Besides this it utters a series of short gasping shrieks *ká-ān..ká-ān..ká-ān*, etc., six to eight times rapidly, with an idiotic "pump action" movement of the head and neck. To my ears these calls sound something between the screams of a hysterical old woman and the bray of a donkey. The cock is polygamous and makes a brave display before his bevy of hens, erecting and fanning out his magnificent train and strutting and posturing to the accompaniment of peculiar paroxysms of violent shivering.

NESTING. Breeding was in progress during August when the monsoon undergrowth in nullahs etc., was luxuriant. A nest with c/5 was located in the Chāduva rakhāl, Aug. 17. Lester gives August and September for Kutch. Over the greater part of India the season ranges between January and October. The nest is a shallow depression sparsely lined with grass and leaves, well concealed amongst ground cover in watercourses etc. The eggs—three to five—are pale cream or " white coffee "colour with occasionally a few lavender-brown spots. They have a smooth but pitted surface.

THE COMMON OR GREY QUAIL

Coturnix coturnix coturnix (Linn.)

Fauna, v, 372

Local name : Batēr.

SIZE: About that of a fortnight-old domestic chicken.

FIELD CHARACTERS. Plate p. 309, B.I.B. A small plump and squat pale brown partridge-like bird, practically tailless, with buff spear-shaped streaks and irregular

blotches and bars of reddish-brown and black above. The male has a black anchor mark on his throat. In the hand the larger size and buff-barred outer webs of the primaries differentiate it from the female Rain-Quail. Flushed singly or in twos and threes amongst jowār, bājra and lucerne crops, or in tall grass on the margins of drying-up tanks.

STATUS AND DISTRIBUTION. Winter visitor and evidently also passage migrant by the Arabian route to N. Africa. Common and abundant in some years, scarce in others. H. H. Maharao Shri Vijayarajji has occasionally seen them in Kutch as early as August (*J.B.N.H.S.*, Vol. xxii, p. 630) and informs me that he has made sizable bags among the Māndvi sand-dunes as late as April 10. I noted large numbers on the Banni on April 18 (1945).

Outside Kutch found in winter throughout India. Breeds in C. & S. Europe, W. & C. Asia. Also sparingly in N. and C. India (including Sind) : March to September.

HABITS. Though considerable numbers over-winter in Kutch, the Grey Quail here is evidently also a passage migrant on a large scale. According to Yuvraj Shri Madansinhji the northward spring passage (about Feb./Mar.) comes in waves. The birds suddenly become abundant for a few days, then there is a comparative lull when they have passed on. A second wave arrives a few days later, followed by another and another. Very good sport can be had at such times.

When flushed from cover, the bird rises almost straight up with a characteristic low *whir* of wings and a squeaky whistling note. It flies at a height of six feet or so and plunges into the grass or crops a couple of hundred yards farther. The flight is swift and direct, attained by rapidly vibrating wing-strokes. Its call is a loud liquid whistling note followed rapidly by two short ones, something like the words *wet-mi-lips*. Its food consists chiefly of seeds, but termites and other small insects are also eaten. On spring migration, en route to their breeding grounds, the birds are enormously fat and then delicious eating.

NESTING. Since small numbers are known to breed in Sind, it is just possible that a stray pair or two may occasionally do so in suitable spots in Kutch also. The nest is a shallow grass-lined scrape concealed in standing crops or grass. The eggs, 6 to 14, are reddish- or yellowish-buff speckled and blotched with dark brown.

MEASUREMENTS. Specimens collected in Kutch measure : 1 ♂ wing 110 ; 1 ♀ wing 116 mm.

THE BLACK-BREASTED OR RAIN-QUAIL

Coturnix coromandelicus (Gmelin)

Fauna, v, 375

Local name : Chomāsu Batēr.

SIZE. Slightly smaller than the Grey Quail.

FIELD CHARACTERS. Plate p. 310, B.I.B. Similar to the Grey Quail but male with upper breast and usually also centre of abdomen black. In the hand female distinguishable from Grey Quail by smaller size and absence of buff and brown cross-bars on the primary wing-quills. Seen in pairs or small scattered parties in standing crops and grassland.

STATUS AND DISTRIBUTION. Fairly common during the rains and in winter. Uncertain whether resident throughout the year.

Outside Kutch found throughout India, partly as resident, partly local rains visitor.

HABITS. This quail spreads out a great deal locally during the monsoon when otherwise bare tracts become converted into suitable grassland providing it with food, cover and nesting sites. A marked increase in numbers was noted in the third week of August (1943—Chāduva). In general habits it does not differ from the last species Its double-noted call *which-which . . . which-which* etc.—constantly repeated—is, however, quite distinctive. In the breeding season it may be heard chiefly in the mornings and evenings, but also at other times and even during the night.

NESTING. No data available for Kutch. Elsewhere most eggs are laid after the break of the rains in June. The nest is a grass-lined scrape either in the open or under shelter of a cactus or other bush. The eggs—six to eight—are pale creamy-buff or stone colour, blotched with varying shades of brown. They are similar to those of the Grey Quail but smaller.

THE ROCK BUSH-QUAIL

Perdicula argoondah (Sykes)

Fauna, v, 379

Local name : Lowwa.

Plate 9, fig. 4.

SIZE. Slightly smaller than the Grey Quail. Equal to the Rain Quail.

FIELD CHARACTERS. The adult female differs from the male (illustrated) in having the underparts pinky-brown, unbarred, with a whitish chin and no brick-red throat patch. In young females the underparts are more or less barred and the chin is dull rufous, somewhat as in the male. Met with in coveys in broken, stony scrub-and-bush country.

STATUS AND DISTRIBUTION. Resident. Fairly common.

Outside Kutch found practically all over India. Not in Sind.

HABITS. The Rock Bush-Quail affects stony scrub country and is never found in standing crops like the preceding two species. The birds live in coveys of five to ten individuals, or more. They have short thick bills and short, rounded wings. Their flight is weak and they usually trust to their strong legs for escape, running over and among stones with ease and speed. They have a habit of bunching together when approached and of suddenly "exploding" or rising all together with a noisy *whir* of wings almost underfoot, and dispersing in different directions. The birds alight a few yards farther and the covey soon reunites by means of soft whistling calls *whi-whi-whi-whi* etc. uttered by its members. Although offering simple shots on the wing it is surprising how easy it is to miss them at times, when their sudden and unexpected "explosion" has put the sportsman off. Breeding males are pugnacious and challenge rivals by a series of harsh grating calls.

NESTING. Breeding was in progress during August. Lester gives the season as August to November, but he had eggs brought to him also in April. The nest is a grass-lined scrape in the ground under shelter of a bush or grass-tussock, usually in stony scrub jungle. The eggs—four to eight—are creamy white in colour with a fair gloss. They are very like the eggs of the Grey Partridge, but smaller.

MEASUREMENTS. The Survey specimens measure : 2 ♂ ♂ wing 82-85 ; 1 ♀ 85 mm.

THE BLACK PARTRIDGE

Francolinus francolinus (Linn.)

Fauna, v, 408

Local name : Kāro titar.

SIZE. About that of a half-grown village *mūrghi*.

FIELD CHARACTERS. Plate p. 314, B.I.B. A plump, stub-tailed game-bird chiefly jet black, spotted and barred with white and fulvous. The glistening white cheek-patches and the chestnut collar, belly and undertail round off the exquisite colour scheme of the cock. The hen is considerably paler, mottled and speckled black and white. Seen singly, in pairs or scattered threes and fours in well-watered country —around tanks and rivers, in forest rakhāls and irrigated cultivation.

STATUS AND DISTRIBUTION. Resident. Fairly common but far less numerous than the Grey Partridge. Said to have suffered an all-round decrease in numbers in recent years.

Outside Kutch it is found over the greater portion of Northern India south to about Gwālior. Three races.

HABITS. This handsome partridge loves well-watered country and is never found very far from tanks (e.g., at Chāduva), and streams (e.g., Rūdra Māta). Small numbers also live around the marshes among the sand-dunes in Vijay Vilās grounds, Māndvi. Its food consists of grain, grass seeds and tender shoots, but white ants and other insects are also eaten. The exhilarating call of the Black Partridge is a curious mixture of the harsh and the musical. It is a high-pitched *chick..cheek-cheek-karaykek* repeated at short intervals, principally soon after sunrise and at evening dusk, the birds answering one another from all quarters. The call is uttered from a stone or mound as well as from up in a tree—preferably one standing by itself in the midst of open grassland or cultivation whence the bird can survey its surroundings. When such a tree is approached the bird ceases to call, quietly drops down into the scrub below, runs off and disappears. Its flight is swift and "gamy," consisting of a few rapid beats of the rounded wings followed by a short glide.

A pure white example has been observed at Chāduva by M. K. S. Madansinhji.

NESTING. Breeding was in progress during August. Lester gives the season in Kutch as June, July and August. Elsewhere it is mostly between April and July. The nest is a shallow grass-lined depression in the ground amongst the roots of grass clumps or bushes, in grassland or tamarisk beds. The eggs—six to eight—vary in colour from pale olive-brown to almost chocolate-brown.

MEASUREMENTS ETC. Kutch specimens measure: 2 ♂♂ wing 156-163, tail 89-92 mm. They evidently belong to the paler Sind-Balūchistān-Irān race *henrici*.

THE NORTHERN GREY PARTRIDGE

Francolinus pondicerianus interpositus Hartert

Fauna, v, 421

Local name : Achho titar.

SIZE. About that of a half-grown village *mūrghi* (13″). Same as the Black Partridge.

FIELD CHARACTERS. Plate p. 318, B.I.B. A familiar plump stub-tailed greyish-brown game-bird, with fine wavy black and buff vermiculations all over, and some chestnut in the tail. Throat buff, surrounded by a broken blackish band. Sexes alike, but cock with a pointed spur on each leg. Seen in pairs or coveys in dry scrub and cultivated country.

STATUS AND DISTRIBUTION. Resident. Very common and abundant.
Outside Kutch it is found throughout the drier portions of India. Two races.

HABITS. Commonly met with in the proximity of villages where human excreta is freely added to its normal diet of grain, berries, shoots, grubs and insects. The birds are extremely swift runners and will trust to their legs for escape whenever they can, rather than fly. They roost at night up in the branches of babool and kandi trees. The call of the Grey Partridge is certainly one of the commonest bird-voices to be heard in Kutch. It commences with two or three rather subdued chuckles rising in scale and intensity, followed by a ringing high-pitched and musical *kateetur-kateetur* or *pateela-pateela* etc., quickly repeated.

NESTING. Sir G. Archer's collection contains four clutches of four and five eggs from near Bhūj, between March 10 and 20 (1939). The season had apparently just finished in August and September (1943) when many pairs were observed leading small partially downy chicks. According to Lester it breeds in Kutch from February to May and occasionally again in August and September. The nest is a simple grass-lined scrape on the ground in grassland, standing crops or scrub jungle. The eggs—four to eight—are cream or "white coffee" coloured, larger editions of those of the Bush-Quail.

MEASUREMENTS. The Kutch specimens measure: 2 ♂♂ wing 148-150, tail 87-90 mm.

THE BLUE-LEGGED BUTTON-QUAIL OR COMMON BUSTARD-QUAIL

Turnix suscitator taijoor (Sykes)

Fauna, v, 447

SIZE. Somewhat smaller than the Rain Quail.

FIELD CHARACTERS. Plate p. 321, B.I.B. An unmistakable little quail with the breast cross-barred with black and buff. Blue-grey legs and bill, and yellowish-white eye. Contrary to the normal condition in birds the hen, besides being larger, is more richly coloured than the cock. Her throat and middle of breast are black; in the cock the chin, throat and breast are whitish. In flight, the conspicuous pale-buff shoulder patches on the wings of this species usually reveal its identity.

In the hand the Bustard- and Button-Quails as a group may be distinguished from true quails by the absence of the hind-toe and by their yellowish-white eyes.

Usually seen in pairs in scrub and grassland—about irrigated wādis etc. Not on stony hummocks such as the Bush-Quail loves.

STATUS AND DISTRIBUTION. Resident. Fairly common, but local and not abundant anywhere.

Outside Kutch it occurs throughout India except in Sind, Punjāb and the N-W. Several races.

HABITS. In general habits the three-toed Button- and Bustard-Quails resemble the true quails. They keep to low undergrowth and hedges about wādis and cultivation and also to open grass and scrub country. They are great skulkers and flushed with difficulty only to drop into cover again a few yards farther. Their food consists of grass-seeds, shoots, grain and small insects for which they rummage amongst the mulch. The call of this species, uttered by the hen, is a loud drumming *drr-r-r-r-r-r* continued for 15 seconds or more at a stretch. It serves both to proclaim her whereabouts to a cock and as a challenge to rival hens. For in this group of three-toed quails it is the woman who wears the trousers, so to say. She does all the courting, and fights

furiously with rival amazons for the possession of a desirable cock. As soon as a husband is secured and she has laid the eggs to him, she leaves him in sole charge to incubate them and bring up the family, while she herself wanders off in search of fresh conquests. Thus a single hen may, at more or less the same time, have several clutches of eggs and broods of chicks under the respective care of her various husbands!

NESTING. According to Lester it breeds in Kutch during the rains. A female shot by me on September 3 was laying. Elsewhere there is no fixed season, eggs being found more or less throughout the year. The nest is a grass-lined depression on the ground in scrub-jungle or grassland. The eggs—three or four—are greyish white, profusely speckled with reddish-brown or blackish-purple. They have a glossy texture.

MEASUREMENTS. A Kutch specimen (♀) measures: wing 90, tail 33 mm.

THE YELLOW-LEGGED OR INDIAN BUTTON-QUAIL

Turnix maculatus tanki Blyth

Fauna, v, 454

Plate 10, fig. 1.

SIZE. About that of the Rain Quail.

FIELD CHARACTERS. The male lacks the broad orange-rufous half-collar at back of neck and is generally less richly coloured. The unbarred buff underside of this species, finely spotted with black on the sides of the breast, and the bright yellow legs and bill (the colour of the well-known Koh-i-noor drawing pencil) combined with the white iris and three-toed foot, are good recognition marks. In flight—which is markedly weaker even than the Bustard-Quail's—the orange-rufous breast and flanks and whitish underparts are prominent. Flushed singly in grassland bordering tanks and monsoon-filled depressions. Sometimes also in standing crops.

STATUS AND DISTRIBUTION. Not common or abundant. Resident or monsoon visitor? Evidently moving about locally with conditions of rainfall and vegetation cover.

Outside Kutch it is found practically throughout India, spreading locally into drier areas during the rains.

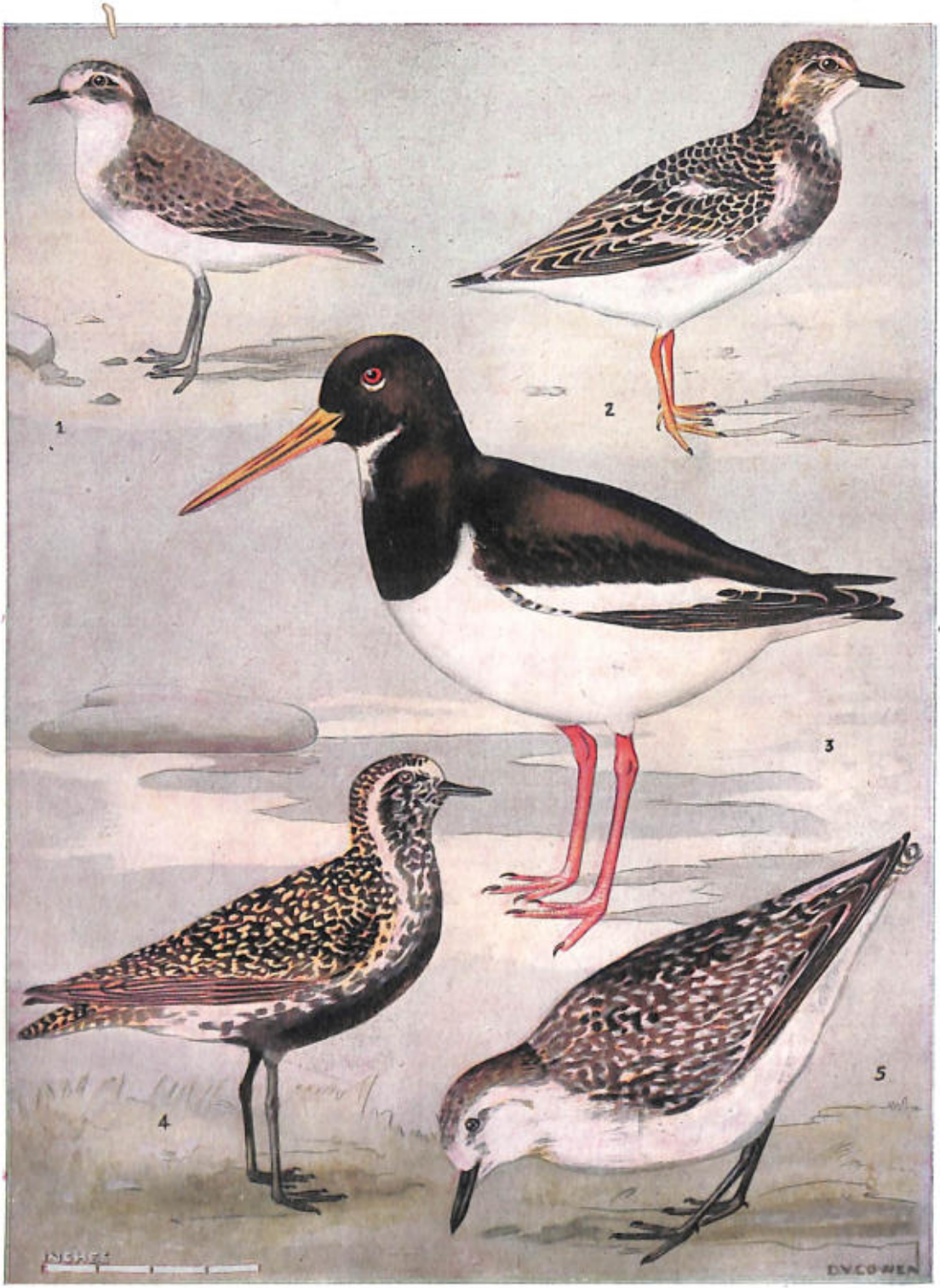
HABITS. Very similar to those of the last species. Like it also the female is polyandrous, and utters a prolonged soft booming call. This little quail hardly ranks as a sporting bird but it is quite good eating and by no means so easy to bag as it appears from the feebleness of its flight, especially when first and unexpectedly put up. It rises almost when trod upon, and before one has time to throw the gun up to the shoulder the bird has again plunged into cover ten yards farther on!

NESTING. Breeding was in progress during August. Lester gives July and August as the season in Kutch. The nest is a grass-lined scrape under shelter of a grass clump in grassland. Four eggs comprise the normal clutch. In appearance they are very like those of the Bustard-Quail though as a rule somewhat more boldly coloured.

MEASUREMENTS. The Kutch specimens measure: 3 ♀♀ wing 87-93, tail 28-34 mm.



1. The Dark-backed Herring Gull (p. 117)
2. The Houbara Bustard (p. 112)
3. Wing of the Brown-headed Gull (p. 117)
4. Wing of the Black-headed or Laughing Gull (p. 116)
5. The Indian Reef-Heron (p. 148)
6. The Great Stone-Plover (p. 114)



1. The Lesser Sand-Plover (p. 123)
2. The Turnstone (p. 120)
3. The Oyster-catcher (p. 121)
4. The Golden Plover (p. 124)
5. The Grey Plover (p. 121)

THE WHITE-LEGGED OR LITTLE BUTTON-QUAIL

Turnix sylvatica dussumieri (Temm.)

Fauna, v, 450

SIZE. Smaller than the Rain Quail.

FIELD CHARACTERS. The smallest Indian game-bird. Distinguished from other Button-Quails (three-toed) by its smaller size, whitish underparts black-spotted on sides of breast, fleshy-white legs, and a pale stripe down the centre of crown. A conspicuous little pointed tail helps further to confirm its identity. Sexes more or less alike. Flushed singly in grassland.

STATUS AND DISTRIBUTION. Resident? Not common.

Outside Kutch it is found practically throughout India as resident and local migrant.

HABITS. Not appreciably different from those of the Yellow-legged Button-Quail. It is just as great a skulker, and when once flushed difficult to put up a second time.

NESTING. Lester mentions a live bird brought to him by his shikari which dropped an egg in May (1892). Elsewhere the season is principally between June and September. The eggs—normally four—are greyish-, greenish- or yellowish-white, closely and finely spotted and flecked with various shades of brown, and boldly blotched with blackish- or reddish-brown especially about the broad end. Like all Bustard- and Button-Quail eggs they are peg-top in shape—broad at one end and narrowly pointed at the other.

THE BLUE-BREASTED BANDED RAIL

Hypotaenidia striata (Linn.)

Fauna, vi, 7

SIZE. Between the Quail and the Partridge.

FIELD CHARACTERS. A large-footed, short-tailed marsh bird like the waterhen, seen skulking amongst reeds on the edges of jheels. Dark brown above with irregular wavy white bands and spots. Head and sides of neck chestnut. Chin and throat white. Foreneck and breast ashy-blue. Abdomen and flanks blackish, conspicuously barred with white. Female duller above and whitish on belly. The partly red bill, reddish eyes and olive-green legs confirm its identity.

STATUS AND DISTRIBUTION. Uncertain. Not met with by the Survey. Lester mentions seeing one at Dēvisar (1892) and believed that Capt. Newnham had also obtained a specimen at the same place.

Outside Kutch it occurs practically throughout India, but moves about locally with conditions of drought and monsoon inundation.

HABITS. In common with the several other species to be described hereafter, this rail has the characteristic habit of constantly jerking up its diminutive tail as it walks about amongst the marshy, marginal reed-beds in search of food. It eats snails, insects, seeds and the shoots and buds of water plants.

It is a poor flier and scarcely worth shooting for sport.

ZOOLOGICAL GARDEN CALCUTTA.

THE SPOTTED CRAKE

Porzana porzana (Linn.)

Fauna, vi, 11

SIZE. Slightly larger than the Grey Quail.

FIELD CHARACTERS. A small marsh-haunting, skulking, water-hen-like bird, reddish olive-brown above, spotted and streaked with white. Broad long supercilia, chin, throat and breast grey speckled with white. Abdomen white. Flanks brown, barred with white. Sexes alike.

STATUS AND DISTRIBUTION. Evidently winter visitor. Not met with by the Survey, but Lester records shooting a specimen at Dēvisar in winter (1892).

Outside Kutch in winter it is not uncommon in N. India. Breeds in Europe and Western Central Asia : May/June.

HABITS. Same as the last. It frequents snipe marshes, but is a confirmed skulker. It is no doubt due to its unwillingness to take wing that it is so seldom seen and appears rarer in many localities than it actually is.

THE INDIAN MOORHEN

Gallinula chloropus indicus (Blyth)

Fauna, vi, 28

SIZE. About that of the Partridge.

FIELD CHARACTERS. Plate p. 333, B.I.B. A slaty-grey and brown marsh-bird with a white border to its closed wings and a conspicuous white patch under the tail. Longish green legs with long, ungainly toes. Bright red and greenish-yellow bill. Sexes alike. General effect on land that of a waterhen ; on water that of a small duck. Seen in pairs or small parties amongst partially submerged reeds, swimming or skulking about.

STATUS AND DISTRIBUTION. Resident, but doubtless moving about locally with conditions of drought or inundation. Not common.

Outside Kutch found throughout India as resident and local migrant.

HABITS. Typical of the rails. The bird walks with an upright carriage and a peculiar bobbing of the head at every step. This is accompanied by an upward flick of the stumpy little erect tail, which displays the white patch underneath prominently. Its progress on water is marked by the same jerky movements of the head and tail. It is a feeble flier and loth to take wing. The flight is attained by laboured rapid wing-strokes low above the water, with neck stretched in front and legs trailing behind. Its call is a sharp, loud and abrupt *kirrik-crek-rek-rek* heard from within a thick reed-bed principally in the mornings and evenings. Its food consists of grass shoots, water weeds, seeds, molluscs, insects etc.

NESTING. Lester records eggs brought to him from Dēvisar in July (1893). The season everywhere commences soon after the onset of the rains in June. The nest is a bulky structure of sedges and weeds placed amongst aquatic herbage, sometimes in a tree near or overhanging a jheel. The eggs—five to twelve—are pale yellowish to warm buff-stone in colour, blotched with dark reddish-brown.

ZOOLOGICAL GARDEN
CALCUTTA

THE KORA OR WATER-COCK

Galicrex cinerea (Gmel.)

Fauna, vi, 29

SIZE. Larger than the Partridge.

FIELD CHARACTERS. A greyish-black and brown rail-like bird frequenting reed-covered marshes. Its most characteristic feature is a bright red fleshy horn continued backward from the base of the red bill over the forehead and projecting above the crown. The bright red eye of the cock is also a striking feature. The non-breeding male and female are dark brown above, pale buffy-brown below, with wavy dark brown cross bars. The female is without the horn and merely has a triangular yellowish bald patch on the forehead. In the non-breeding male the horn is also reduced more or less to this.

STATUS AND DISTRIBUTION. Not met with by the Survey. Resident or local migrant? Uncommon. Lester records that a pair was shot and sent to him for identification by H. H. the Rao on July 4, 1897. Later he wrote in the *Bombay Natural History Society's Journal* (Vol. xi, p. 321) that he had eggs from Kutch in his collection, *presumably* belonging to this species.

Outside Kutch the Water-Cock is found practically throughout the well-watered portions of India.

HABITS. Typical of the rails. The call of the male is said to be a deep boom rapidly repeated in challenge to rivals. It has a number of chuckling notes besides.

NESTING. Apart from the above record of Lester's, no data is available for Kutch.

THE PURPLE MOORHEN

Porphyrio poliocephalus poliocephalus (Latham)

Fauna, vi, 32

SIZE. About that of the village *mūrghi*.

FIELD CHARACTERS. Plate p. 334, B.I.B. A handsome but clumsy purplish-blue rail with long red legs and toes. The bald red forehead running back from the short heavy red bill, and the white patch under the stumpy tail (conspicuous when the bird flicks it up at each step) are pointers to its identity. Sexes alike. Seen in pairs and small parties in swampy reed-beds.

STATUS AND DISTRIBUTION. Resident, but evidently moving about locally with monsoon conditions. Not common.

Outside Kutch it is found in well-watered areas throughout India.

HABITS. Typical of the rails. It has a variety of hooting, cackling and harsh calls heard at all hours of the day from within reed-beds bordering a vegetation-covered jheel. During the breeding season the birds become particularly noisy.

NESTING. Lester states that it breeds on Dhonsa jheel, (where he apparently found it plentiful) but omits to give the season. As elsewhere this doubtless coincides with the monsoon—June to September. The nest is a large pad of rush- or grass-stems firmly interwoven, placed on the edge of a jheel 1 to 3 ft. above water level or on an islet formed by matted water-weeds. The eggs—three to seven—vary in colour from pale yellowish-stone to reddish-buff, and are blotched and spotted with reddish-brown.

THE COOT

Fulica atra Linnaeus

Fauna, vi, 34

SIZE. About that of a teal or ¾-grown domestic duckling.

FIELD CHARACTERS. Plate p. 337, B.I.B. A slaty-black, dumpy, practically tailless water bird—rather duck-like on the water in the distance. The ivory-white pointed (not flat) bill, and a white horny shield covering the forehead soon dispel doubts of its identity. The toes are peculiarly lobed or scalloped, quite unlike a duck's. Sexes alike. Seen in parties or " herds " on tanks and jheels.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common. Earliest date : August 12 (Hamīrsar tank, Bhūj) ; latest March 30 (Bhimāsar tank, Anjār Dist.).

Outside Kutch found commonly throughout India in winter. Also resident in small numbers. Breeds chiefly July/August.

HABITS. Usually swimming about and feeding in company with the sporting wildfowl, but curiously little perturbed by gunfire which promptly sends the duck packing. When alarmed the birds prefer to get out of the way by skittering along the water, half running half flying, and flop down again a short distance away. When forced into the air they rise reluctantly with much labour and pattering, but are capable of flying strongly when once well launched. The distressingly rapid wing-strokes with neck outstretched and legs trailing behind the blunt barrel-shaped body leave no excuse for mistaking a coot for a duck. Their diet consists of aquatic insects, molluscs, shoots of water weeds etc. Their flesh is rank and fishy to the taste and the birds are seldom shot by sportsmen, though mohānās and people of that kind actually prefer them to duck. Their call, often heard at night, is a clear trumpet-like cry.

THE BRONZE-WINGED JAÇANA

Metopidius indicus (Latham)

Fauna, vi, 40

SIZE. About that of the Partridge.

FIELD CHARACTERS. Plate p. 338, B.I.B. A leggy, swamp bird, something like the Moorhen, with glossy black head and breast, metallic greenish-bronze back and wings, and chestnut-red stub tail. A broad white stripe from the eye to the nape. Sexes alike. Young birds are chiefly whitish, rufous and brown. The outstanding feature of the Jaçanas—this and the next species—is their absurdly elongated spider-like toes. Seen singly or in loose parties on vegetation-covered tanks and jheels.

STATUS AND DISTRIBUTION. Resident (or local migrant ?) Uncommon.

Outside Kutch it occurs throughout India.

HABITS. The enormously spreading toes of the Jaçanas help to distribute their weight and enable the birds to trot along with ease over lotus leaves and lightly floating vegetation in their quest for food. This consists of vegetable matter—seeds, shoots etc.—as well as insects and molluscs. This species has a peculiar short, harsh grunt, and like most of its relations it becomes especially noisy during the breeding season. In most of its habits it is a typical rail.

NESTING. No data available for Kutch.

THE PHEASANT-TAILED JAÇANA

Hydrophasianus chirurgus (Scopoli)

Fauna, vi, 42

SIZE. Excluding the long, pointed tail, about that of the Partridge.

FIELD CHARACTERS. Plate p. 341, B.I.B. In breeding plumage a striking white and chocolate-brown rail-like bird with enormous spidery feet and sickle-shaped "pheasant" tail. Face and foreneck white; hindneck pale golden yellow. In flight the large amount of white in the plumage and the pointed downcurved tail sticking out behind, are pointers to its identity. In non-breeding plumage chiefly pale brown and white, with a black "necklace" on upper breast, and minus the long tail. Sexes alike. Seen in pairs or loose flocks on open floating vegetation-covered jheels.

STATUS AND DISTRIBUTION. Presumably resident, but moving about locally with conditions of monsoon and drought. Uncommon.

Outside Kutch it is found throughout India.

HABITS. Similar to the last. Their peculiar nasal mewing calls—*tewn, tewn, tewn* etc.—are uttered as the birds fly off on alarm with white wings flashing in the sun.

NESTING. No data available for Kutch.

THE PAINTED SNIPE

Rostratula benghalensis benghalensis (Linn.)

Fauna, vi, 45

SIZE. Slightly larger than the Quail.

FIELD CHARACTERS. Plate p. 342, B.I.B. A leggy, typical rail with long, straight and slender snipe-like bill, slightly decurved at tip. Female more brightly coloured than male. Above chiefly metallic olive-green with buff and blackish streaks and markings. Below chiefly brown and white. Whitish "spectacles" (continued into a white patch behind eye) and white strap-like bands on shoulders and sides of breast distinctive. The male lacks the chestnut and black on the neck and breast. Flushed singly amongst reedy marshes.

STATUS AND DISTRIBUTION. Resident? Uncommon.

Outside Kutch it is found throughout India.

HABITS. An occasional bird may sometimes be flushed when walking up snipe on the reedy edge of a jheel. It is a slow and clumsy flier and hardly worth shooting. Usually it trusts to its legs for escape. Its food consists of insects, molluscs and vegetable matter. The female—which, like the Bustard-Quail, is the dominant partner and does all the courting and fighting for mates—has a rather deep mellow note which has been likened to the sound produced by blowing softly into a bottle, just falling short of a whistle.

NESTING. No data available for Kutch. This species is polyandrous—each hen acquiring a number of husbands in succession to whom she leaves the incubation of the eggs and rearing of the respective families.

THE EASTERN COMMON CRANE

Grus grus lilfordi Sharpe

Fauna, vi, 50

Plate 16, fig. 4.

SIZE : Between the Sarus and the Demoiselle Crane.

FIELD CHARACTERS. A long-legged, long-necked grey bird with blackish head and neck. The former with a distinctive bare crimson patch on hindcrown and nape ; the latter with a broad white band running down from behind the eyes. Near the tail, in old birds, is a " mop " of loose-textured down-curving plumes formed by the inner wing-quills or tertiaries. Sexes alike. Seen in small parties or large flocks about cultivation and jheels, and in flat open country (e.g., behind the sand-dunes about Māndvi).

STATUS AND DISTRIBUTION. Winter visitor and passage migrant. Common and abundant. Earliest date September 13 (Khāri Rōhar).

Outside Kutch it is common in winter in N-W. and continental India. Breeds in Turkestān to E. Siberia and Manchuria : May and June.

HABITS. Large flocks ravage the wheatfields during the night and early morning, and retire in the forenoon to rest on flat open country or on the edge of a jheel. During the heat of the day they may often be seen soaring in circles high up in the heavens. When feeding the birds are exceedingly wary and difficult to approach. The most satisfactory way of shooting them is either to have them driven over, or by taking up a position along their accustomed line of flight between their feeding and resting grounds. Their high-pitched trumpet-like calls, *kurr, kurr, kurr* etc., uttered in varying keys carry a long way and may be heard clearly even when the birds are mere specks in the sky. On migration, cranes fly in broad V-formation with a leader at the apex, necks extended in front and legs behind. Their diet consists almost entirely of grain and tender shoots of grass and crops, but they also eat insects and small reptiles. Their flesh is excellent eating, and for this reason as much as for the degree of skill and effort required in bringing them to bag, cranes enjoy a high standing as sporting birds. Col. O'Brien thought they were far more wary and difficult to approach than the Demoiselle—a verdict which I can confirm.

THE INDIAN SARUS CRANE

Antigone antigone antigone (Linn.)

Fauna, vi, 55

SIZE. Larger than the Vulture. Standing the height of a man.

FIELD CHARACTERS. Plate p. 345, B.I.B. A huge grey bird with long, bare red legs and naked red head and neck. Sexes alike. Seen in pairs, stalking about cultivation and jheels.

STATUS AND DISTRIBUTION. Resident. Not common.

Outside Kutch it is found in N. and C. India and W. Assam.

HABITS. The Sarus almost invariably keeps in pairs, periodically accompanied by one or two young. Flocks are rare. The birds pair for life and their devotion to each other has become proverbial. They are seldom molested by countryfolk and are tame and confiding everywhere, though never completely without the innate wariness of the cranes. They have loud, sonorous, far-reaching trumpet-like calls

uttered from the ground as well as on the wing. During the breeding season the pair indulges in spectacular but ludicrous dancing displays and caperings, spreading their great wings forward, bowing, prancing and leaping wildly in the air around each other.

Their food consists of grain, shoots and vegetable matter, as well as insects, molluscs, frogs and reptiles.

NESTING. Breeding was in progress in August/September. The nest is a huge mass of reeds, rushes and straw, heaped on the ground in the midst of a swamp or shallow, reedy jheel. Usually two eggs are laid, pale greenish- or pinkish-white in colour, sometimes spotted and blotched with purple or brown, but often unmarked.

THE DEMOISELLE CRANE

Anthropoides virgo (Linnaeus)

Fauna, vi, 57

Local name : Koonj.

SIZE. Considerably smaller than the Sarus, standing about 2½ ft. high.

FIELD CHARACTERS. Plate p. 346, B.I.B. A long-legged dainty little grey crane with black head and neck. The feathers of the lower neck long and pointed and falling over the breast. Conspicuous white ear-tufts behind the eyes. Sexes alike. Large flocks in young wheat, jowār and gram fields, or around jheels, often in association with Common Cranes.

STATUS AND DISTRIBUTION. Winter visitor. Common and abundant in some years, less in others. Arriving about mid-September.

Outside Kutch it is found in winter commonly throughout Northern India and south to Mysore. Breeds in S. Europe, N. Africa, N. and C. Asia to Mongolia : May to July.

HABITS. Very similar to those of the Common Crane. The two are often found together and then readily confused. But the smaller size and softer, more musical voice of the Demoiselle usually serve to distinguish it. It is just as wide-awake and difficult to circumvent and bring to bag as its larger cousin, and equally excellent for the table.

THE GREAT INDIAN BUSTARD

Chriotes nigriceps (Vigors)

Fauna, vi, 64

Local name : Gudād.

SIZE. Larger than the Vulture ; standing about 3 ft. to top of crown and weighing up to 40 lb.

FIELD CHARACTERS. Plate p. 349, B.I.B. A heavy ground-bird reminiscent of a young ostrich, with a characteristic horizontal carriage of the body at right angles to the stout bare legs. Deep buff above, finely vermiculated with black ; white below with a broad black gorget on lower breast. Conspicuous black-crested crown. Sexes alike, but male considerably bigger. Seen in pairs or loose parties in semi-desert, especially about cultivation.

STATUS AND DISTRIBUTION. Resident. Not common or abundant.

Outside Kutch it is found over the greater part of the Indian plains except Bengal and south of Mysore.

HABITS. The country along the north and north-eastern portions of Kutch appears to be the preferential habitat of this magnificent Bustard. It is excessively wild at all times and difficult to approach within gunshot. When alarmed it runs off at great speed and though rather heavy and slow to take off is no mean flier when once launched. The flight, attained by deliberate rhythmical strokes of the huge wings is never very high above the ground but often sustained for several miles before the bird re-alights. Its food consists of locusts, other large insects, grain, shoots, lizards etc. Its usual alarm call is said to be a bark or bellow, something like *hook*. In the breeding season, the cock, who is apparently polygamous, makes a great display before his bevy of hens. He struts about with neck and throat inflated and the feathers puffed out. The tail is raised and fanned out like a turkey cock's, the wings are drooped and ruffled while he utters a low, deep moaning call audible a considerable distance away. A pure white albino has been recorded from near Māndvi by H. H. (*J. B. N. H. S.*, xxxi, 526).

NESTING. Lester believed it to breed in the neighbourhood of the Rann in the rainy season as a rule. Maharao Shri Vijayarajji took a small chick on October 11 (1942—*Jour. Bom. Nat. Hist. Soc.*, vol. xliii, p. 660), and Stuart Baker records an egg taken in Kutch in January (*Game Birds of India*, vol. ii, p. 172). Elsewhere also it breeds practically throughout the year, but chiefly between March and September. The egg—usually a single—is laid in a shallow depression in the ground, sometimes sparsely lined with grass, at the base of some bush. In colour it is drab or pale olive-brown, faintly blotched with deep brown. The female alone is said to incubate.

THE HOUBARA

Chlamydotis undulata macqueenii (Gray)

Fauna, vi, 67

Local name : Siāra Tiloor.

Plate 11, fig. 2.

SIZE. Larger than a large village *mūrghi*.

FIELD CHARACTERS. Rather like the Great Indian Bustard but smaller—with the same bare legs and horizontal carriage of body. Buff above, finely pencilled with black ; white below flecked with black. The male has a ruff of black and white feathers on each side of the neck, and a tuft of longish feathers from the throat overhanging the breast. Female rather similar but somewhat smaller. In flight the round white patch on the blackish wing-quills is conspicuous. Seen singly or in loose scattered flocks among khip-covered sand-dunes, and open semi-desert with cultivation.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common, but local. Abundant in some years, less in others. Earliest date October 3 (1943—Khāvda).

Outside Kutch it is fairly common in winter in N-W. India including Sind and Rājputāna.

HABITS. Very similar to those of the last species. It is an excessively wary bird and quite unapproachable on foot, especially on a cloudy, windy day. The normal method of shooting it is from a good stalking-camel which works round a bird in ever-narrowing circles. When more or less within gunshot the Houbara squats behind some diminutive bush, lying doggo with neck outstretched flat along the ground. In this position its colouration blends so perfectly with the sandy environment that a rounded little sand mound is sometimes all that can be seen of the crouching bird. Better sport can be had with driven birds. The Yuvraj Saheb tells me

that this is the method more commonly employed in Kutch. In three drives on three different days in the 1943-44 season among the sand-dunes at Māndvi (east of Rāval Pir tank) 16, 16 and 17 birds were shot by His Highness's party of three or four guns.

In flight the Houbara looks heavy with slow deliberate wing strokes, head and neck extended, but the speed is considerably faster than it appears. It lives on shoots and flowers, grain, beetles and other insects, and lizards etc. It is an excellent bird for the table.

Lt. H. E. Barnes who wrote his *Birds of the Bombay Presidency* in the eighties of the last century was convinced for some reason that a few individuals stayed behind to breed in Sind and Kutch; but this has never been confirmed.

THE LESSER FLORICAN OR LIKH

Sypheotides indica (Miller)

Fauna, vi, 69

Local name : Tiloor.

SIZE. About that of a domestic hen.

FIELD CHARACTERS. Plates p. 350, B.I.B. ; p. 199, G.B.I., vol. ii. A small bustard with the typical longish bare legs and horizontally carried body. The cock in breeding plumage is chiefly black and white with a bunch of characteristic narrow upwardly-curving black plumes projecting behind the head—three from either side. In winter he is like the hen : sandy-buff, mottled and streaked with blackish, and minus the head-plumes. Seen in scattered singles in tall grassland.

STATUS AND DISTRIBUTION. Monsoon visitor. Its abundance varies from year to year with rainfall conditions.

Outside Kutch it is found practically throughout India excepting the N-W. F. Province and N. & W. Punjāb, moving about a great deal during the monsoons.

HABITS. The Florican frequents grassland that comes into being after the rains have well set in, sometimes also entering standing cultivation. Its food consists of grasshoppers, beetles and other insects, but it also eats seeds and the tender shoots of grasses and various food crops. Its flight is similar to that of the Bustard's, but the wing strokes are more rapid and reminiscent of the Red-wattled Lapwing. Except that it is good eating there is nothing particularly sporting about the bird nor does it call for any special skill in bringing to bag. Perhaps its most characteristic and well-known habit is that of constantly springing up in the air above the grass during the rainy season. This is a form of courtship display intended to advertise the presence of a bird to its rival, or to attract a mate. It is usually indulged in by the cock, but occasionally the hen also takes a hand. The jump is accompanied by a short guttural croak, and the bird descends straight down with its tail spread out, reminding one vaguely of the cock Iora in display.

In many areas, as in Kutch, where the Florican is only found in the rains—it is this unfortunate springing-up habit that brings about its undoing. Most game-birds enjoy rigid protection while they are nesting ; it seems paradoxical that this fine bustard should on the contrary be subjected to the greatest persecution at this very period ! It can only result in the steady extermination of the species.

The local migrations of this Florican are very imperfectly known. The recent ringing experiment by M. K. S. Dharamkumarisinghji in Bhāvnagar State (*Jour. B. N. H. S.*, vol. xliv, p. 299) is a laudable attempt to elucidate data, and one which might well be emulated here and elsewhere.

NESTING. The season in Kutch is between July and September. The eggs—three or four in number—are laid on the bare ground, often without any depression, in a small bare patch or field of short grass. In colour they are some shade of olive-brown, variously mottled and streaked with brown.

THE STONE-CURLEW OR GOGGLE-EYED PLOVER

Burhinus œdicnemus (Linnaeus)

Fauna, vi, 77

SIZE. Somewhat larger than the Partridge, and more leggy.

FIELD CHARACTERS. Plate p. 353, B.I.B. A brown-streaked plover-like ground bird with thick head, long bare yellow thick-kneed legs, and enormous round bright yellow "goggle" eyes. In flight two narrow white bars on the dark wings are conspicuous. Sexes alike. Seen in pairs or parties of up to ten or more in open scrub jungle in forest rakhāls etc.

STATUS AND DISTRIBUTION. Resident. Fairly common.
Outside Kutch found practically throughout India. Two races.

HABITS. The Stone Curlew is largely crepuscular or nocturnal, spending the daytime under the shade of bushes or in groves of babool trees. When suspicious or alarmed the bird scuttles off swiftly, neck outstretched horizontally in line with the body. Sometimes it squats to escape observation. Its colouration affords perfect camouflage and makes the bird look exactly like a tiny mound of earth, even at close range. In flight, which is usually close to the ground, the wing action is something between the Bustard's and the Lapwing's. Its food consists of insects and small reptiles, and it is considered by some as an excellent bird for the table. The call of the Stone Curlew, mostly heard during the night and more particularly on moonlit nights, is a sharp high-pitched *Pick-pick-pick-pick-pick* etc., often ending up in a slower-repeated *pick-wick, pick-wick* etc., with the accent on the second syllable. Several birds call to one another from different directions.

NESTING. Specimens collected by the Survey in August had evidently lately finished breeding. Sir G. Archer's collection contains 7×c/2 taken at Khāri Rōhar between June 19 and August 11 (1939). The season in Kutch, according to Lester, ranges between February and June. The eggs—usually two—are laid in a scrape at the base of a bush or tuft of grass on stony ground, in a dry river-bed, in a babool grove or in open country. They are pale buff to olive-green in colour, boldly blotched with brownish or purplish and difficult to pick out in their surroundings.

MEASUREMENTS ETC. The Kutch specimens measure: 2 ♂ ♂ wing 223-224; tail 116 mm. They appear to be intermediate between the Indian race *indicus* and the paler and larger desert race *sahariæ* found in Sind.

THE GREAT STONE-PLOVER

Esacus recurvirostris (Cuvier)

Fauna, vi, 80

Plate 11, fig. 6.

SIZE. About that of a domestic hen.

FIELD CHARACTERS. A larger edition of the Stone Curlew but plain greyish-sandy with some black about the shoulders, and conspicuous white "spectacles" round the large greenish-yellow eyes. Distinguished also by its more massive bill. In flight

a roundish white patch on the black wings is prominent. Sexes alike. Seen singly or in pairs about tidal creeks and salt pans (e.g., Māndvi and Kandla). Also on shingly or rocky river banks.

STATUS AND DISTRIBUTION. Resident. Not common, but frequent in suitable localities.

Outside Kutch it is found practically throughout India.

HABITS. The Great Stone-Plover keeps to the neighbourhood of water and is not met with in scrub jungle like the Stone Curlew. But in their movements and general habits the two are similar. It is also largely crepuscular and feeds mainly on crabs, but on molluscs and insects as well. Its flesh is said to be good eating. A loud hoarse croak is occasionally uttered.

NESTING. A specimen collected on August 27 was evidently breeding. Sir Geoffrey Archer collected a good series of eggs near Khāri Rōhar and Kandla between July 9 and August 3 (1939). Two eggs form the normal clutch. They are larger in size but very similar in colour and markings to those of the Stone Curlew, though the majority are more scrolled than blotched with brownish or purplish. They are laid in a slight depression on a bare shingle bank.

MEASUREMENTS. A specimen (♂) collected by the survey measures: wing 267, tail 113 mm.

THE CREAM-COLOURED OR DESERT COURSER

Cursorius cursor cursor (Latham)

Fauna, vi, 85

Local name: Chhena Bori.

Plate 15, fig. 2.

SIZE. About that of the Partridge.

FIELD CHARACTERS. A pale sandy-coloured bird with longish, white bare legs, slender slightly curved bill and black wing lining (underside) and quills. Sexes alike. Met with in scattered parties running about in spurts, feeding on open sandy "pats" in semi-desert (e.g., Banni), and fallow cultivation.

STATUS AND DISTRIBUTION. Presumably resident? Or may be local winter immigrant as it apparently is in Lower Sind. First seen October 2 (Banni). Patchy.

It breeds in Upper Sind and S-W. Punjāb, and extends west to Palestine and N. Africa.

HABITS. This Courser frequents bare sandy tracts with diminutive lana (*Salsola*) bushes, an environment in which its colouration becomes astonishingly obliterative. It is a very fast runner, moving forward in short spurts when suspicious, halting abruptly every little while and pulling itself erect to have a good look at the intruder before resuming the run. In the air, especially when alarmed, it is capable of a considerable turn of speed, flying with rapid deliberate wing-strokes which give them a curious bat-like angular outline as in a Swallow-Plover. Its food consists mainly of beetles and their larvae, but crickets and other insects are also eaten.

NESTING. No data is available for Kutch beyond the fact that one of the specimens obtained in early October was in immature dress. Several juveniles in partly squamated plumage were observed in company with adults on the Banni which may quite possibly have bred there.

MEASUREMENTS. The Kutch specimens measure: 1 ♂ wing 171, tail 68.5; 1 ♀ wing 166, tail 66 mm.

THE INDIAN COURSER

Cursorius coromandelicus (Gmelin)

Fauna, vi, 86

SIZE. About that of the Partridge.

FIELD CHARACTERS. Plate p. 354, B.I.B. A sandy-brown lapwing-like bird with chestnut and black underparts. Rich rufous crown; a black and white stripe through and above eyes; long bare china-white legs, and black, slender, slightly curved bill. Sexes alike. Seen singly, in scattered parties or flocks running about and feeding on fallow land.

STATUS AND DISTRIBUTION. Resident but patchy, and moving about locally with natural conditions affecting its food supply. Not common.

Outside Kutch it is found throughout the drier plains of India.

HABITS. Very similar to the last, but met with more often in fallow cultivation and ploughed or newly sprouting fields than in sandy semi-desert.

NESTING. Lester mentions taking eggs in April (1896). Sir G. Archer collected 6×c/2 at Khāri Rōhar between July 11 and July 23 (1939). Elsewhere the season is chiefly March to August. The eggs—two or three—are laid on the bare ground or in a shallow unlined scrape, in open country. They are buff or stone-coloured roundish ovals, thickly stippled and blotched with black. Both the eggs and newly hatched young are wonderful examples of obliterative colouration.

MEASUREMENTS. A male obtained in Kutch measures: wing 150, tail 56.

THE BLACK-HEADED OR LAUGHING GULL*

Larus ridibundus Linnaeus

Fauna, vi, 102

Plate 11, fig. 4 (inset).

SIZE. Somewhat larger than the House Crow.

FIELD CHARACTERS. Plate p. 357, B.I.B. A typical gull, grey above, white below, with a dark coffee-coloured head in summer, often acquired shortly before the bird emigrates. In winter—the season when the birds are mostly in our midst—the head is greyish-white with a vertical crescent-shaped black mark behind the ear. The pointed bill and duck-like webbed feet are deep red. Sexes alike. Distinguished from the equally common Brown-headed Gull by its smaller size, and by its first primary quill being *white* with black edges and tip. Young birds have a black subterminal bar to the tail. Seen gregariously about the seacoast, tidal creeks and salt pans as well as on freshwater ponds and jheels inland.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common. Earliest date September 11 (Kandla); latest March 26 (tank at N. base Chhaparia Hills, Khadīr island).

Outside Kutch it is a winter visitor to all India. Breeds in Europe and W. and C. Asia: April to July.

HABITS. Gulls are birds that live largely about the seacoast, but some also venture inland to lakes, jheels and rivers. They float on the water and can swim buoyantly and with ease. They also walk well and may often be seen settled on the seashore waiting or pacing up and down for the tide to wash up some tit-bits. Most of their food consists of dead fish and animal matter cast ashore by the waves or floating on the water. In this they differ markedly from terns which mostly plunge for live fish and other prey. Gulls are to seaports and docks what kites are to inland

towns and bazaars—efficient scavengers. They scavenge the garbage thrown overboard the ships lying at anchor, or follow them miles out to sea in the hope of any scrap that can be picked up. In inland localities they also eat insects, grubs, snails, slugs and the shoots of various crops.

In Kutch the Black-headed Gull is frequently met with on freshwater jheels and ponds away from the coast. It has a number of loud raucous calls. The ones most commonly heard are a querulous scream, *kree-ah*, and a loud wailing *ka-yek, ka-yek*.

MEASUREMENTS. A specimen from Kutch (♂) measures: wing 310, tail 113 mm.

THE BROWN-HEADED GULL

Larus brunnicephalus Jerdon

Fauna, vi, 103

Plate 11, fig. 3 (inset).

SIZE. Between the Crow and the Kite. Somewhat larger than the Black-headed Gull.

FIELD CHARACTERS. Distinguishable season for season from the Black-headed Gull (with which it is frequently found in association) chiefly by its larger size and the large, white patches or mirrors near the tips of its black primaries (see illustration). No other Indian gull possesses these. The name 'Brown-headed' is misleading; in summer plumage the "hood" of both the species is more or less the same dark coffee-brown.

STATUS AND DISTRIBUTION. Winter visitor, chiefly to the seacoast. Fairly common.

Outside Kutch it is found in winter all along the coast-line of India. Breeds from Turkestān to Mongolia and in Tibet: June/July.

HABITS. Not appreciably different from other gulls'.

THE EASTERN OR DARK-BACKED HERRING GULL

Larus fuscus taimyrensis Buturlin

Fauna, vi, 107

Plate 11, fig. 1.

SIZE. Rather larger than a large domestic duck.

FIELD CHARACTERS. A large gull with white head, neck, tail and underparts, and dark slaty-grey mantle. In winter plumage the crown and neck are generally flecked with brown. Sexes alike.

The very similar Yellow-legged Herring Gull (*Larus argentatus cachinnans*), with a much paler grey mantle and more white on the wings, also occurs along the seacoast in winter side by side with the above.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common.

Outside Kutch it is fairly common in winter on the Sind coast, and has been obtained as far south as Travancore down the west coast of the peninsula. Breeds in N. Russia: June/July.

HABITS. Typical of the gulls, as described. This species may sometimes be seen wading into shallow pools left on the seashore by the receding tide and capturing and eating crabs. They smash the shells with repeated hammer blows of their powerful beaks and swallow the mangled remains.

THE INDIAN WHISKERED TERN

Chlidonias hybrida indica (Stevens)

Fauna, vi, 117

SIZE. About that of the Pigeon, but considerably slimmer.

FIELD CHARACTERS. Plate p. 361, B.I.B. A slender, graceful, pale grey and white water-bird with long, narrow pointed wings and square (or only slightly forked) tail. At rest on the ground the tips of the closed wings project beyond the tail. Crown flecked with black. Red legs and bill. In summer plumage the jet black cap and black belly (especially the latter) are additional pointers to its identity. Sexes alike. Usually seen in small numbers flying gracefully up and down over swampy jheels, village tanks and occasionally salt pans.

STATUS AND DISTRIBUTION. Winter visitor? First observed August 30 (Dēvisar tank). Fairly common.

Outside Kutch it is found as resident or local winter migrant throughout India. Breeds on swamps and lakes in Kashmir and N. India: May to July.

HABITS. Terns are sociable birds and nearly always found in loose flocks. Their food consists of small fish and crustaceans, tadpoles, insects and their larvae which are captured in or on the water or from the surface of the ground. The normal method of hunting is for the birds to fly back and forth 20 or 30 feet above the water, bill and eye directed intently below for signs of life. From time to time, as some unsuspecting quarry comes up within striking depth, the bird closes its wings and hurls itself headlong into the water with a splash, often going completely under, whence it presently emerges with a little fish held across the bill. As it resumes its flight the victim is jerked up in the air and swallowed head foremost. The birds pick up insects and crabs from the ground, stooping on them from the air with remarkable ease and grace and bearing them away in their stride.

Though possessing webbed feet and being capable of swimming, terns rarely alight on the water as gulls normally do. When not hunting they may be seen resting on a rock or mudbank on their ridiculously short legs.

MEASUREMENTS. A specimen (♂) collected in Kutch measures: wing 229, tail (outer) 77, (inner) 66 mm.

THE CASPIAN TERN*

Hydroprogne caspia caspia (Pallas)

Fauna, vi, 115

SIZE. About that of the Kite.

FIELD CHARACTERS. The largest of the terns. Recognisable by its size and the very large, stout, red bill and black legs and feet. Pale grey above, white below with a white head and neck, streaked on the crown with black. In summer plumage, which is acquired shortly before the birds emigrate, the forehead and crown become jet black. Sexes alike. Seen singly or in small numbers mixed with other species, on the seashore as well as on jheels.

STATUS AND DISTRIBUTION. Winter visitor. Uncommon.

Outside Kutch it occurs sparingly in winter more or less throughout India—on the coast as well as inland waters. Breeds in Europe, N. Africa and W. Asia (including the Persian Gulf): June/July.

HABITS. Typical of the terns, as described.

I have also observed the Red Sea Large Crested Tern (*Thalasseus bergii velox*) on the seashore opposite Vijay Vilās at Māndvi. This is a large tern second in size

only to the Caspian. It is distinguishable from the last by a well-developed crest. In winter plumage the crown and nape are white, broadly flecked with black; the crest is all black. In summer the forehead is white; forecrown to nape, including crest, black. Bill *lemon yellow*; legs and feet black.

This tern is common on the coast of Sind in winter. It is predominantly a sea-tern and never met with on inland waters. Breeds on islands in the Red Sea: June to August.

THE INDIAN RIVER-TERN

Sterna aurantia Gray

Fauna, vi, 125

SIZE. About that of the Pigeon, but considerably slimmer.

FIELD CHARACTERS. Plate p. 359, B.I.A. A slender, graceful, grey and white tern with long, deeply forked "swallow" tail; deep yellow bill and red legs. In summer dress the entire forehead, crown and nape glossy jet black. In winter the black cap is replaced by greyish-white flecked and streaked with black, especially on nape. Sexes alike. Seen in small numbers on freshwater lakes, jheels and rivers. Only rarely on tidal estuaries and seacoast.

STATUS AND DISTRIBUTION. Resident or local visitor? Not common.

Outside Kutch it is found on large rivers throughout India. Breeds in Sind on islets in the Indus: April/May.

HABITS. Typical tern. Most of its hunting is done by diving from a height into the water after fish and aquatic insects.

THE GULL-BILLED TERN

Gelochelidon nilotica nilotica (Gmelin)

Fauna, vi, 117

Plate 15, fig. 1.

SIZE. About that of the House Crow. Slimmer.

FIELD CHARACTERS. Distinguished from all other terns found in Kutch by its *black* bill and legs. The black-streaked crown of the winter plumage is replaced in summer by a deep black cap. A black patch over the ear-coverts is present at all seasons. The tail is less deeply forked than the Common Tern's, and more so than in the Whiskered Tern. Sexes alike. Seen singly or in some numbers on inland jheels as well as tidal creeks and the seacoast.

STATUS AND DISTRIBUTION. Winter visitor. The commonest tern in Kutch. Fairly abundant by about the first week of August. Like the Common Sandpiper, some individuals appear to remain throughout the year.

Outside Kutch it is found practically throughout India, coastal and inland. Breeds in Europe, N. Africa and W. Asia. In N-W. India and Kashmir: April/May.

HABITS. Typical tern. Its principal method of hunting is to stoop from a height of 15 or 20 feet on small crabs etc., and skim flat along the surface of the mud for a few yards, picking up in its stride as many as can be seized in the bill. It swallows what it has caught as it rises, and repeats the manœuvre again and again. Small animals floating on the water are scooped up in the same way.

MEASUREMENTS. A Survey specimen measures: ♂ wing 312 tail (outer) 116.5 mm.

THE LITTLE TERN OR TERNLET*

Sterna albifrons Vroeg.

Fauna, vi, 135

Plate 15, fig. 3.

SIZE. About that of the Myna. Slenderer and with longer wings and deeply forked tail.

FIELD CHARACTERS. Distinguished from all other grey and white terns by its small size, white forehead (in summer dress with black cap) and orange-yellow bill and feet. In winter plumage the crown is much mixed with white, the bill becomes blackish and the legs dusky red. Sexes alike. Seen in small loose flocks about tidal creeks and salt pans ; not freshwater.

STATUS AND DISTRIBUTION. Only observed at Māndvi and Kandla ; between September and April ; no other data for Kutch. Breeds near Karachi : May/June.

HABITS. Typical tern. A party of these dainty little birds hunting for food over salt pans, shooting downwind, working their way deliberately upwind and plunging into the water like plummets one after another, is a pretty sight to watch. Sometimes the birds dive steeply to pick up a small fish near the surface with a swift backward dip of the bill as they momentarily skim the water.

MEASUREMENTS ETC. The specimens collected by the Kutch Survey measure : 1 ♂ ad. wing 170, tail (outer) 59, (inner) 42 ; 1 ♀? imm. wing 173, tail (outer) 53, (inner) 45 mm.

They belong either to the typical race or to *saundersi*. The former is known to breed near Bombay and also in N-W. India and Irāq ; the latter near Karachi. In the non-breeding season these and other races of the ternlet wander about freely and intermix in each other's areas, so that they are then notoriously difficult to identify with certainty. So far there is no evidence that any race breeds in Kutch, though this is quite probable.

THE TURNSTONE*

Arenaria interpres interpres (Linnaeus)

Fauna, vi, 154

Plate 12, fig. 2.

SIZE. Between the Partridge and the Quail.

FIELD CHARACTERS. A dark brown and white plover-like wader, distinguished by its pure white chin and throat, straight conical black bill and orange-red legs and feet. The summer plumage, acquired just before the birds leave us for their breeding grounds, is mottled black, white and chestnut. Sexes alike. In flight the middling size, black and white plumage, pointed wings and bright-coloured legs are pointers to its identity. Seen singly or in small parties, either by themselves or in mixed flocks of Dunlins and Sand-plovers on the seashore and shingly or rocky tidal creeks. Occasionally also at freshwater jheels.

STATUS AND DISTRIBUTION. Winter visitor. Rather uncommon. Earliest date August 26 (Māndvi). Outside Kutch it is common in winter on the coast of Sind and in N. India, and occurs down the West Coast to Ceylon. Breeds in sub-arctic N. Europe and N-W. Asia : May to July.

HABITS. The Turnstone is largely a saltwater-haunting species. In runs about in short spurts on the sand or shingle, or among the rocks on the seashore, turning

over stones in search of worms and small crabs etc. It also eats shell-fish, probing into their shells with its chisel-shaped bill and extracting the contents.

MEASUREMENTS ETC. A specimen obtained in Kutch (♀) measures: wing 147, tail 56, bill 26, tarsus 26 mm.

THE WESTERN GREY PLOVER*

Squatarola squatarola squatarola (Linnaeus)

Fauna, vi, 157

Plate 12, fig. 5.

SIZE. Slightly smaller than the Partridge.

FIELD CHARACTERS. All plovers are distinguished by their pigeon-like bills, more or less soft and swollen near the base. In winter this species is mottled grey and white, rather like the Golden Plover but with silvery grey spots instead of golden yellow. In the hand, among other points, the possession of a minute hind toe distinguishes it from the Golden. In summer plumage lower parts black; abdomen and under-tail white. Upper parts black barred and spotted with silvery white. In flight, a large oval black patch (the axillaries) under the wing (armpit) is conspicuous. Sexes alike. When the birds first arrive in Kutch, and again just before they leave, they are more or less in summer plumage.

Seen in small parties on the seacoast, and tidal creeks and lagoons near the shore. Seldom if ever on inland freshwaters.

STATUS AND DISTRIBUTION. Winter visitor. Not common, but frequent. Earliest date August 27 (Māndvi). Col. O'Brien also records having seen it frequently on the seashore at Māndvi.

Outside Kutch it is found on the Sind coast and along the entire coast-line of the peninsula. Two races. Breeds in Arctic Europe to E. Siberia etc.: June/July.

HABITS. The Grey Plover feeds at the water's edge and on open tidal mudflats, on worms, molluscs and crabs. It is at all times extremely wild and difficult to approach within gunshot. This, combined with the great speed of its flight and its good eating qualities makes it a first class sporting bird, same as the Golden Plover.

THE OYSTER-CATCHER OR SEA-PIE

Haematopus ostralegus longipes Buturlin

Fauna, vi, 165

Plate 12, fig. 3.

SIZE. Rather larger than the Partridge.

FIELD CHARACTERS. A striking black and white wader with longish red legs and a long, straight, compressed orange bill, blunt or truncated at the tip. In flight the broad white bar across the black wings, white lower back and black tail are conspicuous. Sexes alike. Seen in small parties on the seashore, or on tidal creeks and mudflats, often in mixed flocks of Sand-plovers, Dunlins etc.

STATUS AND DISTRIBUTION. Winter visitor. Not uncommon. Some individuals remain all the year round, but no evidence of breeding here.

Outside Kutch it is found along the entire coast-line of India. Breeds on seacoasts and islands in Europe and W. Asia: about May to July.

HABITS. The bill of the Oyster-catcher is admirably designed for prizing open and chiselling out oysters and other mussels from their shells. These comprise its

staple diet. It also probes into the wet sand for worms and crabs. It utters a number of piping call-notes, somewhat resembling those of the Whistling Teal. In fading light the silhouette of a bird going away from or flying towards one, is also very teal-like. It is a good bird for the table, but excessively wary and difficult to approach.

THE EUROPEAN LITTLE RINGED-PLOVER

Charadrius dubius curonicus Gmelin

Fauna, vi, 171

JERDON'S LITTLE RINGED-PLOVER

Charadrius dubius jerdoni (Legge)

Fauna, vi, 171

SIZE. Slightly less than the Grey Quail.

Field CHARACTERS. Plate p. 362, B.I.B. A typical little plover with thick head, bare longish yellow or olive-green legs, and short pigeon-like bill. Sandy brown above, white below. White forehead; black forecrown, ear-coverts and round eyes. A narrow black collar round the white neck. Sexes alike. The two races differ principally in size, the European being somewhat larger. Seen in pairs or small scattered parties on tank margins, shingle banks in streams, monsoon puddles, rain-sodden ploughed fields etc.

STATUS AND DISTRIBUTION. European race: Winter visitor. Apparently not common. Jerdon's: Resident and local migrant, but likewise not common.

Outside Kutch both races are found in winter throughout India, often side by side. *Curonicus* breeds in Europe, N-W. Africa east to Western Asia. In Balūchistān and Kashmir: April/May.

HABITS. These plovers scatter themselves and run about on the moist ground with quick mincing steps, halting after every little spurt to pick up some tiny insect or mollusc with the peculiar dipping action characteristic of the tribe. Although feeding independently of one another, no sooner does one bird take alarm than the rest follow suit. They all fly off together in a well-drilled batch, twisting, wheeling and banking in unison. Their white undersides flash momentarily as the sun catches them, and the birds constantly utter a plaintive whistling *phiu* as they go. The flight is swift, with rapid strokes of the pointed wings, and seldom more than a few feet above the ground.

NESTING. Jerdon's Little Ringed-Plover breeds in Kutch. Lester records taking an egg from the Khāri river at Gōdsar in May (1896). The season normally ranges between March and May, but Sir G. Archer collected a c/3 (incubated) at Khāri Rōhar on July 12 (1939). The eggs—usually four—are laid among the shingle in a dry river-bed. They are of the typical "peg-top" shape of plovers' eggs—broad at one end, abruptly pointed at the other. The colour varies from buffish-stone to greenish grey with scrawls and spots of dark brown and purple. They blend with their surroundings so perfectly as to become almost invisible.

MEASUREMENTS. The Kutch specimens measure: *Ch. d. curonicus*: 2 ♀ ♀ wing 118-126.5, bill 17-18.5, tarsus 23.5-26, tail 60-63.5. *Ch. d. jerdoni*: 1 ♀ wing 113, bill 18, tarsus 21, tail 56.5 mm.

THE PAMIRS LESSER SAND-PLOVER

Charadrius mongolus atrifrons Wagler

Fauna, vi, 174

Plate 12, fig. 1.

SIZE. About that of the Quail.

FIELD CHARACTERS. In winter, whilst with us, upper parts sandy greyish-brown, lower white. Forehead fulvous or tawny. The ear-coverts are brownish and stand out as a conspicuous brown spot on the white sides of the head. No, or only a very faint, white collar on hindneck. In summer plumage, sometimes acquired before the birds emigrate, the black and white markings of the head are rather similar to the Little Ringed-Plover's, but there is more of pale chestnut on the crown. The upper breast and sides of lower breast are also pale chestnut. Sexes alike. Met with in large mixed flocks on the seashore, running about between the tide marks. Also about salt pans, mudflats and tidal creeks.

STATUS AND DISTRIBUTION. Winter visitor. Very common and abundant. First noted August 24 (Māndvi) ; still quite plentiful on March 13. Apparently some non-breeding individuals stay on the whole year.

Outside Kutch it occurs in winter commonly all along the west coast of India. Breeds in Ladakh and Tibet : June/July.

HABITS. This Sand Plover is undoubtedly the commonest and most abundant single species to be found in winter amongst the enormous mixed flocks of waders on the seashore at Māndvi and elsewhere on the coast of Kutch. Its habits are closely similar to those of the Little Ringed-Plover. The flocks scatter to feed on the beach or mudflat in the same way, running about in short spurts, then dipping forward abruptly to pick up an insect or mollusc. When disturbed they fly at great speed in the same drilled regiments, turning and twisting in the air in unison, their white undersides flashing in the sun. The incoming tide drives them farther and farther up the beach. Here they spend the time in a massed flock, standing inert on one leg. It is characteristic of the birds that even when actively chasing off a neighbour, they will hop up to him on one leg while the other continues to remain comfortably tucked in !

THE LARGE SAND PLOVER

Charadrius leschenaultii Lesson

Fauna, vi, 175

SIZE. Somewhat larger than the Quail.

FIELD CHARACTERS. Very similar to the last, but appreciably larger. In winter plumage its supercilia and forehead are white (instead of fulvous). The summer plumage is very like the Little Ringed-Plover's in general effect, but there is no white collar on hindneck as distinguishes that species. Sexes alike. Seen in mixed flocks of waders on the seashore and tidal mudflats. Sometimes small parties by themselves.

STATUS AND DISTRIBUTION. Winter visitor. Common. First noted : August 24 (Māndvi).

Outside Kutch it is found in winter on the seacoasts of India. Breeds in Eastern Asia and Japan.

HABITS. Same as the last.

THE EASTERN GOLDEN PLOVER*

Charadrius dominicus fulvus Gmelin

Fauna, vi, 178

Plate 12, fig. 4.

SIZE. About that of the Partridge.

FIELD CHARACTERS. A typical plover with thick head and short pigeon-like bill. Brown above, spangled with white and golden yellow; black below. In winter the black underparts are lost and become whitish with the breast mottled with brown, grey and yellow. Birds with parti-coloured black and white underparts are commonly seen, particularly when they first arrive and shortly before they depart. Sexes alike. Seen in parties or flocks on moist pasture-land on the edges of jheels.

STATUS AND DISTRIBUTION. Winter visitor. Not common. Only observed by me at Chāngdāi jheel, near Māndvi, March 9, 1944,—a flock of 50-60.

Outside Kutch found in winter practically throughout India. Breeds in N. Siberia: June/July.

HABITS. Typical of the plovers. The flight is swift with quick, regular wing-strokes and in orderly compact flocks. The speed combined with its extreme wariness, and the fact that it is very good eating, make it a desirable sporting bird. It lives on worms, beetles, grasshoppers and other insects as well as small snails and crabs. To these is added a quota of vegetable matter. The only call-note heard in its winter quarters is a high-pitched double whistle *tu-ee* constantly uttered as the birds rise, and occasionally also whilst flying over.

MEASUREMENTS. A specimen (♂) shot at Chāngdāi jheel measures: wing 165, bill 30.5, tarsus 45, tail 60.5 mm.

THE WHITE-TAILED LAPWING OR PLOVER*

Chettusia leucura (Licht.)

Fauna, vi, 183

Plate 15, fig. 4.

SIZE. About that of the Partridge.

FIELD CHARACTERS. A brown and white plover distinguished in flight by its white lower back and tail, and bold black and white bars on the wings. Above: head and back pinkish brown with no white supercilium or eye-stripe. Below: chin and throat white; breast ashy-grey; abdomen pinkish-buff; undertail white. Sexes alike. Seen singly or in flocks of six to eight or more, on jheels and swamps. (Once also about salt pans!)

STATUS AND DISTRIBUTION. Winter visitor. Not common (?) First seen: August 5 (1943—Kandla).

Outside Kutch it is fairly common in N. India in winter. Breeds in Irāq, Irān etc.: May/June.

HABITS. The White-tailed Lapwing is a bird of jheels and marshes and hardly ever found away from water. On jheels they sometimes keep to themselves, but more commonly in association with Redshanks etc. In movements, flight and general habits it closely resembles both the plovers and the familiar Red-wattled Lapwing or "Did-you-do-it?"

THE SOCIABLE LAPWING

Chettusia gregaria (Pallas)

Fauna, vi, 182

SIZE. About that of the Partridge. Slightly larger than the White-tailed Lapwing.

FIELD CHARACTERS. Differs from the last chiefly in having some black in the white tail, and a broad white forehead and supercilium. A dark stripe running from bill through eye to the ear-coverts is conspicuous. Crown brown in winter, black in summer. Sexes alike. Seen in small parties and large flocks on dry waste land, ploughed fields etc.

STATUS AND DISTRIBUTION. Lester notes it as a common cold-weather visitant. Not met with by the Survey, but as in Lower Sind it is possibly a winter visitor in some years and absent in others.

Outside Kutch it is common in N-W. India in winter, and in smaller numbers more or less throughout continental India. Breeds in S. and E. European Russia: April to July.

HABITS. Except that this plover prefers drier ground and is not dependent on jheels and swamps, there is no appreciable difference in its habits from the last.

THE RED-WATTLED LAPWING

Lobivanellus indicus (Boddaert)

Fauna, vi, 186

SIZE. Slightly larger than the Partridge. More leggy and with a longer neck.

FIELD CHARACTERS. Plate p. 365, B.I.B. A familiar plover, bronze-brown above, white below, with black breast, head and neck and a crimson wattle or fleshy projection above and in front of each eye. Sexes alike. Producer of the well-known *Did-he-do-it?* calls. Seen in pairs or small parties about tanks and jheels, and pasture land.

STATUS AND DISTRIBUTION. Resident. Common.

Outside Kutch it is found throughout India. Two races.

HABITS. This lapwing spends its time running about on the ground in short spurts, tilting forward now and again in the typical plover style to pick up an insect, grub or snail. It is quite as active and wide awake at night as it is in daytime. Its ordinary flight is slow, attained by regular deliberate flaps of the wings. When thoroughly roused, however, the bird is capable of considerable speed and much dextrous turning and twisting on the wing. They make bold demonstrations in defence of their nest and young, diving repeatedly from the air at the intruding man or animal with great determination and a barrage of frantic swearing *Did-you-do-it?* shrieks.

NESTING. According to Lester it breeds in Kutch between March and August, as it does over most of its outside range also. Sir G. Archer collected seven clutches of two to four eggs at Khāri Rōhar between June 18 and July 10 (1939). The eggs—usually four—are laid on the bare ground or in a shallow unlined scrape on the dry bed of a tank or in a fallow field. They are some shade of grey-brown in colour, blotched with blackish, and blend with their surroundings in an astonishing way. The downy chicks are also almost impossible to see as long as they lie still.

THE YELLOW-WATTLED LAPWING

Lobipluvia malabarica (Boddaert)

Fauna, vi, 190

SIZE. About that of the Partridge. More leggy.

FIELD CHARACTERS. Plate p. 366, B.I.B. A sandy-brown plover with white belly, black cap and bright yellow lappets of skin above and in front of the eyes. In flight a white bar is conspicuous on the black wings. Sexes alike. Seen in pairs, parties and small flocks on dry waste land, and occasionally in the surroundings of tanks.

STATUS AND DISTRIBUTION. Resident. Fairly common. Possibly also a local migrant to some extent as it is in Sind.

Outside Kutch it is found throughout India.

HABITS. This lapwing frequents drier localities than the last, and is less dependent upon the neighbourhood of water. It is neither so noisy nor so demonstrative as its Red-wattled cousin, but otherwise the general habits of the two are alike. Its call is a sharp, plaintive double-noted *ti-éé* uttered every two or three seconds and punctuated from time to time by a high-pitched quick-repeated *twit-twit-twit-twit*.

NESTING. Lester had eggs brought to him by his shikari in April (1896). Sir G. Archer's collection contains four clutches of three to four eggs from Khāri Rōhar June 17-July 18 (1939). The season over its range as a whole is between April and July. The eggs—four in number—are laid on the bare earth or in a shallow scrape in dry, open waste land. They are of the typical peg-top shape of plovers' eggs, buff to olive-stone in colour, irregularly blotched with dark brown and purplish-grey. They, as well as the newly hatched chicks, are colour-camouflaged in a remarkable way and completely invisible even at close range except with special effort.

THE BLACK-WINGED STILT

Himantopus himantopus himantopus (Linnaeus)

Fauna, vi, 193

SIZE. About that of the Partridge, but with bare slender legs ten inches long.

FIELD CHARACTERS. Plate p. 369, B.I.B. A lanky, black, greyish-brown and white wading bird with a straight, slender, black bill. Its most arresting feature is its enormously long, thin, reddish legs. The summer and winter plumages differ in details, as also does the summer plumage of the male and female. Seen in pairs or flocks, wading in shallow water at the edge of tanks etc.

STATUS AND DISTRIBUTION. Resident. Also part local migrant under stress of drought and monsoon conditions. The commonest wader on inland waters; present at every jheel, swamp or puddle.

Outside Kutch it is found more or less throughout India, as resident or local migrant.

HABITS. The long bare legs of the Stilt enable it to wade into shallow water. It obtains its food of worms, molluscs and aquatic insects by probing with its slender bill into the squelchy mud at the bottom. In doing so the head is often completely submerged. Its feeble flight, pied colouration and slender build coupled with the extended neck and long red legs trailing behind the tail, make its identity on the wing unmistakable, even at a great distance. When alarmed and flying off the birds utter a rather squeaky piping note. It also emits a sharp *check-chek-check-chek* somewhat like the Moorhen's.

NESTING. Lester obtained its eggs from Gōdsar nullah, and also from the one at Koonria, in May (1897). Sir G. Archer's collection contains c/1 and c/2 (fresh)

from Khāri Rōhar, July 10 and 28 (1939) respectively. April to August is the season over its range as a whole. Stilts usually nest in colonies. The nest is a depression in the ground about the margin of a jheel, or a raised platform of gravel in shallow salt-pans. It is lined with vegetable scum off the water or grass. The eggs—three or four—are light drab in colour, densely blotched with black. In size, peg-top shape and general appearance they closely resemble the eggs of the Red-wattled Lapwing.

MEASUREMENTS ETC. A male shot on March 12 (1944) was in fresh breeding plumage and its gonads showed that it was getting ready to breed. It measures : wing 251, bill 78, tarsus 131, tail 84 mm.

THE AVOCET

Recurvirostra avosetta avosetta (Linnæus)

Fauna, vi, 195

SIZE. Slightly larger than the Partridge, and more leggy.

FIELD CHARACTERS. Plate p. 370, B.I.B. A black and white marsh bird rather like the Stilt in the distance, with long, bare *bluish* (not red) legs. Its slender, depressed, black upcurved bill is its most outstanding feature. Sexes alike. Seen in pairs, small parties or large flocks on freshwater jheels and swamps, as well as on tidal creeks and the seacoast.

STATUS AND DISTRIBUTION. Lester writes that it was very common throughout Kutch in the winter of 1895-96 and could be seen swimming and wading about in the Prāgsar and Hamīrsar tanks near the city of Bhūj. There is no data as regards its occurrences in other years. The Survey failed altogether to come across it between August 1943 and April 1944, and so I was inclined to put it down as a somewhat erratic and variable winter visitor.

However, on a recent visit to the flamingo "city" on the Great Rann (April 19-23, 1945) I was surprised to find the avocet breeding in considerable numbers on the flat island of sun-baked mud which harbours the flamingo nest colony, about half a mile south of the latter. The species was so far known and believed to breed only in Europe and Western Central Asia, the nearest locality to us being Northern Balūchistān. A detailed account of this first instance of its breeding in India is being published in the Journal of the Bombay Natural History Society.

Outside Kutch it is fairly common in N-W. India and found in small numbers more or less south to Ceylon. Breeds in Europe and West C. Asia : April/May.

HABITS. The Avocet's food consists of worms, aquatic insects and small crustaceans. The curiously shaped bill is partly opened and directed obliquely against the ground—as a hockey stick is held in play—so that the curved part skims the squelchy semi-liquid mud at the bottom. It is then moved with a back and fore rotatory motion and the particles of food thus churned up are collected in the mandibles.

The toes of the Avocet are partially webbed and enable it to swim with ease when occasion demands. Its call-note is a clear, loud, rather high-pitched *kluit* uttered several times in succession, usually on the wing.

NESTING. The Rann colony consisted of over a thousand birds. The eggs were laid on the bare sun-baked ground, occasionally on a flimsy bed of mud pellets, but mostly in a slight depression without any attempt at a nest. Each clutch was within a few yards of the next, so that from one spot 30 to 40 nests could be counted without difficulty. The full clutch consists of four eggs, some shade of olive brown in colour boldly blotched with black. In shape and colouration they closely resemble the eggs of the Red-wattled Lapwing and Black-winged Stilt.

THE EASTERN CURLEW

Numenius arquata lineatus Cuvier

Fauna, vi, 202

SIZE. About that of the domestic hen.

FIELD CHARACTERS. Plate p. 373, B.I.B. A darkish sandy-brown wading bird streaked with black and fulvous to produce the well-known "game bird pattern." Lower back and rump white, conspicuous in flight. Its most characteristic feature is the downcurved slender bill five or six inches long. Sexes alike. Seen singly or in small scattered parties on the marshy edges of jheels, on the seashore and on tidal creeks and mangrove-covered mudflats.

STATUS AND DISTRIBUTION. Winter visitor. Common. Some non-breeding individuals spend the whole year in Kutch. From this fact Lester concluded that it must breed here, and was informed that it actually did so on an island (Mámlio Baet) in the Gulf of Kutch between Khāri Rōhar and Wawania in Kāthiawār. Sir Geoffrey Archer who spent several years at Khāri Rōhar and made a fairly representative collection of eggs from that area never obtained any of the Curlew. There is no reliable evidence so far of its breeding in Kutch or anywhere else within Indian limits.

Outside Kutch it is found throughout India in winter. Breeds in Siberia: April-June.

HABITS. The Curlew employs its long, curved bill for probing into the soft ooze as it runs along in search of food. This consists mainly of small snails, crabs and insects and their larvae. Berries of marsh plants, grass shoots and sea-weed are also eaten. The bird itself is excellent for the table and enjoys a high reputation as a sporting bird. It is a fast flier, excessively wary at all times and difficult to circumvent and bring to bag. It can, however, be readily decoyed over an ambush by an imitation of its call. This is a wild plaintive scream—a shrill *coor-lee* or *cur-lew*—quite characteristic and unmistakable when once heard. It is usually uttered as the bird rises, but also in flight.

MEASUREMENTS. A Kutch specimen (♂) measures: wing 288, bill 157, tarsus 83, tail 110 mm.

THE WHIMBREL

Numenius phæopus phæopus (Linnaeus)

Fauna, vi, 203

Plate 13, fig. 3.

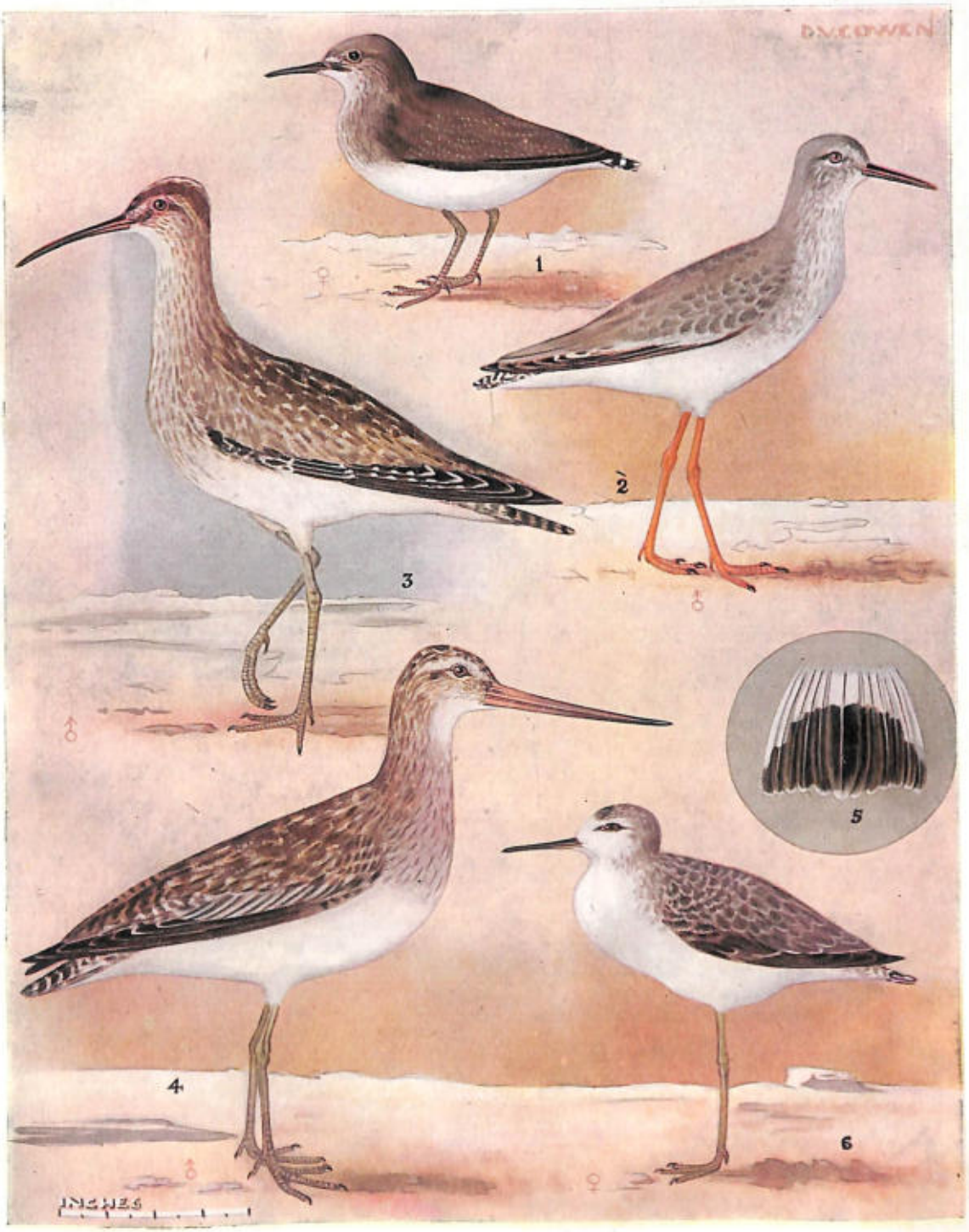
SIZE. Somewhat bigger than the Partridge.

FIELD CHARACTERS. A smaller edition of the Curlew, and further distinguishable by a broad whitish stripe above each eye and a third stripe ("centre parting") along the middle of the dark crown. Sexes alike. Seen in scattered parties as well as large flocks of 50 or more, on mangrove-covered mudflats, tidal creeks etc.

STATUS AND DISTRIBUTION. Winter visitor. Common. Already well in by August 5 (1943—creeks between Navlakhi and Kandla). Some individuals over-summer in Kutch, but there is no evidence of its breeding here as suggested by Lester.

Outside Kutch it is found in winter practically throughout India, both on the seacoast and inland waters. Breeds Northern Europe to W. Siberia: May/June.

HABITS. Except that it keeps in larger flocks there is little difference in its habits from the Curlew. Its curved bill is particularly well adapted for probing into the oblique holes of Fiddler Crabs which form a large proportion of its food. Its call is a musical quick-repeated whistle *tetti, tetti, tetti, tet* chiefly uttered in flight. The birds are easily decoyed over an ambush by imitating their calls, and also afford good sport when flighting to and from their feeding grounds among the creeks. They are just as good eating as the Curlew.



1. The Green Sandpiper (p. 130)
2. The Redshank (p. 132)
3. The Whimbrel (p. 128)
4. The Bar-tailed Godwit (p. 129)
5. Tail of the Black-tailed Godwit (p. 128)
6. The Marsh Sandpiper (p. 131)



1. The Curlew-Stint (p. 135)
2. The Avocet-Sandpiper (p. 129)
3. The Dunlin (p. 135)
4. The Little Stint (p. 134)
5. The Reeve (p. 133)
6. The Greenshank (p. 132)

THE BLACK-TAILED GODWIT

Limosa limosa limosa (Linn.)

Fauna, vi, 205

Plate 13, fig. 5 (inset).

SIZE. Somewhat bigger than the Partridge.

FIELD CHARACTERS. A variegated brown and white wader, very like the Whimbrel in general effect, but with a long, slender and straight bill instead of downcurved. In flight the broad black tail-tip is conspicuous. The rump and trailing edges of the wings are white, forming a more or less continuous white band. In summer plumage—donned shortly before the birds depart for their breeding grounds—the head, neck and breast become ferruginous or rusty red. Sexes alike. Seen in small parties or largish flocks mostly at muddy-edged tanks, but also at tidal creeks and about salt pans.

STATUS AND DISTRIBUTION. Winter visitor. Common. Earliest date: August 23 (1943—Māndvi); latest March 22 (1944—Hamīrsar tank, Bhūj). Lester noted it in numbers at Bhūj up to April 17, and three birds in winter plumage on July 7 (1897—*Jour. Bom. Nat. Hist. Soc.*, vol. xi, pp. 168 and 321). As with several other waders, some non-breeding individuals doubtless over-summer in Kutch occasionally.

Outside Kutch it is found in winter practically throughout India. Breeds in N. Europe and N-W. Asia: April to June.

HABITS. Very like the Curlew and Whimbrel. Almost completely silent in winter. A good sporting bird and excellent for the table.

THE BAR-TAILED GODWIT*

Limosa lapponica lapponica (Linn.)

Fauna, vi, 208

Plate 13, fig. 4.

SIZE. Somewhat bigger than the Partridge.

FIELD CHARACTERS. Like the last species in general effect. Distinguished from it in flight by its *barred* instead of black tail and absence of the broad, white bar along the trailing or hind edge of the wings. From the Whimbrel, which in winter plumage it closely resembles both on the ground and in the air, its *straight* bill serves to differentiate it. In summer plumage the whole head, neck and underparts become chestnut-red. Sexes more or less alike. Seen in parties and flocks, by themselves or mixed with other waders, on tidal mudflats, creeks and salt pans. Rarely, if ever, on freshwater jheels and swamps.

STATUS AND DISTRIBUTION. Winter visitor. Much less common than the last. Earliest date: August 5 (1943—Kandla).

Outside Kutch it is found in winter commonly on the coast of Sind and sparingly down the west coast, at least south to Bombay. Breeds in N. Europe and N. Asia: June/July.

HABITS. Food, general movements and behaviour similar to the Black-tailed Godwit and to the Whimbrel and Curlew. Silent in winter.

MEASUREMENTS. A specimen (♀) procured in Kutch measures: wing 222, bill 109, tarsus 57, tail 73.5 mm.

THE TEREK- OR AVOCET-SANDPIPER*

Xenus cinereus cinereus (Guldenstadt)

Fauna, vi, 212

Plate 14, fig. 2.

SIZE. About that of the Quail or the Snipe.

FIELD CHARACTERS. An unmistakable sandpiper, greyish-brown above, white below with a conspicuous white forehead and supercilium. Distinguished above all by its long slender *up-curved* bill and *orange-yellow* legs. In summer plumage there are some blackish streaks on the upper parts. Sexes alike. Seen in parties in amongst mixed flocks of sand plovers, stints and other waders on the seashore and tidal mudflats. Occasionally also at freshwater along the coast.

STATUS AND DISTRIBUTION. Winter visitor. Apparently uncommon. Earliest date August 28 (1943—Rāwal Pīr tank, Māndvi).

Outside Kutch it is found in winter more or less over the entire seaboard of India. Breeds N. Russia to E. Siberia : May/June.

HABITS. At low tide the birds run about on the seashore or mudflat, feeding energetically by probing deep into the soft ooze with their long, slender bills. Their food consists of small snails, crabs, worms, insects etc. The incoming tide drives them farther and farther up-shore until they are obliged to suspend activities. They spend this interval standing bunched up on the sand or on a rock projecting above the surf, and lose no time in resuming the hunt immediately the ebb has commenced. The only note heard whilst the birds are with us is a subdued twittering, especially as a flock rises.

THE GREEN SANDPIPER

Tringa ocrophus Linn.

Fauna, vi, 215

Plate 13, fig 1.

SIZE. About that of the Quail or the Snipe.

FIELD CHARACTERS. Dark brown above with a bronze-green gloss. White below, the breast finely streaked with brownish. Rump and tail more or less pure white. In flight the dark upper plumage contrasting sharply with the white rump, tail and underparts are pointers to its identity. This may be confirmed by the sharp piping *ti-tui* or *twee-twee-twee* it utters as it rises and flies off. Sexes alike. Seen singly or in scattered twos and threes (never flocks) at jheels, village tanks, streams, puddles or creeks—either fresh or salt water. Rarely on sandy seashore.

STATUS AND DISTRIBUTION. Winter visitor. Common. Earliest date : August 13 (1943—Padhar tank, Bhūj environs).

Outside Kutch it is found in winter throughout India. Breeds in N. Europe and N. Asia : April to July.

HABITS. The sandpipers are snipe-like birds with longish, slender, straight bills and short, stumpy tails. They are found in the vicinity of water, running about actively on marshy ground, picking up their food from the surface or probing for it in the squelchy mud. Sometimes they wade into shallow water, when the head and neck of the feeding bird is completely submerged. Their food consists chiefly of worms, tiny snails and crabs, and insects and their larvae. They have the characteristic habit, especially when alarmed, of stretching themselves up, bobbing their heads up and down, and wagging their diminutive tails and with them the entire hind part of the body. All the species utter some form of shrill piping notes as they rise and fly off. These notes, combined with the size of the bird and the presence and extent of brown and

white in the tail, usually provide the best distinguishing marks of the various species. All the sandpipers found in Kutch are winter visitors but an occasional non-breeding individual or two, e.g., of the Common Sandpiper, may sometimes stay back over the summer months.

THE MARSH-SANDPIPER OR LITTLE GREENSHANK*

Tringa stagnatilis (Bechstein)

Fauna, vi, 216

Plate 13, fig. 6.

SIZE. About that of the Snipe.

FIELD CHARACTERS. In winter plumage, both at rest and in flight, a perfect miniature of the Greenshank illustrated on plate 13 (fig. 6). Greyish-brown above, white below with the sides of the breast more or less marked with brown. Lower back and rump pure white. Tail narrowly barred brownish. These features, combined with absence of all white on the wing, help its identification in flight. In summer the upper parts are streaked and spotted with black. Sexes alike. Seen singly or in scattered twos and threes on the swampy edge of ponds and jheels, often wading into the shallows. Rarely on saltwater puddles, and practically never on the seashore.

STATUS AND DISTRIBUTION. Winter visitor. Not common, but frequent. Earliest date : August 30 (1943—Dēvisar tank).

Outside Kutch it is found practically throughout India. Breeds in S. Russia and eastward, right across to Mongolia : April to June.

HABITS. Like the Greenshank whose faithful facsimile it is, this sandpiper also usually wades into a shallow puddle, probing energetically into the bottom mud often with its head and neck completely submerged. Both species moreover have the characteristic habit of pivoting or sweeping around in half circles—from side to side—as they dip repeatedly for food. Thus, as the bird moves forward he has methodically prospected a band of area instead of just a random probe here and another there. The note commonly heard is a piping *che-weep, che-weep* as the bird rises and makes off.

MEASUREMENTS. A specimen obtained in Kutch (♂) measures : wing 142, bill 47, tarsus 56, tail 58 mm.

THE COMMON SANDPIPER

Actitis hypoleucos (Linn.)

Fauna, vi, 217

SIZE. Slightly smaller than the Snipe.

FIELD CHARACTERS. Olive-brown above, white below with a faint undefined dusky band across breast. Rump and tail brown with only the outer tail-feathers white. A narrow white wing-bar is diagnostic in flight which is accomplished by peculiar rapid but stiff vibrating wing-strokes close over the water. The piping *tee-tee-tee* uttered as it flies, is also characteristic. In summer plumage the upper parts are somewhat streaked with black. Sexes alike. Seen singly at water—rivers, jheels, village tanks, puddles as well as tidal creeks and seashore.

STATUS AND DISTRIBUTION. Winter visitor. Common, but not abundant. Earliest date : August 5 (1943—Kandla). Some non-breeding individuals doubtless over-summer in Kutch.

Outside Kutch it is common in winter throughout India. Breeds in Europe and Asia. In Kashmir : June.

HABITS. Typical sandpiper. Usually met with as a solitary bird.

THE WOOD OR SPOTTED SANDPIPER

Tringa glareola Linn.

Fauna, vi, 219

SIZE. About that of the Snipe.

FIELD CHARACTERS. Greyish- and sepia-brown above, indistinctly spotted and marked with white. Lower back and rump white. Tail barred blackish. Breast pale dusky. A whitish supercilium. No wing bar. The summer (breeding) plumage is brighter, with the spotting more conspicuous. Sexes alike. Met with singly, in twos and threes or flocks of up to 30 or more, on jheels and marshes.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common.

Outside Kutch it is found in winter commonly throughout India. Breeds in Europe and N. Asia : May to July.

HABITS. Typical of the sandpipers. It is eminently a marsh bird and usually keeps in larger parties and flocks than the species so far described. Commonly flushed when walking up snipe, and at times annoyingly deceptive !

THE REDSHANK

Tringa totanus eurhinus (Oberholser)

Fauna, vi, 221

Plate 13, fig. 2.

SIZE. Larger than the Snipe and more leggy.

FIELD CHARACTERS. A medium-sized wader, greyish-brown above, white below finely streaked with brown on the breast. White lower back and rump prominent in flight, as also are a broad white semicircular bar along the trailing edge (hind border) of wing and the long, slender red legs projecting behind. Tail white, barred with brown. In summer the upper parts are somewhat streaked and spotted with black and fulvous, and the breast more heavily streaked with brown. Sexes alike. Met with singly, in twos and threes or small flocks, either by itself or in association with other small waders—on the muddy edge of jheels, village tanks and puddles, as well as tidal creeks and salt pans. Often feeding in concentrated brine !

STATUS AND DISTRIBUTION. Winter visitor. Fairly common. Earliest date : August 23 (Māndvi).

Outside Kutch it is found in winter more or less throughout India. Breeds in Europe and through N. Asia to W. China. In Kashmir, Ladakh and Tibet : June/July.

HABITS. Typical sandpiper. It bobs its head and wags its tail-end violently when suspicious or alarmed. Utters a shrill piping *tiwee-tiwee-tiwee* or *tew-tew-tew* as it rises and flies off.

MEASUREMENTS. The Survey specimens measure : 2 ♂ ♂ wing 158-160, bill 45-59, tarsus 49-50.5, tail 62.5-69 mm.

THE GREENSHANK

Tringa nebularia (Gunnerus)

Fauna, vi, 225

Plate 14, fig. 6.

SIZE. Slightly larger and taller than the Redshank.

FIELD CHARACTERS. In winter dark greyish-brown above with white forehead, lower back, rump and tail—the last with almost invisible brownish barring. Under-

parts white, greyish on foreneck and sides of head. The summer plumage is darker and richer above ; boldly black-spotted on breast. Sexes alike. Readily distinguished from the Redshank by absence of the white wing-bar, olive-green legs (instead of red), and by its long, slender bill being slightly upcurved. Usually seen singly at tanks, jheels and puddles as well as tidal creeks and salt pans.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common but not abundant. First seen : August 23 (1943—Māndvi).

Outside Kutch it is found in winter practically throughout India. Breeds in N. Europe and N. Asia : May to July.

HABITS. Typical sandpiper. Mostly met with as a solitary bird. The notes commonly heard in its winter quarters—*tiwee-tiwee-tiwee* and *tew-tew-tew*—are almost identical with those of the Redshank, but can be told from them with practice by their somewhat lower pitch.

THE RUFF AND REEVE

Philomachus pugnax (Linn.)

Fauna, vi, 228

Plate 14, fig. 5.

SIZE. Male (Ruff) about that of the Partridge ; female (Reeve) considerably smaller.

FIELD CHARACTERS. A brown, rather dumpy, medium-sized wader with a noticeably short sandpiper-like bill. In winter upper parts greyish-brown mottled with black and buff to produce a " game bird " pattern. Underparts white, the breast washed with brown or buff. Sexes alike, but female much smaller. The summer plumage of the Ruff, seldom acquired before emigration except very partially, is extremely variable with much black, white, purple, chestnut or buff in it. The peculiar ruff and ear-tufts then make the bird unmistakable. In the Reeve the upper parts become blackish. Seen in flocks of up to 30 or more, often mixed with other waders, on tidal mudflats and the marshy borders of tanks and jheels.

STATUS AND DISTRIBUTION. Winter visitor. Not uncommon. First noted : September 16 (1943—Bhimāsar tank, Anjār Dist.).

Outside Kutch it is found in winter all over India. Breeds in N. Europe and N. Asia : May/June.

HABITS. Typical sandpiper. In addition to the usual fare of worms, insects, molluscs and crustaceans it eats berries of marsh plants as well as seeds and grain, and the bird itself is excellent for the table. It is very silent on the whole.

THE SANDERLING

Crocethia alba (Pallas)

Fauna, vi, 231

SIZE. About that of the Grey Quail.

FIELD CHARACTERS. A dumpy, active little wader with straight, slender bill. Pale grey above with almost entire head white ; white below. In flight a narrow white bar along the middle of the blackish wings is conspicuous. In summer plumage the upper parts, head, neck and breast become chestnut, rather as in the Dunlin, but the lower breast is glistening white as against black in the latter. Sexes alike. Seen in parties or small flocks mixed with other waders or by themselves, running about and feeding energetically at the tide line on the seashore, or on squelchy mudflats. Not on inland waters.

STATUS AND DISTRIBUTION. Not met with by the Survey. Quite possibly overlooked. Lester says " found on the shores of the Gulf of Kutch." It is common on the Karachi coast. Winter visitor.

Outside Kutch, in winter it is found in varying abundance more or less along the entire coast-line of India. Breeds in northern circumpolar regions : June/July.

HABITS. Not appreciably different from the sandpipers and other small waders, though this species is well known for the feverish activity which invariably accompanies its search for food.

THE LITTLE STINT

Calidris minuta minuta (Leisler)

Fauna, vi, 234

Plate 14, fig. 4.

SIZE. Smaller than the Quail.

FIELD CHARACTERS. A diminutive wader, mottled greyish-brown or dusky above, white below, with *blackish* legs and bill. Rump and middle tail-feathers dark brown, outer tail-feathers smoky-brown. In flight a faint narrow whitish bar is visible on the pointed wings. Very like the Dunlin in general effect but smaller and with a *straight* instead of slightly down-curved bill. The summer plumage is richer—more black and rufous. Seen in large mixed flocks with other small waders on the seashore and about salt pans. Also at jheels and marshes.

STATUS AND DISTRIBUTION. Winter visitor. Common and abundant. Well in by September 11 (1943—Kandla) ; latest date April 2 (1944. Mostly gone ; only stray twos and threes—Kandla).

Outside Kutch it is found in winter throughout India, inland as well as along the seacoasts. Breeds N. Europe and Central Siberia : June/July.

HABITS. A sociable little wader usually seen in large mixed flocks. The birds scatter to feed, but never stray far from one another. They run about energetically to pick up tiny insects, worms, crustaceans and molluscs which form their food. When disturbed, the flock flies off swiftly in a drilled regiment, turning and twisting in unison with their white undersides flashing in the sun from time to time. They utter a soft musical *wit-wit-wit* or a low *tr-rr* as they fly. The flock resettles after a short flight and resumes its feeding activity forthwith.

MEASUREMENTS. The Kutch Survey specimens measure : 1 ♂ wing 94.5 ; 2 ♀ ♀ wing 98-102 mm.

TEMMINCK'S STINT

Calidris temminckii (Leisler)

Fauna, vi, 237

SIZE. Smaller than the Quail. Same as the Little Stint.

FIELD CHARACTERS. Very like the Little Stint but somewhat darker above with the outer tail-feathers *white* instead of smoky-brown, and legs *yellowish-green* or *yellowish-brown* instead of blackish. In the hand its identity may be confirmed by the shaft of its first primary wing-quill being *white* and all the rest brown. In the Little Stint the shafts of all the primaries are more or less white. Sexes alike. Seen in flocks, often mixed with Little Stints and other waders, mostly on freshwater jheels and marshes. Rarely also about salt pans.

STATUS AND DISTRIBUTION. Winter visitor. Common but less abundant than the last species.

Outside Kutch it is plentiful in winter in N. India, and decreasingly so to the extreme south. Breeds in N. Europe to N-E. Siberia : June/July.

HABITS. Except that it is more of a freshwater and inland species than the Little Stint, there is no appreciable difference in the habits of the two.

MEASUREMENTS. A specimen (♀) procured in Kutch measures : wing 102.5 mm.

THE CURLEW-STINT OR PIGMY SANDPIPER

Calidris testacea (Pallas)

Fauna, vi, 240

Plate 14, fig. 1.

SIZE. Slightly smaller than the Snipe.

FIELD CHARACTERS. In winter, greyish-brown above with a good deal of fine dark mottling ; white below. The slender bill is distinctly downcurved and curlew-like. This feature is shared by the Dunlin with which it is frequently found in close association. The two are very similar to look at and easy to confuse. The diagnostic distinction of this species is its *white* upper tail-coverts which in the Dunlin are blackish. The summer plumage is very different from the Dunlin's : head and upper parts rich rufous, lower parts chestnut. The bird illustrated is in partial summer dress as seen when the birds have just arrived in autumn, and again shortly before they leave their winter quarters. Sexes alike. Met with in large mixed flocks with Dunlins, Stints and Sand-plovers on tidal mudflats, salt pans and the seashore.

STATUS AND DISTRIBUTION. Winter visitor. Common and abundant.

Outside Kutch it is found in winter throughout India, chiefly on the seacoasts. Breeds in N. Siberia : June/July.

HABITS. Not appreciably different from the Little Stint and similar waders. Runs about to feed on tidal mudflats, seashore as well as in the shallow concentrated brine of salt pans. Eats worms, insects, tiny snails and crabs etc.

MEASUREMENTS. The Survey specimens measure : 1 ♂ wing 137, bill 43·5, tarsus 31, tail 52 ; 1 ♀ wing 133, bill 45·5, tarsus 32, tail 47 mm.

THE DUNLIN

Calidris alpina alpina (Linn.)

Fauna, vi, 241

Plate 14, fig. 3.

SIZE. Smaller than the Snipe. About that of the Curlew-Stint ; a trifle less.

FIELD CHARACTERS. In winter, confusingly like the Curlew-Stint. In flight differentiated from it with certainty only by its *blackish* upper tail-coverts instead of white. In summer the black lower breast and abdomen of the Dunlin are sufficiently diagnostic. This plumage, more or less, is frequently seen among the earlier arrivals in autumn. Sexes alike. When at rest, waiting for the tide to turn, the rounded "hunchback" profile is suggestive of its identity. Seen in large mixed flocks of Stints, Pigmy-Sandpipers and other waders on the seashore, about salt pans and on tidal mudflats.

STATUS AND DISTRIBUTION. Winter visitor. Common and abundant.

Outside Kutch it is common in N. and N-W. India in winter, and extends sparingly south to at least Bombay. Breeds in N. Europe : May-July.

HABITS. Very similar to the stints. Keeps chiefly to the seaboard. Frequently seen probing the bottom mud under concentrated brine in salt pans.

MEASUREMENTS. The Kutch Survey specimens measure: 2 ♀♀ wing 120-123·5, bill 40.5-41, tarsus 26-27.5, tail 47-51.5 mm.

The Broad-billed Sandpiper [*Limicola falcinellus* (Pont.)] though not actually recorded, is quite likely to be met with on the tidal creeks along the Kutch coast. It is common on the coast of Sind and has been obtained as far south as Bombay. It is very similar to, but slightly smaller than, the Dunlin and with a somewhat squat appearance on account of its shorter legs. The breast is streaked brownish, and a white eye-stripe is conspicuous. Its yellowish-grey legs, as against blackish and black in the Curlew-Stint and Dunlin respectively, are further points to note at close range. The broad and depressed base of the downcurved bill (perceptible when looked at from above) is a diagnostic feature in the hand, but of little help in the field.

THE WOODCOCK*

Scolopax rusticola rusticola Linn.

Fauna, vi, 252

SIZE. About that of the Partridge.

FIELD CHARACTERS. A dark, stout, oversized snipe with the typical long, straight bill. The closely barred underparts and the alternate black and pale bars across the nape and hindneck confirm its identity. The large eyes are situated abnormally high up and far back in the head. Sexes alike.

STATUS AND DISTRIBUTION. A single example, the first ever seen or heard of in Kutch, was shot by M. K. S. Madansinhji near the village of Chakar (Bhūj taluka) on November 19, 1942 (*Jour. Bom. Nat. Hist. Soc.*, vol. 43, p. 661) and is now mounted and exhibited in his Sarat Bāgh residence. In January this year (1945), Sir Peter Clutterbuck, I.F.S. (retd.) observed an example at Hamīrsar tank (Bhūj City) on three consecutive days, after which the bird disappeared.

The Woodcock breeds in the Himālayas and is a not uncommon winter visitor in small numbers to the Nilgiris and adjacent hills of S-W. India. But from the very meagre records of its occurrence in the intervening country it is evident that the bird must normally accomplish its journey in a single "hop" of 1200 to 1500 miles. That it *may* straggle over Kutch on its autumn migration rather more frequently (or even regularly?) than indicated by this single record, is suggested by the fact that one example was shot in the Lyaree Gardens at Karachi on November 4, 1877. Another was seen at Karachi in 1881, and a third in the autumn of 1917. Further, there is a record of two others shot by a General Marston in the course of 50 years of shooting in Sind (*J.B.N.H.S.*, vol. 8, p. 333).

THE COMMON OR FANTAIL SNIPE

Capella gallinago gallinago (Linn.)

Fauna, vi, 259

SIZE. Slightly larger than the Quail.

FIELD CHARACTERS. Plate p. 378, B.I.B. An obliteratingly coloured marsh-bird with straight slender bill about 2½ inches long. Dark brown above, streaked with black, rufous and buff; whitish below. Sexes alike. Met with singly or in wisps on grassy and marshy edges of jheels. Very difficult to spot in its native environment until it moves.



1. The Gull-billed Tern (p. 119)
2. The Desert, or Cream-coloured Courser (p. 115)
3. The Ternlet (p. 120)
4. The White-tailed Lapwing (p. 124)
5. The Little Green Heron (p. 150)
6. The Jack Snipe (p. 137)



1. The Black-necked Stork (p. 143)
2. The Indian Smaller Egret (p. 146)
3. The Purple Heron (p. 145)
4. The Common Crane (p. 110)

STATUS AND DISTRIBUTION. Winter visitor. Common and fairly plentiful. Earliest date: September 16 (1943—Bhimāsar tank, Anjār Dist.).

Outside Kutch it is found in winter all over India. Breeds in Europe and Asia. In Kashmir and the Himālayas: May/June.

HABITS. Snipe obtain their food by probing with their long, slender bills into the soft mud. The sensitive thickened tip enables them to locate the underground quarry. They eat worms, insects, larvae, molluscs and crustaceans. They feed principally in the early morning and evening, and also throughout the night. During the heat of the day the birds are sluggish. They lie up under cover of the grass and bushes and are reluctant to fly fast or far. But on a cool morning or cloudy day their behaviour is very different. When walked up to or otherwise disturbed, the bird rises abruptly out of the grass with a characteristic harsh note—*scape* or *pench*—very like the squelching of a sodden shoe, and goes off at a tremendous pace in a series of angular zig-zags. It is this sudden rise and swift zig-zag getaway that gives spice to the sport of snipe-shooting and disappointing averages to inexperienced or mediocre shots.

The Pintail Snipe [*Capella stenura* (Bp.)] doubtless also visits Kutch in smaller numbers, as it does Sind. It is not easy to differentiate the two species in the field except with much practice. One eminent authority claims that in flight the Pintail looks rather darker and flies heavier than does the Fantail. It is certain that occasionally it affects drier ground than the Fantail ever does, though normally both may be found together on the same marshes. In the hand the Pintail Snipe can be told by the 26 or 28 attenuated pin feathers in its tail as against 12 or 14 normal ones in that of the Fantail.

THE JACK SNIPE

Lymnocryptes minima Brunnich

Fauna, vi, 265

Plate 15, fig. 6.

SIZE. About that of the Quail. Smaller than the Fantail Snipe.

FIELD CHARACTERS. A small editon of the Fantail with only minor differences of colour and pattern. Sexes alike. In the hand its small size, comparatively stouter and shorter bill, and the large amount of metallic green and purple sheen in the plumage make its identity certain. Flushed singly and silently on reedy marshes.

STATUS AND DISTRIBUTION. Winter visitor. Common but less abundant than the Fantail, though according to Lester "as many as 50% of the snipe shot in Kutch during the shooting season are Jacks."

Outside Kutch it occurs in winter practically throughout India. Breeds in N. Europe and N. Asia: June to August.

HABITS. Similar to the Fantail Snipe. It is usually reluctant to leave cover and flushes only when almost trod upon. It rises abruptly but without the characteristic *pench* note. Its flight is also considerably slower and with none of the violent zig-zagging that marks the other species. It drops into the reeds again before going far. Lester may be correct about his proportions in seasonal bags, but it must be remembered that the high percentage of this species may also be due in some measure to its comparatively sluggish habits and the ease with which it may be killed.

MEASUREMENTS. A specimen obtained by the Survey (♂) measures: wing 119, bill 39.5, tarsus 26, tail 54 mm.

THE EASTERN WHITE OR ROSY PELICAN

Pelecanus onocrocotalus roseus Gmelin

Fauna, vi, 272

SIZE. Larger than the Vulture.

FIELD CHARACTERS. Plumage mostly white, tinged with rose colour, with a tuft of yellowish feathers on the breast; primaries and some of the secondaries black; a slight crest on the back of the head; feathers of the forehead ending in a point above the bill. Bill grey with pink or red edges; pouch yellow; skin of face purplish-white or yellow; feet pink. (W. B. Alexander, *Birds of the Ocean*, p. 272).

STATUS AND DISTRIBUTION. Winter visitor. Not met with by the Survey. Lester records seeing about 20 at Dēvisar tank in the winter of 1893.

In Sind it is commonly found in winter—sometimes in very large flocks—on the larger *dhunds* inland, as well as on tidal creeks. I have observed it at Mithapur (Okhamandal, Kāthiawār) in October. Breeds in Irāq and Persian Gulf islands: April-July.

HABITS. Pelicans spend their time fishing, floating majestically on the water or resting and preening themselves on the shore. They fish by co-operative effort, several birds swimming in a line or semicircle and driving the fish towards the shallows with vigorous splashes of their wings upon the water. They do not dive for their quarry but just sail into a shoal with their bills open. The lower mandible trails in the water and the enormous skin-bag underneath is spread out to act as a landing net and scoop in the fish. For their great size they take surprisingly little effort to rise off the water. When well launched the birds fly strongly with steady beats of their broad wings. The head is drawn close in between the shoulders.

Another species, the Dalmatian Pelican (*Pelecanus crispus* Bruch.) also common in Sind during winter, is quite likely to occur in Kutch more or less regularly in winter. Hume has recorded it from the Rann, south of Pachham. It is distinguished chiefly by its more greyish-white plumage, pink face and bluish-grey legs. The feathers of the forehead do not end in a point above the bill as in the last, but in a concave curved line. It is also more prominently crested on the hindhead.

THE INDIAN LARGE CORMORANT *

Phalacrocorax carbo sinensis (Shaw and Nodder)

Fauna, vi, 277

SIZE. About that of a large domestic duck (or Mallard).

FIELD CHARACTERS. A large glossy black duck-like bird with a white patch on the throat and slender, compressed bill sharply hooked at extreme tip. In the breeding season (monsoon) some white feathers on the head and neck, and a large white patch on each flank are diagnostic. Sexes alike. Seen singly or in small parties on jheels and tidal creeks.

STATUS AND DISTRIBUTION. Apparently resident, but uncommon.
Outside Kutch it is found in Sind and throughout India.

HABITS. Not appreciably different from the Little Cormorant (see below).

NESTING. No data available for Kutch.

ZOOLOGICAL GARDEN CALCUTTA

THE LITTLE CORMORANT

Phalacrocorax niger (Vieillot)

Fauna, vi, 280

SIZE. Somewhat smaller than the domestic duck.

FIELD CHARACTERS. Plate p. 382, B.I.B. A glistening black duck-like water bird with a longish stiff tail, and slender compressed bill sharply hooked at the tip. A small white patch on the throat and a suggestion of a crest at the back of the head. Sexes alike. Seen singly or in loose flocks at tanks and jheels, perched on the bank, a rock or tree, or swimming about with little more than the head and neck showing.

STATUS AND DISTRIBUTION. Resident. Common.

Outside Kutch it occurs throughout India.

HABITS. The Cormorant lives on fish which it chases and captures under water. It is an expert diver and submarine swimmer. Sometimes a flock hunts in concert in the manner of pelicans. The birds hem in a shoal of fish and drive it towards the bank, beating the water with their wings and diving repeatedly to cut off their retreat. They gradually close in on the quarry and do great massacre when the fish have been forced into the shallows. Their food consists almost wholly of fish. When not hunting the birds may be seen sunning themselves with partly outspread wings. They are somewhat slow to take off the water, but are strong fliers when once launched.

NESTING. The season was in full swing during August. Elsewhere in N. India July to September are the usual months. The birds build on babool and tamarisk trees standing in water, e.g., Phārsar tank (Chāduva), Dēvisar tank (near Bhūj) and Bhimāsar tank (Anjār Dist.) in mixed colonies with egrets, pond herons, spoonbills and other water-birds. The nest is a rough platform of twigs, like the crow's, sometimes scantily lined with grass roots etc. The eggs—four or five—are long narrow ovals, bluish-white in colour with a chalky texture.

The Indian Shag (*Phalacrocorax fuscicollis*) also very probably occurs in Kutch, as it does in Sind. In size it is intermediate between the Little and Large Cormorants and so like the former in appearance that in the distance the two may be easily confused. In the breeding season, however, it may be distinguished by a pure white tuft behind the eye, and white speckles on the sides of its head and neck.

THE DARTER OR SNAKE-BIRD

Anhinga melanogaster Pennant

Fauna, vi, 283

SIZE. About that of a small duck. Slenderer.

FIELD CHARACTERS. Plate p. 385, B.I.B. A black, cormorant-like water bird with silver-grey streaks on the back, and velvety brown head and neck. Chin and throat whitish. Tail long, stiff, wedge-shaped. The long and very slender snake-like S-shaped neck, narrow head and pointed dagger bill are diagnostic features. Sexes alike. Seen singly or in loose parties in and about jheels and village tanks.

STATUS AND DISTRIBUTION. Resident. Fairly common.

Outside Kutch it is found throughout India.

HABITS. Very like the Cormorant's except that it does not hunt in co-operative bands. Its staple food is fish. It dives and chases them under water, swimming with speed, wings held half open and head and neck swaying back and forth in a peculiar manner, like a javelin-thrower poising his missile. A special contrivance in the neck

vertebrae enables the bird to shoot out its bill at the quarry with lightning rapidity as if released by a powerful spring.

NESTING. The season was in progress during August. The birds nest in mixed heronries (e.g., Phārsar, Dēvisar and Bhimāsar tanks) with cormorants, egrets, pond-herons etc., building their twig platform nests in trees standing in or near water. The eggs—three or four—are greatly elongated in shape and only slightly more pointed at one end than at the other. They are pale greenish-blue with a whitish chalky coating.

THE INDIAN SPOONBILL

Platalea leucorodia major Temm. and Schlegel

Fauna, vi, 311

SIZE. Rather larger than the domestic duck.

FIELD CHARACTERS. Plate p. 386, B.I.B. A long-necked, long-legged snow-white marsh-bird with black legs and a distinctive large flat black-and-yellow spoon-shaped bill. A pale yellowish-brown patch on foreneck. A long, full nuchal crest in the breeding season. Sexes alike. Seen in twos and threes or large flocks at jheels and swamps.

STATUS AND DISTRIBUTION. Resident. Common.
Outside Kutch it is found throughout India.

HABITS. Spoonbills live on tadpoles, frogs, molluscs, and insects but they also eat a great deal of vegetable matter. They feed at night as well as during daytime. A flock wades into shallow water on a marsh and with outstretched necks and obliquely poised, partly open bills they sweep from side to side with a scythe action, raking the squelchy mud with the tip of the lower mandible. Their flight is rather slow with steady, long wing-strokes, neck and legs extended. Like the storks they do not possess true organs of voice production. The only sounds they make are a low grunt and a clattering of the mandibles.

NESTING. The season was on in August (1943). Sir G. Archer's collection contains a c/3 from an island near Kandla, September 9 (1939). As with all other allied water-birds, it varies in different years with late or early and good or bad monsoons. Spoonbills nest in mixed heronries with Painted Storks, ibises, cormorants and other species on partially submerged trees standing in the middle of a jheel (e.g., Dēvisar, Bhimāsar etc. Also on Lakhōta islet in Hamīrsar tank, Bhūj City). The nest is a largish platform or shallow cup of twigs. The normal clutch is of four eggs, rather a sullied white in colour, sparingly spotted and blotched with deep reddish-brown chiefly at the broad end.

In Kutch the eggs and young of all colonial nesting water-birds suffer great destruction from House Crows which invariably infest the heronries in vast rabbles.

THE WHITE IBIS

Threskiornis melanocephalus (Latham)

Fauna, vi, 314

SIZE. About that of a large domestic hen.

FIELD CHARACTERS. Plate p. 389, B.I.B. A large, white marsh-bird with naked black head and neck, and long, stout, black, curved curlew-like bill. There is some slaty-grey near the shoulders, and the tips of the primary quills are brownish. In the breeding season there are elongated white feathers round the base of the neck and pointed hanging plumes on the upper breast. Sexes alike. Seen in twos and threes, or flocks, on water-logged ground and about jheels.

ZOOLOGICAL GARDEN
CALCUTTA.

STATUS AND DISTRIBUTION. Resident. Fairly common.
Outside Kutch it is found practically throughout India.

HABITS. Very like the Spoonbill, with which it is closely related. It obtains its food by probing with the bill into the soft mud with the mandibles partly open like forceps. When feeding in shallow water the head sometimes becomes completely immersed for a time. Its flight consists of a series of steady rapid wing-strokes punctuated by short glides. Like the Spoonbill it has no voice muscles and is practically silent.

NESTING. The season was in progress during August. As elsewhere in N. India it breeds during the S-W. Monsoon, chiefly between June and August, in mixed heronries like the Spoonbill. The nests of the two are also very similar. The eggs—two to four—are bluish- or greenish-white, either unmarked or with delicate spots of yellowish-brown.

THE BLACK IBIS

Pseudibis papillosa (Temm. and Laug.)

Fauna, vi, 316

SIZE. Slightly smaller than the White Ibis.

FIELD CHARACTERS. Plate p. 390, B.I.B. A large black bird with long curlew-like curved bill, a conspicuous pure white patch near the shoulder and brick-red legs. A triangular patch of crimson warts on the top and back of the black naked head. Sexes alike. Seen in pairs or small scattered flocks in fallow cultivation and about village tanks and roadside ponds and puddles.

STATUS AND DISTRIBUTION. Resident. Fairly common.
Outside Kutch it is found in a large portion of northern and peninsular India.

HABITS. Unlike the White Ibis this species is often met with away from water feeding on dry ground or in fallow fields. It eats insects and grain as well as lizards and small snakes. The birds keep to favoured localities and have accustomed roosts in large trees to which they repair nightly. A loud nasal screaming cry of three or four notes, rather like the Brahminy Duck's, is sometimes uttered on the wing.

NESTING. Lester had a couple of eggs brought in by his shikari from an island near Khāri Rōhar in July (1896) which from colour and measurements he ascribed to this species. It must certainly breed in Kutch, but this is all the evidence so far available. The season in Sind and N. India is ill-defined and ranges between March and October, but principally during the S-W. Monsoon. This ibis nests individually and normally not in mixed colonies, though two or three nests of its own species may sometimes be found in the same tree often well away from water. The nest is a large cup of twigs lined with straw and feathers. Sometimes an old eagle- or vulture-nest is used. The eggs—two to four—are bright pale green in colour, either unmarked or with spots and streaks of brown.

THE GLOSSY IBIS*

Plegadis falcinellus falcinellus (Linn.)

Fauna, vi, 318

Plate 20, fig. 4.

SIZE. About that of the domestic hen. Slightly smaller than the Black Ibis.

FIELD CHARACTERS. Rather like the Black Ibis but glistening metallic blackish

and chestnut, with slenderer bill and feathered head. Sexes alike. Seen in small parties and flocks at large jheels and swamps.

STATUS AND DISTRIBUTION. Resident and/or local migrant? Uncommon. Only observed by me once at Hamīrsar tank, Bhūj. H. H. informs me that recently (April 4, 1945) he saw four birds also in the same spot.

Outside Kutch it is very common in Sind and found over practically all India both as resident and marked local migrant. In winter its numbers are augmented by immigrants from beyond our borders. Thus an individual marked by the Russians on the Caspian Sea was killed at Deolali (near Nasik)—a distance of about 2500 miles.

HABITS. The Glossy Ibis affects freshwater swamps and jheels and is not met with away from them, in dry country. It is of a sociable disposition and usually seen in flocks. It probes into the soft mud for its food like the Curlew, extracting worms, molluscs, crustaceans and insects.

NESTING. No data is available for Kutch. It breeds in Sind in mixed heronries on trees standing in or on the edge of jheels.

THE WHITE STORK

Ciconia ciconia (Linn.)

Fauna, vi, 321

SIZE. About that of the Vulture, but standing nearly 3½ ft. to the top of its head.

FIELD CHARACTERS. Plate p. 393, B.I.B. A long-legged, long-necked egret-like bird, pure white except for the wings which are black. Legs and heavy pointed bill red. Sexes alike. Seen singly or in pairs and parties, on and about marsh-land.

STATUS AND DISTRIBUTION. Winter visitor. Rare. Not met with by the Survey, but Lester records seeing a pair at Dēvisar tank in August 1895.

Outside Kutch it is fairly common in winter in N-W. India, less so in Sind, and in decreasing numbers extends to South India. Two races. Breeds in Europe, N. Africa, and Asia east to Japan: May to July.

HABITS. Some at least of the White Storks that visit the western side of India in winter come from Germany. This is proved by an individual ringed as a nestling in W. Germany and recovered a few months later in Bikanēr, an air distance of about 4000 miles.

Storks frequent marsh-land. They walk about sedately and pick up their food which consists chiefly of frogs, fish, reptiles and large insects. It is a well-known destroyer of locusts and their eggs and takes enormous toll of the migrating swarms of these pests. Like the Ibis and the Spoonbill it is practically voiceless. The only noise it makes is a loud clattering of the mandibles. As it does so it bends its head right over so that the crown rests on the back. The throat pouch is puffed out and serves as a resonating organ to intensify the sound. Storks—this and other species—are much given to the habit of soaring aloft in circles in the manner of vultures.

THE BLACK STORK

Ciconia nigra (Linn.)

Fauna, vi, 323

SIZE. Same as the White Stork.

FIELD CHARACTERS. Head, neck, upper parts and breast glistening black with greenish and purplish sheen. Underparts white. Bill, legs and bare skin of face red.

Sexes alike. Usually met with singly or in twos and threes, about marshes as well as on drier ground.

STATUS AND DISTRIBUTION. Not met with by the Kutch Survey. Lester records seeing it during the cold weather.

Outside Kutch it is a not uncommon winter visitor to Sind and N. India. Breeds in Central and Eastern Europe, and North Central Asia : April/May.

HABITS. Not different from the White Stork's, but shier and perhaps oftener seen singly than in parties.

THE WHITE-NECKED STORK

Dissoura episcopus episcopus (Boddaert)

Fauna, vi, 324.

SIZE. Slightly smaller than the White Stork ; standing about 3 ft. high.

FIELD CHARACTERS. Plate p. 394, B.I.B. A glistening black stork with conspicuous white neck and black " skull cap." Abdomen and undertail white. Red legs and blackish bill. Sexes alike. Met with in pairs or small parties by water, on marshland and wet fields.

STATUS AND DISTRIBUTION. Not met with by the Kutch Survey. Lester observed it only " during the cold season and rains."

Outside Kutch it is rare in Sind, but a not uncommon resident in the Punjāb and the rest of India generally.

HABITS. Not appreciably different from those of the White Stork.

NESTING. Lester was informed that " it probably breeds at Chāri, some 40 miles north-west of Bhūj." There is no further data.

THE BLACK-NECKED STORK*

Xenorhynchus asiaticus asiaticus (Latham)

Fauna, vi, 326

Plate 16, fig. 1.

SIZE. Considerably larger than the White Stork ; standing about 4 ft. high.

FIELD CHARACTERS. The large size, enormous black bill, red legs, glistening black head and neck, white underparts and pied black-and-white wings make the identification of this stork easy. Sexes alike. Seen singly on marsh-land or at jheels, standing " knee-deep " in water.

STATUS AND DISTRIBUTION. Evidently resident. Uncommon.

Outside Kutch it is a resident, commonly but in small numbers in Sind and more or less throughout India.

HABITS. Similar to those of the White Stork, except that it is perhaps more of a fisheater and oftener seen wading into water than that species.

NESTING. On September 10 (1943) a bird was observed sitting on an empty nest on a mangrove tree-top in a heronry of Reef Herons on an island in Kandla Creek. No further data. Elsewhere the season ranges between August and December. Nest : a massive structure of twigs. Eggs : three or four—large white obtuse ovals.

THE PAINTED STORK

Ibis leucocephalus leucocephalus (Pennant)

Fauna, vi, 331

Local name : Chitrōda.

SIZE. About that of the White Stork.

FIELD CHARACTERS. Plate p. 398, B.I.B. A large typical stork with long heavy yellow bill, slightly downcurved near tip, and naked waxy-yellow face. Plumage white, closely barred and marked with glistening greenish-black above, and with a black band across the breast. Beautiful rose-pink about the shoulders and on wings. Sexes alike. Seen in small parties or large congregations at jheels and marshes. Also at tidal creeks (Māndvi) and salt pans (Kandla).

STATUS AND DISTRIBUTION. Resident, but moving about locally with monsoon conditions. Common.

Outside Kutch it is found throughout India. Resident and local migrant.

HABITS. In general, similar to those of the White and other storks. The birds spend the day standing " hunched up " and motionless, or sauntering about sedately on grassy marsh-land or into shallow water in quest of fish and frogs which predominate in their diet. They perch freely on and roost in trees. Their flight consists of a series of powerful wing-strokes followed by a short glide, and they have the usual stork habit of sailing in circles on motionless wings high up in the air for long periods. The only noise they make is the loud clattering of mandibles, typical of the family.

NESTING. Breeding was in full swing on Dēvisar and Bhimāsar tanks, and also actually within the town limits of Māndvi, during August and September. The nests are large stick-platforms lined with leaves and straw. They are built on trees standing in or near water, usually in mixed heronries of egrets, spoonbills, cormorants and other water-birds. The eggs—two to five—are a dull sullied white, occasionally with sparse streaks and spots of brown.

THE OPEN-BILLED STORK

Anastomus oscitans (Boddaert)

Fauna, vi, 333

SIZE. Small for a stork ; standing about 2½ ft. high.

FIELD CHARACTERS. Plate p. 401, B.I.B. A small stork of greyish-white or white plumage, with black in the wings. At a distance and in some lights rather like the White Stork, but the peculiar reddish-black bill with arching mandibles leaving a narrow open gap between them, is diagnostic This gap is easily seen in flight even at fairly long range. Sexes alike. Seen in twos and threes, or flocks, at jheels and marshes.

STATUS AND DISTRIBUTION. Resident, but shifting locally under stress of monsoon conditions. Not common.

Outside Kutch it is fairly common in the better-watered parts of Sind, and found throughout India. Resident and local migrant.

HABITS. Typical of the storks. The curious structure of its bill has yet to be explained, and calls for a special study of its feeding habits. It is evidently adapted to deal with the hard shells of the large *Ampullaria* snails found on marshes and extract the soft body and viscera which form the major item of the food of this species. It also eats frogs, crabs and large insects.

NESTING. Lester's shikari brought him a couple of eggs taken in the neighbourhood of Khāri Rōhar in July (1896) from a nest in a mixed heronry among the mangrove swamps. Over most of its range elsewhere, the breeding season is between July and September. The nests are circular platforms of twigs with the central depression lined with leaves etc. They are built in trees standing in or near a jheel or swamp, in mixed colonies of egrets, spoonbills, cormorants etc. Two to four eggs form the normal clutch. They are a sullied white in colour, oval in shape and with a close texture.

THE GREY HERON

Ardea cinerea (Linn.)

Fauna, vi, 340

SIZE. About that of the Open-billed Stork.

FIELD CHARACTERS. Plate p. 402, B.I.B. A large, lanky stork-like bird with long slender S-shaped neck and pointed dagger bill. Ashy-grey above with white crown and neck; greyish-white below. Long black occipital crest. Elongated white feathers on the breast with some black streaks. A conspicuous black dotted line down the middle of the foreneck. In the female the crest and pectoral plumes are less developed. Usually met with as a solitary bird at reedy tanks and jheels. Also on tidal creeks and mangrove swamps.

STATUS AND DISTRIBUTION. Resident (presumably), but also local migrant. Frequent, but not common or abundant.

Outside Kutch it is found throughout India. Two races.

HABITS. In many respects herons resemble storks. Their food consists largely of frogs and fish. The usual method of hunting is for the bird to wade into water and wait, alert but motionless, for the quarry to blunder within striking range of its long neck and dagger-pointed bill. At a suitable opportunity the bill darts out with lightning speed impaling the victim or seizing it firmly beteen the mandibles. The birds are rather crepuscular and most of their active feeding is done in the early mornings and at evening dusk. The outline of a heron in flight is unmistakable. The long neck is telescoped so that the head is drawn in between the shoulders, the long legs trail behind and the bird progresses by steady beats of its broad, rounded wings. This carriage of the neck is in strong contrast with storks and cranes which fly with the neck fully stretched out. Apart from a deep harsh croak uttered as a bird is disturbed and takes wing, and from time to time also in flight, the heron is silent.

NESTING. No data is available for Kutch, but small numbers must doubtless breed here as in Sind. The season in Sind and N. India generally, is mainly July to September. The nests—built in mixed heronries on trees standing in or near jheels etc.—are twig platforms with the central depression scantily lined with leaves. The eggs, normally three—but up to six—are deep sea-green in colour, without any markings.

THE EASTERN PURPLE HERON

Ardea purpurea manillensis Meyen

Fauna, vi, 337

Plate 16, fig. 3.

SIZE. About the same as, or slightly smaller than, the Grey Heron.

FIELD CHARACTERS. Dark bluish- or slaty-grey above with head and neck chiefly rufous. Underparts black and chestnut. Sexes alike. Seen solitary on reed-bordered streams and jheels.

THE PAINTED STORK

Ibis leucocephalus leucocephalus (Pennant)

Fauna, vi, 331

Local name : Chitrōda.

SIZE. About that of the White Stork.

FIELD CHARACTERS. Plate p. 398, B.I.B. A large typical stork with long heavy yellow bill, slightly downcurved near tip, and naked waxy-yellow face. Plumage white, closely barred and marked with glistening greenish-black above, and with a black band across the breast. Beautiful rose-pink about the shoulders and on wings. Sexes alike. Seen in small parties or large congregations at jheels and marshes. Also at tidal creeks (Māndvi) and salt pans (Kandla).

STATUS AND DISTRIBUTION. Resident, but moving about locally with monsoon conditions. Common.

Outside Kutch it is found throughout India. Resident and local migrant.

HABITS. In general, similar to those of the White and other storks. The birds spend the day standing " hunched up " and motionless, or sauntering about sedately on grassy marsh-land or into shallow water in quest of fish and frogs which predominate in their diet. They perch freely on and roost in trees. Their flight consists of a series of powerful wing-strokes followed by a short glide, and they have the usual stork habit of sailing in circles on motionless wings high up in the air for long periods. The only noise they make is the loud clattering of mandibles, typical of the family.

NESTING. Breeding was in full swing on Dēvisar and Bhimāsar tanks, and also actually within the town limits of Māndvi, during August and September. The nests are large stick-platforms lined with leaves and straw. They are built on trees standing in or near water, usually in mixed heronries of egrets, spoonbills, cormorants and other water-birds. The eggs—two to five—are a dull sullied white, occasionally with sparse streaks and spots of brown.

THE OPEN-BILLED STORK

Anastomus oscitans (Boddaert)

Fauna, vi, 333

SIZE. Small for a stork ; standing about 2½ ft. high.

FIELD CHARACTERS. Plate p. 401, B.I.B. A small stork of greyish-white or white plumage, with black in the wings. At a distance and in some lights rather like the White Stork, but the peculiar reddish-black bill with arching mandibles leaving a narrow open gap between them, is diagnostic This gap is easily seen in flight even at fairly long range. Sexes alike. Seen in twos and threes, or flocks, at jheels and marshes.

STATUS AND DISTRIBUTION. Resident, but shifting locally under stress of monsoon conditions. Not common.

Outside Kutch it is fairly common in the better-watered parts of Sind, and found throughout India. Resident and local migrant.

HABITS. Typical of the storks. The curious structure of its bill has yet to be explained, and calls for a special study of its feeding habits. It is evidently adapted to deal with the hard shells of the large *Ampullaria* snails found on marshes and extract the soft body and viscera which form the major item of the food of this species. It also eats frogs, crabs and large insects.

NESTING. Lester's shikari brought him a couple of eggs taken in the neighbourhood of Khāri Rōhar in July (1896) from a nest in a mixed heronry among the mangrove swamps. Over most of its range elsewhere, the breeding season is between July and September. The nests are circular platforms of twigs with the central depression lined with leaves etc. They are built in trees standing in or near a jheel or swamp, in mixed colonies of egrets, spoonbills, cormorants etc. Two to four eggs form the normal clutch. They are a sullied white in colour, oval in shape and with a close texture.

THE GREY HERON

Ardea cinerea (Linn.)

Fauna, vi, 340

SIZE. About that of the Open-billed Stork.

FIELD CHARACTERS. Plate p. 402, B.I.B. A large, lanky stork-like bird with long slender S-shaped neck and pointed dagger bill. Ashy-grey above with white crown and neck; greyish-white below. Long black occipital crest. Elongated white feathers on the breast with some black streaks. A conspicuous black dotted line down the middle of the foreneck. In the female the crest and pectoral plumes are less developed. Usually met with as a solitary bird at reedy tanks and jheels. Also on tidal creeks and mangrove swamps.

STATUS AND DISTRIBUTION. Resident (presumably), but also local migrant. Frequent, but not common or abundant.

Outside Kutch it is found throughout India. Two races.

HABITS. In many respects herons resemble storks. Their food consists largely of frogs and fish. The usual method of hunting is for the bird to wade into water and wait, alert but motionless, for the quarry to blunder within striking range of its long neck and dagger-pointed bill. At a suitable opportunity the bill darts out with lightning speed impaling the victim or seizing it firmly beteen the mandibles. The birds are rather crepuscular and most of their active feeding is done in the early mornings and at evening dusk. The outline of a heron in flight is unmistakable. The long neck is telescoped so that the head is drawn in between the shoulders, the long legs trail behind and the bird progresses by steady beats of its broad, rounded wings. This carriage of the neck is in strong contrast with storks and cranes which fly with the neck fully stretched out. Apart from a deep harsh croak uttered as a bird is disturbed and takes wing, and from time to time also in flight, the heron is silent.

NESTING. No data is available for Kutch, but small numbers must doubtless breed here as in Sind. The season in Sind and N. India generally, is mainly July to September. The nests—built in mixed heronries on trees standing in or near jheels etc.—are twig platforms with the central depression scantily lined with leaves. The eggs, normally three—but up to six—are deep sea-green in colour, without any markings.

THE EASTERN PURPLE HERON

Ardea purpurea manillensis Meyen

Fauna, vi, 337

Plate 16, fig. 3.

SIZE. About the same as, or slightly smaller than, the Grey Heron.

FIELD CHARACTERS. Dark bluish- or slaty-grey above with head and neck chiefly rufous. Underparts black and chestnut. Sexes alike. Seen solitary on reed-bordered streams and jheels.

STATUS AND DISTRIBUTION. Resident. Frequent and fairly common, but not abundant.

Outside Kutch it is common in Sind and more or less throughout India.

HABITS. Similar to those of the Grey Heron.

NESTING. The season, as with all water birds of this kind, depends on monsoon conditions. It was in full swing in August [1943—Phārsar tank (Chāduva), and Dēvisar]. Lester obtained eggs at the latter place on July 5 (1896). The nests are built in mixed heronries. In structure and site they do not differ from those of the Grey Heron, though elsewhere in India dense reed-beds are also favoured. The eggs —three to five—are somewhat paler and smaller than those of the last species, but otherwise very like them.

THE EASTERN LARGE EGRET

Egretta alba modesta (Gray)

Fauna, vi, 346

SIZE. About that of the Purple Heron.

FIELD CHARACTERS. A large lanky snow-white heron-like bird with—in the breeding season—a bunch of ornamental flimsy plumes or " aigrettes " from the back falling over beyond the tail. In non-breeding season this is lost. No crest or breast plumes. Legs yellowish-black ; feet yellow. In breeding season bill usually black, but sometimes yellow as in non-breeding. Sexes alike, Easily confused with the next species, and even with the Little Egret, especially when the birds cannot be compared side by side. Seen singly at jheels and tidal creeks.

STATUS AND DISTRIBUTION. Resident. Fairly common. Probably also shifting locally with monsoon conditions.

Outside Kutch the race *modesta* is resident in all India. The European *E. a. alba* is a rare winter visitor to N. India, and may also visit Kutch.

HABITS. In their habits, egrets closely resemble the heron, especially the present species which usually also keeps solitary. They obtain their food—insects, frogs, fish, small reptiles etc.—in shallow water or on the soft mud at its edge. Their flight is also like the herons', with head drawn in between the shoulders and long legs sticking out behind.

NESTING. Breeding was in progress during August and September (1943). A small colony of nests was located amongst a heronry, mostly of Reef Herons, on mangrove bushes on a tide-swept island in Kandla Creek. On September 10 most nests contained small young in straggly frowzled down. The nests are the usual rather flimsy twig platforms. The eggs—three or four—are sea-green without any markings.

MEASUREMENTS. A specimen (♀) collected by the Kutch Survey measures : wing 337, bill (from forehead feathers) 98, tarsus 132, tail 129 mm.

THE INDIAN SMALLER EGRET

Egretta intermedia intermedia (Wagler)

Fauna, vi, 347

Plate 16, fig. 2.

SIZE. Slightly smaller than the last.

FIELD CHARACTERS. A snow-white egret easily confused with both the Large and Little Egrets unless seen side by side for comparison of sizes. In the breeding



Photo *W. T. Lake*

Spoonbills



Photo *Author*

A Spoonbill nest colony
(Note House Crow on extreme right awaiting opportunity)



Photo *W. T. Loke*

Ring Dove on nest



Photo *Author*

Desert Gerbille (*Merriones hurrianae*)—the staple food of many birds of prey

season this species has, in addition to the flimsy ornamental dorsal plumes, a bunch of similar ones on the breast, but no crest. Bill usually black while breeding, yellow at other seasons. Sexes alike. More sociable than the Large Egret, usually seen in parties or flocks at jheels and tidal creeks.

STATUS AND DISTRIBUTION. Resident. Fairly common. Subject to local shifting.

Outside Kutch it is found throughout India.

HABITS. Except that it is oftener met with in parties than as a solitary bird, there is practically no difference between this and the last.

NESTING. The season was in progress during August and September (1943). Several pairs were nesting in a mixed heronry on Dēvisar tank, on babool trees standing in water. Lester took eggs at the same place on July 5 (1896). Nest : crow-like, made of twigs. Eggs : three or four, pale sea-green, very similar to those of the last but generally somewhat smaller.

In mixed heronries there is always a great possibility of eggs of the different species getting confused with one another unless very special care is exercised by the collector.

THE LITTLE EGRET

Egretta garzetta garzetta (Linn.)

Fauna, vi, 348

SIZE. About that of a village hen, with longer legs and neck. Smaller than the last species.

FIELD CHARACTERS. Plate p. 405, B.I.B. A lanky snow-white egret, very like the last two. In the breeding season it develops a long, drooping crest of two narrow plumes, and flimsy ornamental feathers or " aigrettes " on its breast and back. Differentiated at all seasons from the similar-sized Cattle Egret by its *black* instead of yellow bill. Sexes alike. Seen in parties or flocks on marsh-land, by jheels and tidal creeks.

STATUS AND DISTRIBUTION. Resident. Common.

Outside Kutch it is found throughout India.

HABITS. Not appreciably different from the Large or Smaller Egrets. The dainty breeding plumes of these three egrets were largely exported to Europe until the Wild Birds Protection Act of 1912 mercifully put a stop to the wholesale slaughter for the trade. The feathers were used for decorating ladies' hats and dresses and fetched as much as £15 per tola. Egret-farming for the sake of these valuable feathers became, and was until recently, a lucrative cottage industry in villages situated on the larger *dhunds* in Sind.

NESTING. All egrets and similar water-birds breed during the rains when conditions in tanks and jheels are favourable. The actual dates vary somewhat from year to year depending on early or late monsoon. The season was in full swing during August and September (1943). Mixed heronries were observed in Phārsar tank (Chāduva), Dēvisar tank (near Rūdra Māta) and on Lakhōta islet in the middle of Hamīrsar tank (Bhūj City). The nests are the usual shallow cups of twigs. The normal clutch is of four eggs, broad oval in shape and pale bluish-green in colour.

ZOOLOGICAL GARDEN CALCUTTA.

THE CATTLE EGRET

Bubulcus ibis coromandus (Boddaert)

Fauna, vi, 349

SIZE. Same as the Little Egret. Village hen.

FIELD CHARACTERS. Plate p. 406, B.I.B. A snow-white lanky bird very similar in non-breeding plumage to the Little Egret. Recognisable by the colour of its bill which is *yellow*, never black. In the breeding season it acquires flimsy, elegant, golden hair-like plumes on head, neck and back. Sexes alike. Usually seen in parties or flocks, attending on grazing cattle. Not necessarily near water.

STATUS AND DISTRIBUTION. Resident. Common.
Outside Kutch it is found throughout India.

HABITS. These egrets are mostly seen in attendance on grazing cattle, stalking energetically alongside the animals, running in and out between their legs, and darting out with their pointed bills to seize any insects disturbed in the grass. Their food consists chiefly of grasshoppers, Bluebottle and House Flies and other insects, but frogs and lizards are also relished. Large numbers collect to roost at night in favourite leafy trees.

NESTING. The season is during the monsoon. In 1943 it was in progress in August and September. A large colony of over a hundred pairs was located in a mixed heronry on tamarisk trees standing in the middle of Phārsar tank (Chāduva). Other nest colonies were noted in the mixed heronries on Dēvisar tank, on a mangrove-covered island in Kandla Creek, and on Lakhōta islet in Hamīrsar tank (Bhūj). The nests are flimsy shallow cups made of twigs. The eggs—three to four or five—are pale skim-milk blue, or whitish-blue, in colour.

The eggs and young of all water birds in Kutch are subjected to unceasing ravages by the House Crow. Large rabbles of these audacious scoundrels invariably hang about all heronries. They miss no opportunity of despoiling the contents of a nest as soon as it is left unattended, howsoever momentarily.

THE INDIAN REEF-HERON

Demiegretta asha (Sykes)

Fauna, vi, 353

Plate 11, fig. 5.

SIZE. About that of the Smaller Egret.

FIELD CHARACTERS. General effect as of the Smaller Egret, but found in two colour phases: (1) pure white, (2) bluish-slate with a white patch on the throat. Occasional examples are intermediate, being partly white and partly slaty. A backwardly drooping crest of two narrow plumes is acquired in the breeding season. The white phase is easily confused with the Smaller Egret, but its legs are parti-coloured —yellow, brown or greenish—*not* black. Sexes alike. Seen singly at tidal creeks, on the seashore and occasionally also at tanks.

STATUS AND DISTRIBUTION. Resident. Common.
Outside Kutch it is found all down the Sind and West Coast of India.

HABITS. Except when breeding, the Reef Heron is not a sociable bird and keeps solitary. It wades in at the edge of the surf or among the shallow pools left by the receding tide. On suspicion of any movement in the water, the bird crouches forward on flexed legs and "freezes," with the sharp bill poised for striking. The next instant

the flexible neck lunges out with lightning speed to seize a minnow between the mandibles which is swallowed head foremost. On tidal mudflats where the bird feeds largely on mudfish or "newtās" (*Periopthalmus*), its hunting technique is amusing to watch. With no cover at hand to stalk the quarry the most successful method is to employ "hedge-hopping" tactics over the low bunds that intersect the flats, and pounce on the fish suddenly from the air before it has time to scuttle and disappear into the soft ooze. Large mudfish are battered to death before swallowing. In flight and general behaviour it does not differ from the egrets.

NESTING. In August and September (1943) breeding was in progress. A hundred pairs or more were nesting in a mixed heronry with a minority of Large and Smaller Egrets, among mangrove trees on a tide-swept island in Kandla Creek. In the 2nd week of September most nests contained young of various ages—from a few days old to ready for leaving. The nests are the usual untidy twig-cups lined with green leaves. The eggs—three to four—are a pale sea-green or blue-green in colour.

Little is known about the local wanderings of the Reef Heron. A number of nestlings from the Kandla heronry have been ringed. It is hoped that any receivers or sight records of these marked birds will be duly reported to the Bombay Natural History Society.

MEASUREMENTS. A specimen obtained in Kutch, ♀ sub-adult, measures: wing 265, bill 85, tarsus 98, tail 85 mm.

THE POND HERON OR PADDY BIRD

Ardeola grayii (Sykes)

Fauna, vi, 354

SIZE. Slightly smaller than the Cattle Egret.

FIELD CHARACTERS. Plate p. 410, B.I.B. An egret-like bird, mostly white but effectively concealed while at rest under a camouflaging earthy-brown mantle. In flight the snow-white wings, tail, rump and underparts flash up conspicuously. In the breeding season a bunch of dainty maroon hair-like plumes covers the back, and a long white occipital crest adorns the head. Sexes alike. Seen singly or in loose parties by water—puddle, village tank, jheel or tidal creek.

STATUS AND DISTRIBUTION. Resident. Common.
Outside Kutch it is found throughout India.

HABITS. The Pond Heron lives mainly on frogs, fish, crabs and insects. Its usual method of hunting is to stand hunched up and inert on the squelchy mud or in shallow water, head drawn in between the shoulders. Though pretending to be a dead stump it is all the time very wide awake, and watching intently for any frog or fish that may stray within striking range of its long extensile neck and spear-pointed bill. Sometimes it wades stealthily in, lifting each foot clear of the water and putting it down again circumspectly, neck craned forward and bill poised in readiness.

NESTING. Lester obtained eggs at Dēvisar on July 5 (1896). Breeding was in progress during August and September (1943). The mixed heronries at Phārsar tank (Chāduva), Dēvisar tank, on the tidal island in Kandla Creek, and on Lakhōta islet in Hamīrsar tank (Bhūj) all contained a few nests of this species. They are untidy twig structures as of the other egrets. Three to five eggs form a normal clutch, pale greenish-blue in colour and easily mistakable for the eggs of some of the other members of the mixed heronries.

THE LITTLE GREEN HERON

Butorides striatus javanicus (Horsfield)

Fauna, vi, 357

Plate 15, fig. 5.

SIZE. About the same as the Paddy Bird or Pond Heron.

FIELD CHARACTERS. Like the Pond Heron in general effect, but largely blackish-grey, glossy dark green and bronze green above ; ashy-grey below. Top of head and long occipital crest black, glossed with dark green. Chin and throat white. Sexes alike. Seen singly, mostly at evening dusk, about tidal mangrove swamps.

STATUS AND DISTRIBUTION. Resident (presumably). Not common.

Outside Kutch it is found practically throughout India, on the seaboard as well as inland.

HABITS. This little heron is largely crepuscular and therefore seldom comes under notice except when flushed and flying across from one patch of mangroves to another. It usually spends the day sitting hunched up on some leafy mangrove branch, whence it descends at dusk to feed. Occasionally it is also on the move during daytime, in cloudy overcast weather or in some particularly shady spot with dense growth overhanging a muddy creek bank. Its food consists of crabs, shrimps, mudfish etc., and in flight and general habits it does not differ materially from the Pond Heron.

NESTING. No data is available for Kutch. In the mangrove swamps about Karachi it breeds in May.

THE NIGHT HERON

Nycticorax nycticorax nycticorax (Linnaeus)

Fauna, vi, 359

SIZE. Larger than the Pond Heron. About that of the Kite.

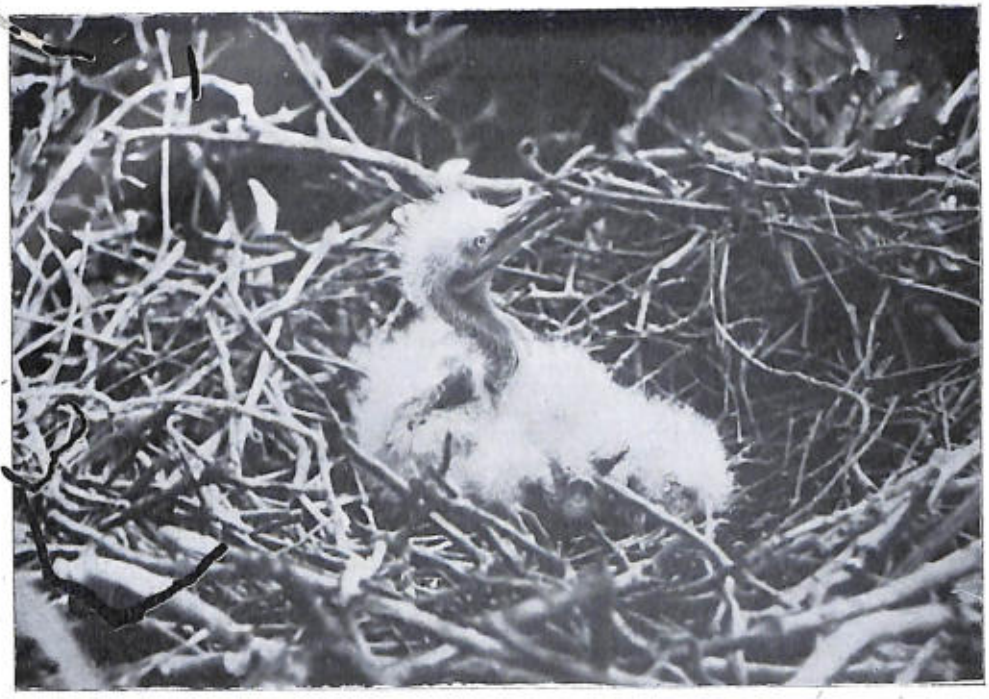
FIELD CHARACTERS. Plate p. 413, B.I.B. A stocky egret-like bird of the same general effect as the Pond Heron, but with a stouter bill. Ashy-grey above with glossy greenish-black back and scapulars. Crown, nape and a long occipital crest black, the last with some white feathers intermixed. Young birds brown, streaked and speckled with rufous and dark brown. Sexes alike. Seen in loose flocks, usually at dusk, flying over at a height with a loud raucous *kwaark*.

STATUS AND DISTRIBUTION. Resident. Fairly common but not abundant. Also local migrant ?

Outside Kutch it is found throughout India. Resident, and also locally migratory.

HABITS. In Kutch as elsewhere the Night Heron is rather local. It is found about jheels as well as tidal creeks, and is even more crepuscular and nocturnal than the last species. Colonies spend the daytime in sluggish repose in some dense clump of date palms or leafy tamarind trees, often a long way away from water. At evening dusk the birds bestir themselves and may be seen winging their way individually or in small parties in the direction of their feeding grounds at some marsh or creek. They fly in the typical heron style with neck folded back and head pulled in between the shoulders, beating the air steadily with their broad, rounded wings. In the gathering darkness the silhouette of a Night Heron on the wing is rather reminiscent of the flying fox. Their food and other habits are typical of the herons and egrets.

NESTING. Lester obtained its eggs from Dēvisar on July 5 (1896). Breeding was in progress during August and September (1943—Phārsar, Dēvisar, Kandla Creek etc.) The birds build in colonies in mixed heronries on babool, tamarisk or mangrove trees standing in or near water. The nest is the usual flimsy unlined twig structure. The eggs—four or five—are pale sea-green in colour.

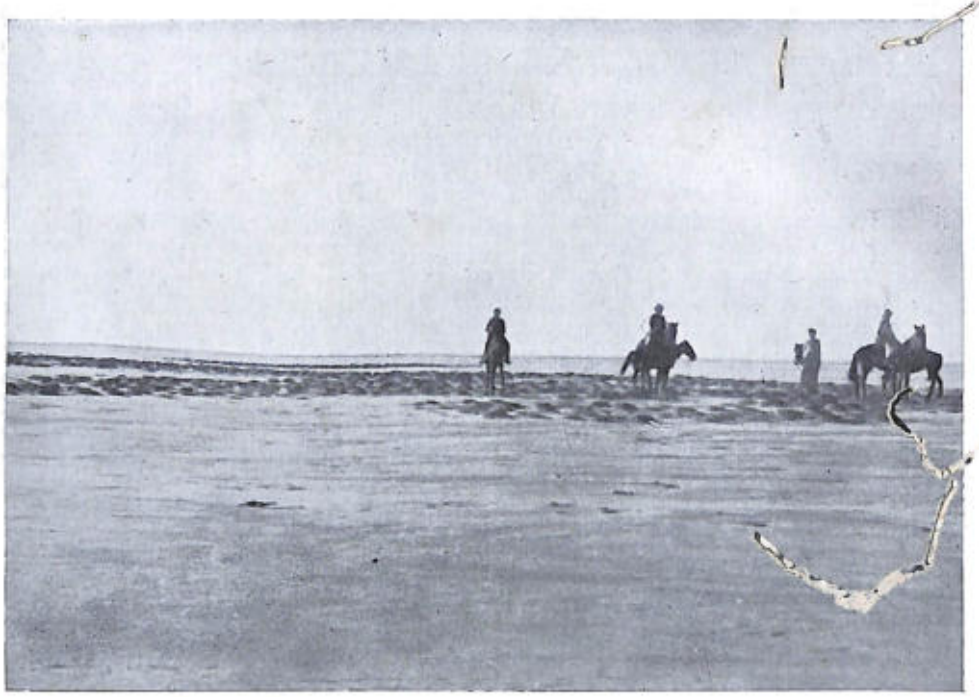


Nest and downy chicks of the Reef-Heron



Photos *W. T. Lake*

Young Reef-Heron in clambering stage



A deserted Flamingo 'City' on the Great Rann



Photos *Author*

Close-up of an old Flamingo nest, with exhausted immigrating Grey Quail taking refuge at base

ZOOLOGICAL GARDEN CALCUTTA.

THE BITTERN

Botaurus stellaris stellaris (Linn.)

Fauna, vi, 370

SIZE. Larger than the Night Heron.

FIELD CHARACTERS. A large Pond Heron-like bird, golden brown mottled and barred with blackish. Chin and throat white with a brownish stripe down the middle. Crown and nape black. A short, broad blackish stripe running back from the gape Sexes alike. Flushed singly amongst reeds on snipe marshes.

STATUS AND DISTRIBUTION. Not met with by the Survey. Winter visitor. Apparently irregular and very variable from year to year. Lester says it was very plentiful in the cold season of 1893-94, and that in one day he put up nine at Rawal Pir tank near Māndvi! Breeds in temperate Europe and Asia east to Japan: April to June.

HABITS. Almost entirely nocturnal. During the day it keeps to the concealment of marshy reed-beds whence it is sometimes flushed whilst walking up snipe. Its general shape and wing actions are very like the Night Heron's, and the bird drops into the reeds again after a short flight. The well-known loud booming call of the Bittern is seldom heard in its winter quarters.

THE FLAMINGO

Phoenicopterus ruber roseus (Pallas)

Fauna, vi, 373

Plate 17.

SIZE. Body about that of a goose, but with enormously long slender legs and neck. Standing about 4 ft. to top of head.

FIELD CHARACTERS. A tall rosy-white stork-like bird with a peculiar heavy pink bill turned down at an angle ("broken") from about half its length. Toes webbed. Sexes alike. In flight the large size, long outstretched legs and neck and black-bordered brilliant scarlet wings make its identity unmistakable even at very long range. Seen in small parties or large flocks on jheels and tidal mudflats, and about salt pans.

STATUS AND DISTRIBUTION. Resident as well as monsoon (breeding) visitor. Fairly common.

Outside Kutch it is found locally and sporadically more or less throughout India along the seaboard, and also inland.

HABITS. Flamingos wade into water for their food, sometimes to the full depth of their long legs—up to about 2½ feet. The slender necks are bent down between the legs and the head is often completely submerged. The remarkable bill is inverted so that its top scrapes the ground. In this position the upper mandible forms a hollow scoop into which the churned-up bottom mud and water are collected. The comb-like fringes with which the mandibles are provided (as in the duck) and the thick fleshy tongue enable the contents to be squeezed through and sifted, leaving the edible matter behind. For such a large bird the minuteness of the food particles it takes in is surprising. They include tiny molluscs and crustaceans, as well as worms, insect larvae and the seeds of marsh plants. A large proportion of grit is also swallowed. Sometimes the birds may be seen feeding in the salt pans (e.g., Kandla) in highly concentrated brine. Feeding flocks keep up a constant babble, and the birds also utter a loud goose-like *honk*. Flamingos fly in V-formation like geese, in long diagonal wavy ribbons, or in single file. The flight is achieved by fairly rapid, steady wing-beats. When at rest they usually stand on one leg with the long snake-like neck coiled round, and the head tucked away under the feathers of the back.

NESTING. The credit for the original discovery of the fact that the Flamingo breeds in India, and of the only nesting grounds so far known in this country, goes to that fine naturalist, the late Maharao Shri Khengarji of Kutch. The fact was first reported by him to Capt. C. D. Lester in 1893 (*Jour. B. N. H. S.*, Vol. viii, p. 553). Later, in 1904, His Highness himself published a note on the subject and a photograph of nests in the Rann on p. 706 of Vol. xv of the same journal. Since then the nesting grounds have been visited by Mr. C. McCann of the Bombay Natural History Society (1936) and by myself (1943). A good account of his visit by Mr. McCann will be found on pp. 12-38, Vol. xli (Aug. 1939) of the above journal. There still remains a great deal to be learnt concerning the breeding biology of the Flamingo. The following is an epitome of the main facts known about the Kutch colonies.

The nesting grounds are situated on the vast featureless expanse of the Great Rann between Pachham and Khadīr Islands, some eight to seven miles N-E. of the former. The season is during the S-W. Monsoon, principally between July and October, when the area gets covered with a shallow stretch of water partly from the outflow of the Banās and Luni rivers and partly from the sea. In some years the water level is suitable and immense concentrations of the birds collect on the area to build new nests or repair the old ones. The shifting movements of the surface water in the Rann are capricious and seem to be largely influenced by the direction and force of the prevailing winds. Thus it happens—apparently not infrequently—that even after the monsoon and other requisite conditions have been favourable at the start, the water suddenly recedes from the proximity of the nest colonies or " cities " leaving them high and dry. As soon as this occurs—apparently both while nesting has not yet commenced in earnest and even after incubation is well advanced and the eggs just hatched or near hatching—the adult birds forsake the nest cities and disappear from the neighbourhood more or less completely! The large numbers of desiccated chicks and of eggs containing fully formed embryos strewn about the nest cities bear witness to their hurried evacuation. The nests cover several square miles of the Rann in this area. Bunches of 10 to 20 and larger ones of 200-300 or more are dotted like pimples over the billiard-table flat surface. The nests are conical mounds of hard sun-baked mud. This is scraped up from the proximity when in a semi-liquid condition, and plastered on. The height of the mounds varies, but is mostly between 10 and 15 inches. The eggs are laid in the slight depression on the top of the mound. The brooding bird sits on the nest with its legs folded under as shown in the plate, and does not stand straddled across it as was formerly believed. Both sexes are said to incubate. The eggs—usually a single—are white in colour with a very faint bluish tinge. The newly hatched flamingo's bill is of the normal shape. It acquires the bend and the peculiar " broken " outline as the bird grows.[1]

MEASUREMENTS. An adult ♂ collected in Kutch measures: wing 464, bill 134, tarsus 324, tail 167 mm.

[1] Since the above was written I have had the long awaited opportunity of visiting the flamingo city in full occupation. Owing to the particularly heavy monsoon of 1944, water conditions in the Rann did not become favourable till March/April. Contrary to their hitherto known nesting season, the flamingos were breeding here in March and April, 1945. Between April 19 and 23 a large proportion of the eggs had already hatched and most of the others were near hatching. The nests covered an area of about 100,000 square yards at an average density of 131 nests per 100 square yards. On a conservative reckoning the number of adult birds in this colony was estimated at 2,09,516 and the young 69,839. As there were vast numbers of feathered and partially feathered young in the vicinity besides, all evidently hatched within a month or two, it seems likely that the flamingo raises two successive broods The total population of flamingos concentrated in this area was certainly not less than half a million.

Further details of my visit will be published in the Journal of the Bombay Natural History Society.

THE LESSER FLAMINGO

Phœniconaias minor (Geoffrey)

Fauna, vi, 375

Plate 11, fig. 2.

SIZE. About that of the Grey Heron.

FIELD CHARACTERS. The small size (especially noticeable on the wing), bright rosy plumage and dark-coloured bill distinguish it from the Common Flamingo. Sexes alike. Seen in parties or small flocks, often in association with its larger cousin, on tidal lagoons, salt pans etc.

STATUS AND DISTRIBUTION. Winter visitor, arriving about September and departing in May or later. Not common, but regular and fairly plentiful in some years. Outside Kutch it is found between September and June principally in N-W. India. Evidently breeds on the coast and islands of the Red Sea between July and September, but not definitely known.

HABITS. Similar to the last. Lester's presumption that it breeds in the Rann of Kutch has not been confirmed. So far it is not known to breed within Indian limits at all.

THE NUKTA OR COMB DUCK

Sarkidiornis melanotus melanotus (Pennant)

Fauna, vi, 385

Local name : Toppo.

SIZE. About that of a small goose.

FIELD CHARACTERS. Plate p. 417, B.I.B. A large duck, black above glossed with blue and green ; white below. Head and neck speckled with black. A white wing-patch conspicuous in flight. The drake has a curious fleshy comb or knob at the forehead, near base of bill, which becomes greatly swollen in the breeding season. Female similarly coloured but considerably smaller and without the comb. Seen in pairs or parties on vegetation-covered jheels.

STATUS AND DISTRIBUTION. Resident (?) Not common.

Outside Kutch it is resident throughout India except the N-W. F. Province, North and West Punjāb, the north-west portions of Sind, and Balūchistān.

HABITS. The Nukta affects jheels and tanks with plenty of reeds and floating vegetation interspersed with patches of open water. It is usually met with in pairs, but parties of from four to ten birds are not rare. It walks and dives well and perches freely on the thicker boughs of trees. It feeds largely on the grain and shoots of wild rice and other vegetable matter, to which are added frogs and aquatic insects etc. The flesh of adult birds is indifferent, but flying ducklings are good eating. The ordinary call-note of the drake is a low grating croak; during the breeding season the bird utters a loud *honk*.

NESTING. Lester says that it breeds in Kutch during the rains in holes in cliffs, but that he never got its eggs. Elsewhere, natural hollows in tree trunks are commonly utilised. The normal clutch consists of eight to twelve eggs, pale cream coloured, with the texture and appearance of polished ivory.

THE COTTON TEAL*

Nettapus coromandelianus (Gmelin).

Fauna, vi, 392

SIZE. Slightly larger than the Pigeon.

FIELD CHARACTERS. Plate p. 418, B.I.B. The smallest of all our wild ducks. White predominating in plumage. Male in breeding dress glossy brown above with a prominent black collar and a white wing-bar; white below. In flight the whitish trailing (hind) edge of wing is conspicuous. In winter the male loses the black collar and with the exception of the white wing-bar, closely resembles the female. The bill in this species is deep at the base like a goose's, a feature responsible for its former name of "Goose-teal." Seen in pairs or small parties on village tanks and jheels.

STATUS AND DISTRIBUTION. Status uncertain. Rare. The only records from Kutch so far are: a couple observed by Mr. Humayun Abdulali on a tank in Bhuj (June 12, 1936) and a pair shot by M. K. S. Fatehsinhji and Sir G. Archer on Bhimāsar tank (Anjār Dist.) in winter 1937.

Outside Kutch it is common practically throughout India, but rare or absent in Balūchistān, Sind, the Punjāb and Rājputāna. Resident and also local migrant.

HABITS. The Cotton Teal is swift on the wing and can dive creditably on occasion. A peculiar clucking is commonly uttered in flight. Its food consists of shoots and grain of wild and cultivated rice and other vegetable matter, as well as insects, crustacea etc.

NESTING. No data is available for Kutch. Elsewhere it breeds principally between July and September, laying its eggs in natural hollows in tree-trunks at some height above the water level. The normal clutch is of eight to twelve eggs, ivory white in colour.

MEASUREMENTS. The above specimens measure: 2 ♀ ♀ wing 151-160, tail 62-64 mm.

THE GREY LAG GOOSE

Anser anser (Linnaeus)

Fauna, vi, 398

Plate 18, fig. 3.

Local name: Gāj.

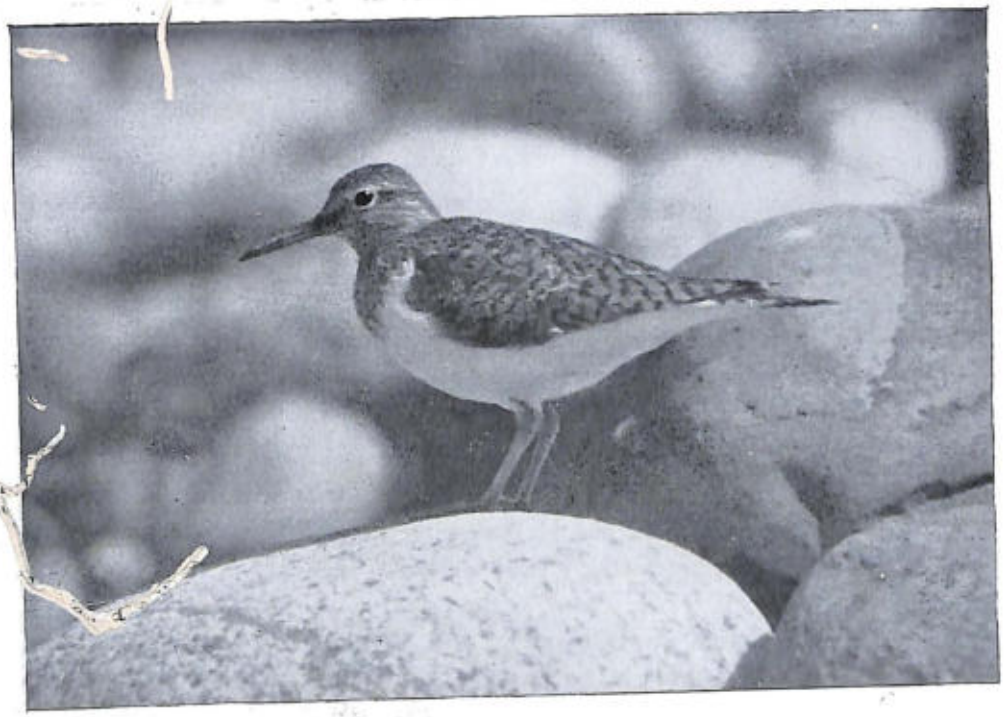
SIZE. Same as the domestic goose.

FIELD CHARACTERS. Colouration and general effect very like the normal greyish-brown phase of the domestic goose. The pale grey rump and white nail to the flesh-pink-bill are additional pointers to its identity. Sexes alike. Seen in flocks or "gaggles" principally at shallow monsoon-made jheels and marshes on the Banni near the Great Rann.

STATUS AND DISTRIBUTION. Winter visitor. Apparently abundant in seasons following a good monsoon.

Outside Kutch it is found in winter in N. India generally. Common in the N-W. Breeds in Northern Europe and N. Asia: May/June.

HABITS. Grey Lags spend the daytime floating listlessly on shallow water, squatting on the bank or standing on one leg preening themselves or with head tucked away in the feathers of the back. But they can seldom be caught unawares, thank



Green Sandpiper



Photo *W. T. Lake*

Red-wattled Lapwing and nest



Sarus Crane at nest



Photo Nest and eggs of the Dabchick *Author*
(*Uncovered for photograph*)

to the uncanny vigilance of some of their number who invariably act as sentinels. They flight to their accustomed feeding grounds in the evening, and are active more or less throughout the night and early morning. Their food, which consists largely of shoots, grain and vegetable matter is obtained by grazing as the birds walk about on dry land, in fields etc., and not by swimming and tipping in the water like ducks. The gaggles keep up a string of nasal conversational *gag-gag-gag* notes among themselves as they feed. A far-reaching *honk* is uttered from time to time as the birds fly. This *honk, honk* uttered in varying keys, by different parties and skeins, faint or loud according to how far or near the birds are, is one of the most exhilarating sounds to catch the ear of the sportsman on a crisp winter morning.

Geese are at all times excessively wary and alert, and call for much skill and labour in circumventing and bringing to bag. An excellent article on Goose-shooting in Kutch written by Maharao Shri Vijayarajji in 1912 (*J. B. N. H. S.*, Vol. xxi, pp. 678-9) is reproduced below with a postscript by His Highness indicating how ecological and shooting conditions have altered since that day.

GOOSE-SHOOTING IN KUTCH

NOTES BY MAHARAJKUMAR SHRI VIJAYARAJJI

(Reproduced from the *Journal of the Bombay Natural History Society*, Vol. xxi, pp. 678-9, March 31, 1912).

"In Kutch, goose-shooting is to be had at only one place. The place is on the Rann of Kutch between the Banni peninsula and the mainland, N-W. of Bhūj. Some two or three monsoon streams empty themselves into the Rann near by and in a good year the water collects in a slight depression some two or three miles long by half a mile wide.

Geese have rarely been seen on tanks on the mainland, and there never more than from five to ten in a flock. Bar-headed Geese are known in this country, but they are rare. The Grey Lag come by thousands to the place mentioned above. They are very difficult to get at, and until fairly recent years no easy way of shooting them was discovered. They, or rather most of them, very early in the morning, long before daybreak, leave the marsh which the natives call the Dhandh, to feed on gravel near the mainland some two to three miles off. From the Dhandh they go out in several directions and the shikaris have only got to find out in what places they settle down to pick up the gravel and to sun themselves. Then in the dark before the dawn the sportsmen have to take their places just short of the place where the geese settle.

These birds are so curiously particular as to their course of flight that for the convenience of the sportsmen pits are dug in the flat plain of the Rann for them to sit in. A hurdle is slightly raised on the side of the pit facing the Dhandh. Three or four guns can conveniently take their places at distances of, say, from one to three hundred yards between each gun, in a long line before the geese begin their daily flight. The hurdles are made of the same kind of vegetation as grows all round the spot, viz., the laana (*Suaeda* sp.), so they do not seem to catch the eyes of the birds till the sportsman behind them stirs to take his aim.

The geese begin their flight very punctually and regularly. Before you can see clearly in the faint glimmer of dawn, they send out some scouts to see whether the ground is quite clear of an enemy or not. These scouts fly fairly quietly, and as they come when it is still pretty dark, they at times pass out of range without being noticed. As the light begins to grow stronger in the East, the sportsmen's eyes get fixed towards the long dim black line of the horizon which lies stretched out flat and monotonous for miles across one's front. Far away in the distance, you see a flight of birds low down over the horizon in a meagre line advancing steadily towards you; and as

they draw close, you can see their wings flapping pretty fast, and can hear them making the familiar noise—*krouk-krouk*—so dear to a sportsman who has once before had this experience.

Now begins the proper shooting. The East is glowing, the sky is turning from darkness to blue, the great black flat expanse in front is revealing itself as flat brown soil thickly sprinkled with the heather-like laana. The noise of the birds awaking far off on the Dhandh is borne more and more loudly to our ears, and meanwhile the geese are coming up in small groups at first with long pauses between. They come in line or in inverted Vs—*krouk-krouk*. Soon it is a case of larger flights; battalion after battalion advances upon the line occupied by the sportsmen; and the guns are getting busy. Now here, now there, a big mass leaves the line and comes thumping down to the earth, or else a wounded one is seen gradually to sink below the line of his fellows, and come to ground slowly several hundred yards away. They are either very plucky or very foolish birds. One is rather inclined to think the latter, because true to the course of their flight, they keep on coming by hundreds, heedless of the firing in front of them. If any of the sportsmen find that their direction is changing, early in or in the middle of the shoot, he can easily move his hurdle, place it across the new line of flight, kneel down behind it and recommence.

The proper shooting lasts for about an hour, but it is quite worth the while of the sportsman to wait behind his hurdle for three hours, because there have been many instances of the geese coming from the Dhandh after the shikaris have been called to pick up the dead birds. A gun which happens to be in a good place may fire 70 cartridges any morning; and at the beginning of the shooting, you get some easy shots because the geese fly fairly low and slowly as they approach their feeding ground. Later on, when a good deal of firing is going on, they come fairly high and fast, but by no means out of (vertical) range.

There are generally three or four different places which the geese visit in the morning and one can do the shooting at each place in turn on consecutive days. But they do not seem to mind even if you shoot in the one place for three days running. Whether different birds go out to sun themselves each morning, or whether the same ones go to the same places it is difficult to say; but the sportsman gets more or less the same amount of shooting for three days in the one place. If four decent shots shoot for three days they can easily get 300 geese. BB shot is advisable; as is also an aim well in advance, for their flight is much speedier than it looks; and they can carry much shot, if not

hit in the head or neck. It is interesting to take a canoe and paddle out on to the Dhandh later in the day. Crowds of big kurunj will go wheeling off into the sky : huge flocks of big flamingos will stand at attention as you come into view round some mass of long reeds, and then go running, scuttering and flapping away, long lines of pink against the blue sky, with a roar like a fast train rattling over a railway bridge. Ducks paddle about in the long reaches, but are whirring off before you can get near : and the droves of geese are more easily heard than seen. It is a strange republic."

Postscript by H. H. Maharao Shri Vijayarajji
dated October 16, 1944.

" Mr. Sālim Ali wants me to add a few notes to the article written in the year 1912. In a way he has done me a kindness. The bringing back to one's memory of the details of those glorious days is a joy in itself. Alas ! those glorious days have gone from Kutch—the geese no longer collect there.

The Dhandh is practically ruined now on account of famines and the scarcity of rain, and it is quite possible that it has been partly filled up owing to the tremendous sand-storms we have been experiencing since 1930. Had we then known what was in store for us with regard to our famous Goose-Shoot, I am sure I could have provided Mr. Sālim Ali to-day with many snaps and pictures which would have adorned this little book. But somehow we, each season, put off taking snaps till " next year "—until the geese flew away for ever as it seems to-day.

If my pen could make your imagination stretch itself, you would visualize actually thousands of geese continually going out from this sanctuary in all directions—including that over our butts—from dawn till eight in the morning, for one solid hour ; then they would slacken off and smaller lots would continue for another half-hour or so. Now you were offered very high and very difficult shots.

When they began to come in the dark, practically at the false dawn, they came low and thick. Some good and lucky shots *then* brought down twos and an occasional three. Those which followed in their wake were thoroughly suspicious and flew high and wide of the butts.

All the geese which had gone out on some excuse or other, now began their return journey homewards ; and actually thousands of them in their beautiful V-shaped and other formations could be seen flighting on their return journey to this great sanctuary, known as Chhāri Dhandh, situated 36 miles N-W. of Bhūj. The music on this



H. H. Maharao Shri Vijayarajji with a morning's bag



Grey Lags—a morning's work at the butts

occasion is difficult to describe—but it is no exaggeration to say that the area of five square miles was alive with their cackle, and the harmony rang in one's ears for hours afterwards. It was indeed a glorious sight, and those were truly glorious days.

I find that these additional notes are getting longer than the original article, and yet I am tempted to add to them. The geese left their day-sanctuary by the same route long before daybreak, with the punctuality of a clock. No amount of shooting on their way to the feeding ground would cause them to deviate from their line of flight. But birds rose higher to avoid the pellets. We used to select the darker half of the moon for these shoots. During the brighter half of the moon they fly higher. At first we preferred moonlight to get across to our butts easily, but we soon discovered what would yield better bags. We never developed this shoot to its fullest possibilities. I always thought that we could have shot them on their return journey with advantage, if we had taken up our position on the edge of the Dhandh where there was better cover and more room for the guns to move up and down. Again I saw quite a number of birds flying out towards evening, but in nothing like the same number as in the morning.

However, I hope that the sportsmen to come will improve on our methods, and that the geese will come back in greater numbers than they did in our old days.

Only once did I see a new goose, smaller in size than the Grey Lag, and about the size of the Bar-headed. It had a pinkish tinge, and the legs were also of that colour. Unfortunately one bird that I shot never reached the Natural History Society in condition good enough for identification.

Our largest bags worth recording are two: one of 26 geese in 1912, the other of 22 geese in 1910. The number of guns shooting on both occasions was four. In both these years we went well over 60 geese,[1] and I do not remember our shooting at this place for more than three mornings. To this may be added that of Mr. Smith with forty geese on seven mornings; he ran short of cartridges or else a few more might have been added, for he stayed behind for his favourite study of geology. Colonel (then Captain) A. H. E. Mosse called this Goose-Shoot a paradise for sportsmen: such a one he had not come across

1 Details received from H. H. subsequently show the seasonal bags to be as follows:

January 1910—73 geese (6 shoots, 1 at Dador, 5 at Chhāri—2 to 3 guns).
December 1910—83 geese (5 shoots, 3 at Chhāri, 1 at Dador, 1 at Wāngh—2 to 5 guns).
Nov. 1912—Jan. 1913—104 geese (8 shoots, 7 at Dador, 1 at Chhāri —2to 3 guns).

Largest individual bag on any single shoot—12 geese by Maharao Shri Khengarji. Chhāri, Jan. 19, 1910.

in his wide experience in Africa and other places. He was not unknown, I believe, to the Bombay Natural History Society. If it had not been for the meticulous records kept by my brother, M. K. S. Manubha Saheb, I doubt whether I should have been able to send you even these meagre data of bags and the couple of snapshots that I am now doing.

Though rather late in the day for myself to have enjoyed the full benefit of the acquaintance and sportsmanship of Mr. Sālim Ali, as I would have liked had I been younger, yet I consider myself fortunate to have come to know him and I take this opportunity of thanking him for the trouble he has taken over revising and improving the previous record of the Birds of Kutch by Capt. C. D. Lester—in whose time again I was too young to take up the study of bird-life seriously."



A Flamingo 'City' on the Great Rann



1. The Fulvous Vulture (p. 81) 2. The Lesser Flamingo (p. 153)
3. The Grey Lag-Goose (p. 154)

THE WHITE-FRONTED GOOSE

Anser albifrons (Scopoli)

Fauna, vi, 399

SIZE. Considerably smaller than the last.

FIELD CHARACTERS. Plate p. 70, *Indian Ducks and their Allies* (Stuart Baker, 1908). Distinguished from the Grey Lag by its small size, darker brown colouration, a prominent white patch or band on forehead running down at sides to base of bill, and by the irregular broad black barring on lower breast. Sexes alike.

STATUS AND DISTRIBUTION. Evidently a rare winter straggler. The only Kutch record is of three birds shot by Lester in February 1892 on a dirty village-tank at Deviria near Anjār. These were identified for him by the editor of the *Asian*, a defunct sporting magazine of Calcutta.

The goose referred to in H. H.'s postscript was presumably also this species.

Outside Kutch it is a rare winter-visitor to Sind and N-W. India. Breeds from Lapland through N. Europe to W. Siberia : May to July.

HABITS. In general, same as the last species.

THE BAR-HEADED GOOSE*

Anser indicus (Latham)

Fauna, vi, 405

SIZE. About that of the domestic goose.

FIELD CHARACTERS. Plate p. 421, B.I.B. A pale grey, brown and white goose with white head and sides of neck and two distinctive broad black bars on the nape. Sexes alike.

STATUS AND DISTRIBUTION. According to Maharao Shri Vijayarajji (*Jour. Bom. Nat. Hist. Soc.*, Vol. xxi, p. 678) a rare winter-visitor.

Outside Kutch it is found in winter fairly commonly in North India and in decreasing numbers south to Mysore. Breeds in Ladakh and Tibet : May to July.

HABITS. The Bar-head is essentially a bird of large rivers and open expanses of freshwater, and its scarcity in Kutch is thus explainable. Like other geese it flies in orderly V-formation.

THE COMMON OR LESSER WHISTLING TEAL

Dendrocygna javanica (Horsfield)

Fauna, vi, 411

Local name : Chayi.

SIZE. Smaller than the domestic duck.

FIELD CHARACTERS. Plate p. 422, B.I.B. A small chestnut-coloured duck, confusable with no other of the same size. Sexes alike. Shrill whistling notes uttered in flight. Seen in pairs or small flocks on weedy tanks, e.g., Padhar, Prāgsar (Chāduva), Dēvisar, Bhimāsar, etc..

STATUS AND DISTRIBUTION. Resident. Fairly common, but not abundant. Local.

Outside Kutch it is found more or less throughout India excepting the N-W. F. Province, and N. and W. Punjāb. Resident and also local migrant.

HABITS. The Whistling Teal loves jheels with plenty of reeds and floating vegetation, especially if bordered by trees, on the boughs of which it perches freely. It moves about a good deal locally under stress of drought and flood. It has a feeble flapping flight rather reminiscent of the Jaçana's, and it walks and dives well. The shrill wheezy whistling notes constantly uttered on the wing sound very like the words " sea-sick," and are similar to some notes of the Large Pied Wagtail. Its food consists of worms, snails, frogs, fish etc., as well as vegetable matter. The, birds have a rank and fishy flavour and are seldom shot by sportsmen.

NESTING. Breeding was in progress during August (1943). Lester had an egg and a gravid female brought to him by his shikari from Dhonsa jheel on August 6 (1896). Over most of its Indian range also the season is during the S-W. Monsoon. The nest is either a pad of leaves and grass built on the ground among reeds on the margin of a tank, or a twig structure placed in a natural hollow in a tree-trunk or in the fork of larger branches, well above water level. Sometimes the nest is situated a good distance away from water. The eggs—seven to twelve—are milk-white in colour, but become stained brownish as incubation proceeds.

The Large Whistling Teal (*Dendrocygna fulva*), distinguished from the above by its larger size, and *whitish* (instead of chestnut) upper tail-coverts, is apparently included in Palin's original list of Kutch birds. Lester himself did not come across it. Ticehurst in his *Birds of Sind* (*Ibis*, 1923, p. 457) says "it is less common in Kutch also than the next species (*D. javanica*)." I have not been able to trace any authentic record from Kutch,but there is of course no reason why it *may* not occur here. It is found locally in Sind and in many other areas side by side with its smaller cousin.

THE SHELDRAKE*

Tadorna tadorna (Linnaeus)

Fauna, vi, 414

SIZE. About that of the domestic duck.

FIELD CHARACTERS. Plate x, p. 109, *Indian Ducks and their Allies* (Stuart Baker, 1908.) A large, strikingly coloured duck, chiefly white, black and chestnut. The metallic greenish-black head and neck, the broad chestnut hoop or girdle round upper breast and shoulders, white underparts with black belly, and two broad black bands along either side of the white upper back, are good identification marks. Bill bright red ; legs and feet pink. Female less brightly coloured, otherwise similar.

STATUS AND DISTRIBUTION. Winter visitor. Very rare. Col. C. B. O'Brien shot an example at a tank near Bhachāu in the cold weather of 1921. This the only record for Kutch so far.

It is a rare winter-visitor to India. In the neighbourhood of Kutch it has been obtained in Sind (Ticehurst, *Ibis*, 1923, p. 445) and Kāthiawār(*J. B. N. H. S.*, Vol. xxvi, p. 674).

THE RUDDY SHELDRAKE OR BRAHMINY DUCK

Casarca ferruginea (Vroeg)

Fauna, vi, 416

SIZE. About that of a large domestic duck.

FIELD CHARACTERS. Plate p. 425, B.I.B. A large orange-brown duck with paler head and neck, and sometimes a faint black collar at its base. Wings white, black and glistening metallic green. Tail black. Female similar but with paler (almost whitish) head, and no indication of the collar.

STATUS AND DISTRIBUTION. Rare and erratic winter-visitor. A pair was observed on Hamīrsar tank (Bhūj City) on March 5, 1944. Lester saw twelve and shot two in a creek between Māndvi and Rāwal Pir in November 1896. Also at Bhimāsar in December 1897.

Outside Kutch it is found in winter in small numbers more or less throughout India. Breeds in Ladakh and Tibet : May to July.

HABITS. This duck normally affects large open tanks, and rivers with shingle banks and mudspits. The birds walk well and with ease, and graze like geese on dry land. Part of their food is also obtained in water. They eat vegetable matter as well as molluscs, crustaceans, water insects, fish and reptiles. Occasionally they may even be seen feeding on carrion in company with vultures. Their flesh is rank and unsavoury, and the birds are seldom shot by sportsmen. In spite of this, however, they are amongst the wariest and most wide-awake of the duck tribe, and invariably give the alarm long before other species have detected the approach of danger.

Their calls are a loud, nasal, clanging *aang-aang*, sounding rather like a goose's *honk* in the distance. The cries are in some respects also reminiscent of the Black Ibis's.

THE MALLARD

Anas platyrhyncha Linn.

Fauna, vi, 419

Local name : But or Rajē.

SIZE. Same as of the domestic duck.

FIELD CHARACTERS. Plate xii, p. 124, *Indian Ducks and their Allies* (Stuart Baker, 1908). Drake : head and neck glistening dark green divided from the purplish-chestnut breast by a narrow white collar. A broad bar or "speculum" of metallic purplish-blue in the wings bordered in front and behind with white. Tail black surmounted by a bunch of metallic upcurled feathers (meant for sticking in sportsmen's hats!). Rest of plumage grey, finely pencilled and vermiculated with blackish. The duck is dark brown mottled with buff producing a "game-bird" pattern. The purplish-blue instead of green speculum, and the dull-coloured greenish-brown bill instead of orange distinguish her at a distant glance from the rather similar female Shoveler. Seen in small parties along with other duck species on large reedy jheels etc.

STATUS AND DISTRIBUTION. Winter visitor. Uncommon and in small numbers. Apparently more plentiful in very cold winters than in normal ones.

Outside Kutch it is found in winter very commonly in Kashmir, Punjāb, Sind and N-W. India generally, and in small numbers south to about the latitude of Bombay.

HABITS. The Mallard is certainly one of the most sporting ducks that visit Kutch. It combines uncommonness with swift and strong flight and excellence as a table bird, three qualities which appeal particularly to sportsmen. Apart from being uncommon, it is also one of the first ducks to leave a tank soon after gunfire begins. It lives largely on vegetable matter, but molluscs, crustaceans and insects are also eaten on occasion. The Mallard does not dive for its food but secures it chiefly by "tipping" or "up-ending" in shallow water. Its tail end sticks out comically while the forepart is submerged and the bill reaches down for the food. The drake has a low wheezy murmur, but the duck utters a loud *quack-quack*, especially when alarmed and rising off the water, which it does almost vertically up.

THE SPOTBILL OR GREY DUCK

Anas peocilorhyncha poecilorhyncha Forster

Fauna, vi, 421

Plate 19, fig. 5.

SIZE. About the same as the domestic duck.

FIELD CHARACTERS. The large size, scaly patterned light and dark brown plumage, and the white and metallic-green wing-bar readily reveal its identity. Bright orange-red legs, yellow-tipped dark bill with two orange-red spots at its base (one on either side of the forehead) are additional pointers. Sexes alike. Seen in pairs or small parties on reedy jheels.

STATUS AND DISTRIBUTION. Resident. Fairly common but not abundant. Outside Kutch it is found as a resident species practically throughout India.

HABITS. Similar to the Mallard and also a first class sporting bird, both as regards flight and edible qualities. It is mainly vegetarian in its diet, and a surface-feeder. The calls, both of the duck and the drake, are very like those of the Mallard.

NESTING. Lester says " . . breeds in the Dudai nullah during the rains," but he never got its eggs. The season was in progress during August and September (1943). The birds at this time were invariably observed in pairs. A female shot on September 15 (tank near Walādia village, Anjār Dist.) had ovarian eggs, and the distended condition of her oviduct showed that she had been laying. The nest is a large pad of grass and weeds lined with a few feathers, placed amongst reeds bordering a tank. The eggs—six to twelve—are greyish-buff or greenish-white in colour.

MEASUREMENTS. The above specimen measures: wing 269, bill (from forehead feathers) 55, tarsus 48, tail 94 mm.

A Bronze-capped or Falcated Teal, *Eunetta falcata* (Georgi), (Plate xiv, p. 143, *Indian Ducks and their Allies*, Stuart Baker, 1908) was shot in Kutch on February 7, 1932, as recorded by Maharao (then Yuvraj) Shri Vijayarajji on p. 899, Vol. 35, *Journal Bom. Nat. Hist. Soc.* There is only one record of its occurrence in the neighbouring province of Sind (*ibid.*, Vol. 14, p. 149). The chestnut crown, thick bushy bronze-green nuchal crest, and long sickle-shaped feathers falling over the closed wing distinguish the male. The female looks rather like the female Gadwall, but has only a black, instead of black *and* white wing-bar, and grey instead of orange-yellow legs. In the hand the very long upper and lower tail-coverts (longer than tail) possessed by both sexes are diagnostic. This species has a more easterly distribution. It is a rare winter vagrant to India, less rare in Burma and the Shan States and common throughout the Indo-Chinese countries. It breeds in Eastern Siberia, Manchuria, Mongolia and Japan.

THE GADWALL

Anas strepera Linnæus

Fauna, vi, 426

Plate 19, fig. 3.

SIZE. Between the Mallard and the Teal.

FIELD CHARACTERS. Drake: general effect grey-brown with the tail end very black. A glistening white patch on the wing (part of the black-and-white speculum) is conspicuous in flight. At rest a chestnut patch in front of the speculum is also prominent. The duck is rather like the female Mallard, dark brown mottled with buff

In flight the white wing-patch is a good pointer to her identity, though at rest this is usually hidden. Met with in parties and flocks on jheels and tanks.

STATUS AND DISTRIBUTION. Winter visitor. Common. According to Lester "by far the commonest duck in Kutch."

Outside Kutch it is found in winter throughout India. Said to be the commonest duck in Sind. Breeds in Europe and sub-arctic Asia and America : April to June.

HABITS. The Gadwall, like the Mallard, is a surface feeder and in their general habits the two resemble each other closely. It lives largely on vegetable matter to which is added a modicum of animal food. The birds fly strongly, with rapid wing-beats and are excellent for the table.

THE WIGEON

Anas penelope Linn.

Fauna, vi, 429

Plate 19, fig. 2.

SIZE. Between the Mallard and the Teal.

FIELD CHARACTERS. Drake : general aspect pencilled grey. The chestnut head with a cream-coloured patch on its forepart, combined with the brownish-pink breast, are suggestive pointers. In flight a broad white patch on the shoulder near the leading edge of the wing is conspicuous. In the Gadwall the white patch is on the trailing edge. The duck is like the female Gadwall, but lacks the black-and-white wing speculum. In both sexes the small blue-grey bill is diagnostic. Seen in parties as well as large compact flocks on jheels.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common and plentiful. According to Lester it arrives in Kutch later than most other species of duck.

Outside Kutch it is abundant in winter on the larger jheels in Sind, and occurs practically throughout India except in the extreme south. Breeds in N. Europe and N. and C. Asia : May to July.

HABITS. The Wigeon also belongs to the class of non-diving ducks. In addition to tipping or "up-ending" in shallow water it obtains a large proportion of its food on moist, dry ground on the grassy margins of jheels, walking about with ease and grazing in the manner of geese. Its diet consists largely of grass shoots and water weeds to which is added a quantity of molluscs, crustaceans and insects. The birds fly swiftly and in compact flocks, often quite large ones, and are usually amongst the first species to climb high and get well out of range after a few shots have been fired on a jheel.

THE COMMON TEAL

Anas crecca crecca (Linnæus)

Fauna, vi, 431

SIZE. Smaller than the domestic duck.

FIELD CHARACTERS. Plate p. 426, B.I.B. Our second smallest duck ; slightly larger than the Cotton Teal. Drake : pencilled greyish, with chestnut head and a broad metallic green band running through the eye, bordered above and below with whitish. A tricoloured wing-bar—black, green and buff—particularly conspicuous in flight. Duck : mottled dark and light brown with pale underparts and black-and-green wing speculum. Met with in flocks on reedy shallow jheels with plenty of cover.

STATUS AND DISTRIBUTION. Winter visitor. Common and plentiful. One of the earliest ducks to arrive. First seen : August 28 (1943—Rāwal Pīr Tank, Māndvi).

Outside Kutch it is found in winter throughout India. Breeds in Europe and N. and C. Asia : May/June.

HABITS. Judged by the qualities that appeal to the sportsman most, this little duck is perhaps the gamiest of the entire tribe, whether resident in India or visitor from beyond our frontiers. Large flocks of up to 50 and more are not uncommon. The birds fly in close-knit packs and are very swift and strong on the wing. They turn and twist in the air with astonishing agility and afford a large variety of shots. They live largely on vegetable matter and justly enjoy the reputation of being one of the best ducks to eat. The food is procured by tipping in shallow water as well as by grazing or grubbing on the muddy margins of tanks, the birds being able to walk well and with ease. The call-notes most commonly heard are a low-toned *krit* uttered by the drake, and a subdued wheezy quack by the duck.

THE PINTAIL

Anas acuta acuta Linn.

Fauna, vi, 433

Plate 19, fig. 4.

Local name : Dhruguchho.

SIZE. Slightly smaller than the Mallard.

FIELD CHARACTERS. Drake : upper plumage pencilled grey. Head chocolate with a white band on either side running down into the white neck and underparts. Its chief characteristic is the long, pointed pin-like central tail-feathers which project well beyond the tail. The elongated body, the long, slender neck and " pin " tail usually suffice for recognition. The black undertail-coverts with a broad yellowish-buff patch in front of them, are additional pointers. Duck : mottled brown and buff, very like the female Gadwall, but slenderer in build and with a pointed tail (but without the elongated " pins "). It lacks the characteristic white in the wing of the female Gadwall, and the bill has no orange in it as in that bird. Absence of a bright wing-speculum differentiates her from the female Mallard. Seen in parties and flocks on large reed-fringed and vegetation-covered jheels.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common and plentiful.

Outside Kutch it is very common in winter on the larger jheels in Sind, and is found more or less throughout India. Breeds in Europe and Northern and Central Asia : May to July.

HABITS. In winter the Pintail keeps in flocks of 20 or more—occasionally much larger. Small parties comprised exclusively of drakes are commonly seen. The birds are swift and strong on the wing and seem to be well aware of the esteem in which they are held by sportsmen and epicures, for they are amongst the earliest species to rise high and get out of gunshot range after shooting has commenced on a jheel. As in the case of the Mallard, perhaps the best sport is to be had as single birds come flying in at fairly low levels to reconnoitre, whenever there is a temporary lull in the shooting. The rapid wing-beats of a flock overhead produce a peculiar hissing sound which can be heard even from a considerable height. Its food is obtained by tipping or "up-ending" in shallow water, as well as by grubbing in the mud on the marshy margins of tanks. The birds walk well. Their diet, as in the case of other ducks esteemed for the table, consists largely of grain and vegetable matter.

THE GARGANEY OR BLUE-WINGED TEAL

Anas querquedula Linn.

Fauna, vi, 439

Plate 19, fig. 1.

SIZE. Slightly larger than the Common Teal.

FIELD CHARACTERS. Drake recognisable by his pink-brown white-speckled head with conspicuous broad white eyebrow, and bluish-grey on his wings and shoulders. Duck closely resembles the female Common Teal but is paler. In flight her very indistinct wing-speculum as compared with the Common Teal's is a pointer. In the hand, or at close range, the pure white instead of brown-speckled throat, and the prominent superciliary stripe distinguish it. Met with in flocks—sometimes very large ones—on jheels etc.

STATUS AND DISTRIBUTION. Winter visitor. Common and abundant. According to Lester it arrives in Kutch later than the Common Teal. He once saw seven on Dēvisar tank as late as May 6 (1897—*J. B. N. H. S.* Vol. xi, 168).

Outside Kutch in winter it is common in Sind (particularly abundant towards the end of the season, i.e., after mid-March) and found throughout India. Breeds in N. Europe and Siberia : May/June.

HABITS. Very similar to those of the Common Teal. Like that species, it is also one of the earliest ducks to arrive in its winter quarters (August) and one of the latest to leave (May). It affects every kind of water, large or small, is largely vegetarian in its diet and a nocturnal feeder. Likewise it is excellent eating. Flocks in swift flight high overhead make a peculiar swishing sound with their wings. The observant sportsman soon learns to discriminate between the fine variations of this sound in the different species. With practice it is possible from the swish of wings to tell the species fairly reliably without even looking up at the birds.

THE SHOVELER

Spatula clypeata (Linn.)

Fauna, vi, 443

Plate 20, fig. 2.

Local name : Phatphajē.

SIZE. Somewhat smaller than the Mallard.

FIELD CHARACTERS. Drake : head and neck glossy dark green ; breast white, rest of underparts mainly chestnut. Pale bluish on forewing with a white bar between it and the metallic-green speculum. Duck : rather like the female Mallard, but bright orange base of bill, lack of metallic speculum and presence of greyish-blue on the wings distinguish her. The most characteristic and reliable recognition mark, however, is the peculiar spatulate or shovel-shaped bill—considerably broader at tip than at base—possessed by both sexes. Seen in parties and small flocks on puddles and dirty village tanks as well as on large irrigation tanks and jheels.

STATUS AND DISTRIBUTION. Winter visitor. Common and abundant. One of the latest ducks to depart in spring. Lester once saw 20 on Dēvisar tank as late as May 6 (1897—*J. B. N. H. S.*, Vol. xi, 168).

Outside Kutch in winter it is excessively common in Sind and one of the most widespread duck species in India as a whole. Breeds in Europe and N. and C. Asia : April to June.

HABITS. The peculiar shovel-shaped bill of this duck is associated with its feeding habits which differ somewhat from those of other ducks. The bird usually swims with

its neck and bill stretched rigidly in front. The lower mandible is immersed and furrowing the water, while the upper is exposed and skimming almost flat along the surface. In this way the bird "runs into" the minute floating food-particles which are strained and sieved through the comb-tooth edges of the bill. Sometimes the bird swims about slowly here and there with the head completely immersed, "dibbling" and collecting the food under the surface or straining the raked-up bottom mud for it. Its food consists largely of animal matter and the bird is not particular as to where and what it eats. When it has been living on dirty village-tanks and the like, its flesh is rank and smelly; the bird is in any case seldom fit to eat. But as regards flight and other sporting qualities it is in no wise inferior to the Mallard.

THE COMMON POCHARD

Aythya ferina (Linn.)

Fauna, vi, 450

Local name : Dhusanda.

Plate 20, fig. 1.

SIZE. Slightly smaller than the Shoveler.

FIELD CHARACTERS. Drake : chestnut head and neck ; black breast, upper and lower tail-coverts ; finely vermiculated grey upper parts. Duck (sometimes called Dun-bird) : more or less uniform grey-brown. Forehead and crown dark brown, set off by a paler cheek patch. Underparts dull grey, tinged with rufous on breast and sides. In flight the tubby body and complete absence of wing-bar are suggestive pointers. Seen in parties and small flocks on jheels and tanks with open sheets of water in the middle.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common.

Outside Kutch, in winter, it is common in Sind and N. India generally, and found in smaller numbers more or less throughout the Peninsula. Breeds in the Palaearctic Region from Iceland to Japan : May to July.

HABITS. The Pochard belongs to the sub-family of Diving Ducks distinguished by the possession of a broadly lobed hind-toe. They feed in deep water and are therefore usually seen on the open expanses in the middle of tanks and jheels. Their food consists largely of deep-water plants obtained by diving, an art at which they are past masters. They also eat molluscs, crustaceans, insects and other small animals. Their legs are set far back in the body which makes them ill adapted for walking, but eminently suitable for fast swimming, both above and below the surface. Their wings are not so long and pointed as those of the surface-feeding Ducks (e.g., Mallard and Gadwall) but they fly just as swiftly and strongly, though with somewhat quicker wing-strokes. Their flesh is sometimes quite palatable, at others rank and fishy to the taste, depending on the diet they have been living on.

THE WHITE-EYED POCHARD

Aythya rufa rufa (Linn.)

Fauna, vi, 453

Plate 20, fig. 5.

SIZE. Slightly smaller than the Shoveler.

FIELD CHARACTERS. General aspect of plumage rufous brown and blackish brown with a whitish wing-bar conspicuous in flight. When flying overhead, the abdomen,



1. The Pochard or Dun-Bird (p. 168)
2. The Shoveler (p. 167)
3. The Tufted Pochard (p. 169)
4. The Glossy Ibis (p. 141)
5. The White-eyed Pochard (p. 168)



1. The Garganey or Blue-winged Teal (p. 167)
2. The Wigeon (p. 165)
3. The Gadwal (p. 164)
4. The Pintail (p. 166)
5. The Spot-billed Duck (p. 164)

seen as a large oval white patch, is diagnostic. The female is duller coloured. Seen in flocks on reedy tanks and jheels. Also tidal lagoons.

STATUS AND DISTRIBUTION. Winter visitor. Common.

Outside Kutch in winter it is common in Sind and over the greater part of India. Breeds in Europe and Western Asia. In Kashmir, Ladakh and Tibet: May/June.

HABITS. The White-eye frequents every type of water, provided there is a sufficiency of reeds and aquatic herbage growing in it or along its shallows. It spends the day resting on the open patches in the middle and feeds among the marginal vegetation at night. In some places the birds flight to their favourite feeding grounds at dusk and return again in the early morning. It is an adept at diving and extraordinarily difficult to retrieve if merely winged; for it can not only remain submerged for long periods but also swims away at great speed, submarine fashion. Its food consists of vegetable matter, grain, insects, molluscs, small fish etc., and the bird itself is on the whole poor eating. The note uttered as it rises off the water is a harsh *koor-ker-ker*.

THE TUFTED POCHARD

Aythya fuligula (Linn.)

Fauna, vi, 458

Plate 20, fig. 3.

SIZE. About that of the Gadwall.

FIELD CHARACTERS. The boldly contrasting black and white plumage of the drake and the tuft of feathers at the back of his head are sufficiently distinctive for his identification both at rest and in flight. In flight a broad white bar near the hind edge of the wing (in both sexes) is conspicuous. The duck is dark brown where the drake is black, but the colours are not so sharply contrasted in her case. Seen in small parties on tanks with open water.

STATUS AND DISTRIBUTION. Winter visitor. Fairly common, but apparently in variable abundance from year to year. Lester says that in the season 1892-93 and the succeeding one "it was very common indeed in Kutch."

Outside Kutch, in winter, it is common in Sind and Northern India, and occurs over the greater part of the Peninsula. Breeds in Europe and N. and C. Asia: May/June.

HABITS. Very similar to those of the Common Pochard with which it frequently associates on open, deep irrigation tanks etc. It is an expert swimmer and diver, and also strong on the wing. A harsh low croak, *kurr*, is repeatedly uttered as the bird flies.

The Scaup-Duck [*Aythya marila* (L.)] and the Marbled Teal (*Anas angustirostris* Ménétriés) have been recorded from Kāthiawār. M. K. S. Fatehsinhji informs me that he shot one of the latter—the only so far noted in Kutch—on Bada tank in the winter of 1940. This species is reported to be pretty common in Sind and doubtfully even to breed there. Several other duck not hitherto met with in Kutch have also occurred in Sind. Being winter visitors to India there seems no reason why they should not, in some seasons, straggle into Kutch as well. I feel confident that a regular and careful vetting of the bags of duck after each big shoot in Kutch will add to our list some of these interesting and possibly hitherto overlooked forms.

THE INDIAN LITTLE GREBE OR DABCHICK

Podiceps ruficollis capensis Salvadori

Fauna, vi, 481

SIZE. About that of the Pigeon (or Cotton Teal).

FIELD CHARACTERS. Plate p. 430, B.I.B. A drab-coloured plump and squat water-bird with silky-white underparts, short pointed bill and practically no tail. In breeding plumage the head and neck are dark brown and chestnut; the upper plumage slightly paler. The yellow gape is then conspicuous. Sexes alike. Seen in pairs and parties—sometimes loose flocks of up to 40—on ditches, ponds, and village tanks as well as large duck-shooting jheels.

STATUS AND DISTRIBUTION. Resident. Common. Moving about locally with drought and inundations.

Outside Kutch it is found throughout India.

HABITS. Dabchicks spend the greater part of their time swimming about low down on the water with the tail-end somewhat raised. Their backwardly set legs are specially adapted for swimming and make them poor walkers. They are expert divers. The suddenness with which a Dabchick will disappear below the surface, leaving scarcely a ripple behind, is truly astounding. When fired at with a shotgun, the bird has often vanished before the charge can reach it. Its food consists of aquatic insects and their larvae, tadpoles, crustaceans etc., which are captured by diving and swimming under water. The usual call-notes are a sharp tittering often heard when the birds are disporting themselves of an evening—pattering along the surface, half running half swimming, with rapid vibrations of their diminutive wings, and chasing one another. They are loth to leave the water, but once properly launched the birds can fly incredibly well and strongly, and often for long distances.

NESTING. The season was in full swing during August and September (1943). Almost every tank that had reeds growing in the marginal shallows held nests. On Padar tank (Bhūj environs) as many as ten nests were counted on August 13, mostly containing two to four eggs. The nest is a rough pad of sodden weeds placed amongst reeds on the bank or on floating vegetation, and often half submerged. The normal clutch is of three to five eggs. These are white at first but soon become discoloured to dirty brownish by the constant soaking and contact with the sodden vegetation with which the birds hurriedly cover them, in nine cases out of ten, before they leave the nest.

MEASUREMENTS. A specimen (♀) obtained in Kutch measures: wing 102, bill 28, tarsus 34.5 mm.

APPENDIX A

Birds listed from Kutch by Dr. F. Stoliczka (*J. A. S. B.*, Vol. xli, 1872) and A. O. Hume (*Stray Feathers*, Vol. iii (1875) and Vol. iv (1876) not since recorded, nor met with by the Survey. The names have been modernised and reference to the volume and page of the second edition of the *Fauna of British India* series on Birds is given.

Jungle Babbler—*Turdoides somervillei* (Sykes), Vol. i, 190.

Large Grey Babbler—*Argya malcolmi* (Sykes), Vol. i, 200.

Black-throated Thrush—*Turdus atrogularis* Jarocki, Vol. ii, 137.

Isabelline Shrike—*Lanius cristatus isabellinus* Hempr. and Ehrenberg, Vol. ii, 302.

Indian Sand Martin—*Riparia paludicola brevicaudata* Horsf., Vol. iii, 235.

Pale Crag Martin—*Riparia obsoleta pallida* (Hume), Vol. iii, 238.

Golden-backed Woodpecker—*Brachypternus benghalensis* (Linn.), Vol. iv, 67.

Hawk-Cuckoo—*Hierococcyx varius* Vahl., vol. iv, 148.

Blossom-headed Parakeet— *Psittacula cyanocephala* Linn., vol. iv, 204.

Sykes's Nightjar—*Caprimulgus mahrattensis* Sykes, Vol. iv, 369.

Long-eared Owl—*Asio otus otus* (Linn.) Vol. iv, 393.

Eastern Steppe-Eagle—*Aquila nipalensis nipalensis* (Hodgs.), Vol. v, 70.

Sparrow-Hawk—*Accipiter nisus* (Linn.), Vol. v, 146.

Besra Sparrow-Hawk—*Accipiter virgatus* (Temm.), Vol. v, 159.

Southern Green Pigeon—*Crocopus phoenicopterus chlorigaster* (Blyth), Vol. v, 184.

Indian Spotted Dove—*Streptopelia chinensis suratensis* (Gmelin), Vol. v, 242.

White-breasted Waterhen—*Amaurornis phoenicurus* (Pennant), Vol. vi, 23.

Spotted or Dusky Redshank—*Tringa erythropus* (Vroeg), Vol. vi, 223.

Dalmatian Pelican—*Pelecanus crispus* Bruch., Vol. vi, 273.

Adjutant Stork—*Leptoptilos dubius* (Gmelin), Vol. vi, 327.

Crested Grebe—*Podiceps cristatus cristatus* (Linn.), Vol. vi, 477.

Stoliczka's sight records include a Goosander (*Mergus merganser merganser* Linn.) and some Swans, which he saw when crossing the Rann from Kutch to Pachham. Regarding the latter, Hume remarks (*S. F.* iv, 33): "I take this opportunity of noticing that the Swans which Stoliczka (who was very short-sighted), thought he saw on the Runn between Cutch and Pacham, were pretty certainly *P. crispus* (Dalmatian Pelicans) which I have seen from this very locality, and which I saw on the Sindh coast, and again on the western coast of Kattiawar."



APPENDIX B

Birds obtained in Kutch by Sir Geoffrey Archer (1939-40) not in Lester's list nor met with by the Survey :

Sykes's Nightjar—*Caprimulgus mahrattensis* Sykes, Vol. iv, p. 369.
Imperial Eagle—*Aquila heliaca heliaca* Savigny, Vol. v, 69.
Eastern Steppe-Eagle—*Aquila nipalensis nipalensis* (Hodgs.), Vol. v, 70.

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