



The following information was obtained from the records of the National Archives and Records Administration on the date indicated in the first column of the following table:

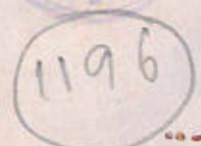
| Date | Name | Address | City | State |
|------|-----------------|--------------------|---------------|--------|
| 1947 | John Doe | 123 Main St | Washington | D.C. |
| 1948 | Jane Smith | 456 Elm St | New York | N.Y. |
| 1949 | Robert Johnson | 789 Oak St | Chicago | Ill. |
| 1950 | Mary White | 101 Pine St | Los Angeles | Calif. |
| 1951 | James Brown | 202 Cedar St | Philadelphia | Penn. |
| 1952 | Elizabeth Black | 303 Birch St | Boston | Mass. |
| 1953 | William Green | 404 Spruce St | San Francisco | Calif. |
| 1954 | Patricia Gray | 505 Willow St | Seattle | Wash. |
| 1955 | Richard Hall | 606 Ash St | Portland | Ore. |
| 1956 | Susan King | 707 Hickory St | Denver | Colo. |
| 1957 | Thomas Lee | 808 Maple St | San Diego | Calif. |
| 1958 | Barbara King | 909 Poplar St | San Antonio | Texas |
| 1959 | Charles King | 1010 Magnolia St | San Jose | Calif. |
| 1960 | Frances King | 1111 Palm St | San Francisco | Calif. |
| 1961 | Harold King | 1212 Cedar St | San Francisco | Calif. |
| 1962 | William King | 1313 Elm St | San Francisco | Calif. |
| 1963 | John King | 1414 Main St | San Francisco | Calif. |
| 1964 | Robert King | 1515 Market St | San Francisco | Calif. |
| 1965 | Richard King | 1616 Mission St | San Francisco | Calif. |
| 1966 | Thomas King | 1717 North St | San Francisco | Calif. |
| 1967 | William King | 1818 Broadway St | San Francisco | Calif. |
| 1968 | James King | 1919 Geary St | San Francisco | Calif. |
| 1969 | John King | 2020 Divisadero St | San Francisco | Calif. |
| 1970 | Robert King | 2121 Sutter St | San Francisco | Calif. |
| 1971 | Richard King | 2222 Stockton St | San Francisco | Calif. |
| 1972 | Thomas King | 2323 Taylor St | San Francisco | Calif. |
| 1973 | William King | 2424 Vallejo St | San Francisco | Calif. |
| 1974 | James King | 2525 Broadway St | San Francisco | Calif. |
| 1975 | John King | 2626 Geary St | San Francisco | Calif. |
| 1976 | Robert King | 2727 Divisadero St | San Francisco | Calif. |
| 1977 | Richard King | 2828 Sutter St | San Francisco | Calif. |
| 1978 | Thomas King | 2929 Stockton St | San Francisco | Calif. |
| 1979 | William King | 3030 Taylor St | San Francisco | Calif. |
| 1980 | James King | 3131 Vallejo St | San Francisco | Calif. |
| 1981 | John King | 3232 Broadway St | San Francisco | Calif. |
| 1982 | Robert King | 3333 Geary St | San Francisco | Calif. |
| 1983 | Richard King | 3434 Divisadero St | San Francisco | Calif. |
| 1984 | Thomas King | 3535 Sutter St | San Francisco | Calif. |
| 1985 | William King | 3636 Stockton St | San Francisco | Calif. |
| 1986 | James King | 3737 Taylor St | San Francisco | Calif. |
| 1987 | John King | 3838 Vallejo St | San Francisco | Calif. |
| 1988 | Robert King | 3939 Broadway St | San Francisco | Calif. |
| 1989 | Richard King | 4040 Geary St | San Francisco | Calif. |
| 1990 | Thomas King | 4141 Divisadero St | San Francisco | Calif. |
| 1991 | William King | 4242 Sutter St | San Francisco | Calif. |
| 1992 | James King | 4343 Stockton St | San Francisco | Calif. |
| 1993 | John King | 4444 Taylor St | San Francisco | Calif. |
| 1994 | Robert King | 4545 Vallejo St | San Francisco | Calif. |
| 1995 | Richard King | 4646 Broadway St | San Francisco | Calif. |
| 1996 | Thomas King | 4747 Geary St | San Francisco | Calif. |
| 1997 | William King | 4848 Divisadero St | San Francisco | Calif. |
| 1998 | James King | 4949 Sutter St | San Francisco | Calif. |
| 1999 | John King | 5050 Stockton St | San Francisco | Calif. |
| 2000 | Robert King | 5151 Taylor St | San Francisco | Calif. |
| 2001 | Richard King | 5252 Vallejo St | San Francisco | Calif. |
| 2002 | Thomas King | 5353 Broadway St | San Francisco | Calif. |
| 2003 | William King | 5454 Geary St | San Francisco | Calif. |
| 2004 | James King | 5555 Divisadero St | San Francisco | Calif. |
| 2005 | John King | 5656 Sutter St | San Francisco | Calif. |
| 2006 | Robert King | 5757 Stockton St | San Francisco | Calif. |
| 2007 | Richard King | 5858 Taylor St | San Francisco | Calif. |
| 2008 | Thomas King | 5959 Vallejo St | San Francisco | Calif. |
| 2009 | William King | 6060 Broadway St | San Francisco | Calif. |
| 2010 | James King | 6161 Geary St | San Francisco | Calif. |
| 2011 | John King | 6262 Divisadero St | San Francisco | Calif. |
| 2012 | Robert King | 6363 Sutter St | San Francisco | Calif. |
| 2013 | Richard King | 6464 Stockton St | San Francisco | Calif. |
| 2014 | Thomas King | 6565 Taylor St | San Francisco | Calif. |
| 2015 | William King | 6666 Vallejo St | San Francisco | Calif. |
| 2016 | James King | 6767 Broadway St | San Francisco | Calif. |
| 2017 | John King | 6868 Geary St | San Francisco | Calif. |
| 2018 | Robert King | 6969 Divisadero St | San Francisco | Calif. |
| 2019 | Richard King | 7070 Sutter St | San Francisco | Calif. |
| 2020 | Thomas King | 7171 Stockton St | San Francisco | Calif. |
| 2021 | William King | 7272 Taylor St | San Francisco | Calif. |
| 2022 | James King | 7373 Vallejo St | San Francisco | Calif. |
| 2023 | John King | 7474 Broadway St | San Francisco | Calif. |
| 2024 | Robert King | 7575 Geary St | San Francisco | Calif. |
| 2025 | Richard King | 7676 Divisadero St | San Francisco | Calif. |
| 2026 | Thomas King | 7777 Sutter St | San Francisco | Calif. |
| 2027 | William King | 7878 Stockton St | San Francisco | Calif. |
| 2028 | James King | 7979 Taylor St | San Francisco | Calif. |
| 2029 | John King | 8080 Vallejo St | San Francisco | Calif. |
| 2030 | Robert King | 8181 Broadway St | San Francisco | Calif. |
| 2031 | Richard King | 8282 Geary St | San Francisco | Calif. |
| 2032 | Thomas King | 8383 Divisadero St | San Francisco | Calif. |
| 2033 | William King | 8484 Sutter St | San Francisco | Calif. |
| 2034 | James King | 8585 Stockton St | San Francisco | Calif. |
| 2035 | John King | 8686 Taylor St | San Francisco | Calif. |
| 2036 | Robert King | 8787 Vallejo St | San Francisco | Calif. |
| 2037 | Richard King | 8888 Broadway St | San Francisco | Calif. |
| 2038 | Thomas King | 8989 Geary St | San Francisco | Calif. |
| 2039 | William King | 9090 Divisadero St | San Francisco | Calif. |
| 2040 | James King | 9191 Sutter St | San Francisco | Calif. |
| 2041 | John King | 9292 Stockton St | San Francisco | Calif. |
| 2042 | Robert King | 9393 Taylor St | San Francisco | Calif. |
| 2043 | Richard King | 9494 Vallejo St | San Francisco | Calif. |
| 2044 | Thomas King | 9595 Broadway St | San Francisco | Calif. |
| 2045 | William King | 9696 Geary St | San Francisco | Calif. |
| 2046 | James King | 9797 Divisadero St | San Francisco | Calif. |
| 2047 | John King | 9898 Sutter St | San Francisco | Calif. |
| 2048 | Robert King | 9999 Stockton St | San Francisco | Calif. |
| 2049 | Richard King | 1010 Taylor St | San Francisco | Calif. |
| 2050 | Thomas King | 1020 Vallejo St | San Francisco | Calif. |



THE BIRDS OF GUJARAT

By

Salim Ali



Published by

Gujarat Research Society

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Mahatma Gandhi Road,

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1956.

Rs. 5/-



From Salim Ali, *The Birds of Kutch*, (Oxford University Press), by permission

1. White-eared Bulbul
2. Marshall's Iora
3. Redvented Bulbul
4. Whitewinged Black Tit
5. Common Babbler



From Salim Ali, *The Birds of Kutch*, (Oxford University Press), by permission

- 1. White-eared Bulbul
- 3. Redvented Bulbul

- 2. Marshall's Iora
- 4. Whitewinged Black Tit
- 5. Common Babbler

P R E F A C E

In publishing under one cover 'A survey of the Birds of Gujarat' by the eminent ornithologist Mr. Salim Ali, the Gujarat Research Society derives great satisfaction at the fulfilment of a ten-year old project.

2. I had been drawn to the study of Birds by my old friend Shri Harinarayan Acharya, B. A. whose articles in "Kumar" under the name "Vanechar" attracted notice for a long time. When the Gujarat Natural History Society was founded in 1942, we tried to get more systematic research into the animal and bird life of Gujarat. This brought me into closer contact with my old friend Mr. Salim Ali for research on the Birds of Gujarat and we met frequently, and this was facilitated owing to his living in Bandra and my house being in Khar. A scheme was prepared for a survey of the Birds of Gujarat at a cost of Rs. 5,000/- jointly in collaboration with the Bombay Natural History Society and the Gujarat Research Society. A donation of Rs. 3,000/- was sanctioned by the Maharaja of Baroda and paid directly to the Bombay Natural History Society. Rupees two thousand was contributed by the Gujarat Research Society, out of which Rs. 1,000/- was donated by Sir Dorab Tata Trust. The scheme was fully described by Mr. Salim Ali in July 1944 issue of the Journal of Gujarat Research Society. Although there was difficulty and delay in getting the funds, the undaunted Mr. Salim Ali went ahead with his characteristic persistence and thoroughness.

3. The survey was carried out in the cold season of 1945-46, and continued for a part of the succeeding year. But as is usual, report-writing takes a lot of time, which a busy research scientist can hardly spare. Then, there is a time-lag caused by delays in the press, proof-reading etc., and it takes years before a scientific report sees the light of day.

4. In the meantime, Mr. Salim Ali wrote in January 1948 issue of the Journal of this Society, a valuable article 'The Gujarat Satpuras in Indian Ornithogeography, the highway of Malayan forms to the Western Ghats'. By means of a pictorial map, he showed how far this survey supported Dr. Hora's theory of the Satpura trend being the highway for the forms of birds from Eastern Himalayas and Malaya regions. But it was not till 1954 that Mr. Salim Ali could print in the Journal of Bombay Natural History Society Part I of his paper and Part II could not be printed till April, 1955.

5. In accordance with the arrangements made jointly with the Bombay Natural History Society, Mr. Salim Ali and the Gujarat Re-

search Society, the off-prints of the two valuable contributions on the Birds of Gujarat are made available to the members of the Gujarat Research Society and to a few others. We have great pleasure in publishing in this form, the monograph on the Birds of Gujarat Parts I and II. We have been able to incorporate one map and six plates; a coloured plate from Mr. Salim Ali's famous book 'Birds of Kutch' is also reproduced to make the monograph attractive. The species of the bird found in Gujarat and Kutch are very similar.

6. The region of Maha Gujarat is now lucky to possess valuable surveys of its bird wealth divided in three books, Mr. Salim Ali's Book of Indian Birds which has run into several editions contains limited information about Gujarat Birds. But his volume 'Birds of Kutch' published by the Oxford University Press, with the help of Maharao Shri Vijayarajji of Kutch is a full-fledged survey of the island of Kutch. The Birds of Saurashtra written by R. S. Dharmakumarsinhji of Bhavnagar and Published in 1954 is a classical volume as judged by its preparation, scope, get-up, and general execution. Compared to it, the present publication is an humble pioneering attempt to bring together under one cover the scientific material about Birds of Gujarat prepared by Mr. Salim Ali. He had not been able to put into the body of the book the names by which the birds are known in Gujarat. We are indebted to Shri Pradyumn Desai of Bhavnagar, whose genuine interest in the subject deserves special commendation for securing the Gujarati names of the Birds. These are printed as separate appendices for each of the two Parts.

7. The study of Birds in India has not received the attention it deserves as compared with the study of insects and fishes. The latter subjects have immediate practical value and the students of these subjects are in great demand. The study of birds and science of Ornithology is neglected, if not discouraged, in most of the Indian Universities. The importance of the subject arises from the necessity of the study of (1) their racial and geographical variations, (2) effect of environment on bird life (ecological), (3) structural changes (morphological), (4) causes and effects of migratory habits, (5) and above all the esthetic study of an individual bird, its life, its plumes, its colours, its music, its sagacity and efficiency. Let us hope that this small publication will attract an ever-increasing number of persons towards the study of Bird life.

8. This edition will be revised if circumstances permit. In the meantime it is hoped that this attempt will have served its purpose if it draws persons to the study of Birds and secures the material and means for a fuller and elaborate edition. In this connection, I must record the

thankfulness of the Gujarat Research Society to the Bombay Natural History Society and to Mr. Salim Ali for enabling us to bring out this volume.

9th December, 1955.
Lalit Kunj,
Khar, Bombay 21.

P. G. SHAH,
President,
Gujarat Research Society.



BIRDS OF GUJARAT

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| " | PICIDÆ | 449 |
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| " | IRENIDÆ | 742 |
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| Sub-family | MUSICAPINÆ | 745 |
| " | " TIMALIINÆ | 750 |
| " | " SYLVIINÆ | 756 |
| " | " TURDINÆ | 761 |
| Family | MOTACILLIDÆ | 775 |
| " | LAMIIDÆ | 779 |
| Sub-family | LAMIINÆ | 779 |
| Family | SITTIDÆ | 783 |
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| Family | DICÆIDÆ | 786 |
| " | NECTARINIDÆ | 787 |
| " | ZOSTEROPIDÆ | 789 |
| " | FRINGILLIDÆ | 789 |
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| " | STURNIDÆ | 795 |
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SURAT DANG
3. MOIST DECIDUOUS SE-
CONDARY JUNGLE
4. SALBER FOREST

APPENDIX I

THE GUJARATI NAMES OF GUJARAT BIRDS

Part I

1. Podiceps ruficollis capensis. The Little Grebe or Dabchick. કુઅકી
2. Podiceps caspicus caspicus. The Blacknecked Grebe. શ્યામ ત્રીચ
કુઅકી
3. Podiceps c. cristatus. The Great Crested Grebe. ચોટીલી કુઅકી.
4. Pelecanus onocrotalys. The Rosy Pelican. ગુલાખી પેંલુ
5. Pelecanus philippensis. The Spottedbilled Pelican. ડીપકીદાર
ચાંચવાળી પેંલુ
6. Pelecanus philippensis. Crispus. The Dalmatian-Pelican. ચોટીલી
પેંલુ
7. Phalacrocorax carbo. The Large Indian Cormorant. જળ કાગડો
8. Phalacrocorax fuscicollis. The Indian Shag. કાળો જળ કાગડો
9. Phalacrocorax niger. The Little Cormorant. નાનો જળ કાગડો
10. Anhinga melanogaster. The Darter or Snake-bird. સર્પત્રીચ
11. Ardea purpurea. The Purple Heron. નડી
12. Ardea cinerea. The Grey Heron. કચુત
13. Butorides striatus. The Little Green Bittern. લીલી અગલી
14. Ardeola grayii. The Pond Heron. કાંણી અગલી
15. Bubuleus ibis coromandus. The Cattle Egret. ટોર અગલી
16. Egretta alba modesta. The Large White Egret. મેટો સફેદ અગલી
17. Egretta intermedia. The Indian Smaller Egret. પુલા
18. Egretta g. garzetta. The Little Egret. કાલીચીયા
19. Demiegretta asha. The Indian Reef Heron. કાળું અથવા દરીયાઈ
અગલી
20. Nycticorax n. nycticorax. The Night Heron. અવાંક, વાંક
21. Ixobrychus sinensis. The Yellow Bittern. પીળી અગલી
22. Botaurus stellaris. The Bittern. પરદેશી પાન અગલી
23. Ibis l. leucocephalus. The Painted Stork. ટોંક
24. Anastomus oscitans. The Openbilled Stork. ચુંગલા
25. Ciconia e. episcopa. The Whitenecked Stork. કાળી ટુલ
26. Ciconia ciconia. The White Stork. ઉજળી
27. Ciconia nigra. The Black Stork. કાળી ટોંક
28. Xenorhynchus asiaticus. The Blacknecked Stork. અનારસ
29. Leptoptilos dubius. The Adjutant. જમાદાર ટોંક
30. Leptotilos javanicus. The Smaller Adjutant. નાનો જમાદાર ટોંક
31. Threskiornis melanocephalus. The White Ibis. સફેદ કાંકણાસર
32. Pseudibis papillosus. The Indian Black Ibis. કાળી કાંકણાસર

33. *Plegadis falcinellus*. The Glossy Ibis. पान काँकलुसर
 34. *Platalea leucorodia*. The Spoonbill. चमचो
 35. *Phoenicopterus ruber roseus*. The Flamingo. अणो, हुं
 36. *Phoenicopterus minor*. The Lesser Flamingo. राना अणो
 37. *Anser anser*. The Grey Lag Goose. गाजहुंस
 38. *Anser albifrons*. The Whitefronted Goose. श्वेतभास गाजहुंस
 39. *Anser indicus*. The Barheaded Goose. राजहुंस
 40. *Cyngus bewickii jankowskii*. The Alpheraky's Swan. देवेहुंस
 41. *Dendrocygna javanica*. The Lesser Whistling Teal. नानी सीसाटी
 अदक
 42. *Dendrocygna bicolor*. The Larger Whistling Teal. मोटी सीसाटी
 अदक
 48. *Tardorn ferruginea*. The Ruddy Sheldrake or Brahminy Duck.
 सुरभाय
 44. *Todorna todorna*. The Sheldrake. सकेद सुरभाय
 45. *Anas angustirostris*. The Marbled Duck. घोणी मुरवाणी, अदक
 46. *Anas a. acuta*. The Pintail. शिंगपर
 47. *Anas c. crecca*. The Common Teal. नानी अदक
 48. *Anas falcata*. The Bronzecedped or Falcated Teal. चोटीवी लुडार
 अदक
 49. *Anas pccilorhyncha pccilorhyncha*. The Spotbill or Grey Duck.
 डीलावाणी अदक
 50. *Anas platyrhyncha*. The Mallard. नीलशीर
 51. *Anas strepera*. The Gadwall. लुडार अदक
 52. *Anas penelope*. The Wigeon. लीयासणी अदक
 58. *Anas ouerquedula*. The Garg ney or Bluewinged Teal. चैवा
 54. *Spatula clypeata*. The Shoveler. पञ्ती चांय
 55. *Netta rufina*. The Rederested Pochard. लाल चांय
 56. *Aythya ferina*. The Pochard or Dun Bird. लालशीर अदक
 57. *Aythya fulgulla*. The Tufted Pochard. चोटीवी डाअरी अदक
 57. *Aythya nyroca*. The White-eyed Pochard. डारचीया-घोणी चांय
 58. *Aythya fulgiula*. The Tufted Porchard. चोटीवी डाअरी अदक
 59. *Aythya m. marila*. The Scaup Duck. दरीयाई अदक
 60. *Nettapus coromandelianus*. The Cotton Teal. गीरज
 61. *Sarkidiornis m. melanotus*. The Nukta or Comb Duck. चुक्ता अदक
 62. *Mergus alebellus*. The Slew. मरुठीभार अदक
 63. *Elanus caeruleus vociferus*. The Blackwinged Kite. डपारी
 64. *Pernis ptiiorhynchus ruficollis*. The Crested Honey Buzzard. मधीयो
 65. *Milvus milvus*. The Red Kite. राती समणी
 66. *Milvus migrans govinda*. The Common Pariah Kite. चील, समणी
 67. *Haliastur i. indus*. The Brahminy Kite. आलाखुली चील

68. *Accipiter badius dussumieri*. The Indian Shikra. શકરો (માદા)
શીકરી (નર)
69. *Accipiter nisus nisusindis*. The Asiatic Sparrow-Hawk. બાશા (માદા)
બશીન (નર)
70. *Accipiter virgatus*. The Besra Hawk. બેસરો (માદા) ઘોતી (નર)
71. *Buteo (rufinus)*. The Buzzard. હીમાલયનો ડીસો
72. *Butastur teesa*. The White-eyed Buzzard. ડીસો
73. *Spizaëtus c. cirrhatus*. The Crested-Eagle. મોરબાજ
74. *Hieraëtus f. fasciatus*. Bonelli's Eagle. સાંસા ગરજ
75. *Hieraëtus pennatus*. The Boottd Eagle. પરદેશી સાંસાગરજ
76. *Aquila h. heliaca*. The Imperial Eagle. શાહી ઝુમસ
77. *Aquila rapax vindhiāna*. The Indian Tawny Eagle. દેશી ઝુમસ
78. *Aquila nipalensis*. The Eastern Steppe Eagle. પરદેશી ઝુમસ
79. *Aquila clanga*. The Greater Spotted Eagle. ટપકીવાળો ઝુમસ
80. *Ictinaëtus malayensis*. The Black Eagle. કાળો ઝુમસ
81. *Haliaëtus leucogaster*. The White-billed Sea Eagle. દરીયાઈ ગરૂડ
82. *Haliaëtus leucoryphus*. Pallas's Fishing Eagle. પલાસનો મચ્છીમાર
ગરૂડ
83. *Ithyophaga ithyaëtus*. The Grey-headed Fishing Eagle.
રાખેડીશીર મચ્છીમાર-ગરૂડ
84. *Sarocogyps calvus*. The Black or King Vulture. રાજગીધ
85. *Aegypius monachus*. The Cinereous Vulture. કાકુ ગીધ
86. *Gyps fulvus*. The Fulvous Vulture. બદામી અથવા પરદેશી ગીધ
87. *Gyps indicus*. The Long-billed Vulture. લુખરો ગીધ
88. *Gyps benghalensis*. The White-backed Vulture. ગ્રીધ
89. *Neophron percnopterus*. The White Scavenger Vulture. ખેરો
અથવા સફેદ ગીધ
90. *Circus macrourus*. The Pale Harriar. પટ્ટાઈ
91. *Circus pygargus*. Montagu's Harriar. પટ્ટી પટ્ટાઈ
92. *Circus a. æruginosus*. The Marsh Harriar. પાન પટ્ટાઈ
93. *Circæus g. gallicus*. The Short-toed Eagle. સાપમાર
94. *Spilornis chella minor*. The Crested Serpent Eagle. ચોટલીયો સાપમાર
95. *Pandion h. haliæetus*. The Osprey. મચ્છીમાર
96. *Falco jugger*. The Laggar Falcon. લગડ (માદા) જગડ (નર)
97. *Falco peregrinus*. The Peregrine Falcon. ભેરી (માદા) ભેરી બચ્ચો (નર)
98. *Falco peregrinoides babylonicus*. The Redcapped Falcon. લાલ
માથાની શાહીન (માદા) શાહીન્યો (નર)
99. *Falco subbuteo*. The Hobby. ઘોતી (માદા) ધુતાર (નર)
100. *Falco c. chicquera*. The Redheaded Merlin. તૂમ્તી (માદા) ચટવો (નર)
101. *Falco t. tinnunculus*. The Kestrel. લજઈ
102. *Francolinus francolinus*. The Black Partridge. કાળો તેતર
103. *Francolinus pictus*. The Painted Partridge. તલીયો તેતર

104. *Fracolinus pondicerianus interpositus*. The Grey Partridge. ખડીયા તેંતર
105. *Coturnix c. coturnix*. The Common or Grey Quail. વાલેસ અટેર
106. *Coturnix coromandelica*. The Blackbreasted or Main-Quail. ચીચુગા અટેર
107. *Perdicula a. asiatica*. The Jungle Bush-Quail. વન લાવરી
108. *Perdicula argoondah*. The Rock Bush-Quail. લાવરી
109. *Galloperdix s. spadicea*. The Red Spurfowl. ચોખારા
110. *Gallus sonnerati*. The Grey Junglefowl. જંગલી મુરઘી.
111. *Pavo cristatus*. The Peafowl. મોર ઢેલ
112. *Turnix sylvatica dussumier*. The White-legged or Little Button-Quail. લીલ અટેર
113. *Turnix maculatus tanki*. The Yellow-legged Button-Quail. ભારતીય લીલ અટેર
114. *Turnix suscitator taigoor*. The Blue legged or Common Bustard-Quail. હુન અટેર
115. *Grus grus lilfordi*. The Eastern Common Crane. કુંજ
116. *Grus antigone antigone*. The Indian Sarus Crane. સારસ
117. *Anthropoides virgo*. The Demoiselle Crane. કરકરા
118. *Rallus striatus*. The Bluebreasted Banded Rail. પીરોઇ પાનલવા
119. *Porzana porzana*. The Spotted Crake. ટપકીવાળી સંતાકુકડી
120. *Porzana pusilla*. The Eastern Baillon's Crake. બીલીયનની સંતાકુકડી
121. *Amaurornis a. akool*. The Brown Crake. નાની ડવાક, તપખારી સંતાકુકડી
122. *Amaurornis phœnicurus*. The Whitebreasted Waterhen. ડવાક
123. *Gallierex cinerea*. The Kora or Watercock. જળમુરઘો
124. *Gallinula chloropus*. The Indian Moorhen. જળ કુકડી
125. *Porphyrio p. poliocephalus*. The Purple Moorhen. લીલ કુકડી, મોર પોપટીયું
126. *Fulica atra*. The Coot. દસાડી, આડ
127. *Choriotis nigriceps*. The Great Indian Bustard. ઘોરાડ
128. *Chlamydotis undulata macqueeni*. The Hubara. હુખારા
129. *Sypheotises indica*. The Lesser Florican or Likh. ખડમોર
130. *Hydrophasianus chirurgus*. The Pheasant-tailed Jacana. જળ માનજર
131. *Metopidius indicus*. The Bronze-winged Jacana. કાળો જર માનજર
132. *Hæmatopus ostalegus*. The Oystercatcher. દરીયાઇ અબલખ
133. *Chettusia leucura*. The White-tailed Lapwing. સફેદ પુચ્છ ટીટોડી
134. *Chettusia gregaria*. The Sociable Lapwing. મળતાવડી ટીટોડી
135. *Hoplopterus i. indicus*. The Red-wattled Lapwing. ટીટોડી
- 135a. *Hoplopterus malabarica*. The Yellow-wattled Lapwing. પારસન ટીટોડી

136. *Pluvialis squatarola*. The Grey Plover. ખાટણુ ઠીટાડી
137. *Pluvialis dominica falva*. The Eastern Golden Plover. સોનેરી ખાટણુ
138. *Charadrius dubius cafericus*. વીલચળી ક્રીણી ઠીટાડી
139. *Charadrius l. leschenaulti*. The Large Sand Plover. રેતાળ ઠીટાડી
140. *Charadrius dubius jerdoni*. જર્ડોનની ક્રીણી ઠીટાડી
141. *Charadrius a. alexandrinus*. The Kentish Plover. ઢાંઢીલી
142. *Charadrius mongolus atrifrons*. The Pamirs Lesser Sand Plover.
પામીરનીનાની રેતાળ ઠીટાડી
143. *Numenius arquata orientalis*. The Eastern Curlew. ખલેલી
144. *Numenius phaeopus*. The Whimbrel. નાની ખલેલી
145. *Limosa l. limosa*. The Black-tailed Godwit. કાળી પુચ્છ લાંબી ચાંચ
ગડેરા
146. *Limosa l. lapponica*. The Bar-tailed Godwit. પટ્ટા પુચ્છ લાંબી ચાંચ ગડેરા
147. *Tringa erythropus*. The Spotted or Dusky Redshank. રાખેડીયો
રાતા પગ
148. *Tringa totanus eurhinus*. The Redshank. રાતા પગ
149. *Tringa stagnantilis*. The Marsh Sandpiper. ગંદા પગ ટુટવારી
150. *Tringa nebularia*. The Greenshank. લીલા પગ, ઠીમડીમા
151. *Tringa ochropus*. The Green Sandpiper. લીલી ટુટવારી
152. *Tringa glareola*. The Spotted Sandpiper. વન ટુટવારી
153. *Tringa cinerea*. The Terek Sandpiper. ટુટવારી, ચંચળ
154. *Tringa hypoleucos*. The Sandpiper. સામાન્ય ટુટવારી
155. *Arenaria i. interpres*. The Turnstone. કાચબરંગી
156. *Capella stenura*. The Pintail Snipe. સળી પુચ્છ ગારા ખોદ
157. *Capella g. gallinago*. The Fantail or Common Snipe, ગારા ખોદ,
158. *Capella minima*. Jack snipe. નાનો ગારા ખોદ,
159. *Scolopax r. rusticola*. The Woodcock. વનચોર
160. *Calidris m. minutus*. The Little Stint. ક્રીચડીયો
161. *Calidris temminckii*. Temminck's Stint. ટેમ્નેકની ક્રીચડીયો
162. *Calidris testaceus*. The Curlew Stint, or Pigmy Sandpiper. વાંકીચાંચ
163. *Calidris a. alpinus*. The Dunlin. કાળા પેટનો ક્રીચડીયો
164. *Philomachus pugnax*. The Ruff and Reeve. તીલીયો, ઘેવાળાં
165. *Himantopus h. himantopus*. The Black-winged Stilt. ગજપાંઉ
166. *Recurvirostra avocetta*. The Avocet. ઉદડી ચાંચ
167. *Rostratula b. benghalensis*. The Painted Snipe. પાન લોવા
168. *Dromas ardeola*. The Crab Plover. કુરચલા ખાઉ
169. *Burhinus oedienimus*. The Stone-curlew. ચકવા ચકવી
170. *Esacus recurvirostris*. The Great Stone-curlew. મોટો ચકવા ચકવી
171. *Cursorius c. cursor*. The Creamcoloured Courser. રેતાળરણુ ગોધલો
172. *Cursorius coromandellicus*. The Indian Courser. રણુ ગોધલો
173. *Larus ridibundus*. The Black-headed Gull. કાળા માથાનો ધોમડો
174. *Larus brunicephalus*. The Brown-headed Gull. ધોમડો

175. *Larus fuscus traimyrensis*. The Eastern Herring Gull. पुर्न धोमरो
176. *Larus argentatus cachinnans*. The Yellow-legged Herring-Gull
बीजापरु धोमरो
177. *Chlidonias hybrida indica*. The Indian Whiskered Tern. थोलाणी
धोमडी
178. *Hydroprogne t. tschegrava*. The Caspian Tern. दरीयाई धोमडी
179. *Gelochelidon n. nolitea*. The Gullbilled Tern. धोमडा धोमडी
180. *Halasseus bergii*. The Crested Sea Tern. मोरीवी दरीयाई धोमडी
181. *Sterna aurantia*. The Indian River Tern. सामान्य धोमडी
182. *Sterna melanogaster*. The Black-bellied Tern. कणापेटनी धोमडी
183. *Sterna albifrons*. The little Tern or Ternlet. नाना धोमडी
184. *Pterocles orientalis*. The Imperial or Black-bellied Sandgrouse.
शाही अट्टो, मोटो राजस्थानी अट्टो
185. *Pterocles indicus*. The Painted Sandgrouse. पडाडी रंगीत अट्टो
186. *Pterocles exustus ellioti*. The Common Indian Sandgrouse. देशी अट्टो
187. *Pterocles senegallus*. The Spotted Sandgrouse. वाडुवाडु
188. *Treron phoenicoptera chlorigaster*. The Southern Green Pigeon.
दुरीयाण
189. *Columba livia*. The Blue Rock Pigeon. कुथुतर, पारेवु
190. *Streptopelia orientalis meena*. The Rufus Turtle Dove. शीयाणु होवी
191. *Streptopelia r. risoria*. The Indian Ring Dove. धोणु होवी
192. *Streptopelia t. transquebarica*. The Red Turtle Dove. वोठळु होवी
193. *Streptopelia chinensis suratensis*. The Spotted Dove. वन होवी
194. *Streptopelia senegalensis cambayensis*. The Little Brown Dove.
नानी होवी जुमरी
195. *Chalcophaps i. indica*. The Indian Emerald Dove. नीलम होवी
196. *Psittacula eupatria nipalensis*. The Large Indian Parakeet.
राजपीपुआनो पोपट
197. *Psittacula krameri borealis*. The Roseringed Parakeet. पोपट, सुडे
198. *Psittacula cyanocephalus bengalensis*. The Blossomed Parakeet. तुई
199. *Clamator jacobinus*. The Pied Crested Cuckoo. मोतीडा
200. *Cuculus v. varius*. The Common Hawk-Cuckoo. अपैयो
201. *Cuculus canorus*. The cuckoo. परदेशी कुडकंड
202. *Cacomantis s. sonnerati*. The Indian Banded Bay Cuckoo.
पट्टावाणी लाल कुडकंड
203. *Eudynamis s. scolopaceus*. The Koel. डोयल
204. *Rhopodytes viridirostris*. The Small Green-billed Malkoha.
वीवो सीरकर
205. *Taccocua l. leschenaulti*. The Southern Sirkeer. सीरकर, आभी धोयरो
206. *Centropus sinensis parroti*. The Southern Crow Pheasant. डुडुका,
धोयरो
207. *Tyto alba stertens*. The Barn Owl. रेनीद्वी, करेल

208. *Otus bakkamœna*. The Collared Scops Owl. देशी युगउ
 209. *Bubo bul o bengalensis*. The Indian Great Horned Owl. धुवउ
 210. *Bubo c. bromandus*. The Dusky Horned Owl. राडीयो धुवउ
 211. *Bubo zeylonensis leschenault*. The Brown Fish Owl. मच्छीमार धुवउ
 212. *Glucidium r. radiatum*. The Barred Jungle Owlet. पट्टीवाणी
 वन खीयरी
 213. *Ninox scutulata*. The Brown Hawk Owl. आञ्जुवु
 214. *Athene brama indica*. The Spotted Owlet. खीयरी
 215. *Strix ocellata ocellata*. The Mottled Wood Owl. गीरनारी धुवउ
 216. *Asio f. flammeus*. The Shorteared Owl. रवाङ्कु
 217. *Caprimulgus i. indicus*. The Indian Jungle Nightjar. वन छापु
 218. *Caprimulgus europæus uniwini*. The European Nightjar. परदेशी छापु
 219. *Caprimulgus mahrattensis*. Sykes's Nightjar. रेतान छापु
 220. *Caprimulgus m. monticolus*. Franklin's Nightjar. क्रांडलीननु छापु
 221. *Caprimulgus a. asiaticus*. The Common Indian Nightjar. देशी छापु
 222. *Apus melba*. The Alpine Swift. पहाडी अयाणीयो
 223. *Apus a. affinis*. The Indian House Swift. अयाणीयो
 224. *Cypsiurus parvus*. The Palm Swift. ताडी अयाणीयो
 225. *Hemiprocne longipennis coronata*. The Crested Tree Swift.
 चोटीयो अयाणीयो
 226. *Harpactes malabaricus legerli*. The Trogon. हाजना
 227. *Ceryle rudis leucomelanura*. The Pied Kingfisher. कायरो कलकलीयो
 228. *Alcedo atthis bengalensis*. The Small Indian Kingfisher लघोडी
 कलकलीयो
 229. *Pelargopsis capensis gural*. The Brown-headed Stork-billed King-
 fisher. टांक्र्याय कलकलीयो
 230. *Haleyon s. smyrnensis*. The White-breasted Kingfisher. कलकलीयो
 231. *Haleyon pileata*. The Black-capped Kingfisher. वनआडीनो कलकलीयो
 232. *Merops superciliosus persicus*. The Blue-cheeked Bee-eater. मोटो
 पंत्रीयो
 233. *Merops o. orientalis*. The Little Green Bee-eater. नानो पंत्रीयो
 234. *Nyctiornis a. athertoni*. The Blue-bearded Bee-eater. लुरी
 हाडीनो पंत्रीयो
 235. *Coracias garrula semenowi*. The Kashmir Roller. काश्मीरी नीलकंड
 236. *Coracias b. bengalensis*. The Indian Roller. नीलकंड
 237. *Upupa epops epops*. The Hoopoe. हुहहुह, वंटीटांको
 238. *Tockus birostris*. The Grey Hornbill. खीयो
 239. *Megalaima zeylanicus inornata*. The Large Green Barbet. लीयो
 टुकटुक
 239a. *Megalaima Viridis*. The Small Green Barbet. नानो लीयो टुकटुक
 240. *Megalaima hæmacephala indica*. The Crimson-breasted Barbet.
 टुकटुक, कंसारे

241. *Lynx torquilla*. The Wryneck. थडरंगे
242. *Micropternus brachyurus jerdoni*. The Rufous Woodpecker.
श्रीडीवरे लकडभेद
243. *Picus chlorolophus chorigaster*. The S. Indian Small Yellow-naped Woodpecker. दभल्ली नानो पीपीभेद नो लकडभेद
244. *Dinopium b. benghalensis*. The Golden-backed Woodpecker.
सोनेरी लकडभेद
245. *Dryocopus javensis hodgsoni*. The Great Black Woodpecker.
मोटो काणे लकडभेद
246. *Picoides m. mahrattensis*. The Yellow-fronted Pied Woodpecker
कापरो लकडभेद
247. *Picoides nanus hardwickii*. The Pigmy Woodpecker. नानो लकडभेद
248. *Hemicircus c. canente*. The Heart-spotted Woodpecker. श्यामदिल
लकडभेद
249. *Chrysocolaptes f. festivus*. The Black-backed Woodpecker.
श्यामपीठ लकडभेद
250. *Chrysocolaptes lucidus chersonesus*. Malherbe's Golden-backed Woodpecker. केशरी पीठ लकडभेद
251. *Pitta brachyura*. The Indian Pitta. नवरंग, लुरीये
252. *Mirafra javanica cantillans*. The Singing Bush Lark. अगन
253. *Mirafra erythroptera sindiana*. The Red-winged Bush Lark.
काडीयावाडी अगीये अगन
254. *Eremopterix grisea*. The Black-bellied Finch Lark. भोयकली
255. *Ammomanes p. phoenicurus*. The Rufus-tailed Finch Lark.
भेतरिये
256. *Alaemon alaudipes doriae*. The Hoopoe Lark or Large Desert Lark. रज्जु यंडुल
257. *Calandrella cinerea longipennis*. The Yarkand Shorttoed Lark.
पुलक
258. *Calandrella raytal adamsi*. The Indus Sand Lark. सींधुनो पुलक
259. *Galerida cristata chandoola*. Franklin's Crested Lark. घाघस यंडुल
260. *Galerida malabarica*. The Malabar Crested Lark. मलबारी नानो यंडुल
261. *Galerida deva*. Sykes's Crested Lark. यंडुल
262. *Alauda gulgula inconspicua*. The Small Skylark. अण अगन

APPENDIX II

THE GUJARATI NAMES OF GUJARAT BIRDS (PART I.)

1. *Riparia peludicola chinensis*. The Sand Martin. પરદેશી રૈતાળ
અખાખીલ
2. *Hirundo rupestris*. The Crag Martin. ગાર અખાખીલ
3. *Hirundo c. concolor*. The Dusky Crag Martin. ધુમાડીયું ગાર અખાખીલ
4. *Hirundo rustica gutturalis*. The Eastern Swallow. દોસરી અખાખીલ
5. *Hirundo smithii filifera*. The Wire-tailed Swallow. લેઈસરી અખાખીલ
6. *Hirundo fluvicola*. The Cliff Swallow. ભેખડ અખાખીલ
7. *Hirundo daurica erythropygia*. Syke's Striated Swallow. કુંચી
અખાખીલ
8. *Hirundo daurica nipalensis*. The Striated Swallow. પરદેશી અખાખીલ
9. *Delichon u. urbica*. The House Martin. ખખીલા
10. *Hemipus p. pictetus*. The Black-backed Flycatcher Shrike.
કાળી પીઠ કાળો લટોરો
11. *Tephrodornis virgatus sylvicola*. The Large Malabar Wood
Shrike. મલબારી કાંટનો મોટો લટોરો
12. *Tephrodornis p. pondicerianus*. The Indian Common Wood
Shrike. કાંટનો લટોરો
13. *Coracina novæhollandiæ*. The Large Indian Cuckoo Shrike.
મોટો કશ્યો
14. *Coracina melanopectera sykesi*. The Black-headed Cuckoo Shrike.
નાનો કાળા માથાનો કશ્યો
15. *Pericrocotus f. flammeus*. The Orange-Minivet. કેસરીયો રાજલાલ
16. *Pericrocotus c. cinnamomeus*. The Little Minivet. રાજલાલ
17. *Pericrocotus e. erythropygius*. The White-bellied Minivet.
કાબરો રાજલાલ
18. *Aegithina tiphia humei*. The Central Indian Iora. મધ્યભારતી
શોખીંગો
19. *Aegithina nigrolutea*. Marshall's Iora. માર્શલનો શોખીંગો, નાનો પીલક
20. *Chloropsis aurifrons frontelis*. The Gold-fronted Chloropsis. હરવો
21. *Chloropsis cochinchinensis jerdoni*. Jerdon's Chloropsis. જર્ડોનનો
હરવો
22. *Pycnonotus jocosus*. The Red Whiskered Bulbul. સીપાહી યુલયુલ
23. *Pycnonotus cafer humayuni*. The Central Indian Redvented
Bulbul. યુલયુલ
24. *Pycnonotus l. leucotis*. The White-eared Bulbul. કનરો યુલયુલ
25. *Pycnonotus l. luteolus*. The White-browed Bulbul. સફેદ નેલુનો
યુલયુલ
26. *Muscicapa latirostris*. The Brown Flycatcher. ભારતીય રાતો માખીમાર

27. *Muscicapa striata neumanni*. The Eastern Spotted Flycatcher
भाभी माभीमार
28. *Muscicapa p. parva*. The European Red-breasted Flycatcher.
चटकी माभीमार
29. *Muscicapa t. tickellæ*. Tickell's Flycatcher. अर्धरंग
30. *Muscicapa t. halassina*. The Verditor Flycatcher. पीरोल माभीमार
31. *Culicicapa ceylonensis calochrysea*. The Grey-headed Flycatcher.
राभोडी माथानो माभीमार
32. *Rhipidura a. aureola*. The White-browed Fantail Flycatcher.
नायल
33. *Rhipidura p. pectoralis*. The White-spotted Fantail Flycatcher
पडाडी नायल
34. *Hypothymis azurea styani*. The Blacknaped Blue Flycatcher.
डाणी ओडनुं माभीमार
35. *Terpsiphone p. paradisi*. The Paradise Flycatcher. दुधराज,
तरवारीयो
36. *Terpsiphone Paradisi leucogaster*. दुधराज, तरवारीयो
37. *Pellorneum r. ruficeps*. The Spotted Babbler. टपडावाणुं लडेकुं
38. *Pomatorhinus h. horsfieldi*. The Deccan Scimitar Babbler. वापी
लडेकुं
39. *Dumetia hyperythra albogularis*. The Small White-throated Bab-
bler. डरमहीनुं लडेकुं
40. *Chrysomma sinense hypoleuca*. The Western Yellow-eyed Bab-
bler. भारतीय पीणी आंभनुं लडेकुं, गुलाब यश्म
41. *Turdoides s. somervillei*. The Bombay Babbler. मुंअठनुं लडेकुं
42. *Turdoides somervillei orientalisindianus*. The Jungle Babbler.
वत लडेकुं
43. *Turdoides c. caudata*. The Common Babbler. शेरी
44. *Turdoides malcolmi*. The Large Grey Babbler. लडेकुं
45. *Aleippe poioicephala brucei*. The Bombay Quaker Babbler.
सीरीमार लडेकुं
46. *Hippolais c. caligata*. The Booted Tree-Warbler. सीता कुकी
47. *Hippolais caligata rama*. Syke's Tree-Warbler. राम कुकी
48. *Sylvia communis icterops*. The Indian White-throat. भारतीय
श्वेतकुंड
49. *Sylvia hortensis jerdoni*. The Eastern Orphean Warbler. मोटी
श्वेतकुंड
50. *Sylvia n. nana*. The Desert Warbler. रज कुकी
51. *Sylvia curruca blythii*. The Indian Lesser White-throat. नाना
श्वेतकुंड
52. *Sylvia althoa*. Hume's Lesser White-throat. लुमनो नाना श्वेतकुंड

53. *Phylloscopus collybita tristis*. The Brown Willow-Warbler.
જળ કીટકીટ
54. *Phylloscopus griseoides*. The Olivaceous Willow-Warbler.
સાદો કીટકીટ
55. *Phylloscopus inornatus humei*. Hume's Willow-Warbler.
હુમનો કીટકીટ
56. *Phylloscopus trochiloides nitidis*. The Green Willow-Warbler.
લીલો કીટકીટ
57. *Phylloscopus trochiloides viridanus*. The Greenish Willow-Warbler. લીલાશવાળો કીટકીટ
58. *Phylloscopus trochilus acredula*. The Nothern Willow-Warbler.
કીટકીટ
59. *Phylloscopus o. occipitalis*. The Large Crowned Willow-Warbler.
ટોપીવાળો કીટકીટ
60. *Phylloscopus tytleri*. Tytler's Willow-Warbler. ટાઇલસરનો કીટકીટ
61. *Chætornis sriatus*. The Bristled Grass-Warbler. કાંટાવાળી ઘાસ કુતકી
62. *Locustella nævia straminea*. The Eastern Grasshopper Warbler.
તીકી કુતકી
63. *Acrocephalus stentoreus brunescens*. The Indian Great Reed Warbler. મોટો પાન ટીકડીકી
64. *Acrocephalus dumetorum*. Blyth's Reed Warbler. ખલાઈથની પાન ટીકડીકી
65. *Acrocephalus a. agricola*. The Paddy-field Warbler. કમોદની ટીકડીકી
66. *Orthotomus sutorius guzurata*. The Tailor Bird. ટાશકો, દરજી
67. *Prinia socialis stewarti*. Stewart's Ashy Wren-Warbler. કાળી પાન કુતકી
68. *Prinia inornata terricolor*. The Indian Wren-Warbler. દેશી કુતકી
69. *Prinia sylvetica gangetica*. The Jungle Wren-Warbler. કાંટની કુતકી
70. *Prinia lepida*. The Indian Streaked Wren-Warbler. વીંડ કુતકી
71. *Prinia g. gracilis*. Franklin's Wren Warbler. ફ્રાન્કલીનની વીંડ કુતકી
72. *Prinia buchanani*. The Rufous-fronted Wren-Warbler. લાલલાલ કુતકી
73. *Cisticola juncidis cursitans*. The Streaked Fantailed Warbler.
ઘાસની કુતકી
74. *Erithacus svecicus pallidogularis*. The Eastern Red-spotted Blue-throat. લાલ ચુમકી નીલકંઠી
75. *Erithacus svecicus abbotti*. The White-spotted Blue-throat.
સફેદ ચુમકીની નીલકંઠી
76. *Erythropgia galactotes*. The Greybacked or Rufus Warbler.
રાખોડી પીઠવાળી કુતકી
77. *Rhœnicurus oeruros rufiventris*. The Eastern Redstart. થરથરો
78. *Phœnicurus ochruros phœnicuroides*. The Kashmir Redstart.
કાશ્મીરી થરથરો

79. *Copsychus s. saularis*. The Indian Magpie Robin. दैयड
80. *Copsychus macrourus malabaricus*. The Shama. शामो
81. *Saxicoloides fulicata cambayensis*. The Brown-backed Indian Robin. देव चडली, काणी देव
82. *Turdus simmillimus mahrattensis*. The Black-capped Blackbird. कस्तुरी
83. *Turdus citrina cyanotus*. The White-throated Ground Thrush. मलाग्रीर
84. *Monticola solitarius pandoo*. The Blue Rock Thrush. पाण्डुशामो
85. *Monticola cinclorhyncha*. The Blue-headed Rock Thrush. बुरा माथानो देशी शामो
86. *Oenanthe isabellina*. The Isabelline Chat. पीणो पढो
87. *Oenanthe xanthopyrmyna chrysopygia*. The Red-tailed Chat. लालपुच्छ पढो
88. *Oenanthe picata*. The Pied Chat. कापरो पढो
89. *Oenanthe capistrata*. The White-headed Chat. सफेद शीर पढो
90. *Oenanthe opistholeuca Strickland's Chat*. स्त्रीकटकनो पढो
91. *Cercomela fusca*. The Brown Rock Chat. काणो पथराण पढो
92. *Saxicola caprata bicolor*. The Northern Indian Pied Bush Chat. शामो पढो
93. *Oenanthe deserti atrogularis*. The Desert Chat. रबु पढो
94. *Saxicola caprata atrata*. The Southern Indian Pied Bush Chat. दम्बुली शामो पढो
95. *Saxicola torquata indica*. The Indian Collared Bush Chat. मेंदीयो पीणो पेर
96. *Myiophoneus horsfieldi*. The Malabar Whistling Thrush. छन्दराज
97. *Anthus h. hodgsoni*. The Indian Tree Pipit. हुगसननी लीलाश, वाजी धान चीडी
98. *Anthus t. trivialis*. The Tree Pipit. धान चीडी
99. *Anthus sordidus jerdoni*. The Brown Rock Pipit. पथराण धानचीडी
100. *Anthus richardi godlewskii*. Blyth's Pipit. ज्वाडधनी धानचीडी
101. *Anthus richardi rufulus*. The Indian Pipit. देशी धानचीडी
102. *Anthus campestris griseus*. The Eastern Tawny Pipit. पीणाश वाणी धानचीडी
103. *Anthus rufogularis*. The Red-throated Pipit. लालकंठ धानचीडी
104. *Anthus roseatus*. Hodgson's Pipit. हुगसननी धानचीडी
105. *Motacilla flava thunbergi*. The Grey-headed Yellow Wagtail. रामोडी माथानो पीलकीयो
106. *Motacilla flava melanogriseus*. The Turkestan Black-headed Wagtail. काणा माथानो पीलकीयो
107. *Motacilla flava beema*. The Blue-headed Yellow Wagtail. बुरा माथानो पीलकीयो

108. *Motacilla c. Citreola*. The Grey-backed Yellow-headed Wagtail. રાખોડી પીઠ પીળામાથાનો પીલકીયો
109. *Motacilla citre olawera*. The Black-backed Yellow-headed Wagtail. પાણીનો પીલકીયો
110. *Motacilla cinerea melanope*. The Eastern Grey Wagtail. વન પલકીયો
111. *Motacilla maderaspatensis*. The Large Pied Wagtail. ખંજન
112. *Motacilla alba dukhunensis*. The White Wagtail. દિવાળી ઘોડો
113. *Motacilla indica*, the Forest Wagtail. વનઘોડો
114. *Lanius excubitor lahtora*. The Indian Grey Shrike. દુધીયો લટોરો
રૂપારેલ
115. *Lanius vittatus*. The Bay-backed Shrike. પચનક લટોરો
116. *Lanius collurio*. The Red-backed Shrike. પરદેશી લટોરો
117. *Lanius schach erythronotus*. The Rufous-backed Shrike.
કાકીયાડી લટોરો
118. *Lanius schach caniceps*. The Southern Gery-backed Shrike.
દખણી રાખોડી પીઠનો લટોરો
119. *Lanius phoenicuroides isabellinus*. ઇસાબેલનો લટોરો
120. *Lanius cristatus cristatus*. The Brown Shrike. ચોડીવાળો લટોરો
121. *Salpornis s. spilonotus*. The spotted Grey Creeper. રાખોડી થડચડ
122. *Sitta f. frontalis*. The Velvet-fronted Nuthatch. મખમલી ઝાડચડ
123. *Parus nuchalis*. The White-winged Black Tit. કાબરી રામચકલી
124. *Parus major stupæ*. The Indian Grey Tit. રામચકલી
125. *Parus xanthogenys aplonotus*. The Central Indian Yellow-checked Tit. ચોડીવાળી રામચકલી
126. *Dicaeum a. agile*. The Thick-billed Flowerpecker. પુલ સુવણી
127. *Dicaeum e. erythrorhynchus*. Tickle's Flowerpecker. ઠીકલની
પુલ સુવણી
128. *Nectarinia a. asiatica*. The Purple Sunbird. પુલચકલી શક્કરખોરો
129. *Aethopyga siparaja vigorsi*. Vigor's Yellow-backed Sunbird.
પુલરાજ શક્કરખોરો
130. *Zosterops palpebrosa occidentis*. The White-eye. શ્વેતનયના
131. *Nectarinia Zeylonica*. The Purple Rumped Sunbird. પચરંગી
પુલસુવણી, શાકકરખોર
- 131A. *Emberiza buchanani*. The Grey-necked Bunting. પથરાળ ગન્ડમ
132. *Emberiza s. striolata*. The Striolated Bunting. લીટીદાર ગન્ડમ
133. *Emberiza melanocephala*. The Black-headed Bunting. કાળા
માથાનો ગન્ડમ
134. *Melophus lathamii subcristata*. The Crested Bunting. મોર ચડલી.
કથાઈ પાંખ
135. *Emberiza bruniceps*. The Red-headed Bunting. રાતા માથાનો ગન્ડમ
136. *Erythrina erythrina roseatus*. The Indian Rosefinch. ગુલાબી તુલી
137. *Petronia x. xanthocollis*. The Yellow-throated Sparrow. રાજ,
પહેલવાન ચકલી

138. *Passer domesticus indicus*. The House Sparrow. ચક્રવી
 139. *Ploceus p. philippenus*. The Common Weaver or Baya. વૈયાં, સુવરી
 140. *Ploceus benghalensis*. The Black-throated Weaver. કાળા
 ગળાવાળી સુવરી
 141. *Estrilda a. amandava*. The Red Munia. લાલ, સુરજ
 142. *Estrilda formosa*. The Green Munia. લીલા મુનીયા
 143. *Lonchura s. striata*. The White-backed Munia. કાળી મુનીયા
 144. *Lonchura malabarica*. The White-throated Munia. પીટી મુનીયા
 145. *Lonchura punctulata lineoventer*. The Spotted Munia. શીંગળાજ,
 ટપકાવાળી મુનીયા
 146. *Sturnus roseus*. The Rosy Pastor. વૈયાં, તીલીયર
 147. *Sturnus malabaricus*. The White-headed Myna. પવાઈ મેના
 148. *Sturnus pagodarum*. The Black-headed or Brakminy Myna.
 બયાઈ, બ્રાહ્મણી મેના
 149. *Sturnus vulgaris poltaratzskii*. Finsch's Starling. નક્સીદાર
 તીલીયર કાળાં વૈયાં
 150. *Aeridotheres t. tristis*. The Common Myna. કાખર
 151. *Aeridotheres ginginianus*. The Bank Myna. શીરાજી કાખર
 152. *Oriolus oriolus kundoo*. The Indian Golden Oriol. પીલક
 153. *Oriolus xanthornus maderraspatanus*. The Black-headed Oriol.
 કાળા માથાનો પીલક
 154. *Dicrurus macrocerus peninsularis*. The Indian Black Drongo.
 કાળો કોશીટ
 155. *Dicrurus leucophæus longicaudatus*. The Indian Dark Ashy
 Drongo. રાખેડી કોશીટ
 156. *Dicrurus caurulescens caurulescens*. The White-bellied Drongo.
 ઘોળા પેટનો કોશીટ
 157. *Dicrurus paradiseus malabaricus*. The Malabar Racket-tailed
 Drongo. ભીમરાજ
 158. *Crypsirina vagabunda pallida*. The Northern Tree Pie. ખેરપટો,
 ખખેડો
 159. *Corvus s. splendens*. The Indian House Crow. કાગડો
 160. *Corvus macrorhynchos culminatus*. The Indian Jungle Crow.
 જંગલી અથવા ગીરનારી કાગડો
 161. *Corvus corax larenci*. The Punjab Raven. પંજાબનો મહાકાગ

યાદી આપનાર
 પ્રદુર્ભ કંચનરાય દેસાઈ

THE BIRDS OF GUJARAT

BY

SÁLIM ALI

PART I

(With a map and five plates)

INTRODUCTION

The publication of this paper has been unduly delayed. The main field work of which it is the outcome was undertaken for varying periods of a month to five months at a time between the years 1944 and 1946 with shorter field trips up to 1948. It covered the then State territories of Kutch, Baroda (including its Kathiawar enclaves), Rajpipla, Cambay, Palanpur, and Radhanpur, together with the cluster of tiny Bhil States known as the Surat Dangs. Financial and other assistance was generously provided by the darbars concerned, and supplemented by a welcome grant from the Gujarat Research Society.

Publication even at this late date is considered desirable in view of the great deal of fresh distributional and ecological data brought to light by the field surveys and the study material collected, which seem worthy of being put on permanent record. I have tried to make the paper as comprehensive as possible by collating other available information, either previously published or since supplied by competent observers. For various reasons I was unable to cover the Kathiawar peninsula except only fragmentarily, but happily this gap in our knowledge will be filled by K. S. Dharmakumarsinhji's shortly forthcoming book on the Birds of Saurashtra. The author being a keen and knowledgeable resident ornithologist of Bhavnagar will doubtless furnish fuller information than a short seasonal survey or two would have made possible.

My thanks are due to the Bombay Natural History Society for lending me, as usual, the services of their collectors and skimmers Messrs. J. Gabriel and L. Nogueira, whose assistance was invaluable and greatly appreciated.

The draft of the major portion of this report was prepared many years ago, at the time the collections were first worked out; therefore some of my notes, such as on the status of various species (written in the present tense) may already be much out of date. Conditions affecting wildlife in general, directly or indirectly, have changed and are changing rapidly, and unhappily not for the better. This is particularly noticeable in the case of areas whose erstwhile rulers were actively interested in the preservation of wildlife in their respective territories.

In view of the recent changes in the political structure of the country, it seems necessary to define the entity 'Gujarat' as used in the title above. It is all that tract of country in Bombay State, some 64,000 sq. miles in area, which stretches down the western side of India from Sind in Western Pakistan (ca. 24°30'N) to the southern boundary of Surat District (ca. 20°15'N). In addition to the former Indian administrative districts of Ahmedabad, Kaira, Panchmahals, Broach and Surat, it includes

Kutch and the Kathiawar peninsula (Saurashtra). It includes also the tract of hilly jungle country south of the Tapi River known as the Surat Dangs which lies between the Nasik-Khandesh Deccan and the south Gujarat plain. This area which may roughly be enclosed within the parallelogram $20^{\circ}30'$ to $24^{\circ}N$ and 69° to $74^{\circ}E$, has recently been termed Maha Gujarat or Great(er) Gujarat (*Jour., Gujarat Res. Soc.* vol. ix: (3) p. 155—July 1947), a name whose general adoption is commendable from several points of view.

PHYSIOGRAPHY

Maha Gujarat contains a wide range of biotopes, stretching from practically pure sandy desert (e.g. the Great Rann of Kutch), with an annual rainfall of less than 10 inches, to tropical semi evergreen forest (e.g. portions of Navsari district and the Surat Dangs) with an average annual precipitation of over 80".

The most prominent trees and shrubs interspersed among cultivation as well as about villages and on the countryside generally are mango (*Mangifera indica*), neem (*Melia azadirachta*), kot (*Feronia limonia*), mhowa (*Bassia latifolia*), ber (*Zizyphus jujuba*), kandi (*Prosopis spicigera*), babul (*Acacia arabica*), tamarind (*Tamarindus indica*), the two *Salvadoras* (*persica* and *oleoides*), *Gymnosporia montana*, and *Capparis aphylla*, depending upon the requisite locality factors.

It is not easy to classify the terrain as a whole, but three main types are clearly recognisable.

The northern portions, from a little NW. of Ahmedabad city, e.g. the Mehsana, Radhanpur and Palanpur areas stretching up to the Marwar desert are largely flat, undulating, sandy, semidesert tracts with sparse cultivation and tall luxuriant Euphorbia hedges. As it approaches the Abu hills (Aravalis) the country assumes a hilly and stony character e.g. about Hathidhara and Balam in Palanpur territory. Here it is tolerably well-wooded being covered mostly with scrub jungle, 12 to 15 ft. high, consisting of *Zizyphus*, *Acacia*, *Buxa*, *Salvadora*, *Aegle marmelos*, *Gymnosporia* and such other typical species, with a sprinkling of enormous, ancient, spreading Ficus trees, chiefly *F. bengalensis*. Bordering streams are found some lofty arjun trees (*Terminalia arjuna*) and bamboo (sp.?) is locally abundant on the low hills.

In years of normal rainfall a chain of marshyheels forms between Ahmedabad and Sidhpur attracting abundant wildfowl. The greater part of the plains or champaign (Central Gujarat), including the erstwhile Baroda State territory are heavily cultivated, the principal crops being bajra (*Pennisetum typhoides*), jowar (*Sorghum vulgare*), groundnut (*Arachis hypogaea*) and cotton (*Gossypium*). Scattered among the cultivated fields or clustered in groves around the little villages are trees, usually large and leafy, of mango (*Mangifera indica*), neem (*Melia azadirachta*), 'teep-papdi' (? *Acanthocephalus kadamba*), mhowa (*Bassia latifolia*) and tamarind (*Tamarindus indica*). *Butea frondosa* forms scrub patches here and there along the banks of streams and nullahs, while the tād or palmyra palm (*Borassus flabellifer*) is locally abundant.

The physiography and vegetation of Kutch are in the main similar to N. Gujarat—sandy flat semidesert with a preponderance of xerophytic species. Here and there occur, scattered singly or in clusters, shady trees around villages and tanks, or in the luxuriant 'wādis' or market gardens irrigated from deep wells. The unique feature of the Kutch landscape,

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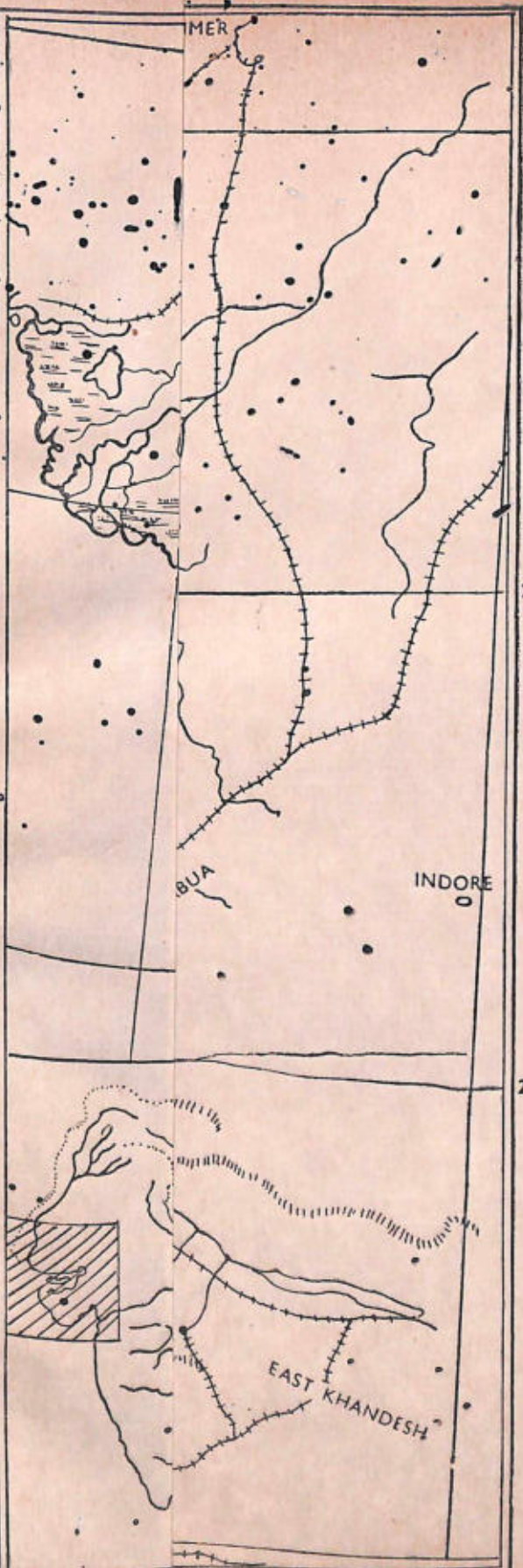
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EAST KHANDESH





1. Moist deciduous forest, Rajpipla, S. Gujarat



2. Deciduous biotope, Surat Dangs, March
Photos by Author



1. Moist deciduous secondary jungle,
Surat Dangs



2. Looking towards Salher Fort, Navsari Dist.,
S. Gujarat

Photos by Author

however, and one that calls for special mention is the Great Rann which divides Kutch from Western Pakistan (Sind) to the north. It is an expansive billiard-table-flat strip of salt, barren, sandy waste some 150 miles long east to west, and 80 wide north to south. During the SW. monsoon season the Rann becomes completely inundated, partly by the flood waters of the rivers Banas and Lum debouching into it, and partly by the sea. When the water dries the Rann assumes a hard flat desiccated surface, covered with pebbly stones, shingle and salt encrustation. To the ornithologist the greatest interest of the Rann lies in the unequalled potentialities it offers for the visual observation of bird migration in autumn and spring, and in its being the only known breeding ground of the flamingo (*Phoenicopterus ruber*) in this country, the most easterly in Asia and perhaps the largest in the world. Further details regarding the climate and floristics of Kutch may be found in the Introduction to Sálim Ali: *The Birds of Kutch* (Oxford University Press, 1945).

The Kathiawar peninsula (Saurashtra) in its physiography is an epitome of Kutch and the rest of Gujarat. The hilly deciduous forest, characteristic of portions of Central Gujarat, finds its parallel in Junagadh (southern Saurashtra), particularly in the Gir which has an annual rainfall of 40 to 50". For an account of the flora of this area reference may be made to the excellent paper recently published by H. Santapau, S.J., and M. B. Raizada (*Indian Forester*, 80 (7), July 1954).

Forest, wherever it occurs, broadly falls into the following four major types of Champion's classification¹

1. Tropical Thorn Forest (Kutch, Saurashtra, N. Gujarat),
2. Tropical Dry Deciduous (Central Gujarat, Saurashtra (Gir),
3. Tropical Moist Deciduous } (Surat Dangs, Navsari prant, Raj-
4. Tropical Semi-evergreen } pipla)

In the composition of the Dangs forests the principal species is Teak. Some of the other characteristic trees are ain or sadada (*Terminalia tomentosa*), beo or bibla (*Pterocarpus marsupium*), dhaman (*Grewia tiliacfolia*), dhמודа (*Anogeissus latifolia*), kilai (*Albizia procera*), haldwan (*Adina cordifolia*), khair (*Acacia catechu*), koshim (*Schleichera trijuga*), mahuda or mhowa (*Bassia latifolia*), samar (*Bombax malabari-cum*), tanach or tiwas (*Ougeinia dalbergioides*), timru (*Diospyros melan-cum*) and others. Bamboo is abundant, both the katas (*Bambusa arundinacea*) and manwel (*Dendrocalamus strictus*).

Among the more important scientific results of the ornithological explorations in Maha Gujarat has been the northward extension of a number of forest birds hitherto believed to be restricted only to the humid southern section of the Western Ghats or Sahyadris. Their discovery at the northern end of this mountain chain, in the region where these hills dovetail with the Satpuras (Rajpipla and Khandesh, etc.), provides striking evidence in support of Dr. S. L. Hora's hypothesis concerning the probable route by which East Himalayan fauna, particularly fishes of the hill streams, spread to South India, namely over the Satpura mountain trend. This aspect of the field work in Gujarat has been dealt with more fully elsewhere [Sálim Ali (1948): *The Role of the Gujarat Satpuras in Indian Ornithogeography*, *Jour. Guj. Res. Soc.*, Vol. 10, pp. 35-45.]

¹Champion, H.G. (1936): A Preliminary Survey of the Forest Types of India and Burma. *Ind. For. Rec.* (New Series), Silviculture. Vol. I, No. 1.

Some of the peculiar species whose distributional range has now been shown to extend to the Gujarat Satpuras are :

- Malabar Trogon (*Harpactes fasciatus*)
- Bluebearded Bee-eater (*Alcedo corinthia*)
- Malabar Whistling Thrush (*Miyophonus horsfieldi*)
- Large Wood Shrike (*Tephrodornis gularis*)
- Orange Minivet (*Pericrocotus flammeus*)
- Blackbacked Pied Shrike (*Hemipus picatus*)
- Vigor's Yellowbacked Sunbird (*Aethopyga siparaja vigorii*)
- Malherbe's Goldenbacked Woodpecker (*Chrysocolaptes guttaecristatus*)
- Heartspotted Woodpecker (*Hemicircus canente*)
- Malabar Black Woodpecker (*Dryocopus javensis*)

BIRD MIGRATION*

The geographical position of Kutch, Banaskantha and the Kathiawar peninsula and the natural conditions that obtain, particularly in the former two, make them ideal venues for the study of Indian bird migration. Kutch lies directly athwart the main route of the hordes of species that sweep into India from the north and north-west in autumn and out in the reverse direction in spring. It forms, moreover, the eastern fringe of the broad stream of through migration that flows down from Central and Northern Asia in a southwesterly direction in autumn. This current passes over the NW. Frontier Province, Afghanistan, Baluchistan and Sind, beyond across the Arabian Sea and southern Arabia into British Somaliland and Abyssinia, and trickles down the eastern side of the continent even to South Africa. Many of the Asiatic forms that winter in Africa pass through Kutch in September and early October. They come in great waves, as it were 'swarming', on the countryside during their temporary sojourn, and are all completely gone within the course of a few short weeks. The return passage, in the main at any rate, apparently takes a somewhat different route since the birds are not in such prominence again in spring. Outstanding examples of these Africa-bound 'through passengers' by the Arabian route are the Greybacked Warbler (*Agrobates galactodes familiaris*), Indian Whitethroat (*Sylvia communis icterops*), Kashmir Roller (*Coracias garrula semenowi*), European Nightjar (*Caprimulgus europaeus univini*) and Spotted Flycatcher (*Muscicapa striata neumanni*).

Kutch 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 Middle-Eastern countries. The Rosy Pastor (*Pastor roseus*), Blackheaded Bunting (*Emberiza melanocephala*), Greynecked Bunting (*E. buchanani*), Yarkand Short-toed Lark (*Calandrella brachydactyla longipennis*) and White Stork (*Ciconia c. ciconia*) are some of the species that enter by this route.

Kutch is a veritable crossroads for all these migrational streams, and offers unique opportunities for a well planned study of Indian bird migration by ringing and observational methods. The bare and open nature of the terrain, and the scantiness of vegetation are distinct advantages. Data which otherwise would have to be collected more or less piecemeal and conjecturally, here stand out in graphic clarity. Especially suitable for trapping and observation stations is the northernmost edge of the 'islands' or 'bets' where the flat, featureless Rann meets the stony range of hills (Kala Dongar, Bhanjda Bet, Chhaparia etc.) that runs



1. Country about Balaram, Palanpur
N. Gujarat
Abu hills in the distance



2. Lesser Flamingos, at Banas River mouth,
Little Rann of Kutch
Photos by Author



1. The Banni country, N. Kutch



2. Typical coastal sand-dunes, Mandvi, Kutch

Photos by Author

more or less continuously along the northeastern border of Kutch. I can think of no better place than this for the study of visual migration in the whole of India. The wide expanse of the Great Rann that separates Sind from Kutch must of necessity be crossed by all birds journeying along this sector of the route. There are no natural distractions to make them linger, and thus create doubts and uncertainties in the mind of the observer as to whether what he sees is actual migration in progress or not. There is no obstruction to good visibility here save perchance when a dust storm is on. If a few observation posts could be strung out along the northern base of this transverse range of hills—say from Kuar Bet across to Bela Island—manned at the appropriate seasons by competent bird watchers, I am confident that data of the highest value could be secured. While encamped at Nir on the NE. point of Pachham Island during the first 3 or 4 days of October (1943) I found ample assurance of this from the abundance of the species and numbers of birds that were continually passing through.

The late Maharao of Kutch, Shri Vijayarajji, who was keenly interested in birds, had approved of a tentative scheme for the putting up of observation posts along the Great Rann. Owing to his untimely death and the change in the general set-up, the plan unfortunately never reached fruition. When field ornithology in India comes into its own—as one hopes it will do in the not too distant future—the implementation of such a scheme will deserve one of the top priorities.

The classification adopted in the Systematic List that follows is a modified version of Wetmore's well known arrangement which, in essentials, is now more or less internationally adopted. 'A (1952) Revised Checklist of the Birds of Ceylon' by W.W.A. Phillips (published by the National Museums of Ceylon), Dr. B. Biswas's very useful 'Checklist of Genera of Indian Birds' (*Rec. Ind. Mus.*, 50 (1): 1-62) and Dr. S. Dillon Ripley's more complete 'Checklist of Indian Birds' (under active preparation) have all adopted the Wetmore classification with suitable modifications. Moreover, all the recent checklists of birds of our neighbouring countries (Malaysia, Thailand, etc), either published or shortly to be published, follow this system of classification, namely they begin with what is believed to be the lowest rung of the evolutionary ladder and climb to the highest. Thus in the case of Indian birds they begin with the Gaviidae (Divers & Loons) and end with the Corviidae (Crows), and not vice versa as Stuart Baker's Fauna volumes did. The position of individual genera and species within this framework may vary somewhat as between one author and another, but the divergence is usually of minor degree.

Personally I consider it immaterial at which end we begin; and while naturally I would rather retain an arrangement with which the living generation of Indian bird students is familiar—and on which I was myself brought up—it seems clear that we cannot isolate ourselves from the universal trend which, for better or worse, has largely replaced what is now considered to be an outmoded system. If we wish to keep in close touch with modern ornithological thought and literature, we must of necessity adopt the new classification and familiarize ourselves with it in the shortest possible time. Therefore, the sooner we begin, the better. I trust this apologia will suffice for what some will, I fear, consider a thoroughly unwarranted innovation. A little inconvenience and confusion

are inevitable at first, but one soon gets accustomed to change, however drastic, and it may be hoped that in due time the younger generation will find it just as easy to grope their way through the new classification as we did through the old.

In order to facilitate reference, the new sequence in which the families appear in the following pages is given below :

- Podicipitidae : Grebes, Dabchick
- Pelecanidae : Pelicans
- Phalacrocoracidae : Darter, Cormorants
- Ardeidae : Herons, Egrets, Bitterns
- Ciconiidae : Storks
- Plataleidae : Ibises, Spoonbill
- Phoenicopteridae : Flamingos
- Anatidae : Ducks, Geese, Swans
- Accipitridae : Hawks, Vultures
- Falconidae : Falcons
- Phasianidae : Junglefowl, Partridges, Quails
- Turnicidae : Button-and Bustard-Quails
- Gruidae : Cranes
- Rallidae : Rails, Coots
- Otidae : Bustards, Florican
- Jaçanidae : Jaçanas
- Haematopodidae : Oystercatcher
- Charadriidae : Plovers, Lapwings
 - Subfamily Scolopacinae : Curlew, Sandpipers, Snipe, Woodcock
- Recurvirostridae : Stilt, Avocet
- Rostratulidae : Painted Snipe
- Dromadidae : Crab Plover
- Burhinidae : Stone-Curlews
- Glareolidae : Coursers, Pratincoles
- Laridae : Gulls, Terns
- Pteroclididae : Sandgrouse
- Columbidae : Pigeons, Doves
- Psittacidae : Parakeets
- Cuculidae : Cuckoos
- Tytonidae : Barn Owl
- Strigidae : Owls
- Caprimulgidae : Nightjars
- Apodidae : Swifts
- Trogonidae : Trogons
- Alcedinidae : Kingfishers
- Meropidae : Bee-eaters
- Coraciidae : Rollers or Blue Jays
- Upupidae : Hoopoes
- Bucerotidae : Hornbills
- Capitonidae : Barbets
- Picidae : Woodpeckers
- Pittidae : Pittas
- Alaudidae : Larks

N.B. Unless otherwise stated all measurements in the account that follows were taken in the flesh; therefore allowance for shrinkage in the wing must be made when comparing with museum material. In my experience this varies from 2 to 4 mm. in the case of birds up to the size of a starling.

SYSTEMATIC LIST

Family PODICIPITIDAE: Grebes, Dabchick.

Podiceps ruficollis capensis Salvadori. The Little Grebe or Dabchick.

Specimens collected: Kutch ks350 ♀ 9-3-44 Mandvi; Gujarat: GS575 ♀ 12-12-45 Saiat (Kaira Dist.)

| Measurements: | W | B | Tar. | T |
|---------------|-----|------|------|----|
| 1 ♀ ad. | 102 | 28 | 34.5 | — |
| 1 ♀ imm. | 93 | 20.5 | 32 | 23 |

Resident. Common on all inland still waters. Breeding was in full swing in Kutch during August and September (1943).

Podiceps caspicus caspicus (Hablizl) The Blacknecked Grebe (= *nigricollis*)A specimen was collected by K. S. Dharmakumarsinhji near Bhavnagar on 7-11-1951. (*JBNHS*, 50: 664). This is the only record of this rare migrant for western India.**Podiceps cristatus cristatus** (Linn.) The Great Crested Grebe.A rare winter visitor. K. S. Dharmakumarsinhji obtained a pair (♂♀) 22/24-8-1947, and saw a third example on a tank in Bhavnagar (*JBNHS*, 47: 385). The early date is interesting. In the Society's collection there is a specimen from Viramgam, 13-3-1905. Hume records others (*S.F.*, iv: 31) from Deesa, Kutch and the western coast of Kathiawar, at Beyt and Porbunder.

Family PELECANIDAE: Pelicans.

Pelecanus onocrotalus Linn. The Rosy Pelican.**Pelecanus philippensis philippensis** Gmelin. The Spottedbilled Pelican.**Pelecanus philippensis crispus** Bruch. The Dalmatian Pelican.

Noted: Kutch: Pung Bet (Little Rann) at the mouth of the Banas River. Saurashtra: Mithapur (Okhamandal); Navlakhi. Gujarat: Kharaghoda.

Of the birds observed by the Surveys some were satisfactorily identified as *onocrotalus* and others as *p. philippensis*. It is not unlikely that the large gatherings may have contained *p. crispus* as well since that species is a common winter visitor to Sind and has been noted by Hume on the Rann of Kutch and on the western coast of Kathiawar. But the birds were always so wild that close enough approach for definite diagnosis was seldom possible.Lester saw about 20 Rosy Pelicans at Devisar Tank (Bhuj Dist. Kutch) in the winter of 1893, and Butler (*S.F.*, iv: 32) records immense flocks of *onocrotalus* on some tanks in northern Gujarat during winter.

He gives an interesting paragraph on their feeding habits, and mentions that *F. philippensis* were equally common, and on the same ground.

Family PHALACROCORACIDAE : Darter, Cormorants.

Phalacrocorax carbo [sinensis (Shaw & Nodder)]. The Large Indian Cormorant.

Noted : Kutch : Chobari (Bhachau Dist.); Kandla. Gujarat : Baduchi (Cambay town environs); Kanewal (Cambay); Radhanpur. Small numbers at tidal lagoons, duck-shooting jheels, salt pans, etc.

Phalacrocorax fuscicollis Stephen. The Indian Shag.

Noted : Kanewal (Cambay). Possibly overlooked elsewhere.

Phalacrocorax niger (Vieill.). The Little Cormorant.

No specimens collected.

Noted : Kutch : Bhuj environs; Mandvi, etc. Saurashtra : Dhari (Amreli Dist.) Ghatwad (Kodinar). Gujarat : Baroda environs and district; Cambay and environs; Balaram (Palanpur) Gujarat : Viramgam, etc.

Resident. Common. Breeding in mixed heronries of egrets, etc. in August (Kutch). Normal clutch 4 eggs.

Anhinga melanogaster Pennant. The Darter or Snake-bird.

No specimens collected.

Noted : Kutch : Kandla; Bhuj environs; Rapar; Khadir Island (Great Rann); Saurashtra : Dwarka; Mithapur (Okhamandal); Kodinar; Ghatwad etc. Gujarat : Baroda and environs; Cambay and environs; Palanpur, Viramgam, etc.

Resident. Common. In smaller numbers than cormorants, but usually in association with them at tanks and jheels. Breeding in mixed heronry with spoonbills, etc. in August (Kutch).

Family ARDEIDAE : Herons, Egrets, Bitterns.

Ardea purpurea [manilensis Meyen]. The Purple Heron.

No specimens collected.

Fairly common resident throughout the area. Frequent, but not abundant. Solos at suitable waters—jheels with reedbeds, tidal mangrove swamps, etc.

Breeding in Kutch in August in mixed heronries with Cattle Egrets, etc. Normal clutch 3 eggs.

Ardea cinerea [rectirostris Gould]. The Grey Heron.

Specimen collected : Gujarat : GS245 ♀ 17-11-45 Dabka (Baroda Dist.).

| Measurements : | W | B | Tar. | T |
|----------------|-----|-----|------|-----|
| 1 ♀ | 417 | 120 | 151 | 150 |

(from forehead feathers)

Apparently this subspecies, but I am not positive.

Same remarks as for the Purple Heron. Breeding in Kutch in August.

Butorides striatus [javanicus (Horsf.)]. The Little Green Bittern.

No specimens collected.

Noted: Kutch: Kandla; Saurashtra: Dwarka (Okhamandal), Dhari (Amfeli Dist.); Gujarat: Dediapada (Rajpipla); Waghai & Laochali (Surat Dangs).

Solos in bushes bordering streams and tidal mangroves. Largely crepuscular. Doubtless resident, but no data on breeding within the area.

When perched on a low branch, flicks tail like kingfisher, more rapidly.

Ardeola grayii (Sykes). The Pond Heron.

Specimens collected: Gujarat: gs122 ♂, gs123 ♀ 5-11-45 Bodeli (Baroda Dist.) gs522 ♂ 9-12-45 Nadiad environs (Kaira Dist.)

| Measurements: | W | B | Tar. | T |
|---------------|---------|--------------------------|-------|-------|
| 2 ♂♂ | 215-213 | 57-64 | 57-60 | 75-79 |
| | | (from forehead feathers) | | |
| 1 ♀ | 206 | 61 | 54 | 59 |

Common throughout, at ditches, ponds and tanks. Usually singly; occasionally loose parties. Nesting July to September in mixed heronries with egrets and cormorants, etc. Colour of legs variable seasonally and *individually*, from bright yellowish green or sage green (non-breeding) to bright salmon pink or rose pink (breeding).

Bubulcus ibis coromandus (Bodd.) The Cattle Egret.

Specimen collected: gs155 ♂ 7-11-45 Bodeli (Baroda Dist.)

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|------|
| 1 ♂ | 263 | 69 | 90 | 97.5 |

Common throughout, mostly in attendance on grazing cattle. Large numbers collect to roost at night in favourite leafy trees. Breeding in progress July to September. Much harried by House Crows in the mixed heronries who destroy vast numbers of eggs and young, missing no opportunity to lift them from nests howsoever momentarily left unattended.

Bluebottle flies (*Musca vomitoria*) picked off low herbage while following cattle, figure largely in its diet. Poises bill, sways neck from side to side like a snake to take aim, and jabs bill at fly.

Egretta alba modesta (Gray). The Large White Egret.

Specimens collected: Kutch: ks220 ♀ 14-9-43 Tuna (Anjar Dist.); Gujarat: gs236 ♀ 15-11-45 Baroda town environs; gs339 ♀, gs340 ♀ 21-11-45 Dabka (Baroda Dist.); gs517 ♂ 9-11-45 Nadiad environs.

| Measurements: | W | B | Tar. | T |
|---------------|---------|----------|---------|---------|
| 1 ♂ | 372 | 115 | 165 | 135 |
| 4 ♀♀ | 337-365 | 97-100.5 | 132-160 | 120-138 |

All the specimens are in winter dress so there are no breast plumes to suggest any of them being *intermedia*. The measurements of *modesta* and *intermedia* overlap so considerably, with odd birds shooting up or down from the norm, that identifying individual examples is not always satisfactory. In the field extreme examples of the two are often impossible to tell apart.

A specimen (♀) in the B.N.H.S. collection labelled 'Yor-ywa, Sando-way Dist. (Burma) 26-2-30'—also in winter plumage and without breast plumes—is determined by Dr. C. B. Ticehurst as *intermedia*. I measure this specimen W 361; B 99, Tar. 136, T 133, therefore far exceeding the wing measurement given for *intermedia* by Stuart Baker: '304-333 mm., once 354' (F.B.I., vi: 347). It falls more satisfactorily within the range of *E. a. modesta*, namely '354-391 mm.' and altogether there seems no doubt that it is misidentified.

Further, as regards colour of bill, according to published descriptions (cf. F.B.I., vi, 345-47) this in the breeding season is black and in non-breeding birds yellow, in both *a. modesta* and *intermedia*. In a heronry off Kandla in the Gulf of Kutch Mr. W. T. Loke and I particularly remarked that a number of actually breeding examples (with nest and young) of *E. a. modesta* had yellow bills! The presence of dorsal plumes and the absence of breast plumes now made their identity undoubted. The bill colour of breeding birds could be a dimorphic character analogous to the colour phases of *Demi egretta asha* or to leg colour in breeding egrets and pond herons (*Ardeola*). It is also possible that the seasonal change in bill colour from yellow to black and vice versa is not perfectly synchronized with the donning and doffing of breeding plumes.

Resident evidently over the entire area. Seen singly, as a rule, at jheels, ponds, marshes, rivers, etc., but its identity is often confused with the Lesser Egret (*E. intermedia*). Nesting was in progress in Kutch (Kandla Creek) in August/September in a mixed heronry among mangrove-trees; shared chiefly by Reef Herons.

***Egretta intermedia* [intermedia (Wagler)].** The Indian Smaller Egret.

No specimens collected.

Observed in Kutch, Saurashtra and Gujarat but sometimes possibly confused with the Large White Egret. When the two species are seen together it is usually possible to differentiate them on size. The Smaller Egret is more gregarious, as a rule, though solitaries are also not uncommon. Breeding was in progress in Kutch during August/September, in mixed heronries.

***Egretta garzetta garzetta* (Linn.).** The Little Egret.

Specimens collected: Gujarat: gs181 ♂ 8-11-45 Bodeli (Baroda Dist.); gs1172 ♂ 31-3-46 Dediapada (Rajpipla).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|---------|---------|
| 2 ♂♂ | 285-290 | 90-93 | 114-115 | 103-104 |

In both the above the legs (tibia and tarsus) are black, and the feet greenish yellow.

Common over the entire area, usually at jheels and on marsh land and inundated ploughed fields, etc. Normally gregarious. Breeding was in full swing in Kutch during August and September, in mixed heronries with Cattle Egrets and Cormorants. Three-quarter fledged young are confusable with *Bubulcus* of comparable age, but black bill as against dark yellowish brown in the Cattle Egret is a distinguishing character.

Demigretta asha (Sykes). The Indian Reef Heron.

Specimens collected: Kutch: ks62 ♀ imm. 13-8-43. Bhuj environs; Saurashtra: ♂ 4-4-47 Okha (coll. Devkar).

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| 1 ♂ ad. | 277 | 93 | 104 | 104 |
| 1 ♀ imm. | 265 | 85 | 98 | 85 |

Common along the sea coast, and about tidal creeks and mangroves. Once seen at a freshwater tank in Kutch. Usually solitary, but nests colonially. Feeds largely on mudfish (*Periophthalmus*). Also wades into shallow surf and 'still hunts' for small fry.

Nesting was in progress in Kandla Creek, Kutch, during August and September on a tide-swept island in a mixed heronry on mangrove trees with Large and Smaller Egrets (*E. a. modesta* and *E. i. intermedia*).

In this colony the majority of birds were slaty blue-black. There was no direct evidence of blue and white birds being paired together. All the nests examined (about 8 out of over 30) contained either exclusively white young (3 or 4 per nest), or exclusively ashy ones. Only in one nest was there a mixture of the two phases—two chicks all-white, one all-grey. At least one of the parents of this brood (observed feeding young) was pure white. None of the white chicks in the colony were ever *pure* white, all being dappled grey to a greater or lesser extent. (Is the juvenile plumage also dimorphic, or do only the dappled white young turn into the white adult phase and the ashy become darker with subsequent moults?)

In recently hatched chicks the naked body skin—the apteria, and also in between the feather-buds—is yellowish grey-green; legs and feet yellowish green and brown. Bill dark brown with a greenish tinge. Iris greenish grey in very young chicks; lighter coloured—almost whitish grey—in older ones.

Nycticorax nycticorax nycticorax (Linn.). The Night Heron.

Specimen collected: Gujarat: gs1175 ♀ + 31-3-46 Dediapada (Rajpipla).

Noted: Kutch: Bhuj environs; Kandla; Tuna; Lakhpat, etc. Gujarat: Baroda city and environs; Kanewal (Cambay); Viramgam.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| 1 ♀ | 293 | 65 | 73 | 109 |

Resident. Not common and rather locally distributed. Crepuscular and nocturnal. Breeding in Kutch during August and September in mixed heronries. Apparently breeds in Gujarat at other seasons also; the specimen of March 31 had the oviduct distended and the largest ovarian follicles measured 2 mm.

Ixobrychus sinensis [sinensis (Gmelin)]. The Yellow Bittern.

Not met with by the Surveys. Butler (*S.F.*, v: 216) found two or three pairs breeding in bulrushes by a small tank at Milana near Deesa during the rainy season—August 1876.

***Botaurus stellaris* [stellaris (Linn.)].** The Bittern.

Not met with by the Surveys. Butler (*S.F.*, iv : 24, 1876) records it as occasionally seen and shot at some reedy tanks in N. Guj. at in winter. He mentions one such tank at Milana, about 13 miles NE. of Deesa.

Family CICONIIDAE : Storks.

***Ibis leucocephalus leucocephalus* (Pennant).** The Painted Stork.

No specimen collected.

The commonest stork in the area, found in ones and twos or large gatherings at jheels, ponds, marshes etc., and sometimes also at streams and tidal creeks. Breeds in August/September in large colonies on trees standing in or near water, usually in a mixed heronry. Feeds in shallow water, jabbing the partly open bill into the ooze, sometimes right up to the gape. One leg is raised and kicked forward, a little behind and to one side of the bill, and deliberately shaken with a raking motion, to drive the quarry into the mandibles. From time to time one wing is flicked open in an attempt to stampede the 'frozen' quarry; and that this manoeuvre usually succeeds is apparent from the bird's subsequent movements—the sudden snapping of the mandibles, jerking upwards of the head and swallowing.

***Anastomus oscitans* (Bodd.).** The Openbilled Stork.

No specimen collected.

Not uncommon, throughout the area as a whole, but not abundant, and subject to considerable local movements dependent on the monsoon. Seen in twos and threes or small flocks at jheels and marshes.

***Ciconia episcopa episcopa* (Bodd.).** The Whitenecked Stork.

Specimen collected: Gujarat: sb212 ♂ 7-3-48 Chinchli (Surat Dangs); gs644 ♂ 19-12-45 Vaghjipur (Mehsana Dist.)

Elsewhere noted: Gujarat: Bodeli (Baroda Dist.); Dediapada (Rajpipla); Mahal, Galkund, Mheskatri (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|---------|
| 2 ♂♂ | 515-519 | 163-171 | 184-185 | 162-190 |

Iris brown; bill black, red on culmen and gonyes, at tips of both mandibles and along commissure; legs and feet lake red.

Resident in Gujarat. Not uncommon, but sparse and local. Singly or pairs at ponds and ditches, etc. Roosts at night up in branches of tall trees. Stomach of one contained larvae of water beetles and a fish 3" long. Not met with by the Kutch Survey though Lester records it 'during the cold season and rains.' Local Mahratti name Kardök.

***Ciconia ciconia* ssp.** The White Stork.

Observed only on three occasions in Gujarat (January and March) at Deesa (Palanpur) and in the Surat Dangs at Pimpri and Mheskatri—solos and parties of 3 or 4. Apparently an uncommon winter visitor.

***Ciconia nigra* (Linn.).** The Black Stork.

Not observed by the Surveys. Lester records it in Kutch during the cold weather. Butler (*S.F.*, iv : 22-1876) noted one on a tank between Ahmedabad and Deesa, and it may well occur in other parts of the area also in winter season.

Xenorhynchus asiaticus [asiaticus (Lath.)]. The Blacknecked Stork.

No specimen collected.

Noted: Kutch: Kandla; Bhuj environs; Anjar. Saurashtra: Dwarka (Okhamandal); Gujarat: Dabka (Baroda Dist.); Saiat (Kaira Dist.); Viramgam.

Resident. Sparse. Occasional solos at tanks, etc. On September 10 (1943—Kandla, Kutch) a bird was observed sitting on an empty but fresh nest on a mangrove tree-top amongst a mixed heronry on an islet in Kandla Creek.

Leptoptilos dubius (Gmelin). The Adjutant.

Leptoptilos javanicus (Hcrsf.). The Smaller Adjutant.

Not met with by the Surveys. The late Sir Peter Clutterbuck, I.F.S. reported seeing both species in Kutch during the winter of 1944/45, the former near Bhuj, the latter at Mandvi.

Butler (*S.F.* iv: 21—1876) considered the former rare in northern Gujarat. He saw occasional solos and small parties of 3 to 8 birds (August and November) usually feeding with vultures at animal carcasses, but apparently did not meet the Smaller Adjutant.

Family PLATALEIDAE: Ibises, Spoonbill.

Threskiornis melanocephalus (Latham). The White Ibis.

Specimen collected: Gujarat: gs548 ♂ 12-12-45 Saiat (Kaira Dist.)

Noted: Kutch: Mandvi; Bhuj and environs; Kandla Khavda; Dholovira (Khadir I.), etc. Saurashtra: Mithapur (Okhamandal). Gujarat: Baroda district; Cambay district; Vaghjipur (Mehsana Dist.); Viramgam; Kharaghoda, etc.

| Measurements: | W | B | Tar. | T |
|---------------|-----|-----|------|-----|
| 1 ♂ | 381 | 185 | 119 | 129 |

(from forehead feathers)

Resident. Rather local, but in small numbers usually at tanks, etc. Breeding in mixed heronry of Painted Storks, cormorants etc., August-September (Kutch). When probing into the bottom mud in shallow water, the head is sometimes completely immersed momentarily.

Pseudibis papillosus (Temminck). The Indian Black Ibis.

Specimens collected: Gujarat: gs1272 ♂ + 16-4-46 Mahal (Surat Dangs); sd343 ♀ imm. 16-3-48 Mheskatri (Surat Dangs).

Elsewhere noted: Kutch: Kandla; Mandvi; Bhuj; Chobari (Bhachau Dist.); Saurashtra: Veraval (Junagadh); Kodinar; etc. Gujarat: Viramgam; Bodeli (Baroda Dist.); Vaghjipur (Mehsana Dist.); Radhanpur.

| Measurements: | W | B | Tar. | T |
|---------------|-----|-----|------|-----|
| 1 ♂ | 401 | 152 | 78 | 190 |
| 1 ♀ imm. | 390 | 140 | 82.5 | 182 |

The female was a young bird in the brown plumage, except for the remiges and rectrices which were adult and freshly moulted, glistening blue-black.

Resident. Not-uncommon. In family parties and flocks of up to 20 or so. Feeds in dry fallow fields etc., often far from water. Has accustomed roosts in large trees to which flocks repair nightly. Utters a loud, nasal, screaming cry of 3 or 4 notes resembling the Brahminy Duck's. On November 5 (1945—Bodeli) a nest was found *ca.* 80 ft. up among the snags of cut-away leaves in the head of a palmyra palm, containing 3 hard-set pale bluish green eggs. While one bird was incubating, its mate continued to fetch twigs and add them to the nest.

Plegadis falcinellus [falcinellus (Linn.)]. The Glossy Ibis.

No specimens collected.

Noted: Kutch: Bhuj (March & April, 1944 and 1945); Gujarat: Viramgam and Kharaghoda (March 1946).

Status uncertain. I cannot trace the source of Stuart Baker's statement (F.B.I., vi: 319) that it breeds in the Rann of Kutch, nor was I able to obtain supporting evidence. This locality has been subsequently omitted by him from 'Nidification' (iv: 440/1).

On one occasion a flock of over 40 was observed feeding on the edge of a tank. The birds waded in up to the belly and often had their heads completely submerged.

Platalea leucorodia [major Temm. & Schleg.]. The Spoonbill.

No specimens collected.

Noted: Kutch: Bhuj and environs; Mandvi; Kandla; Chobari (Bhachau Dist.) etc. Saurashtra: Dwarka; Mithapur (Okhamandal); Gujarat: Viramgam; Dabka (Baroda Dist.); Cambay town environs; Saiat (Kaira Dist.); Deesa (Palanpur); Kharaghoda etc.

Resident. Common. Breeding in mixed heronries with egrets, cormorants etc., August-September (Kutch).

Family PHOENICOPTERIDÆ: Flamingos.

Phoenicopterus ruber roseus (Pallas). The Flamingo.

Specimens collected: Kutch: ks205 ♂ 11-9-43 Kandla. Saurashtra: 3 ♀♀ 4-4-47 Mithapur, Okhamandal (coll. Devkar).

Elsewhere noted: Kutch: Nir (Pachham I., Great Rann); Mandvi; Pung Bet (Little Rann); Saurashtra: Dwarka (Okhamandal).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|---------|
| 1 ♂ ad. | 464 | 134 | 324 | 167 |
| 3 ♀♀ ad. | 393-410 | 116-126 | 261-284 | 130-140 |

Resident. Widely dispersed on jheels, brackish lagoons, salt pans and sea coast throughout the year and concentrating to breed on the Great Rann off Nir (Pachham Island) in vast numbers. The breeding season varies with the availability of requisite conditions. Normally it is September/October, but in 1945 nesting was at its height as late as March/April. The nest 'city' covered an area of about 100,000 square yards with an average density of 131 nests per hundred square yards. The number of adult birds present in this colony was estimated at 2,09,516 and the young 69,839, and the total population of flamingos including young and non-breeding birds concentrated in the area was

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No specimens collected.

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No specimens collected.

Noted: Kutch: Bhuj and environs; Mandvi; Kandla; Chobari (Bhachau Dist.) etc. Saurashtra: Dwarka; Mithapur (Okhamandal); Gujarat: Viramgam; Dabka (Baroda Dist.); Cambay town environs; Saiat (Kaira Dist.); Deesa (Palanpur); Kharaghoda etc.

Resident. Common. Breeding in mixed heronries with egrets, cormorants etc.,—August-September (Kutch).

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Phoenicopus ruber roseus (Pallas). The Flamingo.

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1. Portion of 'Flamingo City' — Great Rann of Kutch
April 1945



2. Exhausted immigrating Grey Quail sheltering under
old flamingo nest-mound,
Great Rann of Kutch

Photos by Author

probably not less than half a million. For further details see *JBNHS*, 45 (4): 586-593.

Phoeniconaias minor (Geoffr.). The Lesser Flamingo.

No specimens collected.

Noted: Kutch: Kandla; Nir (Great Rann); Pung Bet (Little Rann); Saurashtra: Mithapur (Okhamandal).

Presumably resident. Usually seen in small parties by themselves or in association with the larger species. Between 25 February and 2 March 1946, enormous concentrations roughly estimated as close on a hundred thousand birds, with no admixture of *ruber*, were observed on the flat muddy expanse of the shallow Banas River near its mouth (opposite Dhutari Bet) in the Little Rann of Kutch. The species has so far not been found breeding within Indian limits, but there seems high probability of its doing so in the Great or Little Rann. The gathering here included numerous birds in the brown post-juvinal plumage perhaps not more than 2 or 3 months old, which could well be from this undiscovered breeding ground. The birds were feeding with great avidity in the bottom ooze. A sample of mud collected at the actual spot, ca. 25 cubic feet when washed and strained produced only 3 red worm-like larvae ca. 5 mm. long each (*Chironomus*?). The mud was soft and velvety to the touch, of a clayey texture with no grit in it at all nor any visible organic substances. It was reminiscent of the oily sludge that collects in the bottom of the crankcase of a motor engine. This ooze is obviously extraordinarily rich in organic matter, since besides this immense gathering of Lesser Flamingos it afforded sustenance to hundreds of thousands of ducks and waders, all concentrated here prior to emigration.

Family ANATIDAE: Ducks, Geese and Swans.

Anser anser [rubrirostris Swinhoe]. The Grey Lag Goose.

No specimens collected.

According to the late Maharao Shri Vijayarajji (*JBNHS*, 21: 678-9) the Grey Lag was a regular winter visitor to Chhari Dhandh (36 miles NW. of Bhuj) in past years and provided good sport. Owing to scarcity of rain and the consequent progressive desiccation since 1930 or thereabouts, the Dhandh has apparently disappeared and with it the wintering geese. (Salim Ali: *The Birds of Kutch*, p. 158).

Butler (*S.F.*, iv: 26-1876) recorded it as rare in northern Gujarat. In the neighbourhood of Ahmedabad. 'Very scarce. Seldom more than 1 or 2 shot in a season.' (R. M. Simmons ca. 1932). Observed by Dr. H. C. Aldrich in December and January 1931/32 and 1939 at Pañej and Chitersumba (Kaira Dist.)

Anser albifrons [albifrons Scopoli]. The Whitefronted Goose.

No specimens collected. Evidently a rare winter straggler. Lester shot 3 birds in February 1892 on a dirty village tank near Anjar (Kutch).

Anser indicus (Latham). The Barheaded Goose.

No specimens collected. According to the late Maharao Vijayarajji (*JBNHS*, 21: 678) a rare winter visitor to Kutch. The surveys did not

come across it in Gujarat or Saurashtra, nor has it been recorded by Hume or Butler or more recent observers.

Cygnus bewickii jankowskii Alpheraky. Alpheraky's Swan.

Specimen: ♂? 8-4-1947 Bhuj, Kutch (lat. 23° 15' N) coll. H. H. Maharao Madansinhji

| | | | | |
|---------------|--------|-----------------------------|------|-----|
| Measurements: | W | B | Tar. | T |
| (in flesh) | ♂? 552 | 99 (from forehead feathers) | 112 | 161 |

Middle toe with claw 140 mm.

One of a pair reported to have frequented Hamirsar tank, within the town of Bhuj, since 4 or 5 days prior to its being picked up disabled on the shore, presumably due to attack by a small crocodile. (*JBNHS*, 47 (3): 167). A unique record.

In 1870 or thereabouts Stoliczka claimed to have seen some swans while crossing the Great Rann from Kutch to Pachham Island, (*J.A.S.B.*, xl, 1872). Later Hume (*S.F.*, iv; 33, 1876) suspected that Stoliczka, who was known to be short sighted, had probably mistaken pelicans in the distance for swans!

Dendrocygna javanica (Horsf.). The Lesser Whistling Teal.

No specimens collected. Resident. Fairly common locally, but not abundant. Breeding was in progress in Kutch during August (1943).

Dr. H. C. Aldrich of Nadiad found a nest in a hollow in a banyan tree near the village tank of Sandhana (Kaira Dist.) on 1 Sept. 1945, containing 17 eggs believed to be the product of a single female. (*JBNHS*, 45: 610).

Dendrocygna bicolor (Vieillot). The Larger Whistling Teal.

Not met with by the Surveys. Included in Palin's original list of the birds of Kutch. Ticehurst (*Ibis* 1923: 457) says 'it is less common in Kutch also than the next species (*D. javanica*).'

I have not been able to trace any authentic records for Kutch or Gujarat, but there is of course no reason why it may not occur.

Tardorna ferruginea (Vroeg). The Ruddy Sheldrake or Brahminy Duck.

No specimens collected. A rare and erratic winter visitor to Kutch; less uncommon in Gujarat, though never abundant. Usually in twos and threes; once a loose flock of about 20 (Mahi River, Dabka, Baroda Dist.) Always excessively wary and wide awake.

Todorna todorna (Linn.). The Sheldrake.

A very rare winter visitor, or vagrant. Col. C.B. O'Brien shot one near Bhachau (Kutch) in 1921, and it has been obtained also in Saurashtra (*JBNHS*, 26: 674).

Anas angustirostris Menetries. The Marbled Duck.

M. K. S. Fatehsinhji shot one in Kutch in 1940, and it has also been obtained in Saurashtra (*JBNHS*, 38: 195). According to Butler (*S.F.*, iv: 30—1876) though far from common in northern Gujarat, the species occurs on many of the tanks. It is fairly common in Sind.

Anas acuta acuta Linn. The Pintail.

Specimens shot. Winter visitor; fairly common and plentiful. Often flocks comprised more or less exclusively of drakes.

Anas crecca crecca (Linn.). The Common Teal.

Specimens shot. Winter visitor; common and plentiful. One of the earliest ducks to arrive: first date August 23 (1943—Kutch). Often in large flocks. Enormous concentrations were observed on the shallow expanse of the Banas River near its mouth in the Little Rann of Kutch in early March (1946), together with many other species, notably the Garganey, presumably just before emigration.

Anas falcata Georgi. The Bronzecapped or Falcated Teal.

Vagrant. A specimen was shot by the late Maharao Vijayarajji in Kutch on 7 February 1932 (*JBNHS*, 35 : 899).

Anas poecilorhyncha poecilorhyncha Forster. The Spotbill or Grey Duck.

Specimen collected: Kutch: ks223 ♀ + 15-9-43 Anjar.

Elsewhere noted: Kutch: Mandvi, Rudra Mata (Bhuj Dist.); Gujarat: Timbi (Baroda Dist.); Dakor & Saiat (Kaira Dist.); Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|----|
| 1 ♀ | 269 | 64 | 48 | 94 |

Resident. Breeds in Kutch during August and September. The specimen was laying. The largest ovarian eggs measured 19 × 15 mm. and the oviduct was greatly distended.

Anas platyrhyncha Linn. The Mallard.

No specimens collected. An uncommon but regular winter visitor; rather more plentiful in abnormally cold winters. 'Confined to the reedier heels'. (R. M. Simmons).

Anas strepera Linn. The Gadwall.

Specimens shot. Winter visitor. Common.

Anas penelope Linn. The Wigeon.

Specimens shot. Winter visitor; fairly common and plentiful. According to Lester it arrives in Kutch later than most other species of duck.

Anas querquedula Linn. The Garganey or Bluewinged Teal.

Specimens shot. Winter visitor; common and abundant. According to Lester it arrives in Kutch later than the Common Teal. It is also one of the latest to leave, and he records a party of 7 as late as May 6 (1897—*JBNHS*, 11 : 168).

Spatula clypeata (Linn.). The Shoveler.

Specimens collected: Gujarat: gs1047 ♀ 20-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|----|
| 1 ♀ | 236 | 75 | 37 | 79 |

Winter visitor; common and abundant. Also amongst the last ducks to leave. I have seen them in numbers till 24th April and Lester records 20 on a tank in Kutch as late as May 6 (1897—*JBNHS*, 11 : 168).

Netta rufina (Pallas). The Redcrested Pochard.

Noted in Gujarat at Patan (Mehsana Dist.). Only a couple, so presumably an uncommon winter visitor. Butler (*S.F.*, iv : 30—1876) writes of it as not very common in northern Gujarat, but occurring on most large tanks.

Aythya ferina (Linn.). The Pochard or Dun Bird.

Seen in small numbers in Kutch and Gujarat. Winter visitor. Fairly common.

Aythya nyroca (Güldenstädt). The White-eyed Pochard.

Specimens shot. Winter visitor ; common.

Aythya fulgiula (Linn.). The Tufted Pochard.

Specimens shot. Winter visitor ; fairly common, but its abundance varying from year to year.

Aythya marila marila (Linn.). The Scaup Duck.

A rare vagrant. One was shot by K. S. Dharmakumarsinhji near Bhavnagar (Saurashtra) on 22nd February 1935 (*JBNHS*, 38 : 195).

Nettapus coromandelianus (Gmelin). The Cotton Teal.

Specimens seen : Kutch : 2 ♀♀, winter 1937, Bhimasar Tank (Anjar Dist. Shot by M.K.S. Fatehsinhji & Sir G. Archer).

Noted : Kutch : Bhuj (Humayun Abdualali) ; Gujarat : Harni (Baroda environs) Saiat (Kaira Dist.)

Measurements : 2 ♀♀ W 151-160 ; Tail 62-64.

Hume (*S.F.*, iv, 27) records it as occurring in 'Kattiawar'. Resident in small numbers. Also local migrant. Breeds July to September.

Sarkidiornis melanotus melanotus (Pennant). The Nukta or Comb Duck.

No specimens collected.

Noted : Kutch : Mandvi (Changdai tank) Rudra Mata (Devisar tank) Bhuj environs ; Gujarat : Pariej (Kaira Dist.) ; Vaghjipur (Mehsana Dist.) ; Champaner (Godhra Dist.)

Resident, in small numbers. According to Hume (*S.F.*, iv: 27) 'Common in Kathiawar'. Lester records it as breeding in Kutch during the rains in holes in cliffs. Normally it nests in tree-holes.

Mergus albellus Linnaeus. The Smew.

Butler (*S.F.*, iv: 31-1876) saw it occasionally on some tanks in northern Gujarat. He describes it as very uncommon and excessively shy. It has not been recorded from Kutch or Saurashtra.

Family ACCIPITRIDAE: Hawks Vultures etc.

Elanus caeruleus vociferus (Latham). The Blackwinged Kite.

Specimens collected ; Gujarat : gs41 ♀ 30-10-1945, gs49 ♂, gs50 ♀ 31-10-45. Ajwa (Baroda Dist.) ; gs571 ♂ 21-12-45 Saiat (Kaira Dist.) ; gs639 ♂ 18-12-45, gs672 ♀ 20-12-45 Vaghjipur (Mehsana Dist.) ; gs820 ♀ 4-2-46 Radhanpur. Elsewhere noted : Kutch : Mandvi ;

Jakhau; Bhuj environs; Bela Island (Great Rann); Anjar; Gagodar etc. Saurashtra: Ghatwad (Kodinar); Kharaghoda; Gulkund (Surat Dang's).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|-----------|
| 3 ♂♂ | 270-276 | 20.5-23 | 35-37 | 120-122.5 |
| 3 ♀♀ | 274-283 | 22.5-23 | 35-36 | 125-130 |

Fairly common, but sparse and local. Affects dry scrub-and-grass country in open cultivation and waste land. A colony had its roost in a small leafy *Pithecolobium saman* tree in the compound of Ajwa Rest House (Baroda Dist., 30 October). Fifteen or more birds would converge on this from all points of the compass over the surrounding expanse of tall grass every evening at dusk. In fading light the wing action of an oncoming bird is 'angular' and reminiscent of a flying fox. Stomachs of specimens contained remains of field mice and rats. The gonads of gs41, gs49 and gs50 (30-31 October) were slightly enlarged, but not sufficiently to provide any indication of the breeding season.

Pernis ptilorhynchus ruficollis Lesson. The Crested Honey Buzzard.

Specimens collected. Kutch: ks 330 ♀ 3-3-1944 Bhuj; Gujarat: gs755 ♀ 30-12-45, gs772 ♀ 31-12-45, gs823 ♀, gs824 ♂, gs825 ♂, 4-1-1946 Radhanpur; gs873 ♂ 11-1-46, gs901 ♂ 13-1-46 Deesa (Palanpur).

Elsewhere noted: Balam (Palanpur); Mahal (Surat Dang's).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|---------|
| 4 ♂♂ | 382-404 | 36-38 | 49-57 | 245-262 |
| 4 ♀♀ | 400-445 | 38.5-42 | 55-69 | 250-276 |

This series contains examples in every phase of coloration from dark, more or less uniform umber brown below (as in the dark form of *Aquila rapax vindhiana*) with broad brownish grey band in tail (anterior to the black subterminal band), to almost white below with broad or narrow dark brown streaks along the shafts of the feathers on the breast and underparts, and wavy narrow bars and mottling of grey and brown in the tail. In this latter plumage the underparts resemble one phase of *Hieraetus pennatus*, a bird of rather similar proportions. The deeper, stronger bill, feathered legs and absence of scale-like feathers on lores, forehead and cheeks, and the unbarred under aspect of the tail distinguishes the Booted Eagle from the honey Buzzard in this comparable colour phase.

In some of the Gujarat specimens the whitish underparts are barred with broken brown bands; in others the underparts are brown similarly cross-banded with white. The dark brown shaft streaks are present in both phases. Whether any of my specimens belong to the typical race of Java or to the Siberian *orientalis* it is not possible to determine for want of suitable comparative material. It would appear that wing size and 'tail-wing index', $\frac{(t \times 100)}{w}$ are the ultimate criteria between the races.

The tail-wing index of the specimens ranges between 62 and 64.8, therefore conforming with Stresemann's dictum¹ that the tail-wing index of *ruficollis* is usually under 65.

¹ *Archiv für Naturgeschichte*, 1940: 137-193.

I find, however, that determination of the races satisfactorily with any degree of confidence is by no means a simple matter. Honey Buzzards were common in the Radhanpur area during the last week of December 1945 and the first week of January 1946. A congregation of 8 or 10 birds roosted in large neem and other trees in Jerawar Bagh on the outskirts of the town, and others similarly in the compound of Lalbagh Palace, within municipal limits. It is just possible that all 3 races, or at least one other besides *ruficollis*, were represented in these gatherings. My notes show that of the 3 specimens collected on 4-1-1946, two with many narrow cross-bars in the tail were also very fat, whereas the third which had the typical broad grey-and-black banded tail of *ruficollis* was not. The same was noted in the rest of the specimens: birds with narrow tail bars were fat; those with the broad bands lean, suggesting that the fat birds belonged to the migratory Palaearctic species.

The call-note uttered as the birds flew about was a rather kitelike long-drawn whistling *whee-eww*. Presumably it was also this same call that was once heard during night in the Surat Dangs subsequently, and if it can be confirmed that *Pernis* sometimes does call during the night then the mysterious 'owl' referred to in my Central India Ornithological Survey Report (*JBNHS*, 41; 475) was probably no other than this species.

Milvus milvus (Linn). The Red Kite.

No specimen obtained. Over 50 of these birds collected for scraps in the neighbourhood of my camp on Pung Bet (near Adesar, Little Rann) Kutch (March 1945) where several specimens of wild ass for the British Museum were being skinned. This kite has not hitherto been recorded from Indian limits, but close examination through glasses, several days running, left no doubt whatsoever of its identity. The overall rust-brown coloration with paler (whitish) head, dark-streaked brown breast, the very bright rufous tail and white underwing patch were quite diagnostic. The squealing whistle was similar to the Pariah Kite's, but shriller.

It is probable that the Red Kite is a regular winter visitor to Kutch but has been overlooked, though its deeply forked rufous tail would seem sufficiently distinctive.

Milvus migrans govinda Sykes. The Common Pariah Kite.

*Specimens collected: Gujarat: gs234 ♀ + 12-11-45 Bodeli (Baroda Dist.); gs913 ♂ 13-1-46 Deesa (Palanpur); G^o1081 ♀ + 21-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| • 1 ♀ ad. | 458 | 37 | 53 | 290 |

A common resident in Kutch, Saurashtra and Gujarat. Usually about towns and villages and herdsmen's encampments, and wherever the prospects of refuse and garbage are promising. Breeding from September to end March.

Haliastur indus indus (Boddaert). The Brahminy Kite.

Specimens collected: Gujarat: gs375 ♀ 23-11-45 Dabka (Baroda Dist.).

Elsewhere noted: Kutch: Chaduva (Bhuj Dist.); Anjar

Gujarat: Ajwa, Bodeli (Baroda Dist.); Balaram (Palanpur); Juna Rajpipla; Dediapada (Rajpipla); Mahal (Surat Dangs).

Not common, but usually present on the larger rivers and streams. Breeding was in progress during April.

Accipiter badius dussimieri (Temm. & Laugier). The Indian Shikra.

Specimens collected: Kutch: ks69 ♂ 16-8-43, ks70 ♀+ 17-8-43 Chaduva (Bhuj Dist.); Gujarat: gs77 ♀ 1-11-45 Ajwa (Baroda Dist.); gs179 ♂ 9-11-45 Bodeli (Baroda Dist.); gs306 ♀ 19-11-45, gs357 ♀ + 21-11-45 Dabka (Baroda Dist.); gs390 ♂ 27-11-45, gs445 ♂ 1-12-45, gs497 ♀ 6-12-45 Cambay town environs; gs914 ♀ 14-1-45 Deesa (Palanpur); sd39 ♂ 26-2-48 Galkund; sd47 ♀ 27-2-48 Malegaon; sd129 ♂ 2-3-48 Galkund; sd160 ♂ 5-3-48 Pandwa; sd139 ♀ 3-3-48 Galkund; sd295 ♂ 14-3-48 Mahal; sd390 ♀ 20-3-48 Sarwar (sd series = Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|---------|
| 7 ♂♂ | 179-206 | 18.5-21 | 50-54 | 137-166 |
| 8 ♀♀ | 206-222 | 21.5-23 | 51-55 | 160-175 |

The commonest of the smaller hawks. Affects wooded country generally. Its favourite haunts are groves of trees in the neighbourhood of villages and cultivation. General moult in August and also in March—body, rectrices, remiges. No direct evidence of the breeding season was obtained, though Lester gives it as March/April for Kutch. Stomachs examined contained remains of skins, large insects and small birds.

Accipiter nisus nisosimilis (Tickell). The Asiatic Sparrow-Hawk.

Specimens collected: Gujarat: gs441 ♂ 30-11-45 Cambay town environs; gs1171 ♀ 31-3-46 Dediapada (Rajpipla); gs1311 ♂ 21-4-46 Galkund (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|-----|------|------|-----|
| 1 ♂ ad. | 207 | 19 | 59 | 150 |
| 1 ♂ sub-ad. | 202 | 18.5 | 56 | 151 |
| 1 ♀ ad. | 233 | 22 | 60 | 175 |

Winter visitor. Not common, but may easily be confused with the shikra to which it is superficially very close. Stomach of one contained remains of a Yellowthroated Sparrow (*Gymnorhis*).

Butler (*S.F.*, iii: 445) found it sparingly in the plains and hills of Northern Gujarat in winter. Hume saw a specimen shot by Stoliczka in Kutch, and mentions that it is apparently very rare in 'Kattiawar'.

Accipiter virgatus ssp.

Hume mentions that Stoliczka obtained a couple of young birds in Kutch (*S.F.*, iii: 445-1875).

Buteo [rufinus (Cretzschmar)]. The Buzzard.

Specimens not obtained.

Noted: Kutch: Anjar; Thoriari (Wagad Dist.). Not in Gujarat or Saurashtra—possibly overlooked.

A sparse winter visitor to Kutch, much commoner in some years than in others. The heavy build and somewhat sluggish habit, together with the overall reddish brown plumage, buff coloured rounded tail and buff underwing patches provide clues to its identity when perched and in overhead flight.

Butler (*S.F.*, iii : 447) says it arrives in northern Gujarat about 12th September, and is not very common.

Bufo teesa (Franklin). The White-eyed Buzzard.

Specimens collected: Gujarat: gs95 ♀ 2-11-45 Ajwa (Baroda Dist.); gs128 ♀ 5-11-45, gs180 ♀ 9-11-45 Bodeli (Baroda Dist.); gs367 ♀, gs368 ♂ 22-11-45 Dabka (Baroda Dist.); gs460 ♀ 2-12-45 Golana (Cambay); gs523 ♂ 9-12-45 Nadiad town environs (Kaira Dist.); gs719 ♀ 25-12-45 Patan (Mehsana); sd145 ♂ + 4-3-48 Pandwa (Surat Dangs).

Elsewhere noted: Kutch: Mandvi; Jakhan; Bhuj. Saurashtra: Dhari (Amreli Dist.) Kodinar; Ghatwad; Dalkhania.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-----------|---------|
| 3 ♂♂ | 292-304 | 28-31.5 | 62-67 | 169-180 |
| 6 ♀♀ | 295-312 | 29.5-32 | (55)61-68 | 170-185 |

The commonest hawk in the area. Affects dry, open, cultivated and sparse scrub-and-bush country; usually seen perched on a tree-top or pole. Its food is chiefly snakes, lizards, mice and large insects. From the crop of one a watersnake, *Tropidonotus stolatus*, 15 inches long was removed. Another was observed walking about purposefully over a patch of recently burnt grassland, with some of the rubbish still smouldering, looking no doubt for freshly roasted lizards etc. ! Breeding was in progress in March.

Spizaetus cirrhatus cirrhatus (Gmelin). The Crested Hawk-Eagle.

Specimens collected: Gujarat: gs1129 ♀ 27-3-46 Juna Rajpipla; gs1170 ♂ 1-3-46, gs1188 ♀ 3-4-46 Dediapada (Rajpipla).

Elsewhere noted: Galkund (Surat Dangs)

| Measurements: | W | B | Tar. | T |
|---------------|---------|----|---------|---------|
| 1 ♂ | 392 | 35 | 106 | 277 |
| 2 ♀♀ | 410-445 | 41 | 105-106 | 286-335 |

No. gs1129, apparently subadult, has a buffy or brownish white head; crest normal black with white apical edge. Underparts uniform buffy white with faint, sparse, fine brown shaft streaks on breast. Tips and inner webs of greater upper wing coverts largely buffy white.

Not uncommon in forested country. Usually solos perched bolt upright on outgrowing branches, hidden in the canopy foliage of tall trees whence it can keep a good lookout over a natural glade or cultivation clearing for prey venturing into the open. One observed in aerial display on 1 April (1946), high up in the air, stooping with great velocity and 'looping the loop' completely. No more precise data as to breeding were obtained.

Hieraetus fasciatus fasciatus (Vieillot). Bonelli's Eagle.

Specimens collected: Kutch: ks338 ♀ 7-3-1944 Bhuj. Gujarat: gs735 ♂ + 27-12-45 Patan (Mehsana Dist.); gs892 ♂ 12-1-46 Deesa (Palanpur); gs319 ♀ 20-11-45 Dabka (Baroda Dist.).

Elsewhere noted: Kutch: Chaduva (Bhuj Dist.); Gujarat: Vaghjipur, (Mehsana).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|---------|---------|
| 2 ♂♂ | 468-475 | 42-49 | 103-104 | 246-256 |
| 2 ♀♀ | 490-498 | 47-49 | 106-110 | 254-270 |

Colours of soft parts of Gs319: Iris damaged; bill plumbeous, black at tip; cere and feet greenish lemon yellow; claws horny black.

In the pale brown plumage, distinguishable in flight from *Aquila rapax* (in comparable colour phase) by its slenderer build, narrower wings and proportionately longer and square-ended (against rounded) tail. One was observed devouring a paddy bird (*Ardeola grayii*) on the ground. Another was busy tearing up and demolishing a pariah kite nesting calmly and composedly with the frantic parents innocuously stooping at it again and again! The stomach of a specimen contained fur, apparently a hare's.

Breeding was in progress in December, but presumably commences a month or so earlier. In October a pair were observed carrying large sticks and tangles of twigs in their feet to a massive old nest of sticks on the topmost ramparts of Bhujia Fort (Kutch).

Kirke Swann ('A Monograph of the Birds of Prey', Part xi: 73) recognises a large Indian breeding race, *H. f. grandis* (Hodgson), giving its wing measurements as '♂ 465-495; ♀ 505-530'. Besides being larger it is said to average a little darker; more buffish less pure white below; abdomen more heavily marked; thighs a more uniform brown, striped with blackish and a little mottled with white. No. Gs319 conforms with this description, and should the race be resuscitated this specimen must be considered as belonging to it. It had a mature ovary (largest follicles over 2 mm.) and was apparently ready to breed.

Hieraëts pennatus (Gmelin). The Booted Eagle.

Specimens collected: Gujarat: Gs736 ♀ 27-12-45 Patan (Mehsana Dist.); Gs754 ♀ 30-12-45, Gs771 ♀ 31-12-45 Radhanpur.

Elsewhere noted: Gujarat: Cambay town environs; Deesa (Palanpur).

A specimen was collected in Kutch by the Maharao in 1896 and two more by Sir Geoffrey Archer in 1939/40.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 3 ♀♀ | 385-423 | 34-36 | 65-69 | 204-225 |

I do not know how far, if at all, the race *mitvoides* of Jerdon is tenable. Kirke Swann (op. cit., Part xi: 79) says it is 'larger than *H. p. pennatus*. Wing ♂ 375-405; ♀ 425-530; the head with a rudimentary crest . . .'

These Gujarat specimens possess no rudimentary crest and their measurements agree with the typical race which, however, Kirke Swann does not give as a winter visitor to India at all! Hartert (Vög. pal. Fauna, ii: 1113) mentions Indian collected specimens as being larger, but he does not consider the naming of an Indian race worth while. With this Ripley and I agree.

This eagle also has dark and pale plumage phases. In the dark umber brown phase it resembles the immature Brahminy Kite (*Haliastur indus*) on the wing, but has a proportionately longer and square-ended tail, against rounded in the Brahminy.

A sparse winter visitor to Kutch, much commoner in some years than in others. The heavy build and somewhat sluggish habit, together with the overall reddish brown plumage, buff coloured rounded tail and buff underwing patches provide clues to its identity when perched and in overhead flight.

Butler (*S.F.*, iii : 447) says it arrives in northern Gujarat about 12th September, and is not very common.

Buteo teesa (Franklin). The White-eyed Buzzard.

Specimens collected: Gujarat: gs95 ♀ 2-11-45 Ajwa (Baroda Dist.); gs128 ♀ 5-11-45, gs180 ♀ 9-11-45 Bodeli (Baroda Dist.); gs367 ♀, gs368 ♂ 22-11-45 Dabka (Baroda Dist.); gs460 ♀ 2-12-45 Golana (Cambay); gs523 ♂ 9-12-45 Nadiad town environs (Kaira Dist.); gs719 ♀ 25-12-45 Patan (Mehsana); sp145 ♂ + 4-3-48 Pandwa (Surat Dangs).

Elsewhere noted: Kutch: Mandvi; Jakhan; Bhuj. Saurashtra: Dhari (Amreli Dist.) Kodinar; Ghatwad; Dakhania.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-----------|---------|
| 3 ♂♂ | 292-304 | 28-31.5 | 62-67 | 169-180 |
| 6 ♀♀ | 295-312 | 29.5-32 | (55)61-68 | 170-185 |

The commonest hawk in the area. Affects dry, open, cultivated and sparse scrub-and-bush country; usually seen perched on a tree-top or pole. Its food is chiefly snakes, lizards, mice and large insects. From the crop of one a watersnake, *Tropidonotus stolatus*, 15 inches long was removed. Another was observed walking about purposefully over a patch of recently burnt grassland, with some of the rubbish still smouldering, looking no doubt for freshly roasted lizards etc. ! Breeding was in progress in March.

Spizaetus cirrhatus cirrhatus (Gmelin). The Crested Hawk-Eagle.

Specimens collected: Gujarat: gs1129 ♀ 27-3-46 Juna Rajpipla; gs1170 ♂ 1-3-46, gs1188 ♀ 3-4-46 Dediapada (Rajpipla).

Elsewhere noted: Galkund (Surat Dangs)

| Measurements: | W | B | Tar. | T |
|---------------|---------|----|---------|---------|
| 1 ♂ | 392 | 35 | 106 | 277 |
| 2 ♀♀ | 410-445 | 41 | 105-106 | 286-335 |

No. gs1129, apparently subadult, has a buffy or brownish white head; crest normal black with white apical edge. Underparts uniform buffy white with faint, sparse, fine brown shaft streaks on breast. Tips and inner webs of greater upper wing coverts largely buffy white.

Not uncommon in forested country. Usually solos perched bolt upright on outgrowing branches, hidden in the canopy foliage of tall trees whence it can keep a good lookout over a natural glade or cultivation clearing for prey venturing into the open. One observed in aerial display on 1 April (1946), high up in the air, stooping with great velocity and 'looping the loop' completely. No more precise data as to breeding were obtained.

Hieraetus fasciatus fasciatus (Vieillot). Bonelli's Eagle.

Specimens collected: Kutch: ks338 ♀ 7-3-1944 Bhuj. Gujarat: gs735 ♂ + 27-12-45 Patan (Mehsana Dist.); gs892 ♂ 12-1-46 Deesa (Palanpur); gs319 ♀ 20-11-45 Dabka (Baroda Dist.).

Elsewhere noted: Kutch: Chaduva (Bbuj Dist); Gujarat: Vaghjipur (Mehsana).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|---------|---------|
| 2 ♂♂ | 468-475 | 42-49 | 103-104 | 246-256 |
| 2 ♀♀ | 490-498 | 47-49 | 106-110 | 254-270 |

Colours of soft parts of Gs319: Iris damaged; bill plumbeous, black at tip; cere and feet greenish lemon yellow; claws horny black.

In the pale brown plumage, distinguishable in flight from *Aquila rapax* (in comparable colour phase) by its slender build, narrower wings and proportionately longer and square-ended (against rounded) tail. One was observed devouring a paddy bird (*Ardeola grayii*) on the ground. Another was busy tearing up and demolishing a pariah kite nestling calmly and composedly with the frantic parents innocuously stooping at it again and again! The stomach of a specimen contained fur, apparently a hare's.

Breeding was in progress in December, but presumably commences a month or so earlier. In October a pair were observed carrying large sticks and tangles of twigs in their feet to a massive old nest of sticks on the topmost ramparts of Bhujia Fort (Kutch).

Kirke Swann ('A Monograph of the Birds of Prey', Part xi: 73) recognises a large Indian breeding race, *H. f. grandis* (Hodgson), giving its wing measurements as '♂ 465-495; ♀ 505-530'. Besides being larger it is said to average a little darker; more buffish less pure white below; abdomen more heavily marked; thighs a more uniform brown, striped with blackish and a little mottled with white. No. Gs319 conforms with this description, and should the race be resuscitated this specimen must be considered as belonging to it. It had a mature ovary (largest follicles over 2 mm.) and was apparently ready to breed.

Hieraëts pennatus (Gmelin). The Booted Eagle.

Specimens collected: Gujarat: Gs736 ♀ 27-12-45 Patan (Mehsana Dist.); Gs754 ♀ 30-12-45, Gs771 ♀ 31-12-45 Radhanpur.

Elsewhere noted: Gujarat: Cambay town environs; Deesa (Palanpur).

A specimen was collected in Kutch by the Maharao in 1896 and two more by Sir Geoffrey Archer in 1939/40.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 3 ♀♀ | 385-423 | 34-36 | 65-69 | 204-225 |

I do not know how far, if at all, the race *milvoides* of Jerdon is tenable. Kirke Swann (op. cit., Part xi: 79) says it is 'larger than *H. p. pennatus*. Wing ♂ 375-405; ♀ 425-530; the head with a rudimentary crest . . .'

These Gujarat specimens possess no rudimentary crest and their measurements agree with the typical race which, however, Kirke Swann does not give as a winter visitor to India at all! Hartert (Vög. pal. Fauna, ii: 1113) mentions Indian collected specimens as being larger, but he does not consider the naming of an Indian race worth while. With this Ripley and I agree.

This eagle also has dark and pale plumage phases. In the dark umber brown phase it resembles the immature Brahminy Kite (*Haliastur indus*) on the wing, but has a proportionately longer and square-ended tail, against rounded in the Brahminy.

A number of Booted Eagles collected to roost every evening (December) in the large leafy tamarind, casuarina and other trees in the rambling old neglected compounds of Lalbagh and Jorawar Bagh palaces, and the species was fairly common in the Radhanpur area.

On 12 January a stick nest like a crow's near the top of a *Prosopis* tree in semidesert country (Deesa) presumably held young. One of the parent eagles was bringing food to the nest. A shikra was observed haunting the tangle of branches below the nest, and to work his way up to it each time the owner left, and help himself to the food. He promptly slipped down into the thorny tangle upon return of the owner, and remained there quietly till the nest was again left unattended! When shot on the nest in this act of pilfering, blobs of freshly extracted brain were found adhering to his bill. It could not be ascertained whether this was the brain of a nestling eagle which he had murdered, or belonged to some quarry which the parent had brought to the nest. But for a certain element of doubt, this would be the first authentic recent record of *H. pennatus* breeding in peninsular India. Unfortunately I was unable to satisfy myself that this nest actually did contain young at the time. And in view of the habit of many birds of prey to use old nests—usually their own, it is true—as larders or feeding tables even in the non-breeding season, the evidence is rather vitiated. I failed to secure the specimen of the eagle. Gonad examination could possibly have settled the doubt.

***Aquila heliaca heliaca* Savigny.** The Imperial Eagle.

Specimens collected: Kutch: ks430 ♀ 27-2-1946 Pung. Bēt (Little Rann); Gujarat: gs505 ♀ 8-12-45 Pariej (Kaira Dist.)

Elsewhere not definitely identified, but several of the large eagles sparsely dotted about on the bare ground in the Little Rann of Kutch, where ks430 was secured, were probably this species.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|---------|---------|
| 2 ♀♀ | 630-632 | 60-66 | 102-105 | 284-328 |

Iris yellowish brown; cere and gape yellow; bill plumbeous, blackish at tip; legs and feet chrome yellow; eyeshade and eyelid yellow.

The stomach of gs505 contained a recently swallowed Russell's Viper (*Vipera russelli*), 14 inches long, and remains of a Common Sandpiper (*Actitis hypoleucos*); that of gs430 had the remains of two large Fat-tailed Lizards (*Uromastix*).

***Aquila rapax vindhiana* Franklin.** The Indian Tawny Eagle.

Specimens collected: Saurashtra: gs1013 ♂ + 16-3-1946 Dal-khania, (Amreli Dist.); Gujarat: gs318 ♀ + 20-11-45 gs374 ♀ + 23-11-45 Dabka (Baroda Dist.); gs378 ♀ + 27-11-45 Cambay town environs; gs588 ♀ 15-12-45 Vaghjipur (Mehsana Dist.); gs821 ♀ + 4-1-46, gs842 ♂ 6-1-46 Radhanpur; gs1130 ♀ juv. 29-3-46, gs1189 ♂ 2-4-46 Dediapada (Rajpipla); sp131 ♀ 2-3-48 Galkund (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 2 ♂♂ | 500-503 | 50-51 | 80-87 | 251-252 |
| 6 ♀♀ | 510-528 | 48-55 | 84-91 | 242-264 |

Colours of soft parts: *Adult*: iris yellow brown; cere and gape lemon yellow; bill horny black, plumbeous at base of lower mandible; feet

yellow, claws horny black. In specimen GS588 (in very pale buff plumage) cere ivory white.

The above series contains almost every colour phase from dark umber brown (almost black) to pale cream or buff. This wide range of colour variation makes the Tawny Eagle a difficult bird to identify with certainty in the field, particularly in winter when several other migratory eagles are also present. Perhaps even more so in the museum when jumbled up with skins of the other eagles of varying ages, e.g. *Aquila nipalensis*, and when the measurements overlap. I can see no overwhelming reason for not considering *rapax* and *nipalensis* as conspecific.

A common resident species over the entire area. Breeding was in progress between November and March. The crop of one specimen contained fresh and not very mangled remains of a Grey Quail (*Coturnix*) and a Bush-Quail (*Perdica*).

***Aquila nipalensis nipalensis* Hodgson.** The Eastern Steppe Eagle.

Specimen collected: Kutch: KS431 ♂ 27-2-1946 Pung Bet (Little Rann).

Elsewhere not definitely identified, but some of the large eagles perched on the bare ground along the edge of the 'bet' (island) where this one was shot, were apparently this species.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| 1 ♂ | 570 | 55 | 93 | 288 |

In worn plumage and moulting primaries. Iris grey-brown; cere and gape pale yellow; bill horny plumbeous, black at tip; feet yellow; claws black. Stomach empty at 11 a.m.

The specimen is in immature plumage, streaked on the breast. Head pale golden brown with a buff patch on nape. On the whole similar to the phase described for 'young birds' under *A. heliaca* in (F.B.I., v: 69).

***Aquila clanga* Pallas.** The Greater Spotted Eagle.

Specimens collected: Gujarat: GS506 ♀ 8-12-45 Pariej (Kaira Dist.); GS937 ♂+, GS938 ♀+ 19-1-46 Hathidhara (Palanpur).

Elsewhere not identified with certainty.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|--------|---------|
| 1 ♂ | 485 | 47 | 85 | 242 |
| 2 ♀♀ | 533-545 | 52-55 | 90-105 | 260-272 |

Usually seen in the neighbourhood of jheels. At 5-30 p.m., at the end of what one would imagine to be the foraging day, the stomach of GS506 was quite empty. Of the other two, one contained an entire chameleon with a *Calotes* lizard, and the other, remains of a Whitebreasted Kingfisher (*Halcyon smyrnensis*) including the complete head and bill.

GS937 and GS938 were a pair. Testes of male 17×7 mm.; largest ovarian follicle of female over 3 mm. diameter. The birds were either breeding or quite ready to breed, and if their identification is correct this will be the first authentic presumptive evidence of *A. clanga* breeding within Indian peninsular limits.

Ictinaëtus malayënsis [perniger (Hodgs.)]. The Black Eagle.

Definitely observed only once — a single bird beating over teak and mixed deciduous forest at Jambughoda (Gujarat), 11-11-1945.

Haliaëtus leucogaster (Gmelin). The Whitebellied Sea Eagle.

Not met with by the Surveys nor recorded from the area by Butler or Hume. Mr. Harinarayan Acharya of Ahmedabad gives an accurate description of a bird he saw on Gobhlaj lake, 18 miles south of Ahmedabad on 9-2-1936 which was presumably this species. This freshwater lake is about 50 miles from the nearest sea coast to which this eagle is normally restricted. An unusual record.

Haliaëtus leucoryphus (Pallas). Pallas's Fishing Eagle.

Occasional solos were observed on the Mahi River at Golana (Cambay), and on the Banas River (Palanpur). According to Butler, occurs sparingly throughout the plains in the well watered districts of northern Gujarat, to which Hume adds Kutch and Saurashtra as well.

Ichthyophaga ichthyaëtus [ichthyaëtus (Horsfield)]. The Grey-headed Fishing Eagle.

Noted only at Balaram (Palanpur), a pair on a perennial rocky forest stream with shingly bed and rock pools. Perches upright and motionless on boughs of riverbank trees. In flight the comparatively short white tail and white abdomen and vent are conspicuous. Call: a single screaming note, not particularly loud, of the timbre of the Grey Hornbill's (*Tockus birostris*) 'laugh'.

Sarcogyps calvus (Scopoli). The Black or King Vulture.

Observed in small numbers throughout the area. On 10 March (1944) a nest with c/1 was found on the 'roof' of a kandi tree (*Prosopis spicigera*), about 12 ft. up, growing amongst sand-dunes near Mandvi (Kutch). A pair of Whitethroated Munias (*Uroloncha malabarica*) were constantly entering and leaving the pile of sticks right under the brooding owner, and evidently had their nest within. Nesting was in progress in Kutch generally during March.

It will bear reiteration that this vulture's reputation for boldness and pugnacity is entirely fictitious. If a 'King', it is certainly a very timid and constitutional one!

Aegyptius monachus (Linnaeus). The Cinereous Vulture.

A rare straggler. An example was picked up dead by Mr. Harinarayan Acharya near Ahmedabad on 25-12-1949 (*JBNHS*, 49:307). He measured it as Wing 770; Tail 390 mm. The only other record for Gujarat is of one seen feeding on the carcass of a Painted Stork (*Ibis leucoccephalus*) by Capt. A. E. Butler in the winter of 1870 (*S.F.*, iii: 441).

Four birds were observed by me on the ground in the Little Rann of Kutch near Sandher in Radhanpur territory, on 3-1-1946.

Gyps fulvus ssp. The Fulvous Vulture.

A few examples of this vulture, distinguishable from others by its enormous size and distinctly reddish-fulvous or cinnamon coloration, were observed at various times during the Kutch survey, August 1943 to

March 1944. In Gujarat it was only noted in the neighbourhood of Deesa (Palanpur). The commoner *Gyps indicus* has often been mistaken by observers for this species.

***Gyps indicus* ssp.** The Longbilled Vulture.

Noted: Kutch: Mandvi. Gujarat: Ajwa and Dabka (Baroda Dist.); Cambay town environs; Vaghjipur (Mehsana Dist.); Deesa (Palanpur); Songadh (Navsari Dist.) In smaller numbers than the Whitebacked Vulture at animal carcasses. Possibly nests on the cliffs about Salher Fort.

***Gyps bengalensis* (Gmelin).** The Whitebacked Vulture.

The commonest vulture in the whole area. Birds on nests were seen in numbers, and generally, between December and February. Large tamarind, mango and *Ficus* trees are usually selected on the outskirts of towns and villages. Flying young were first noted on 31 March (Dediapada, Rajpipla).

***Neophron percnopterus* ssp.** The White Scavenger Vulture.

Fairly common over the whole area. Nesting in Kutch during August. Turrets and ledges in crumbling old forts and buildings, niches and hollows in weathered sandstone scarps are favourite sites for the filthy nests, and the droppings of the birds whitewashing the surroundings give them away from afar.

***Circus macrourus* (S. G. Gmelin).** The Pale Harrier.

Specimens collected: Kutch: ks195 ♀ 9-9-1943 Ratnal (between Bhuj & Kandla); Gujarat: gs151 ♂ 7-11-45 Bodeli (Baroda Dist.); gs440 ♂ 30-11-45 Cambay town environs; gs519 ♂, gs520 ♀, gs521 ♀ 9-12-45 Nadiad town environs (Kaira Dist.); gs828 ♀ 4-1-46 Radhanpur; cs1108 ♂ + 26-3-46 Rajpipla town environs; sd201 ♀ 6-3-48 Pandwa (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|------------|---------|
| 4 ♂♂ | 347-355 | 25-27 | 69-70 | 207-222 |
| 5 ♀♀ | 350-376 | 27.5-31 | (67) 72-78 | 222-240 |

Fairly common winter visitor. Earliest seen 24 August (Mandvi, Kutch); latest 29 March (Rajpipla). According to Butler (*S.F.*, iii : 447) arrives in northern Gujarat (Deesa) about 2 August. Solos, in graceful flight, skimming the tops of standing crops, or scrub and bushes, in open country. Gonads of a specimen on 26 March showed a slight development; an individual flying purposefully, with steady wing beats, about 400 ft., up in a due N. direction on 29 March (7-30 a.m.) was evidently emigrating.

***Circus pygargus* (Linnaeus).** Montagu's Harrier.

No specimens collected, and not definitely identified in the field, but it must doubtless often be confused with *C. macrourus* on account of their great superficial similarity. Lester ('Birds of Cutch', 2nd. ed.) considered it equally common with the Pale Harrier in Kutch during the winter months. In the hand the surest way to distinguish the two species seems to be the shorter tarsus of *C. pygargus*, normally under 65 mm.

Circus aeruginosus aeruginosus (Linnaeus). The Marsh Harrier.

Specimen collected: Gujarat: gs1041 ♀ 19-3-1946 Kharaghoda.

Elsewhere noted: Kutch: Kandla; Mandvi. Saurashtra: Mithapur (Okhamandal). Gujarat: Ajwa (Baroda Dist.); Golana (Carabay); Vaghjipur (Mehsana Dist.); Balatam (Palanpur); Laochali (Surat Dangs).

| Measurements : | W | B | Tar. | T |
|----------------|-----|----|------|-----|
| 1 ♀ | 413 | 36 | 96 | 227 |

Winter visitor. Fairly common, singly, at jaeels and marshes. Butler (S.F., iii: 448) saw 'young' birds in the dark blackish brown plumage, with buffy white heads (female plumage), as early as the beginning of July in the neighbourhood of Deesa. Hume comments on this, '... a few pairs certainly remain to breed in Southern, Central and Northern India.' There is no authentic record of the Marsh Harrier ever having bred within Indian limits.

Circaëtus gallicus gallicus (Gmelin). The Short-toed Eagle.

Specimens collected: Gujarat: gs150 ♂ 7-11-45 Bodeli (Baroda Dist.); gs369 ♂ + 22-11-45 Dabka (Baroda Dist.); gs683 ♀ 21-12-45 Vaghjipur (Mehsana Dist.); gs807 ♀ 2-1-46 Radhanpur; gs900 ♀ + 13-1-46 Deesa (Palanpur).

Elsewhere noted: Kutch: Nakhatrana, Khari Rohar, Nir (Pachham Island). Mandvi. Saurashtra: Okha. Gujarat: Champaner; Golana, Cambay; Nadiad (Kaira Dist.) Kharaghoda; Songadh (Navsari Dist.) etc.

| Measurements : | W | B | Tar. | T |
|----------------|---------|-------|-------|---------|
| 2 ♂♂ | 520-525 | 45-46 | 93-98 | 277-283 |
| 2 ♀♀ | 538-550 | 47-48 | 94-96 | 287-288 |

Fairly common in dry sand-dune and open country with cultivation and sparse scrub, and dotted with babul trees. Keeps a look-out from the tops of trees, and also hovers cumbrously 40 or 50 ft. up in the air to espy snakes and lizards which form a considerable proportion of its diet. One bird when flying over and hit by shot, suddenly jinked and disgorged a snake, about 12" long, in mid air but instead of jettisoning it, promptly transferred it to its talons and flew on complacently with the reptile dangling below! Another, after hovering stationary at 1300 to 1500 ft. above the plain (i.e. about 300 ft. above the summit of Songadh Fort) pulled in its wings and dived at an almost vertical angle (ca. 70°) on to the fallow cultivation right at the base of the hill to seize some quarry, bespeaking phenomenal keenness of sight.

Breeding was in progress between November and February. During this period pairs are often seen flying in circles high up in the air uttering a kite-like *piecou, piecou*, etc.

Spilornis cheela minor (Hume). The Crested Serpent Eagle.

Specimens collected: Gujarat: gs945 ♀ 20-1-46 Balaram (Palanpur); gs1154 ♀ 30-3-46 Dediapada (Rajpipla); gs1088 ♀ + 25-3-46 Juna Rajpipla.

Elsewhere noted: Gujarat: Mahal and Laochali (Surat Dangs).

Saurashtra: Dalkhania (Amreli Dist.); Bhavnagar (specimen: Dharmakumarsinhji). Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|--------|---------|
| 3 ♀♀ | 469-481 | 43-48 | 99-109 | 290-313 |

All the above are with unbarred breast and grey tail band diagnostic of this race. A male received from K. S. Dharmakumarsinhji (Bhavnagar, 26-11-1947) in worn plumage has a wing of 440 + mm. (tips worn). It has the barred breast and black chin and throat of typical *S. c. cheela*. This may either be a migrant from N. India or an aberrant throwback to the typical race as suggested by Whistler (Mysore Survey, *JENHS*, 44: 21).

Not uncommon in deciduous forest country where its presence is advertised by the characteristic prolonged screaming call *kee-kee-kee* as pairs soar high up in the heavens. This call is usually prefaced by three short notes like *pu-pu-pu* quickly repeated in undertones and audible only at short range. Breeding was in progress in March.

Pandion haliaëtus haliaëtus (Linn.). The Osprey.

Specimen collected: Gujarat: gs822 ♀ 4-1-46 Radhanpur.

Elsewhere noted: Kutch: Mandvi. Saurashtra: Dwarka; Viramgam. Gujarat: Ajwa (Baroda Dist.); Golana, Cambay; Vaghji-pur (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| 1 ♀ | 537 | 43 | 61 | 251 |

Winter visitor, not abundant but usually one or two present on most of the larger rivers and jheels. One was observed to plunge headlong after a fish from about 40 feet up where it was hovering in the air, with a great splash, becoming completely submerged. It wrestled for several seconds with the quarry, bobbing up and down in the water as if struggling to keep afloat. Finally it rose clear, flying heavily with the weight of the large fish which it successfully managed to drag along the surface and land on the bank.

Family FALCONIDAE: Falcons.

Falco jugger J. E. Gray. The Laggar Falcon.

Specimens collected: Kutch: ks253 ♂ + 20-9-43 Rapar; ks421 ♀ juv. 29-3-44 Bela Island (Great Rann). Gujarat: gs261 ♂ 17-11-45, gs333 ♀ 20-11-45 Dabka (Baroda Dist.); gs788 ♂ 1-1-1946 Radhanpur; gs859 ♂, gs860 ♂ 10-1-46, gs903 ♂ + 13-1-46 Deesa environs (Palanpur). Saurashtra: gs1026 ♀ + 16-3-46 Dalkhania (Amreli Dist.).

Elsewhere noted: Kutch: Mata-no-Madh; Chobari (Bhachau Dist.); Dholovira (Khadir Island); Bhuj; Khavda Pachham Island. Saurashtra. Dwarka.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 6 ♂♂ | 316-335 | 25-31 | 49-53 | 165-183 |
| 2 ♀♀ | 357-360 | 27-31 | 46-54 | 186-210 |

Resident. Fairly common. Breeding in March, but a male collected in Kutch on September also had moderately developed testes. ks421 is a juvenile which left the nest with wobbly unsteady flight when it was

climbed up to. Its two other nest-companions were more advanced in development and just managed to flutter away. Its soft parts were noted as follows: Iris brown; bill bluish grey, brownish near tips of both mandibles; legs and feet pale grey; claws horny black. The nest, a large stick platform with a deep centre, was 30 ft. up in a peepal tree on the outskirts of a village. Stomachs of adults contained feathers and remains of birds (including, in one case, two entire legs of *Argya caudata*), skin and fur of some rodent, and grasshoppers. A laggar regularly frequented one of our camps and carried off the carcasses of skinned birds thrown outside.

Falco peregrinus ssp. The Peregrine Falcon.

No specimens collected. Observed: Kutch: Nakhatrana (2 Sept.); Rapar (19 Sept.); Pung Bet (Little Rann, 1 March). Gujarat: Khara-goda (19 March). Solos observed by Dr. H. C. Aldrich at Nadad, Kaira Dist., in December 1944 and November 1945. Stoliczka shot one in Kutch and Hume obtained it at Dwarka, Saurashtra (*S.F.*, iii: 443—1875). Winter visitor. Not common, and occasional.

Falco peregrinoides babylonicus Sclater. The Redcapped Falcon.

Specimens collected: GS818 ♂ 3-1-46 Radhanpur; GS874 ♀ 11-1-46 Deesa (Palanpur).

Elsewhere not noted. Recorded from Kutch by Lester and more recently by Sir Geoffrey Archer (specimen).

| Measurements: | W | B | Tar. | T |
|---------------|-----|------|------|-----|
| 1 ♂ | 276 | 27.5 | 45 | 122 |
| 1 ♀ | 281 | 27.5 | 39 | 133 |

Winter visitor. Met with in semi-desert country with sand mounds *Capparis* bushes and scattered trees of *Prosopis spicigera* etc. One stomach contained a leg and other remains of *Passer* (? *domesticus*).

Falco subbuteo ssp. The Hobby.

No specimens obtained. Single birds were observed in Kutch, at Nir (Great Rann) and Mandvi, in October and March. One was chasing a tired-out willow warbler just arriving on migration across the open expanse of the Great Rann. By keeping to the stony hillocky country about the base of Kala Dongar (along the northern edge of the Rann) in the autumn migration season, these little falcons doubtless reap a rich harvest of exhausted incoming small birds. Neither Butler nor the Gujarat Survey came across it in the plains of Gujarat.

Falco chicquera chicquera Daudin. The Redheaded Merlin.

Specimens collected. Kutch: KS79 ♀ 18-8-1943 Chaduva (Bhuj Dist.); KS113 ♂ 24-8-43 Mandvi. Gujarat: GS94 ♂ 2-11-1945 Ajwa (Baroda Dist.); GS389 ♂ 27-11-45 Cambay town environs; GS829 ♂ 5-1-46 Radhanpur.

Elsewhere noted: Kutch: Lakhpat; Dholovira; Nir; Padhar.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|---------|---------|
| 4 ♂♂ | 200-207 | 19-24 | 37-40.5 | 125-137 |
| 1 ♀ | 230 | — | 41 | 156 |

In the last week of August, KS113 was moulting primaries and rectrices. Fairly common. Frequents semidesert in the neighbourhood

of cultivation. Usually seen in pairs hunting in close co-ordination, one bird pursuing and the other heading off the quarry. Stomachs contained remains of small birds. Curiously enough, the stomach of one shot at sunset was completely empty! No data as to breeding were provided by the specimens.

Falco tinnunculus tinnunculus Linn. The Kestrel.

Specimens collected: Suarashtra: B4 ♀ 12-10-43 Dwarka. Gujarat: gs93 ♂ 21-11-45 Ajwa (Baroda Dist.); gs217 ♀ 10-11-45 Jambughoda; gs356 ♂ 21-11-45 Dabka (Baroda Dist.); gs398 ♀ 28-11-45 Cambay town environs; gs486 ♂ 4-12-45 Golana, Cambay; gs650 ♂ 19-12-45 Vaghjipur (Mehsana Dist.); gs721 ♂ Patan (Mehsana Dist.); gs1046 ♂ 20-3-46 Kharaghoda.

Elsewhere noted: Kutch: Bhuj; Anjar; Rapar; Bhachau; Mandvi; Dholovira etc. Saurashtra: Okha; Dhari; Dalkhania; Kodinar etc. Gujarat: Radhanpur; Deesa; Palanpur; Pariej (Kaira Dist., specimen: H. C. Aldrich).

| Measurements: | W | B | Tar. | T |
|---------------|-----------|---------|-------|---------|
| 6 ♂♂ | 236-5-253 | 18-5-22 | 41-46 | 155-175 |
| 2 ♀♀ | 243-260 | 20-22 | 41-43 | 158-180 |

A common winter visitor. Earliest date 30 August (Bhuj); latest 29 March (Adesar, Little Rann.)

Usually solos hovering, or on favourite look-out posts—mounds, telegraph poles, dead trees, etc. One individual came in to roost every night (November) on a rolled-up sun blind in the first floor verandah of the Rest House at Ajwa!

It is not unlikely that the resident race of the kestrel, *F. t. objurgatus*, breeds on the cliffs about Fort Salher (ca. 5000 ft.) in Navsari Dist. The western aspect of this hill is a sheer cliff with suitable-looking nesting sites. In March (1948) 2 or 3 pairs (race?) were observed disporting themselves around this escarpment in a very suggestive manner, shooting high up in the air with the wind, and hovering in a way quite distinct from hunting—rather like the display of *Astur badius* at breeding time.

Family PHASIANIDAE: Junglefowl, Partridges, Quails.

Fracolinus francolinus ssp. The Black Partridge.

Specimens collected. Kutch: ks101 ♂ + 21-8-1943 Chaduva (Bhuj Dist.); ks371 ♂ + 15-3-44 Jakhan.

Elsewhere noted: Kutch: Mandvi; Bhuj environs; Mata-no-Madh.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|------|-------|
| 2 ♂♂ | 156-163 | 23-5-25 | 46 | 89-92 |

These specimens approximate to the pale Sind-Baluchistan-Iran race *henrici*, but it must be pointed out that black partridges have been introduced into Kutch from time to time to augment the game bird stock without particular regard to their place of origin; therefore a certain amount of racial confusion is inevitable. Pure white albinos have been reported.

Affects sandy grass-covered dunes in the vicinity of irrigation tanks, riparian tamarisk jungle, and afforestation plots. Breeds in Kutch during August.

According to Hume, Deesa whence Butler recorded a specimen, is about the line of junction of the Black Partridge and the Painted which is the common species of Gujarat and the Deccan (*S.F.*, iv : 6).

Francolinus pictus ssp. The Painted Partridge.

Specimens collected: Saurashtra: gs934 ♂ 15-3-1946 Dalkhania (Amreli Dist.); Gujarat: gs1190 ♀, gs1191 ♂, gs1192 ♀ 3-4-46 Dediapada (Rajpipla); gs1306 ♀ 20-4-46 Galkund (Surat Dangs); sd184 ♂ + 6-3-48 Pandwa (Surat Dangs).

Elsewhere noted: Gujarat: Ajwa (Baroda Dist.); Dakor (Kaira Dist., specimens H. C. Aldrich!); Gangasagar (Palanpur); Dohad (specimens A. E. Jones!); Ratlam (specimen V. S. LaPersonne!). Absent in Kutch.

| Measurements : | W | B | Tar. | T |
|----------------|---------|-------|-------|-------|
| 5 ♂♂ | 140-149 | 23-26 | 37-45 | 65-68 |
| 5 ♀♀ | 140-151 | 21-24 | 41-45 | 64-69 |

I can see no difference between the above specimens and the one collected in Central India on which Mr. Whistler was unable to satisfy himself of the existence of two races in India. If anything, some of the central Indian birds are darker than this series and not paler as they should be (*F.B.L.*, v : 414). According to Stuart Baker, however, Gujarat specimens in the British Museum from Gondal, Deesa, Ahmedabad, Abu and Neemuch are *pallidus*!

Small numbers in grassland along streams, in fallow and stubble fields overgrown with weeds, and in the vicinity of abandoned forest cultivation overgrown with grass and scrub. The testes of sd184 (6 March) showed a slight enlargement but no other evidence of the breeding season in Gujarat was obtained. According to Butler (*S.F.*, iv : 6) it breeds in northern Gujarat from end July to end September. I was able to get some support for the assertion of a local shikari in Central India that the female also calls like the male (*JBNHS*, 41 : 482), but conclusive evidence remains to come.

Francolinus pondicerianus interpositus Hartert. The Grey Partridge.

Specimens collected: Kutch: ks238 ♂ +, ks239 ♂ + 17-9-1943 Bhachau. Saurashtra: gs993 ♀ 15-3-46 Dalkhania (Amreli Dist.). Gujarat: gs18 ♀ +, gs19 ♂ + 29-10-45 Dabka (Baroda Dist.); gs451 ♂ 2-12-45 Golana (Cambay); gs576 ♂ + 15-12-45, gs610 ♂ 17-12-45, gs642 ♀ 18-12-45, gs648 ♂ 19-12-45, gs687 ♀ +, gs688 ♂ + Vaghjipur (Mehsana Dist.). Also 2 specimens from Kaira Dist. (H. C. Aldrich!) and 1 from Wankaner (Saurashtra—C. M. Crump!).

| Measurements : | W | B | Tar. | T |
|----------------|---------|-------|---------|-------|
| 10 ♂♂ | 144-160 | 23-29 | 36-45 | 80-94 |
| 6 ♀♀ | 134-145 | 23-26 | 37-46-5 | 79-91 |

The Gujarat birds are in reality an intermediate population and merely a section of a cline. Therefore individual specimens are impossible to place satisfactorily as to subspecies.

A common and abundant game bird over the entire area, affecting dry open thorn scrub-and-bush country in the neighbourhood of cultivation and villages. Breeds practically throughout the year, but the chief period is evidently from March till November.

Coturnix, coturnix coturnix (Linn.). The Common or Grey Quail.

Specimens collected: Kutch: ks156 ♂ + 4-9-1943 Nakhatrana; ks219 ♀ 14-9-43 Tina (Anjar Dist.). Saurashtra: b40 ♂ 20-10-43 Dhair (Amreli Dist.). Gujarat: gs11 ♀ 28-10-45 Ajwa (Baroda Dist.); gs443 ♀ 30-11-45 Cambay town environs; gs475 ♂ 3-12-45 Golana (Cambay); gs927 ♀ 16-1-46 Palanpur; gs1193 ♀ 3-4-46 Dediapada (Rajpipla); sd181 ♀, sd183 ♀ 6-3-48 Pandwa (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|---------|
| 3 ♂♂ | 110-115 | 13.5-16 | 26-27 | 31-38 |
| 8 ♀♀ | 112-116 | 14-16 | 26-30 | 33.5-44 |

A common winter visitor to the entire area. Earliest date 4 September (Kutch); latest 3 April (Rajpipla). Affects standing crops of bajri and jowar, cotton fields and grassland. The specimen of 3 April was very fat, suggesting that it was ready to emigrate.

In Butler's time about 1875, it used to be so abundant in winter about Deesa and Ahmedabad that '2 guns, or even one good gun, might without difficulty shoot 100 brace in the day' (S.F., iv: 6).

Coturnix coromandelica (Gmelin). The Blackbreasted or Rain Quail.

Specimens collected: Gujarat: gs476 ♂ 3-12-45 Golana (Cambay); gs569 ♂, gs570 ♀ 12-12-45 Saiat (Kaira Dist.); gs940 ♀ 19-1-46 Hathidkara (Palanpur). Saurashtra: gs964 ♂ 11-3-46 Kodinar.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|---------|
| 3 ♂♂ | 93-95 | 12.5-13 | 23-26 | 29-32 |
| 2 ♀♀ | 96-97 | 12-14 | 26-26.5 | 29.5-31 |

Evidently resident, but certainly has its numbers largely augmented during the winter months by influx from adjoining areas. Unfortunately little is definitely known about its seasonal movements. The gonads of the specimens furnished no indication as to breeding; according to Butler (S.F., iv: 7) it breeds in northern Gujarat in August and September.

Perdica asiatica asiatica (Latham). The Jungle Bush-Quail.

Specimens collected: Gujarat: gs1194 ♀ 3-4-46 Dediapada (Rajpipla); sd161 ♀ 5-3-48, sd185 6-3-48 Pandwa; sd217 ♂, imm. sd218 ♂ imm., sd219 ♂ + 7-3-48 Babulnaghat; sd275 ♀, sd276 ♀ imm. 12-3-48 Laochali (sd = Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|-------|---------|
| 4 ♂♂ | 81-88 | 15-17 | 25-30 | 34-37 |
| 3 ♀♀ | 80-88 | 15.5-16 | 26-31 | 36.5-40 |

Perdica argoondah ssp. The Rock Bush-Quail.

Specimens collected: Kutch: ks64 ♂ + 16-8-43 Chaduva (Bhuj Dist.); ks378 ♂, ks379 ♀ 17-3-44 Mata-no-Madh. Gujarat: gs254 ♂ +, gs255 ♀ + 17-11-45; gs366 ♀ + 22-11-45 Dabka (Baroda Dist.); gs789 ♂ 1-1-46 Radhanpur; gs887 ♂, gs888 ♂ 11-1-46, gs907 ♀, gs908 ♂, gs909 ♀, gs910 ♂, gs911 ♂, gs912 ♀ 13-1-46 Deesa environs (Palanpur). Saurashtra: gs992 ♂ + 15-3-46 Dalkhania (Amreli Dist.).

| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|-------|-----------|
| 10 ♂♂ | 82-88.5 | 13-16 | 25-27 | 43.5-46.5 |
| 6 ♀♀ | 82-86 | 14-15.5 | 24-25 | 40-47 |

The three specimens from Dabka (Baroda Dist.), three from Kutch and one from Saurashtra are somewhat darker and less sandy than the rest of the series and seem nearer the typical race, though actually intermediate between it and the pale Rajputana *meinertzhageni*. The series from Deesa, and the Radhanpur bird are *meinertzhageni*, matching specimens so attributed by Whistler from Badarwas (in northwest Gwalior) and Jodhpur.

I do not understand the significance of the fact that the juvenile plumage of some females has the underparts barred on the breast and flanks with blackish brown as in the adult male! In addition to this, one female (gs912) possesses the dull brick red chin and throat-patch of the male.

The normal condition in birds is for the juvenile male to resemble the adult female in plumage, and not vice versa as in these cases. The sexing was checked by me personally.

Both Bush-Quails are common throughout Kutch, Saurashtra and Gujarat in the appropriate scrub and bush facies. The Rock Bush-Quail is found in the stonier and drier parts, the Jungle Bush-Quail preferring rather more densely scrubbed country and open deciduous forest.

Odd pairs were found breeding from August to March, but the season was more general between October and January when, besides the evidence of the gonads, chicks in all stages were met with from freshly hatched pullet and sub-adult.

Galloperdix spadicea spadicea (Gmelin). The Red Spurfowl.

Specimens collected: Gujarat, gs941 ♀ + 19-1-46, gs955 ♂, gs956 ♂, gs957 ♂, gs958 ♂, gs959 ♀ 20-1-46 Hathidhara (Palanpur); gs1153 ♂ + 30-3-46 Dediapada (Rajpipla); gs1233 ♂ + 9-4-46 Songadh (Navsari Dist.); gs1259 ♀ + 13-4-46 Waghai (Surat Dangs); sd141 ♀ + 3-3-48 Galkund; sd202 ♂ + 7-3-48 Pandwa (Surat Dangs). Absent in Kutch though some parts, e.g. Charduva and Mata-no-Madh, seem eminently suited to it ecologically.

| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|-------|---------|
| 7 ♂♂ | 160-165 | 25-26 | 44-52 | 124-143 |
| 4 ♀♀ | 153-160 | 22.5-26 | 43-46 | 120-125 |

Common in bamboo and mixed deciduous forest in stony foothills country broken by nullahs. Breeding January to April.

Specimens from Waghai, Songadh, Dediapada and Hathidhara are progressively paler and tending towards the pale Aravalli race *caurina*. I have not been able to examine any topotypical material of *caurina*, but Stuart Baker (F.B.I., v: 361) mentions that birds from the Bombay Presidency immediately south of Mount Abu are darker than Abu birds, and though intermediate are nearer to *spadicea* than *caurina*. Hathidhara is part of the country immediately south of Mount Abu to which these remarks would presumably apply.

Capt. Butler (S.F., iv: 5) says it breeds in N. Gujarat in the hot weather. He often saw chicks with the old birds 'shortly after they have been hatched in May and June.'

Gallus sonnerati Temm. The Grey Junglefowl.

Specimens collected: Gujarat: Gs954 ♂ (1st year) 20-1-46 Hathidhara (Palanpur); Gs1232 ♀ 9-4-46 Songadh (Navsari Dist.); sd1 ♂ 23-2-48 Malegaon (Surat Dangs).

Elsewhere noted: Gujarat: Champaner and Pavagadh (Panchmahals Dist.); Gangsagar (Palanpur); Dediapada (Rajpipla); Mr. R. M. Simmons noted it, at Khedbrama and Saranga Hill, Mehsana Dist. in the Ahmedabad neighbourhood, and has shot it at Vijainagar (ca. 1932). Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-----|------------------------|------|-----|
| 1 ♂ ad. | 247 | 21 (from base of comb) | 77 | 372 |
| 1 ♀ ad. | 201 | 32 | 64 | 138 |

Not uncommon locally in hilly bamboo, teak and mixed deciduous forest. Very fond of the ripe windfallen figs of *Ficus bengalensis* and *F. glomerata*, coming out to feed under the trees where local shikaris usually ambush them. The crow of the cock seemed sensibly different from that of south Indian birds.

Its persecution by shikaris, commented on by Capt. Butler in 1876, still continues, and it is a wonder that this species has held out despite this.

Pavo cristatus Linn. The Peafowl.

Specimen collected: Gujarat: Gs1309 ♀ pull. 21-4-46 Galkund (Surat Dangs).

Common throughout the area, largely in a semi-feral state. Near villages, where unmolested, it boldly enters cultivation and does considerable damage to newly sown groundnuts and cereals with impunity. But it is difficult to conceive of a warier and more circumspect creature than a forest-living peafowl, especially where subjected to persecution by humans.

Breeding was in progress during August (Kutch). When displaying to a hen—train fanned out, erect and slightly tilted forward—the cock keeps his legs partly flexed while facing her and prances from one foot to the other in mincing steps as if stalking her—very reminiscent of the holding manoeuvre in the Indian game of 'Āta pāta'. One cock was observed to interrupt such a display in order to chase off a rival with a full and resplendent train like his own, but he showed no resentment towards a young cock with short mangy tail displaying assiduously before 2 hens on the fringe of his own coterie, who was obviously cutting no ice with them at all!

Family TURNICIDAE: Button and Bustard-Quails.

Turnix sylvatica dussumier (Temm. & Laugier). The White-legged or Little Button-Quail.

No specimens obtained. Both Lester and Capt. Newnham record it in Kutch from Devisar (Bhuj environs), and the former mentions that a live bird brought to him by a shikari dropped an egg (May 1892). Capt. Butler (*S.F.*, iv: 9) described it as common in the north-Gujarat plains. He caught a half grown young in some tall grass near Deesa on 27 July.

Turnix maculatus tanki Blyth. The Yellowlegged Button-Quail.
 Specimens collected: Kutch: ks87 ♀ + 18-8-43, ks102 ♀ +
 21-8-43, ks103 ♀ + Chaduva (Bhuj Dist.); Gujarat: gs689 ♀ 21-12-45
 Vaghjipur (Mehsana Dist.).

Elsewhere noted: Gujarat. Dabka (Baroda Dist.).

| | | | | | |
|---------------|------|-------|-------|---------|-------|
| Measurements: | W | B | Tar. | T | |
| | 4 ♀♀ | 87-93 | 14-15 | 25.5-28 | 28-34 |

Iris white; legs and feet bright chrome yellow (colour of 'Koh-i-noor' pencil); bill same, horny at tip.

Frequent, singly and pairs, in grass and scrub country around the grassy edge of tanks, and also in drier facies. Sometimes associates with *T. s. taigoor*, and specimens of both were once collected with the same shot! Breeding was in full swing in August (Kutch).

Capt. Butler found a nest with c/4 near Deesa on 15-7-1875 (*S.F.*, iv: 8).

Turnix suscitator taigoor (Sykes). The Bluelegged or Common Bustard-Quail.

Specimens collected: Kutch: ks147 ♀ + 2-9-1943 Nakhatrana. Gujarat: gs301 ♂ 19-11-1945 Dabka (Baroda Dist.); gs387 ♂, gs388 ♀ 27-11-45 Cambay town environs; gs673 ♀ 20-12-45, Vaghjipur (Mehsana Dist.); gs739 ♀ imm., 27-12-45 Patan (Mehsana Dist.). Elsewhere noted: Kutch: Bhuj environs; Rapar. Gujarat: Ajwa (Baroda Dist.).

| | | | | |
|---------------|-------|---------|---------|-------|
| Measurements: | W | B | Tar. | T |
| 2 ♂♂ | 83-85 | 15 | 22-23 | 35-37 |
| 4 ♀♀ | 89-90 | 15.5-17 | 24.5-25 | 33-41 |

Specimen gs739 whose sexing as female was confirmed by me personally, and also by its measurements (W 89 mm), is immature. Contrary to the normal condition in birds where the young of both sexes resemble the adult female in plumage, this young female is like the male. If this is not an individual aberration, it would appear that the reversal is in keeping with the fact that in this polyandrous species the roles of the sexes are also reversed, the adult female being the dominant partner and more richly coloured (with black chin, throat and breast) than the male.

Fairly common over the entire area. Usually in pairs, inhabiting scrub country bordering cultivation. Breeding August/September, when also the characteristic drumming of the female was commonly heard. In northern Gujarat, Capt. Butler found a nest with 4 fresh eggs at Deesa on 9 August 1875 (*S.F.*, iv: 7).

Family GRUIDAE: Cranes.

Grus grus lilfordi Sharpe. The Eastern Common Crane.

No specimens collected. A fairly common winter visitor and passage migrant though in smaller numbers than the Demoiselle, with which it is often associated. Earliest date 13 September (Khari Rohar, Kutch).

Grus antigone antigone (Linn.). The Indian Sarus Crane.

No specimens collected. Not common in Kutch, but plentiful in the cultivated plains of Gujarat where it enjoys protection on sentimental grounds from the human population and is, in consequence, comparatively tame. Breeding August to October. Pairs accompanied by young in December—usually 1, sometimes 2. When one bird of a pair calls, its mate invariably joins in immediately, taking up the 'screams' or trumpeting in a sort of duet. Later on in winter small flocks collect. The largest seen by me consisted of 18 birds.

Anthropoides virgo (Linn.). The Demoiselle Crane.

Specimens shot but not preserved.

An abundant winter visitor and passage migrant over the entire area. Earliest date 13 September (Kandla, Kutch); latest 23 March. Nir, on the northern tip of Pachham Island in the Great Rann of Kutch, is an ideal place for the study of visual migration, and among the numerous species observed there coming through in a NNW.-SSE direction in the first week of October, perhaps the most spectacular were the flock upon flock of Demoiselle and Common Cranes. On some days flocks of some 30 to 100 birds each passed over in a steady stream at a great height throughout the daylight hours, chiefly between 11 a.m. and 12.30 noon.

The stomachs of two specimens examined were crammed with wheat, and considering the vast swarms which invade the newly sown fields, the damage these cranes do must be considerable.

Family RALLIDAE: Rails, Coots

Rallus striatus [albiventer Swainson]. The Bluebreasted Banded Rail

No specimens obtained.

Lester and Capt. Newnham both record it from Devisar tank (Bhuj environs) in 1892. I can trace no record for Gujarat, but it must doubtless occur.

Porzana porzana (Linn.). The Spotted Crake.

No specimens obtained.

Lester shot a specimen at Devisar tank (Bhuj environs) Kutch, in the winter of 1892. 'Not very common in N. Gujarat, but tolerably plentiful in the country between Ahmedabad and Deesa during winter' (Butler, *S.F.*, v: 215—1877).

Porzana pusilla (Pallas)]. The Eastern Baillon's Crake.

No specimens collected. Observed in Gujarat at Ajwa (Baroda Dist.) on 10th Dec. 1892. 'Solos on weedy marsh at Ajwa. In typical moorland manner, and under a dry lotus leaf for refuge and for some minutes, peering out cautiously from time to time to see if the danger was past! Common on tanks between Ahmedabad and Deesa 'in September and later on in the season. Possibly breeding.' (Butler, *S.F.*, v: 215—1877)

Amaurornis akool akool (Sykes). The Brown Crake.

Not met with by the Surveys.

Capt. Butler (*S.F.*, iv, 21) records it as occurring in Northern Gujarat

Turnix maculatus tanki Blyth. The Yellowlegged Button-Quail

Specimens collected: Kutch: ks87 ♀+ 18-8-43, ks102 ♀+ 21-8-43, ks103 ♀+ Chaduva (Bhuj Dist.); Gujarat: gs689 ♀ 21-12-45 Vaghjipur (Mehsana Dist.).

Elsewhere noted: Gujarat. Dabka (Baroda Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|-------|
| 4 ♀♀ | 87-93 | 14-15 | 25.5-28 | 28-34 |

Iris white; legs and feet bright chrome yellow (colour of 'Koh-i-noor' pencil); bill same, horny at tip.

Frequent, singly and pairs, in grass and scrub country around the grassy edge of tanks, and also in drier facies. Sometimes associates with *T. s. taigoor*, and specimens of both were once collected with the same shot! Breeding was in full swing in August (Kutch).

Capt. Butler found a nest with c/4 near Deesa on 15-7-1875 (*S.F.*, iv: 8).

Turnix suscitator taigoor (Sykes). The Bluelegged or Common Bustard-Quail.

Specimens collected: Kutch: ks147 ♀+ 2-9-1943 Nakhatrana. Gujarat: gs301 ♂ 19-11-1945 Dabka (Baroda Dist.); gs387 ♂, gs388 ♀ 27-11-45 Cambay town environs; gs673 ♀ 20-12-45, Vaghjipur (Mehsana Dist.); gs739 ♀ imm. 27-12-45 Patan (Mehsana Dist.). Elsewhere noted: Kutch: Bhuj environs; Rapar. Gujarat: Ajwa (Baroda Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|-------|
| 2 ♂♂ | 83-85 | 15 | 22-23 | 35-37 |
| 4 ♀♀ | 89-90 | 15.5-17 | 24.5-25 | 33-41 |

Specimen gs739 whose sexing as female was confirmed by me personally, and also by its measurements (W 89 mm), is immature. Contrary to the normal condition in birds where the young of both sexes resemble the adult female in plumage, this young female is like the *male*. If this is not an individual aberration, it would appear that the reversal is in keeping with the fact that in this polyandrous species the roles of the sexes are also reversed, the adult female being the dominant partner and more richly coloured (with black chin, throat and breast) than the male.

Fairly common over the entire area. Usually in pairs, inhabiting scrub country bordering cultivation. Breeding August/September, when also the characteristic drumming of the female was commonly heard. In northern Gujarat, Capt. Butler found a nest with 4 fresh eggs at Deesa on 9 August 1875 (*S.F.*, iv: 7).

Family GRUIDAE: Cranes.

Grus grus lilfordi Sharpe. The Eastern Common Crane.

No specimens collected. A fairly common winter visitor and passage migrant though in smaller numbers than the Demoiselle, with which it is often associated. Earliest date 13 September (Khari Rohar, Kutch).

Grus antigone antigone (Linn.). The Indian Sarus Crane.

No specimens collected. Not common in Kutch, but plentiful in the cultivated plains of Gujarat where it enjoys protection on sentimental grounds from the human population and is, in consequence, comparatively tame. Breeding August to October. Pairs accompanied by young in December—usually 1, sometimes 2. When one bird of a pair calls, its mate invariably joins in immediately, taking up the 'screams' or trumpeting in a sort of duet. Later on in winter small flocks collect. The largest seen by me consisted of 18 birds.

Anthropoides virgo (Linn.). The Demoiselle Crane.

Specimens shot but not preserved.

An abundant winter visitor and passage migrant over the entire area. Earliest date 13 September (Kandla, Kutch); latest 23 March. Nir, on the northern tip of Pachham Island in the Great Rann of Kutch, is an ideal place for the study of visual migration, and among the numerous species observed there coming through in a NNW.-SSE. direction in the first week of October, perhaps the most spectacular were the flock upon flock of Demoiselle and Common Cranes. On some days flocks of some 20 to 100 birds each passed over in a steady stream at a great height throughout the daylight hours, chiefly between 11 a.m. and 12.30 noon.

The stomachs of two specimens examined were crammed with wheat, and considering the vast swarms which invade the newly sown fields, the damage these cranes do must be considerable.

Family RALLIDAE: Rails, Coots

Rallus striatus [albiventer Swainson]. The Bluebreasted Banded Rail

No specimens obtained.

Lester and Capt. Newnham both record it from Devisar tank (Bhuj environs) in 1892. I can trace no record for Gujarat, but it must doubtless occur.

Porzana porzana (Linn.). The Spotted Crake.

No specimens obtained.

Lester shot a specimen at Devisar tank (Bhuj environs) Kutch, in the winter of 1892. 'Not very common in N. Gujarat, but tolerably plentiful in swampy country between Ahmedabad and Deesa during winter' (Butler, *S.F.*, v: 215—1877).

Porzana pusilla [pusilla (Pallas)]. The Eastern Baillon's Crake.

No specimens collected. Observed in Gujarat at Ajwa (Baroda Dist.) 28-10-1945, and Balaram (Palanpur) 18-1-46. Solos on weedy marsh at edge of tank. Very tame. Twitching up tail every little while in typical moorhen manner, and also at every step. One bird when alarmed, ran under a dry lotus leaf for refuge and remained hidden there for many minutes, peering out cautiously from time to time to see if the danger was past! Common on tanks between Ahmedabad and Deesa 'in September and later on in the season. Possibly breeding.' (Butler, *S.F.*, v: 215—1877)

Amaurornis akool akool (Sykes). The Brown Crake.

Not met with by the Surveys.

Capt. Butler (*S.F.*, iv, 21) records it as occurring in Northern Gujarat

where it frequents 'rocky nullahs, beds of rivers, and marshy grounds. He adds later (v: 224—1877) that it is very common at Milana (18m. SE. of Deesa) where he took many nests during the rains.

Amaurornis phoenicurus spp. The Whitebreasted Waterhen.

No specimens collected. Noted: Gujarat: Ajwa (Baroda Dist.); Cambay town environs Nadiad (Kaira Dist.); Radhanpur; Dediapada (Rajpipla); Mahal, Ambika, Waghai etc. (Surat Dangs) and elsewhere. Not common. Hume had specimens from Kutch and 'Kattiawar' (*S.F.*, iv: 21). Capt. Butler found it 'tolerably common' at Milana, near Deesa, and nesting in August (v: 224—1877).

Gallixrex cinerea (Gmelin). The Kora or Watercock.

Not met with by the Surveys. Lester records a pair shot in Kutch by H. H. the Rao Saheb on 4-7-1897. Later he wrote (*JBNHS*, 11: 321) that he had eggs from Kutch in his collection *presumably* belonging to this species.

Gallinula chloropus [indica Blyth.] The Indian Moorhen.

No specimens collected. Noted: Kutch: Chaduva (Bhuj Dist.). Saurashtra: Dhari (Amreli Dist.). Gujarat: Baroda town environs; Balaram (Palanpur); Kharaghoda.

Fairly common. Lester had eggs brought to him from Devisar tank, near Bhuj (Kutch) in July 1893. Butler (*S.F.*, v: 224), in 1876 and thereabouts, found it very plentiful in the tanks at Milana, 18 miles SE. of Deesa, breeding during the rains in the large rush beds.

Porphyrio poliocephalus poliocephalus (Latham). The Purple Moorhen.

No specimens collected. Noted: Kutch: Chaduva (Bhuj. Dist.); Bhimasar tank (Anjar Dist.). Lester found it plentiful and breeding on the Dhonsa jheel in Kutch (season?). Capt. Butler described it as uncommon in most parts of N. Gujarat, but plentiful on some tanks overgrown with weeds and bulrushes, and Hume adds that it is also common in Kathiawar (*S.F.*, iv: 20).

Fulica atra [atra Linn.]. The Coot.

No specimens collected. Noted: Kutch: Bhuj; Anjar. Gujarat: Cambay town environs; Dakor (Kaira Dist.); Patan (Mehsana Dist.); Balaram (Palanpur); Kharaghoda.

Mainly winter visitor. Fairly common. Earliest date 12 August (Bhuj); latest 30 March (Anjar). In August 1946 K. S. Dharmakumarsinhji found it breeding in Bhavnagar, Saurashtra—5 nests with eggs—where the species is normally seen only between about September and April. (*JBNHS*, 46: 724.)

Family OTIDAE: Bustards.

Choriotis nigriceps (Vigors). The Great Indian Bustard.

Noted: Kutch: Rapar (Waghad Dist.); Nir (Pachham Island); Chohari (Bhachau Dist.).

A female specimen shot by H. H. Maharao Madansinhji on 3-3-1946 was measured by me in the flesh as follows: W 564, B 88, Tar. 162, T 250.

Soft parts : Eyelids (unfeathered) cream colour; bill greyish or ivory white, black at base and tip of upper mandible; legs and feet greyish china white; claws horny.

Not common in Kutch, but small numbers were to be seen in the sandy, grassy country along the edge of the Great Rann at least till 1946. Its status since then is unknown, though the change in the political set-up is not likely to have improved the position. The rulers of Kutch were particularly mindful about wild life preservation in their State, and infringement of game and netting rules and close seasons, now rampant, was far more liable to be reported and taken serious notice of than than now. A pure white albino has been recorded in Kutch (*JBNHS*, 31 : 526).

K. S. Dharmakumarsinhji knows of a few places in the Bhavnagar area of Saurashtra where this bustard still breeds regularly, or at least bred till a few years ago, and many of us have seen his excellent Kodachrome movie of an adult female and young made there. In northern Gujarat it was apparently 'not at all common' even in the 70's of the last century, but in Kathiawar Hume writes of it then as 'very common' (*S.F.*, iv : 9). Stuart Baker (*Game Birds*, ii : 172) records a single egg taken in Kutch in January, and Maharao Vijayarajji a newly hatched chick in October (*JBNHS*, 43 : 660).

***Chlamydotis undulata macqueeni* (J.E. Gray).** The Houbara.

1 specimen collected near Khavda (Pachham Island, Kutch); 4-10-43. Not preserved. Stomach contained yellow 'phulri' flowers and two species of tenebrionid beetles.

Winter visitor to Kutch; abundant in some years. In three drives on different days in December 1943 (a good year) among the khup-covered (*Leptadenia spartium*) sand-dunes near Mandvi, H. H. Maharao Madansinhji shot 16 and 17 Houbaras.

Rare in Gujarat, being only occasionally met with during the winter months in the semidesert northern portions, e.g. about Deesa.

***Sypheotides indica* (J. F. Miller).** The Lesser Florican, or Likh

No specimens collected. Common in Kutch, Saurashtra and Gujarat, patchily and in suitable grassy localities, during the SW. monsoon—July to October. Where it disperses at other seasons, and its migratory movements, are not properly known or understood. According to Hume (*S.F.*, iv : 10) 'They migrate hither [Gujarat] from the central tablelands of the peninsula, where they spend the cold and dry season.' This seems a vague and unsatisfactory statement considering that the bird is nowhere particularly common or abundant in the Deccan at any season.

The experiment in ringing florican, initiated by K. S. Dharmakumarsinhji in Bhavnagar (*JBNHS*, 44 : 299) was a praiseworthy attempt to elucidate migration data, but the returns so far obtained are not very enlightening. In Mr. Dharmakumarsinhji's opinion the birds cross over from the mainland of peninsular India in a NW. and westerly direction across the Gulf of Cambay to the eastern coast of Kathiawar, commencing in May or June, in advance of the monsoon, and thence spread over Saurashtra, and presumably also Kutch.

It seems tragic that while other game birds enjoy statutory protection during the breeding season, the florican should be subjected to the greatest persecution from 'sportsmen' at this very period, owing to the

prominence which males give to themselves through their jumping courtship display. The killing of the birds in this season must be rigidly banned if the species is to survive.

Mr. Dharmakumarsinhji has recently made a careful study of the courtship and breeding habits of the florican, and brought to light some interesting and hitherto unrecorded details. (*JBNHS*, 49 : 201-216).

Breeds in Kutch and Satrashtia during the monsoon months when the grass is sufficiently grown to provide cover. Also in standing crops. According to R. M. Simmons, 'breeds in grassy maidans west of Sanad' (Ahmedabad Dist.), Gujarat.

Family JAÇANIDAE : Jaçana.

Hydrophasianus chirurgus (Scopoli). The Pheasant-tailed Jaçana

Specimen collected: Gujarat: GS939 ♀ 19-1-1946 Hathidhara (Palanpur).

Elsewhere noted: Kutch: Bhuj. Gujarat: Ajwa (Baroda Dist.); Pariej (Kaira Dist.), Kanewal jheel (Cambay); Balaram (Palanpur).

| Measurements: | W | B | Tar. | T |
|---------------|--------------------------------------|----|------|-----|
| 1 ♀ | 240 | 34 | 58 | 119 |
| | (to tip of attenuated first primary) | | | |

Common on most vegetation-covered tanks etc. Large flocks in winter, sometimes of 50 plus. In off plumage, in flight, the brown head and back, and white wings with black tips are conspicuous. Utters a nasal mewling *tewn, teww* etc.

According to Capt. Butler (*S.F.*, iv: 20) only a cold weather visitant to the country in the Deesa neighbourhood. Humayun Abdulali found it common on Hamirsar tank, Bhuj, in June 1937 (*JBNHS*, 40 : 122).

Melopidius indicus (Latham). The Bronzewinged Jaçana

No specimens collected. Noted at Bhuj (Kutch) also by Humayun Abdulali in June (*JBNHS*, 40 : 122) and several places in Gujarat on vegetation-covered tanks and jheels. Decidedly uncommon.

Family HAEMATOPODIDAE : Oystercatcher.

Haematopus ostralegus [*ostralegus* Linn.]. The Oystercatcher

No specimens collected. Noted: Mandvi (Kutch) in March. Pairs or small loose flocks on the seashore, feeding in company with Dunlins and Sand Plovers. Winter visitor to the sea-coast; apparently not inland.

Family CHARADRIIDAE : Plovers, Lapwings.

Chettusia leucura (Licht.). The Whitetailed Lapwing

Specimens collected: Gujarat: GS511♂ 8-12-45 Pariej (Kaira Dist.); GS551♀ GS552♂, GS651♀, GS553♂, GS554♂ 12-12-45 Saiat (Kaira Dist.).

Elsewhere noted: Kutch: Kandla. Gujarat: Kanewal, Cambay.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|---------|-------|
| 4 ♂♂ | 179-189 | 37-38 | 72-5-75 | 72-82 |
| 1 ♀ | 166 | 38 | 73 | 77 |

Winter visitor. Earliest date 5 August (Kandla, Kutch). Parties and flocks on grassy muddy margins of jheels. It is of the same size and general outline as the Yellow-wattled Lapwing, but unlike it always near water.

Chettusia gregaria (Pallas). The Sociable Lapwing.

Not met with by the Surveys, although Lester records it as a common cold weather visitor to Kutch. Possibly its visits are as erratic here as they have been noted elsewhere, e.g. Lower Sind. Capt. Butler (*S.F.*, i, 12), in 1876 and thereabouts, found it 'very common during the cold weather in the neighbourhood of Deesa' (N. Gujarat), less plentiful further south.

Hoplopterus indicus indicus (Bodd.). The Redwattled Lapwing.

Specimens collected: Kutch: No. 47 ♂ 25-5-39 Khari Rohar (Sir G. Archer); Gujarat: gs62 ♀+ 31-10-45 Ajwa (Baroda Dist.); gs190 ♂ 8-11-45 Bodeli (Baroda Dist.); gs358 ♀ 22-11-45 Dabka (Baroda Dist.); gs537 ♀ 11-12-45 Nadiad environs (Kaira Dist.); gs1198 ♀+ 3-4-46 Dediapada (Rajpipla).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|-----------|
| 2 ♂♂ | 223-235 | 35-38.5 | 65-76 | 108-124.5 |
| 4 ♀♀ | 217-237 | 35-36.5 | 75-76.5 | 106-127 |

Resident. Common. Breeding March to October. There is a widely current folk belief in Gujarat, Saurashtra and Kutch that if the eggs in a lapwing's nest lie with the small ends pointing inwards, a good monsoon is assured. This must be a comforting augury since certainly by far the larger number of eggs are placed in this way, regardless of the vagaries of the monsoon!

Hoplopterus malabarica (Bodd.). The Yellow-wattled Lapwing.

Specimens collected. Gujarat: gs230 ♀, gs231 ♀ 11-11-45 Jambughoda; gs442 ♂ 30-11-45 Cambay town environs.

Elsewhere noted: Kutch: Bhuj; Mandvi; Khari Rohar; Anjar; Jakhau; Mata-no-Madh etc. Saurashtra: Kojinar; Dalkhania. Gujarat: Bodeli (Baroda Dist.); Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|-------|
| 1 ♂ | 205 | 29 | 64 | 84 |
| 2 ♀♀ | 197-205 | 28-28.5 | 57-62 | 75-80 |

Resident. Fairly common. Usually on arid waste land and fallow fields. Possibly a local migrant to some extent, as it is in Sind. The black cap sometimes stands up like a miniature tableland above the head, reminiscent of long erect pile of a silken carpet! Breeds in Kutch, and presumably also over the rest of the area, April to August.

Pluvialis squatarola (Linn.). The Grey Plover.

No specimens collected. Noted: Mandvi (Kutch).

Winter visitor. Not common, but frequent. Usually a couple, or small flocks, mixed with other waders on the seashore. Hume obtained it in northern Gujarat on the shores of the Rann, and saw specimens from other places along the coasts of Kutch and Kathiawar (*S.F.*, iv: 11).

On 27 August a pair, evidently just arrived, was still in summer plumage with black underparts. In winter plumage (underparts white) the black axillaries show up in flight as an oval black patch providing an easy means of field identification.

Pluvialis dominica fulva (Gmelin). The Eastern Golden Plover.

Specimen collected: Kutch: ks355 ♂ 9-3-44 Mandvi.

Elsewhere noted: Mithapur (near Dwarka, Saurashtra).

| Measurements: | W | B | Tar. | T |
|---------------|-----|------|------|------|
| 1 ♂ | 165 | 30.5 | 45 | 60.5 |

Winter visitor. In large flocks of 50 + on grassy, muddy shores of heels and brackish lagoons, and tidal mudflats.

Charadrius leschenaulti leschenaulti Lesson. The Large Sand Plover.

No specimens collected. Noted: Kutch: Mandvi; Kandla; Lakhpat; Saurashtra: Kodinar.

Winter visitor in small numbers. Earliest date 24 August (Mandvi, Kutch). Usually in twos and threes mixed with flocks of lesser Sand Plovers on the seashore and about salt pans, etc.

Charadrius dubius curonicus (Gmelin).

Specimens collected: Kutch: ks158 ♀ 4-9-43 Nakhatrana; ks315 ♀, ks316 ♀ 4-10-43 Khavda (Pachham I.).

| Measurements: | W | B | Tar. | T |
|---------------|-----------|---------|-------|-----------|
| 3 ♀♀ | 113-126.5 | 17-18.5 | 21-26 | 56.5-63.5 |

Charadrius dubius jerdoni (Legge).

Specimens collected: Gujarat: gs291 ♀ 18-11-45 Dabka (Baroda Dist.); gs594 ♀, gs595 ♂ 16-12-45 Vaghjipur (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|---------|
| 1 ♂ | 108 | 17 | 26 | 53.5 |
| 2 ♀♀ | 110 | 16 | 26 | 53-55.5 |

The two races of the Little Ringed Plover are difficult to differentiate in winter plumage except on size and therefore in cases of overlap, more or less arbitrarily.

C.d. curonicus winter visitor; *C.d. jerdoni* resident. Fairly common over the entire area. Parties and small flocks (in winter) frequenting muddy shores of tanks, ponds and tidal creeks, etc.

Charadrius alexandrinus alexandrinus (Linn.). The Kentish Plover.

Specimens collected: Gujarat: gs126 ♀, gs127 ♂ 5-11-45 Bodeli (Baroda Dist.). Elsewhere not specially noted; possibly confused with *Charadrius dubius*.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|----|
| 1 ♂ | 110 | 20 | 26 | 46 |
| 1 ♀ | 113 | 20 | 28 | 45 |

In winter plumage very similar to non-breeding and immature *Charadrius dubius*. The two may be distinguished as follows :

Charadrius alexandrinus

1. Three outer pairs of rectrices all white.
2. Shafts of all primaries white.
3. Brown pectoral band widely broken.
4. Legs black.

Charadrius dubius

1. Only the outermost pair all white; 2nd and third pairs partly brown.
2. Shaft of first primary only white.
3. Pectoral band unbroken.
4. Legs yellow.

The Lesser Sand Plover, *Charadrius mongolus atrifrons* resembles *C. alexandrinus* but it has only the outermost pair of rectrices white with a brown spot on inner web near tip. The second pair is sooty brown except for fringe of extreme tip which is white. The pectoral band is usually broken as in *alexandrinus*, and its legs are also black.

That the Kentish Plover is a resident in Saurashtra, and possibly also in Kutch, has only lately been proved by the discovery of its breeding in Bhavnagar and Porbandar by K. S. Dharmakumarsinhji in June 1946 and subsequent years. (*JBNHS*, 46: 728/29; 48: 809/10). No specimens are available to determine this resident race. Stuart Baker records typical *alexandrinus* breeding in Sind, while the smaller *seebohmi* is known to breed in Ceylon.

In winter the population is no doubt augmented by influx of migrants from beyond Indian limits. Seen on the sea coast, in mixed flocks with other small waders; also inland, on river banks and shores of tanks and jheels.

Charadrius mongolus atrifrons Wagler. The Pamirs Lesser Sand Plover.

No specimens collected. Noted: Kutch: Mandvi; Kandla; Saurashtra: Kodinar; Flocks on seashore in winter, often mixed with other small waders. Common.

Subfamily SCOLOPACINAE: Curlews Sandpipers, Snipe, Woodcock.

Numenius arquata orientalis Brehm. The Eastern Curlew.

Specimens collected: Kutch: ks367 ♂ 12-3-1944 Mandvi; Gujarat: gs260♀ 17-11-45 Dabka (Baroda Dist.).

Elsewhere noted: Kutch: Kandla; Bhuj; Mandvi; Khavda; Saurashtra: Bedi Bunder; Dwarka; Mithapur (Okhamandal); Gujarat: Cambay town environs; Kanewal (Cambay); Radhanpur; Viramgam; Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-----|-----|------|-----|
| 1 ♂ | 288 | 157 | 83 | 110 |
| 1 ♀ | 310 | 187 | 89 | 109 |

Usually seen solitary or in small parties on the seashore, tidal mudflats lagoons, &c. Butler says they arrive in N. Gujarat as early as mid July and frequent tanks and jheels in immense flocks often of 2-300 birds (*S.F.*, iv: 16-1876). So far believed to be a winter visitor only, but considering the reiterated claim by local shikaris, that it breeds in Kutch, and also the fact that birds may be seen about Kandla and Navlakhi in the

Gulf of Kutch practically throughout the year, further investigation seems desirable, and particularly after the discovery of breeding of the Avocet.

The specimen of 12 March was freshly moulted. Its stomach contained remains of small crabs with a quantity of sand grains.

Numenius phaeopus [phaeopus (Linn.)]. The Whimbrel.

No specimens collected.

Noted: Kutch: Kandla; Mandvi; Saurashtra: Navlakhi (Morvi); Mithapur (Okhamandal):

The same remarks apply to it as to the Curlew, and its breeding in the Great Rann is not improbable. It is plentiful on the muddy shores of the numerous creeks and channels in the Gulf of Kutch, between Navlakhi and Kandla, in June, July and August and also the rest of the year.

Limosa limosa limosa (Linn.). The Blacktailed Godwit.

Specimens collected: Gujarat: gs1043 ♂, gs1044 ♀ 19-3-46 Kharaghoda.

Elsewhere noted: Kutch: Mandvi; Bhuj; Rudra Mata.

| Measurements: | W | B | Tar. | T |
|---------------|-----|-----|------|------|
| 1 ♂ | 218 | 111 | 79 | 78.5 |
| 1 ♀ | 220 | 118 | 85 | 80 |

Winter visitor. Earliest date August 23 (Mandvi); latest March 22 (Bhuj). Lester noted it in numbers as late as April 17 in Kutch, and 3 birds in winter plumage on 7 July. Not uncommon, and even abundant at tanks, lagoons, etc. Flocks sometimes of over 50. The male specimen of 19 March was partially moulted into summer plumage and its gonads showed a slight development. Basal portion of bill salmon-yellow in gs1043 (♂), flesh pink in gs1044 (♀); blackish for ca. 50 mm. at tip. Both birds were very fat indicating readiness to emigrate shortly.

Limosa lapponica lapponica (Linn.). The Bartailed Godwit.

Specimen collected: Kutch: ks199 ♀ 11-9-43 Kandla.

Elsewhere noted: Bhuj.

| Measurements: | W | B | Tar. | T |
|---------------|-----|-----|------|------|
| 1 ♀ | 222 | 109 | 57 | 73.5 |

Winter visitor. Much less common than the last. Earliest date August 5 (Kandla). Small numbers feeding in the shallow salt pans along the creek.

When the two species are seen together in the field, the shorter tarsus of the Bartailed Godwit is an easily noticeable and diagnostic feature.

Tringa erythropus (Pallas). The Spotted, or Dusky, Redshank.

Not met with by the Surveys. According to Capt. Butler (*S.F.*, iv: 18—1876) not uncommon in N. Gujarat, occurring along the edges of most of the tanks in the cold weather.

Tringa totanus eurhinus (Oberholser). The Redshank.

Specimens collected: Kutch ks196 ♂ 10-9-43 Kandla; ks369 ♂ 13-3-44 Mandvi.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|---------|---------|
| 2 ♂♂ | 158-160 | 45-49 | 49-50.5 | 62.5-69 |

Common winter visitor. Earliest date 23 August (Mandvi, Kutch); latest 22 April (Nir, Gt. Rann). Singly, in small parties and flocks often mixed with Dunlins, Curlew Stints and other small waders, feeding in the shallow brine of salt pans, on the squelchy mud along tidal creeks, and also on the margins of wheels, puddles, etc. The September specimen was in heavy general moult involving body, rectrices and remiges; the March bird was excessively fat, indicating impending emigration. A disabled bird with freshly injured wing was caught, examined and measured on 22 April when it was in perfect breeding plumage.

The stomach of a specimen feeding in a salt pan contained over 90% grit, with some brown mucous and 2 or 3 small crimson threadlike, segmented worms 5-7 mm. long. When alarmed or suspicious the bird bobs violently up and down.

The large numbers of Redshanks that collect, together with thousands upon thousands of Ruffs and Reeves and assorted small waders, on the squelchy mud and shallows at the mouth of the Banas River opposite Dhutari Mata in the Little Rann of Kutch in March, prior to emigration, is a sight worth journeying a long way to see!

Tringa stagnatilis (Bechstein). The Marsh Sandpiper.

Specimens collected: Kutch: ks327 ♀, ks328 ♂ 10-10-43 Kandla; ks391 ♂ 21-3-44 Bhuj environs.

Elsewhere noted: Kutch: Nakhatrana; Khavda; Mandvi; Khadir I., etc. Gujarat: Radhanpur; Rajpipla, etc.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|----|
| 1 ♂ | 142 | 47 | 56 | 58 |
| 1 ♀ | 145 | 44 | 54 | 60 |

Winter visitor. Earliest date 4 September (Nakhatrana, Kutch); latest 31 March (Rajpipla). A perfect miniature of the Greenshank. Seen singly or in parties and small flocks at inland waters and swamps, and about salt pans, frequently in company with other sandpipers and stints.

Tringa nebularia (Gunnerus). The Greenshank.

Specimens collected: Gujarat: gs183 ♂ 8-11-45 Bodeli (Baroda Dist.); gs624 ♀ 17-12-45, gs643 ♀ 18-12-45, gs674 ♂ 20-12-45 Vaghjipur (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 2 ♂♂ | 189-198 | 59-64 | 59-62 | 76-83 |
| 2 ♀♀ | 200-205 | 61-65 | 61-62 | 79.5-81 |

Common winter visitor to Kutch, Saurashtra and Gujarat. Earliest date 23 August (Mandvi, Kutch). Usually seen singly at tanks, tidal creeks, rivers and puddles. The crop of a specimen feeding at a drying-up muddy pond contained a frog, larger than what would seem negotiable by the slender bill and gullet of the bird!

Tringa ochropus Linn. The Green Sandpiper.

Specimens collected: Gujarat: gs182 ♂ 8-11-45 Bodeli (Baroda Dist.); gs596 ♂ 16-12-45 Vaghjipur, (Mehsana Dist.); sd137 ♀ 3-3-48 Galkund (Surat Dangs). Saurashtra: gs995 ♂ 15-3-46 Dalkhania (Amreli Dist.)

Elsewhere noted; Kutch: Mandvi; Bhuj; Nakhatrana; Anjar, Lakhpat; Khadir I.; Gujarat: Baroda; Cambay; Radhanpur; Palanpur; Ahmedabad; Viramgam; Kharaghoda; Rajpipla; Waghai and Mahal (Surat Dangs). Saurashtra: Dhari (Amreli Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-----------|----|-----------|-------|
| 2 ♂♂ | 142.5-144 | 40 | 35.5-36.5 | 57-61 |
| 1 ♀ | 147 | 41 | 35 | 60 |

Common winter visitor. Earliest date 13 August (Kutch); latest 17 April (Surat Dangs). Seen singly on all inland waters: jheels, tanks, ponds, ditches, etc. Butler (*S.F.*, iv: 18—1876), says it begins to arrive in N. Gujarat about the end of July.

Tringa glareola Linn. Spotted Sandpiper.

Specimen collected: Gujarat: gs184 ♀ 8-11-45 Bodeli (Baroda Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-----|------|------|----|
| 1 ♀ | 125 | 35.5 | 36 | 49 |

Common winter visitor to the entire area. Latest date 22 April (Nir, Great Rann). Frequents inland waters, inundated ploughed fields, brackish lagoons, etc. Rarely the seashore. Keeps singly, in small parties and sometimes flocks of 35 or so. Utters a sharp, quick-repeated *chip, chip, chip, chip* on the ground (at about 2 or 3 *chips* per second), and *pee-pee-pee* as it flies off.

Tringa cinerea [*cinerea* (Gülden.)] The Terek Sandpiper.

No specimens collected.

Winter visitor. Earliest date 28 August (Mandvi, Kutch). In small numbers, on the seacoast and brackish lagoons, in mixed flocks with sandpipers, etc.

Tringa hypoleucos Linn. The Common Sandpiper.

Specimens collected: Kutch: ks232 ♀ 16-9-43 Anjar; Gujarat: gs185 o? 8-11-45 Bodeli (Baroda Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-----|------|------|------|
| 1 ♀ | 119 | 30.5 | 23 | 63.5 |

Winter visitor to the entire area. Common, but usually singly or in scattered two and threes. Frequents inland waters as well as seacoast, particularly where rocky. Earliest date 4 August (Navlakhi, Saurashtra), but a few odd non-breeding individuals may stay over in their winter quarters throughout the year.

Arenaria interpres interpres (Linn.). The Turnstone.

Specimen collected: Kutch: ks200 ♀ 11-9-43 Mandvi.

Elsewhere noted: Khavda (Pachham I., Great Rann).

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|----|
| 1 ♀ | 147 | 26 | 26 | 56 |

Winter visitor, as it is to the entire western coastline of India. Small parties in association with other waders on the seashore, not necessarily rocky. Once also seen at a village tank (a solo) a few miles inland from the Great Rann.

Capella stenura (Bonaparté). The Pintail Snipe.

No specimens of the Pintail Snipe were obtained by the Surveys, but it doubtless occurs in small numbers, as in neighbouring areas. In the experience of Capt. Butler it was not very common in northern Gujarat (S.F., v: 212—1877).

Capella gallinago gallinago (Linn.). The Common or Fantail Snipe

Specimen collected: Saurashtra: B47 ♂ 20-10-43 Dhari (Amreli Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|------|
| 1 ♂ | 142 | 77 | 36 | 61.5 |

Winter visitor. Earliest date Sept. 16 (Anjar). Common throughout the area but only moderately and locally plentiful at seepage marshes from irrigation tanks, squelchy muddy and grassy borders of jheels, etc. In Kutch, where it was practically free from molestation by humans, birds, sometimes in loose parties were frequently seen at the water's edge on open village tanks within a few yards of chattering women filling their household pots and cattle watering!

Capella minima (Brünnich). The Jack Snipe

Specimen collected: Kutch: ks331 ♂ 5-3-44 Chaduva (Bhuj Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-----|------|------|----|
| 1 ♂ | 119 | 39.5 | 26 | 54 |

Winter visitor. Not common, but a few odd birds are usually put up in typical snipe country on the grassy, marshy margins of tanks, etc.

Scolopax rusticola rusticola Linn. The Woodcock.

An example, the first ever seen or heard of in Kutch, was shot by Maharao Madansinhji near Chakar (Bhuj Dist.) on 19-11-42 (JBNS, 43: 661).

In January 1945 the late Sir Peter Clutterbuck, I.F.S., observed an individual at Hamirsar Tank, right in the middle of Bhuj City, on 3 consecutive days!

Since then a Woodcock has been taken at Mount Abu, curiously enough on 2nd July! (1949—JBNS, 48: 585).

Calidris minutus minutus (Leisler). The Little Stint.

Specimens collected: Kutch: ks206 ♂, ks207 ♀ 11-9-43 Kandla; ks214 ♀ 13-9-43 Khari Rohar. Gujarat: gs124 ♀, gs125 ♂ gs138 ♀ 5-11-45 Bodeli (Baroda Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|---------|
| 2 ♂♂ | 94.5-98 | 21-21.5 | 20-21.5 | 40-42 |
| 4 ♀♀ | 98-102 | 23-25 | 20.5-23 | 36-42.5 |

Common winter visitor to the entire area; well in by 11 Sept. (Kandla 1943); remnants by 2 April. Singly, in small parties or large flocks, usually mixed with other waders, on tidal mudflats, salt pans, lagoons, and margins of jheels, etc.

Calidris temminckii (Leisler). Temminck's Stint.

Specimens collected: Kutch: ks354 ♀ 9-3-44 Mandvi. Gujarat; gs186 ♀ 8-11-45 Bodeli (Baroda Dist.); gs625 ♀ 17-12-45 Vaghjipur (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|--------|-----------|---------|---------|
| 3 ♀♀ | 98-105 | 21.5-23.5 | 19.5-20 | 46.5-52 |

Winter visitor to the entire area, but less common and abundant than the Little Stint. Usually in mixed flocks with it and with other small waders.

Calidris testaceus (Pallas). The Curlew Stint or Pigmy Sandpiper.

Specimens collected: Kutch: ks197 ♀ 10-9-43; ks201 ♂ 11-9-43 Kandla.

| Measurements: | W | B | Tar. | T |
|---------------|-----|------|------|----|
| 1 ♂ | 137 | 43.5 | 31 | 52 |
| 1 ♀ | 133 | 45.5 | 32 | 47 |

Winter visitor. In large mixed flocks with dunlins, stints and other small waders, feeding in the shallow concentrated brine of salt pans, at brackish lagoons, tidal mudflats etc. When newly arrived in autumn, many individuals still have odd feathers of the summer plumage on the body which facilitates their differentiation in the field from dunlins. In winter plumage these two species are easily confused. Both the specimens were excessively fat and with freshly moulted remiges and rectrices.

Calidris alpinus alpinus (Linn.). The Dunlin.

Specimens collected: Kutch: ks198 ♀ 10-9-43, ks202 ♀ 11-9-43 Kandla.

| Measurements: | W | B | Tar. | T |
|---------------|-----------|---------|---------|---------|
| 2 ♀♀ | 120-123.5 | 40.5-41 | 26-27.5 | 47-51.5 |

Common winter visitor to the seaboard and perhaps the most abundant single species amongst the mixed flocks on the seashore, tidal mudflats, salt pans, etc. These flocks, doubtless also contain examples of the Broadbilled Sandpiper (*Limicola falcinellus*) not procured by the Surveys.

Philomachus pugnax (Linn.). The Ruff and Reeve.

No specimens collected.

Noted: Kutch: Anjar; Khavda; Bhuj; Pung Bet (Little Rann). E. urashtra: Mithapur (Okhanandal); Gujarat: Baduchi and Kanewal (Cambay).

Winter visitor. Earliest date 16 September. (Anjar, Kutch). Fairly common in parties and small flocks, often in association with other small waders. In March, aggregations of thousands were present amongst the vast number of waders on the mudflats near Pung Bet where the Banas River debouches into the Little Rann of Kutch.

Family RECURVIROSTRIDAE: Stilt, Avocet.

Himantopus himantopus himantopus (Linn.). The Blackwinged Stilt.

Specimens collected: Kutch: ks368 ♂ + 12-3-44 Mandvi; Gujarat: gs243 ♀, gs244 ♀ 17-11-45 Dabka (Baroda Dist.).

Elsewhere noted: Kutch: Bhuj; Lakhpat; Chobari; Khadir; Anjar, etc. Gujarat: Cambay; Dakor (Kaira Dist.); Vaghjipur (Mehsana Dist.); Radhanpur; Viramgam, etc.

| Measurements: | W | B | Tar. | T |
|---------------|---------|----|---------|-------|
| 1 ♂ | 251 | 78 | 131 | 84 |
| 2 ♀♀ | 244-248 | 77 | 120-122 | 82-83 |

Resident. One of the commonest waders on inland waters; present in varying numbers at every swamp, jheel, puddle or tidal mudflat. Evidently given to marked local movements. Utters *chek.chek-chek-chek* like moorhen, of timbre and quality of the Redwattled Lapwing's call. Breeds March to August.

Recurvirostra avocetta [avocetta Linn.]. The Avocet.

No specimens collected.

Status uncertain. Lester recorded it as 'very common' in Kutch in the winter of 1895-6; during the Kutch Survey, August 1943-April 1944, I did not come across the species at all. However, between 19 and 23 April (1944) I discovered a large breeding colony of over a thousand birds close to the 'flamingo city' in the Great Rann of Kutch, off Mir on Pachham Island. This is fully described in the *Journal of the Bombay Natural History Society* [45(3): 420] and constitutes the first record of the Avocet breeding in peninsular India. The nearest breeding locality previously known was in northern Baluchistan. The eggs (maximum 4) were laid in a shallow depression on hard sunbaked ground, sometimes on a bed of mud pellets. 16 eggs average 49.25 x 35.0 mm. No specimens of the birds were collected, so as not to disturb the flamingo colony hard by, but it remains to determine whether the Indian breeding birds are in any way different from the Winter visitors from Europe.

The call, when the bird is agitated and flying overhead is a continuous *kleet-kleet-kleet* (about 3 per second) of the quality of the Stone Plover's calls.

Family ROSTRATULIDAE: Painted Snipe.

Rostratula benghalensis benghalensis (Linn.). The Painted Snipe

No specimens. Flushed occasionally at several places in Kutch and Gujarat on grassy marshland bordering jheels. Not common or abundant.

A female shot by Capt. Butler on 16 September (?1875) near Deesa contained ovarian eggs. (*S.F.*, iv: 16).

Family DROMADIDAE: Crab Plover.

Dromas ardeola Paykull. The Crab Plover.

Not met with by the Surveys, and apparently a very rare vagrant. Col. Butler shot a specimen on a creek near Mandvi (Kutch) on 25-1-1877

(S.F., v: 212). He notes that 'on the wing it reminds one of the jaçanas, flying with its legs stretched out behind, much in the same style as *Melobidius indicus*.'

Family BURHINIDÆ: Stone-Curlews.

Burhinus oedicnemus ssp. The Stone Curlew.

Specimens collected: Kutch: ks60 ♂+, ks61 ♂+ 13-8-1943 Bhuj environs. Gujarat: gs516 ♀ 9-12-45 Nadiad town environs (Kaira Dist.); gs647 ♂ 19-12-45 Vaghjipur (Mehsana Dist.); gs1059 ♂+ 20-3-46 Kharaghoda.

Elsewhere noted: Kutch: Mandvi; Nakhatrana; Anjar; Rapar. Saurashtra: Dwarka; Dalkhania (Amreli Dist.). Gujarat: Ajwa (Baroda Dist.); Cambay; Deesa (Palanpur); Galkund (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|---------|
| 4 ♂♂ | 223-227 | 44-46.5 | 82-88 | 115-116 |
| 1 ♀ | 217 | 46 | 81 | 107 |

These specimens are intermediate between the Indian race *indicus* and the paler and larger desert form *saharæ* found in Rajputana and Sind.

Common. Affects open scrub jungle, dried-up tank beds and mango topes, etc. near villages. Noisy at evening dusk and before sunrise, and also on moonlit nights. I have described the call elsewhere as a sharp, high-pitched *pick-pick-pick-pick-pick-pick*, often ending in a slower-repeated *pick-wick, pick-wick, pick-wick*, etc. In winter, flocks of 8 to 10 birds were not unusual.

Breeds from April on. The August specimens had evidently lately finished breeding as they were in general moult with testes not yet back to non-breeding condition.

Esacus recurvirostris (Cuvier). The Great Stone Plover.

Specimen collected: Kutch: ks120 ♂+ 27-8-43 Mandvi.

Elsewhere noted: Kutch: Kandla. Gujarat: Dabka (Baroda Dist.); Golana, Cambay, on the Mahi and Sabarmati Rivers respectively.

| Measurements. | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| 1 ♂ | 267 | 79 | 82 | 113 |

Fairly common—usually pairs—along the sea coast and larger rivers, and about salt pans. The specimen had lately finished breeding and was in general moult. K.S. Dharmakumarsinhji found it in Porbunder, Saurashtra and records one eating the eggs of a Kentish Plover from a nest (JBNHS, 48: 809/10).

Family GLAREOLIDÆ: Coursers, Pratincoles.

Cursorius cursor cursor (Latham). The Creamcolored Courser.

Specimens collected: Kutch: ks304 ♂, ks305 ♀ imm. 2-10-43 Khavda (Pachham Island); Gujarat: gs690 ♂, gs691 ♀ 24-12-45 Patan (Mehsana Dist.); gs808 ♂ 2-1-46 Radhanpur; gs928 ♀ 16-1-46 Palanpur.

Elsewhere noted: Kutch, Mandvi. Gujarat: Deesa (Palanpur).

| Measurements : | W | B | Tar. | T |
|----------------|---------|-------|-------|---------|
| 3 ♂♂ | 160-171 | 30-31 | 52-60 | 63-68.5 |
| 3 ♀♀ | 162-166 | 29-31 | 55-57 | 65-66 |

One of the Kutch specimens (ks305) is in part immature plumage with wavy black subterminal bars to some feathers of the back and secondary wing coverts.

Not uncommon in sandy desert country sparsely sprinkled with mounds of windblown sand round little bushes of *Capparis*, hard sun-baked 'pats' and sandy fallow land bordering the Great and Little Ranns.

No satisfactory evidence as regards breeding in this area was obtained. Butler suggested that it is a winter visitor to N. Gujarat arriving about 28 September (S.F. iv : 11).

Cursorius coromandelicus (Gmelin). The Indian Courser.

Specimens collected: Kutch: ks56 ♂ + 13-8-43 Bhuj environs. Saurashtra: gs987 ♂ + 12-3-46 Kodinar. Gujarat: gs257 ♀ +, gs258 ♂ + 17-11-45, gs316 ♂ + gs317 ♀ + 19-11-45 Dabka (Baroda Dist.); gs904 ♀ +, gs905 ♂, gs906 ♂ 13-1-46 Deesa (Palanpur); gs1064 ♀ +, gs1065 ♂ + 21-3-46 Kharaghoda.

Elsewhere noted: Kutch: Anjar; Rapar; Mundra; Mandvi; Jakhau; Chobari (Bhachau Dist.). Saurashtra: Dwarka, Mithapur; Amreli. Gujarat: Patan (Mehsana Dist.); Nadiad (Kaira Dist.), etc.

| Measurements : | W | B | Tar. | T. |
|----------------|---------------|--------------|------------|------------|
| 7 ♂♂ | (143) 150-161 | (23) 26.5-28 | (51) 53-57 | (45) 56-61 |
| 4 ♀♀ | 151-163 | 28-30.5 | 56-57.5 | 56-64 |

The smaller measurements of a male (in brackets, above) refer to a particularly small (subnormal?) individual—No. gs1065.

Common in fallow fields in sandy open cultivated country. Breeding March to August. Later specimens, though still with slightly developed gonads, were in post nuptial moult.

Family LARIDAE: Gulls, Terns.

Larus ridibundus Linn. The Blackheaded Gull.

Specimen collected: Kutch: ks357 ♂ 1st year 9-3-44 Mandvi.

Elsewhere noted: Kutch: Kandla; Mata-no-Madh; Nakhatrana; Bhuj; Khadir Island; Nir (Pachham I.). Saurashtra: Kodinar.

| Measurements : | W | B | Tar. | T |
|----------------|-----|------|------|-----|
| 1 ♂ (1st year) | 310 | 47.5 | 49 | 113 |

Not uncommon in winter along the sea coast and on tidal creeks, lagoons and jheels. Earliest date 11 September (Kandla); latest 22 April (Nif, Great Rann). Of a gathering of 20-30 on the last date, none had acquired the black head of the summer plumage though 2 or 3 *L. brun-nicephalus* in their company all had. Possibly these were all young birds who were not going to breed till the following year, though they hadn't the black subterminal bar to the tail as in the specimen.

Larus brunicephalus Jerdon. The Brownheaded Gull.

Specimen (collected by Mr. Devkar): ♂ 4-4-47 Okha, Saurashtra.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| 1 ♂ | 345 | 48 | 50 | 130 |

Noted: Saurashtra: Kodinar. Kutch: Nir (Pachham I., Great Rann)

Winter visitor. Apparently less common than *ridibundus*.**Larus fuscus taimyrensis** Buturlin. The Eastern Herring Gull.

Specimens (by Mr. Devkar): 2 ♀♀ 4-4-47. Okha, Saurashtra.

Noted: Kutch: Kandla; Mandvi; Lakhpur. Saurashtra: Navlakhi.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|------|---------|
| 2 ♀♀ | 423-433 | 58-59 | 61 | 158-165 |

Winter visitor to the sea coast. Usually seen singly, also on tidal estuaries. One was observed wading into shallow surf and seizing a fairly large crab. He dropped it nervously, picked it up again, dropped it, and so on. After 3 or 4 re-captures, he removed it to the shore and smashed the carapace by repeated hammer blows with his bill, biting it and knocking it on the ground from time to time.

Larus argentatus cachinnans Pallas. The Yellowlegged Herring Gull.

No specimens collected. Observed around Kandla (Kutch), Navlakhi and Kodinar (Saurashtra) along the sea coast. Small numbers in March.

Chlidonias hybrida indica (Stevens). The Indian Whiskered Tern.

Specimens collected: Kutch: ks212 ♂ 12-9-43 Kandala. Gujarat: Gs286 ♀ 18-11-45 Dabka (Baroda Dist.).

Elsewhere noted: Kutch: Bhuj environs; Anjar; Khavda & Nir (Pachham I.). Saurashtra: Dwarka; Mithapur. Gujarat: Ajwa (Baroda Dist.); Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-----|------|------|-------|
| 1 ♂ | 229 | 36.5 | 23 | 66/77 |
| 1 ♀ | 218 | 32 | 23 | 66/79 |

Evidently a winter visitor. Seen at wheels, tanks and ponds. Earliest date 30 August (Bhuj environs); latest 22 April (Nir, Pachham I., Great Rann). On the latter date all the birds were in the black-bellied breeding plumage.

Hydroprogne tschegrava tschegrava (Lepechin). The Caspian Tern.

No specimens collected.

Noted: Kutch: Mandvi; Nir (Pachham I., Gt. Rann). Saurashtra: Mithapur (Okhamandal).

Winter visitor along the sea coast. Its large size and large coral red bill readily distinguish it from other terns.

Gelochelidon nilotica nilotica (Gmelin). The Gull-billed Tern.

Specimens collected: Kutch: ks123 ♂ 28-8-43 Mandvi; Gujarat: Gs287 ♂ 18-11-45 Daoka (Baroda Dist.).

Elsewhere noted: Kutch: Kandla; Khavda; Lakhpatt; Chobari, etc. Saurashtra: Navlakhi (Morvi); Mithapur (Okhamandal). Gujarat: On Mahi, Sabarmati and other rivers, and large tanks and jheels.

| Measurements: | W | B | Tar. | T |
|---------------|---------|----|-------|-----------------|
| 2 ♂♂ | 300-312 | 50 | 33-34 | 77-90/116.5-131 |

Winter visitor, and the commonest tern in the area. Was fairly abundant already in the first week of August (Kutch). The last date I have is 23 April (Nir, Gt. Rann) but the birds were still plentiful (in full breeding plumage) and it is not unlikely that they may breed in the neighbourhood. Seen on all waters—sea coast, tidal creeks, rivers, jheels, ponds.

Thalasseus bergii spp. The Crested Sea Tern.

I have an unconfirmed sight record from Mandvi (Kutch) of a small flock, Kutch (1944).

Sterna aurantia J. E. Gray. The Indian River Tern.

Specimens collected: Gujarat: Gs193 ♂ 8-11-45 Bodeli (Baroda Dist.); Gs549 ♀ 12-12-45 Saiat (Kaira Dist.).

Elsewhere noted: Saurashtra: Mithapur (Okhamandal). Many on a brackish lagoon with other terns. Gujarat: Radhanpur—on Banas River. At several places on Mahi, Sabarmati and other rivers.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|--------|
| 1 ♂ | 273 | 49 | 23 | 83/137 |
| 1 ♀ | 270 | 45 | 22.5 | 79/169 |

I can trace no record of its breeding in Gujarat, but it is not improbable that it does so on the sandbanks of some of the larger rivers.

Sterna melanogaster Temminck. The Blackbellied Tern.

Specimen collected: Gujarat: Gs550 ♀ 12-12-45 Saiat (Kaira Dist.).

Elsewhere noted: Bodeli (Baroda Dist.)—on Orsang River.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|--------|
| 1 ♀ | 233 | 43 | 15.5 | 66/155 |

Status uncertain. Probably resident and breeding on the sandbanks of some of the rivers.

Sterna albifrons ssp. The Little Tern or Ternlet.

Specimens collected: Ks203 ♂ imm. Ks204 ♂ 11-9-43 Kandla.

Elsewhere noted: Kutch: Mandvi; Nir (Pachham I., Gt. Rann).

| Measurements: | W | B | Tar. | T |
|---------------|-------|----|------|-------|
| 1 ♂ | 170 | 37 | 17 | 42/59 |
| 1 ♂ imm. | 173.5 | 31 | 17 | 45/53 |

In winter, when the specimens were collected, it is impossible to distinguish between the typical race and *saundersi* both of which wander freely in to each others range. Typical *albifrons* is known to breed near Bombay and also in NW. India and Iraq; *saundersi* breeds near Karachi. Ticehurst has reported on this group of terns in *Bull. B.O.C.* 49: 66.

Small loose parties beating gracefully up and down over shallow salt pans and plunging like plummets, one after another, on small fish and crustaceans near the surface.

Family PTEROCLIDAE: Sandgrouse.

Pterocles orientalis (Linn.). The Imperial or Blackbellied Sandgrouse.
Specimens not preserved.

Winter visitor to Kutch but apparently only to the eastern districts (Wāgad), and there curiously spasmodic and local. Arrives about mid December; departs about the 3rd week of February. The late Maharao Vijayarajji informed me that owing to a succession of drought years, its numbers had fallen considerably after 1930. He wrote 'In the good old days our bags varied from 40 to 60 birds. . . . 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.'

Apparently not recorded from Saurashtra or Gujarat within recent years. Capt. Butler (*S.F.*, iv: 4) mentions one shot near Deesa (ca. 1876) from a party of 5, and Hume adds that it occurs in winter in the north-eastern portions of Kathiawar along the shores of the Rann. In 1877 Butler found it 'very abundant' between Babra village (80 miles SW. of Deesa) and Mandvi in Kutch (*S.F.*, v: 222).

Pterocles indicus (Gmelin). The Painted Sandgrouse.

Specimens collected: Kutch: ks90 ♂ 19-8-1948 Chaduva (Bhuj Dist.); ks388 ♂ + ks389 ♂ + ks390 ♀ + 18-3-44 Mata-no-Madh. Gujarat: gs641 ♂ + 18-12-45 Vaghjipur (Mehsana Dist.).

Elsewhere noted: Kutch: Nakhatrana; Bhujia Fort.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|-------|
| 4 ♂♂ | 174-178 | 17-18 | 27-28 | 74-82 |
| 1 ♀ | 170 | 16 | - | 74 |

Resident. Sparingly distributed over the entire area in thinly scrubbed stony, hummocky or broken country. Usually seen in pairs or small parties. At a waterhole in Kutch large numbers arrived to drink in twos and threes or flocks of 8 to 10 after sunset and till it was quite dark. Gonads of the specimens indicated that breeding was in progress in March. Lester gives the season in Kutch as February/March.

Pterocles exustus ellioti Bogdanov. The Common Indian Sandgrouse.

Specimens collected: Kutch: ks121 ♂ + ks122 ♀ + 28-8-43 Mandvi; Gujarat: gs455 ♂ 2-12-45 Golana (Cambay); gs718 ♂ 25-12-45 Patan (Mehsana Dist.); gs809 ♀ 2-1-46, Radhanpur; gs1066 ♂ + 21-3-46 gs1082 ♂ + gs1083 ♀ +, 22-3-46 Kharaghoda.

Elsewhere noted: Kutch: Bhuj; Nakhatrana; Anjar; Bhachau; Bela Island (Great Rann), etc. Saurashtra: Dwarka; Okha; Anareli. Gujarat: Nadiad environs (Kaira Dist., 2 specimens: H. C. Aldrich).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|---------|
| 4 ♂♂ | 177-185 | 18-18.5 | 25.5-28 | 105-133 |
| 2 ♀♀ | 172-177 | 15.5-17 | 25 | 85-104 |

Resident. Fairly common over the whole area, in dry open country and fallow fields, and semi-desert. Breeding was in progress during August/September, and also in March. In the Kaira Dist., Dr. Herzog C Aldrich found it nesting between February and May. (*JBNHS*, 44: 127). The eggs (normally 3) are laid on the ground in an unlined scrape in open scrub country interspersed with cultivation.

Pterocles senegallus (Linn.). The Spotted Sandgrouse.

Specimens collected: Kutch: ks293 ♂, ks294 ♀ 1-10-43 Khavda (Pachham Island).

Elsewhere noted: Kutch: Nānda (SW. of Adesar, on edge of Little Rann).

| Measurements: | W | T |
|---------------|-----|-------|
| 1 ♂ | 197 | 161 |
| 1 ♀ | 192 | 124.5 |

Normally only a winter visitor to Kutch, but within recent years small numbers have been reported throughout the year. On 1 October (1943) I observed 4 or 5 flocks aggregating 100+ birds in the Banni in north central Kutch. Its local Kutchi name *waku-waku* aptly describes the call. In the distance, when uttered by a number of birds together, the sound is reminiscent of the gurgling of a hookah being smoked. Also occurs sparingly in N. Gujarat and Kathiawar, but only in the neighbourhood of the Rann, (Hume, *S.F.*, iv: 4).

Family COLUMBIDAE: Pigeons, Doves.

Treron phoenicoptera chlorigaster (Blyth). The Southern Green Pigeon.

Specimens collected: Gujarat: gs609 ♀ 17-12-1945, gs640 ♂ 18-12-45, gs649 ♀ 19-12-45, gs684 ♂, gs685 ♀, gs686 ♀ 21-12-45 Vaghjipur (Mehsana Dist.); gs891 ♂ 11-1-46 Deesa environs (Palanpur); sd40 ♀ + 26-11-48, sd97 ♂ + 1-3-48, sd117 ♂ + sd130 ♀ + sd140 ♀ + 2-3-48 Galkund; sd149 ♂ + sd150 ♀ + sd151 ♂ sd152 ♀ + 4-3-48 Pandwa; sd316 ♀ juv. 14-3-48 Mahal; sd371 ♀ + 18-3-48 Mheskatri (sd series = Surat Dangs).

Not recorded from Kutch, though Hume suggests that it occurs (*S.F.*, iv: 2).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|---------|
| 7 ♂♂ | 187-201 | 22.5-24 | 24-29 | 104-120 |
| 10 ♀♀ | 181-202 | 20-24 | 24-28 | 97-116 |

Common and abundant everywhere in forest where plentifully scattered with peepal and banyan trees (*Ficus bengalensis* and *F. religiosa*), on the ripe figs of which it largely feeds. Drupes of the various *Zizyphus* and other species are also eaten. Breeding was in full swing during March, and is said to continue into April and May.

Columba livia ssp. The Blue Rock Pigeon.

Specimens collected: Kutch: ks57 ♂ + ks58 ♂ + ks59 ♂ + 13-8-43 Bhuj environs. Gujarat: gs544 ♀ 11-12-45 Nadiad environs (Kaira Dist.); gs915 ♂ + 14-1-46 Deesa (Palanpur); sd214 ♂, sd215 ♂,

sd216 ♂ + 7-3-48 Chinchli; sd153 ♂ + 5-3-48 sd200 ♂ + 6-3-48 Pandwa (sd = Surat Dangas).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 9 ♂♂ | 223-232 | 24-26 | 30-33 | 106-115 |

I cannot see any consistent difference between birds marked *neglecta* (Bahawalpur) and *intermedia* (Central India) by Mr. Whistler, now in the B.N.H.S. Collection, nor in birds which according to the distribution of the races as given in the Fauna (v: 220/1) should belong to either race. With regard to two specimens collected in Gwalior, after diagnosing them as *intermedia*, Mr. Whistler writes (*JBNHS*, 41: 477) 'Both have the rump concolorous with the back. In colour and size these birds match my series from the Punjab, but until material is available from South India to allow the characteristics of true *intermedia* to be satisfactorily appreciated, I can neither define the ranges or differences of *intermedia* and *neglecta* nor identify individual birds with any satisfaction.'

A specimen from Gersoppa (Mysore) in the Society's collection, which should be *intermedia*, cannot be distinguished from the Gujarat Survey specimens, nor from those from Bahawalpur or Gwalior labelled by Mr. Whistler as *neglecta* and *intermedia* respectively.

Two examples collected in Ceylon by the recent survey of the island are diagnosed by Mr. Whistler as *intermedia*, and he says they agree with his conception of that race on the material available [*Spolia Zeylanica*, 23 (3 & 4): 253]. Thus he was apparently able to differentiate Ceylon birds from *neglecta*, whereas he could not do so with birds from peninsular India which to me look identical. It may be questioned, therefore, if there is any justification for extending the distribution of the race *intermedia* to include peninsular India. Birds from the extreme south (e.g. Travancore, etc.) may conceivably show greater affinity with Ceylon birds, but crucial material is lacking. At all events Stuart Baker's key to the subspecies *neglecta* and *intermedia*, *vis-à-vis* the distributions he assigns, is completely unworkable as such.

Common over the entire area, affecting buildings whether derelict ruins or in occupation, both within and on the outskirts of towns and in the neighbourhood of cultivation. A popular nesting site throughout the area is down the vertical shafts of disused wells, particularly katcha ones with earthen sides which offer an abundance of holes. Railway stations and goods yards where bags of grain are awaiting shipment are favourite resorts, and when the groundnut crop is harvested and left in the fields to dry, these pigeons take heavy toll of the pods.

Breeding continues more or less throughout the year.

***Streptopelia orientalis meena* (Sykes).** The Rufous Turtle Dove.

Specimens collected: Gujarat: sd26 ♀ 25-2-1948 Malegaon; sd61 ♂ 28-2-48, sd457 ♀ 25-3-48 Chikhli; sd437 ♂ 24-3-48 Sakalpatal, Surat Dangas.

Elsewhere noted: Gujarat: Dediapada (Rajpipla); Songadh (Navsari Dist.); Mahal and Galkund (Surat Dangas).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|------|---------|
| 2 ♂♂ | 202-205 | 23 | 27-5 | 131-139 |
| 2 ♀♀ | 192-195 | 22-23 | 26 | 122-129 |

Colours of soft parts: Iris orange; orbital skin, cere, gape, base of lower mandible, legs and feet magenta; terminal half of bill, and claws horny brown.

Winter visitor. Not uncommon in open glades and along cart tracks in bamboo and mixed deciduous forest. Singly, twos and threes or small parties. Excessively shy and wary.

Streptopelia risoria risoria (Linn.). The Indian Ring Dove.

Specimens collected; Gujarat: gs259 ♀+ 17-11-45, gs360 ♀+, gs361 ♂+ 22-11-45 Dabka (Baroda Dist.); gs916 ♂+ 14-1-46 Deesa (Palanpur).

Elsewhere noted: Kutch: Pung Bet (Little Rann, SW. of Adesar); Saurashtra: Kodinar; Dahanania (Amreli Dist.). Gujarat: Ajwa and Bodeli (Baroda Dist.); Cambay; Nadiad (Kaira Dist.); Patan and Harij (Mehsana Dist.); Radhanpur, etc.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|------|---------|
| 1 ♂ | 160 | 20 | 23 | 13? |
| 2 ♀♀ | 168-171 | 20-23 | 24 | 123-125 |

Common and abundant in the drier parts of the area, frequently coincident with the Little Brown Dove. It has marked local migratory movements which have so far not been studied. On 20 November (1945, Dabka, Baroda) I have a note: 'Flocks of up to 20+ flying high up in the air, directly and purposefully as if migrating'. I have observed such flights at other places also in the cold season, and so have other observers.

Breeding was in progress between November and April, and it continues more or less throughout the year.

Streptopelia tranquebarica tranquebarica (Hermann). The Red Turtle Dove.

Specimens collected: Gujarat: gs61 ♀+ 31-10-1945, gs108 ♀+, gs109 ♂+ 2-11-45 Ajwa (Baroda Dist.).

Elsewhere noted: Kutch: Bhuj; Mandvi; Anjar; Bhachau; Rapar; Nir (Pachham Island). Saurashtra: Amreli; Dhari; Kodinar, etc. Gujarat: Nadiad (Kaira Dist.); Cambay; Patan (Mehsana Dist.); Radhanpur; Deesa (Palanpur); Kharaghoda, etc.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-----------|------|-------|
| 1 ♂ | 145 | 18 | 21 | 92 |
| 2 ♀♀ | 137-139 | 17.5-18.5 | 20 | 84-87 |

The least common dove. Capriciously and sparingly distributed in the drier parts, frequently alongside the Little Brown and the Ring Doves, and unaccountably absent at other times. Usually in pairs or small parties, but on one occasion (Palanpur, 16 January) a flock of 20+ was met with, gleaning in a stubble field. Breeding was in progress between October and December. Capt. Butler (*S.F.*, iv: 3) took a nest containing 1 fresh egg near Deesa on 8 July, and saw several others in the same month and in August and September. As in other doves the season is undefined and evidently covers more or less the entire year.

Streptopelia chinensis suratensis (Gmelin). The Spotted Dove.

Specimens collected: Gujarat: gs499 ♀+, gs500 ♂+, 7-12-1945 Cambay town environs; gs545 ♀+ 11-12-45 Nadiad town, environs (Kaira Dist.) sd191 ♀ 6-3-48 Pandwa; sd267 ♂+ 12-3-42 Lachali; sd292 ♂+, sd293 ♀+ 14-3-48 Mahal (Surat Dangs). Saurashtra: gs1023 ♀ 16-3-46 Dalkhania (Amreli Dist.).

Absent in Kutch.

| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|---------|-----------|
| 2 ♂♂ | 138-141 | 19 | 23.5-24 | 134-135 |
| 4 ♀♀ | 133-143 | 19.5-21 | 22.5-24 | 123.5-133 |

Common in well wooded areas; absent or scarce in drier scrub-and-bush country where the Little Brown Dove completely replaces it. A bird calling vigorously *Kroo-kruk-kruk-kroo*, etc., proved on dissection to be a female!

Breeding was in progress from October to March, and presumably continues more or less throughout the year.

Streptopelia senegalensis cambayensis (Gmelin). The Little Brown Dove.

Specimens collected: Kutch: ks34 ♀+ 10-8-43, ks138 ♂+ 31-8-43 Bhuj. Gujarat: gs431 ♀+, gs432 ♂+, gs433 ♂+, gs434 ♀+ 30-11-45, gs493 ♂+ 6-12-45 Cambay town environs.

| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|---------|---------|
| 3 ♂♂ | 130-137 | 17.5-19 | 20-21.5 | 112-119 |
| 3 ♀♀ | 126-134 | 17-19 | 20-20.5 | 105-113 |

Common over the entire area in drier facies than the Spotted Dove, and addicted particularly to semi-desert and stony euphorbia and scrub-and-brsh country. In many localities it is coincident with the Ring Dove.

All the specimens were breeding. The season continues practically throughout the year, and the birds commonly build on cornices and rafters within occupied dwellings, regardless of the comings and goings of the human inmates.

Chalcophaps indica indica (Linn.). The Indian Emerald Dove.

Specimens collected: Gujarat: gs1287 ♂+ 17-4-46 Mahal; sd 433 ♀ 22-3-48 sd455 ♂ 24-3-48 Waghai (Surat Dangs).

Elsewhere noted. Gujarat: Songadh (Navsari Dist.); Piplaidevi; Pimpri; Lachali etc. (Surat Dangs).

| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|---------|-------|
| 2 ♂♂ | 154-156 | 24-25.5 | 27-28.5 | 93-99 |
| 1 ♀ | 149 | 22 | 26 | 89 |

Songadh in Navsari District, appears to be the most northerly record for this species on the western side of India, though ecologically it is more than probable that it extends through Rajpipla and at least to the Narbada River. Eastward my notes record it from Chaurakund in Amraoti Dist. (Madhya Pradesh), about the same latitude as Songadh.

Solos or pairs in moist deciduous mixed bamboo forest. In heavy general moult in March.

No. sd455 had all primaries of one wing except the first, and many of the secondaries missing. The bird flopped helplessly on the ground as though 'injury feigning' and must apparently have been in this condition for some days since it was considerably emaciated. The casualty may be the result of accidental impact with an overhanging branch of the spiny 'katas' bamboo (*Dendrocalamus strictus*), characteristic of this locality, while the bird was flying at top speed through the forest as it usually does. In the Travancore Survey Report (*JBNHS*, 39 (2): 359), I have recorded a case of a bird dashing itself to death against the whitewashed wall of a building abutting on forest.

Family PSITTACIDAE: Parakeets.

Psittacula eupatria nipalensis (Hodgson). The Large Indian Parakeet.

Specimens collected: Gujarat: gs1243 ♂+, gs1244 ♀+, 12-4-46 Waghai; gs1280 ♀ 17-4-46 Mahal (Surat Dangs); sd62 ♂+, sd63 ♂ 28-2-48 Chikhli; sd154 ♀ 5-3-48 Pandwa; sd318 ♂, sd319 ♂, sd320 ♂ 16-3-48 Mheskatri; sd386 ♂ sd387 ♂ 20-3-48 Sarwar (Surat Dangs).

Elsewhere noted: Gujarat: Gangasagar (Palanpur); Juna Rajpipla. Absent in Kutch and presumably also in Saurashtra (?).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|---------------|
| 2 ♂♂ | 200-217 | 33-39 | 20-22 | (179) 220-310 |
| 3 ♀♀ | 192-212 | 33-35.5 | 21-21.5 | 206-296 |

Common in the Surat Dangs. General moult in March. Odd birds had enlarged gonads in February, and also in April.

A place called Dumkhal (ca. 15 miles E. of Juna Rajpipla) is locally famous for its large parakeets which are exported far and wide and evidently especially prized by fanciers!

Psittacula krameri borealis Neumann. The Roseringed Parakeet.

Specimens collected: Kutch: ks31 ♂ 10-8-43 Bhuj environs; Gujarat: gs45 ♂, gs46 ♂, gs47 ♂, gs48 ♂ 30-10-45 Ajwa (Baroda Dist.); gs303 ♂, gs304 ♀ 19-11-45 Dabka (Baroda Dist.); gs1060 ♀+, gs1061 +, 20-3-46 Kharaghoda; sd158 ♂+ 5-3-48 Pandwa; sd280 ♂+ 12-3-48 Laochali (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-----------|---------|---------|
| 5 ♂♂ | 170-180 | 25-28.5 | 18-19 | 157-245 |
| 2 ♀♀ | 166-168 | 24.5-25.5 | 18.5-19 | 160-183 |

Lower mandible largely black in 10 out of the 11 specimens, but the larger measurements and distribution, as arbitrarily fixed by Whistler (*JBNHS*, 37: 752) south to 20° N. lat., places this series with the northern race *borealis*.

Common throughout the area. Breeding was in progress during August and September, as well as in March/April. Holes in walls of buildings, ancient and crumbling as well as occupied ones—even in the heart of noisy bazaars—are freely patronized as nest sites.

Psittacula cyanocephala bengalensis (Forst.). The Blossomheaded Parakeet.

Specimens collected: Gujarat: gs305 ♂ 19-11-1945, gs331 ♂ 20-11-45, gs352 ♀ 21-11-45, gs373 ♂ 22-11-45 Dabka (Bardola Dist.); gs635 ♀ 18-12-45, gs653 ♂ 19-12-45 gs670 ♀ 20-12-45 Vaghjipur (Mehsana Dist.); gs889 ♂, gs890 ♂ 11-1-46 Deesa (Palanpur); gs952 ♂ gs953 ♀ 20-1-46 Palaram (Palanpur); sp321 ♂ 16-3-48 Mheskatri; sp465 ♂ 25-3-48 Chikhli (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|-----------|-----------|---------|------------------|
| | | from cere | | |
| 9 ♂♂ | 135-145 | 20-23 | 14.5-16 | 187-210 |
| 4 ♀♀ | 133-138.5 | 19-20.5 | 14-15 | 124-167 (2 msd.) |

Fairly common in wooded country. The Survey did not come across it in Kutch, but Hume apparently had records thence (S.F., iv: 458).

General moult in March. No indication of breeding from gonads of specimens. Race as arbitrarily fixed by Whistler (JBNHS, 37: 753) for birds north of 20° N. latitude.

Family CUCULIDAE: Cuckoos.

Clamator jacobinus [pica (Hempr. & Ehr.)]. The Pied Crested Cuckoo.

Specimens collected: Kutch: ks43 ♀ + 11-8-43 Bhujia Fort; ks50 ♀ + 12-8-43 Bu environs; ks319 ♂ juv. 5-10-43 Nir (Pachham Island). Gujarat: gs32 ♂, gs33 ♀ juv., gs34 ♀ 29-10-45 Ajwa (Baroda Dist.); gs170 ♂ 8-11-45 Bodeli (Baroda Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|---------|
| 2 ♂♂ | 149-150 | 25.5-27 | 25-27 | 165-166 |
| 4 ♀♀ | 143-150 | 25-27 | 26-28 | 166-172 |

On measurements the above series belongs to the northern (African) race *pica* which is believed to visit India during the SW. monsoon months. Fairly common at this season throughout the area. The October and November specimens were fat, and presumably preparing to emigrate.

Breeding was in progress in July/August. The common fosterer in Kutch is *Argya caudata*; in Gujarat *Argya caudata* and *Turdoides somervillei*.

Cuculus varius varius (Vahl). The Common Hawk-Cuckoo.

Specimen collected: Gujarat: gs171 ♀ 8-11-1945 Bodeli (Baroda Dist.).

Elsewhere noted: Pavagadh, Champaner (Panchmahals Dist.); Waghai, Galkund, Mahal (Surat Dangs).

Not observed in Kutch, but recorded thence by Hume (S.F., iv: 460).

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| 1 ♀ | 195 | 26 | 26 | 159 |

Apparently moves about a great deal with the seasons, but also is possibly much more widely distributed and common as a resident, though apt to be overlooked when silent.

Cuculus canorus ssp. The Cuckoo.

Specimens collected: Kutch: ks27 ♂ + 9-8-43 Bhujia Fort; ks76 ♀ + 17-8-43 Chaduva (Bhuj Dist.); Saurashtra: m46 ♀ 20-10-43 Dhari (Amreli Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 1 ♂ | 218 | 26 | — | 152 |
| 2 ♀♀ | 213-230 | 22-28 | 23-24 | 160-170 |

Subspecies apparently *telephonus*. A hepatic male from Bodeli (gs177) taken on 9-11-45 cannot be placed satisfactorily. It measures: W 209, B 27, Tar. 23, T 157 mm.

Status over the area as a whole uncertain. In Kutch apparently a rains (breeding) visitor, common during August but mostly gone by end September. Gonads of the August specimens were mature. These two examples, and several other solos, were observed busily walking about the ground on the bare stony hummocks in the environs of Chaduva where larks and pipits were breeding at the time, searching for nests to lay in. They were being constantly chivvied and chased about by the would-be victims. Capt. Butler (*S.F.*, iii. 460) found the Cuckoo common in the neighbourhood of Deesa during the rains and winter. One of his specimens was identified by Hume.

Cacomantis sonnerati sonnerati (Latham). The Indian Banded Bay Cuckoo.

Specimens collected: Gujarat: gs1310 ♂ + 21-4-46 Gakund; sd159 ♂ 5-3-48 Pandwa (Surat Dangs).

Elsewhere noted: Gujarat: Juna Rajipla; Waghai; Mheskatri.

| Measurements: | W | B | Tar. | T |
|---------------|-----|-------|------|---------|
| 2 ♂♂ | 125 | 23-26 | 18 | 112-118 |

Uncommon. Very vocal and active on cloudy overcast days. Easily overlooked when silent. Its call is *wee-ti-tē-ti*, or *tee-ti-ti-ti*, rather like the 'crossword puzzle' call of the Indian Cuckoo, but in a higher key and differently punctuated. In timbre it resembles the call of the Plain-tive Cuckoo which, curiously enough was not met with in Gujarat, Saurashtra or Kutch. Capt. Butler also evidently failed to meet with the latter in N. Gujarat though he says it is not uncommon at Mt. Abu where it arrives about the beginning of June (*S.F.*, iii: 461). The Bay Banded Cuckoo does not appear in his list at all.

Eudynamis scolopaceus scolopaceus (Linn.). The Koel.

Specimens collected: Kutch: ks30 ♀ + 10-8-43 Bhuj environs; ks68 ♂ + 16-8-43 Chaduva (Bhuj Dist.). Gujarat: gs334 ♂ 20-11-45 Dabka (Baroda Dist.); gs917 ♂ 14-1-46 Deesa (Palanpur); Saurashtra: gs986 ♀ 12-3-46 Kodinar; gs1012 ♀ 16-3-46 Dalkhania (Amreli Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|---------|----------|----------|---------|
| 2 ♂♂ | 182-195 | 32.5 (1) | 32.5 (1) | 188-189 |
| 3 ♀♀ | 181-189 | 29-31.5 | 33-34.5 | 171-180 |

Scarce in Kutch and confined to the larger towns where its chief fosterer *Corvus splendens* is abundant. In Gujarat also it keeps more to gar-

dens in and about towns, and in the neighbourhood of villages where House Crows abound. Was breeding in Kutch in August.

Rhopodytes viridirostris (Jerdon). The Small Greenbilled Malkoña.

Mr. Joseph Gabriel, an experienced assistant in the Bird Department of the Prince of Wales, Bombay, who was collecting birds with the Gujarat Ornithological Survey reported seeing an example at Ajwa on 31 Oct. 1945: I have no hesitation in accepting this sight record. That he did not confuse the bird with *Taccocua* is clear from his statement that the bill was greenish and not red. Unfortunately no specimens was obtained. This marks a considerable northward extension of the range of this species, limited by Baker to south of Ratnagiri.

Taccocua leschenaulti leschenaulti (Lesson). The Southern Sirkeer Cuckoo.

Specimens collected: Gujarat: gs268 ♀+ 17-11-45, gs336 ♂ 20-11-45 Dabka (Baroda Dist.); gs518 ♂ 9-12-45, gs531 ♂ 10-12-45 Nadiad environs; gs682 ♀ 21-12-45 Vaghjipur (Mehsana Dist.); gs921 ♀ 13-1-46 Palanpur; sd279 ♂ 12-3-48 Laochali (Surat Dangs).

| Measurements : | W | B | Tar. | T |
|----------------|---------|-----------|---------|---------|
| 3 ♂♂ | 153-159 | 31.5-32.5 | 41.5-45 | 235-244 |
| 3 ♀♀ | 156-159 | 30-34.5 | 43.5-44 | 223-240 |

Iris brown. Orbital skin greyish brown. Bill cherry red, yellow at tip of upper mandible and less at tip of lower. Legs and feet brownish grey or plumbeous. Claws horny brown.

The specimens from north of Cambay — Nadiad, Vaghjipur and Palanpur — are slightly paler on the underparts, being particularly less rufous on the abdomen. The upper parts are also a trifle paler, suggesting, on the whole, passage into the Punjab race *sirkee*.

Fairly frequent in dry scrub country tall grass and secondary jungle. Runs along in amongst thickets and stones, head lowered, tail carried horizontally and parallel with the ground. On a fleeting glimpse in the distance very mongoose-like. Call: *kek-kek-kek-kerék-kerék-kerék* or *kick-kick-kick*, etc., of sharpness and quality of call of Rospringed Parakeet or Goldenbacked Woodpecker. It is sometimes also reminiscent of the Barred Jungle Owlet's. The specimen of 17 November had a mature ovary.

Centropus sinensis parroti Sresemann. The Southern Crow Pheasant.

Specimens collected: Kutch: ks89 ♀+ 7-8-43 Chaduva (Bhuj Dist.); Gujarat: gs5 ♂ 28-10-45 Ajwa (Baroda Dist.); gs501 ♀ 7-12-45 Cambay town environs; gs722 ♀ 26-12-45 Patan (Mehsana Dist.); sd254 ♀ 11-3-48 Laochali; sd406 ♂, sd407 ♀ 21-11-48, sd417 ♂ 22-3-48 Pimpri (Surat Dangs).

| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|---------|---------|
| 3 ♂♂ | 185-195 | 41-44.5 | 50-57 | 238-265 |
| 5 ♀♀ | 190-210 | 38-45 | 50-57.5 | 258-310 |

Common in Saurashtra and Gujarat. Rare in Kutch; only seen at Bhuj, Chaduva and Mandvi where it is said to have been introduced from

Jamnagar (hence called 'Jamnagar Crow') by the late Maharao Khengarji about 4 years previous to 1943. However, since Stoliczka (*J.A.S.B.*, xli, 187) records an example on the Jhura Hills (Kutch) as long ago as November 1871, it is evident that the species existed here even before the introduction.

The female of 7 October was laying. Birds were in general moult (postnuptial) in October. The significance of larger size in females needs to be investigated.

Family TYTONIDAE: Barn Owl.

Tyto alba stertens Hartert. The Barn Owl.

Specimens collected: Gujarat: gs811 ♀ 3-1-46 Radhanpur; ♀ 12-11-40 Nadiad, Kaira Dist. (coll. Dr. H. C. Aldrich).

Elsewhere noted: Dediapada (Rajpipla). Deesa (Palanpur. Butler, *S.F.*, iii: 449).

| Measurements: | W | B | Tar. | T. |
|---------------|-----|----|------|-----|
| 1 ♀ | 315 | 37 | 70 | 125 |

These specimens in their more grey, less ochraceous upper parts match examples from Manipur, which are obviously also *stertens*. Burma birds are distinctly more rufous and ochraceous; less grey.

Recorded from Kutch by Lester, and also by Capt. A. Newham (*JBNHS*, 2: 55—1837) and possibly less uncommon over the entire area than the records suggest. It is more nocturnal than most other owls, retiring into hollow trees and ceilings, etc., of crumbling, and deserted buildings during daytime, and is therefore seldom seen. The stomach of the Radhanpur specimen contained the skulls and other remains of two rats.

K. S. Dharmakumarsinhji found it breeding in Bhavnagar (Saurashtra) in October (1938—*JBNHS*, 41: 174).

Family STRIGIDAE: Owls.

Otus bakkamoena ssp. The Collared Scops Owl.

No specimens obtained, but from its calls evidently fairly common in moist deciduous forest country in Gujarat. Its familiar mellow, monosyllabic call *wüt, wüt*, etc. repeated once every second or so, was heard after dusk, and intermittently more or less throughout moonlit nights (particularly in the early hours before dawn) at Songadh in Navsari District, and at Mahal, Galkund, Pandwa, Laochali and elsewhere in the Surat Dangs. In addition to this call it sometimes utters a slowly repeated *ack-ack-ack-ack*, etc. strung out for 5 seconds or so.

Bubo bubo bengalensis (Franklin). The Indian Great Horned Owl.

Specimens collected: Kutch: ks252 ♂ + 20-9-43 Rapar. Gujarat: gs370 ♀ + 22-11-45 Dabka (Baroda Dist.); gs508 ♂ + 8-12-45 Pariej (Kaira Dist.); gs902 ♂ + 13-1-46 Deesa (Palanpur).

Elsewhere noted: Kutch: Anjar. Gujarat: Sheul River and

dens in and about towns, and in the neighbourhood of villages where House Crows abound. Was breeding in Kutch in August.

Rhopodytes viridirostris (Jerdon). The Small Greenbilled Malkoṅa.

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| Measurements : | W | B | Tar. | T |
|----------------|---------|-----------|---------|---------|
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| 3 ♀♀ | 156-159 | 30-34.5 | 43.5-44 | 223-240 |

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| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|---------|---------|
| 3 ♂♂ | 185-195 | 41-44.5 | 50-57 | 238-265 |
| 5 ♀♀ | 190-210 | 38-45 | 50-57.5 | 258-310 |

Common in Saurashtra and Gujarat. Rare in Kutch; only seen at Bhuj, Chaduva and Mandvi where it is said to have been introduced from

Jamnagar (hence called 'Jamnagar Crow') by the late Maharaja Khengarji about 4 years previous to 1943. However, since Stoliczka (*J.A.S.B.* xli, 1872) records an example on the Jhura Hills (Kutch) as long ago as November 1871, it is evident that the species existed here even before the introduction.

The female of 7 October was laying. Birds were in general moult (postnuptial) in October. The significance of larger size in females needs to be investigated.

Family TYTONIDÆ : Barn Owl.

Tyto alba stertens Hartert The Barn Owl.

Specimens collected: Gujarat: gs811 ♀ 3-1-46 Radhanpur; ♀ 12-11-40 Nadiad, Kaira Dist. (coll. Dr. H. C. Aldrich).

Elsewhere noted: Dediapada (Rajpipla). Deesa (Palanpur. Butler, *S.F.*, iii : 449).

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| 1 ♀ | 315 | 37 | 70 | 125 |

These specimens in their more grey, less ochraceous upper parts match examples from Manipur, which are obviously also *stertens*. Burma birds are distinctly more rufous and ochraceous; less grey.

Recorded from Kutch by Lester, and also by Capt. A. Newnham (*JBNHS*, 2: 55—1837) and possibly less uncommon over the entire area than the records suggest. It is more nocturnal than most other owls, retiring into hollow trees and ceilings, etc., of crumbling, and deserted buildings during daytime, and is therefore seldom seen. The stomach of the Radhanpur specimen contained the skulls and other remains of two rats.

K. S. Dharmakumarsinhji found it breeding in Bhavnagar (Saurashtra) in October (1938—*JBNHS*, 41: 174).

Family STRIGIDÆ : Owls.

Otus bakkamoena ssp. The Collared Scops Owl.

No specimens obtained, but from its calls evidently fairly common in moist deciduous forest country in Gujarat. Its familiar mellow, monosyllabic call *wūt, wūt*, etc. repeated once every second or so, was heard after dusk, and intermittently more or less throughout moonlit nights (particularly in the early hours before dawn) at Songadh in Navsari District, and at Mahal, Galkund, Pandwa, Laochali and elsewhere in the Surat Dangs. In addition to this call it sometimes utters a slowly repeated *ack-ack-ack-ack*, etc. strung out for 5 seconds or so.

Bubo bubo bengalensis (Franklin). The Indian Great Horned Owl.

Specimens collected: Kutch: ks252 ♂ + 20-9-43 Rapar. Gujarat: gs370 ♀ + 22-11-45 Dabka (Baroda Dist.); gs508 ♂ + 8-12-45 Pariej (Kaira Dist.); gs902 ♂ + 13-1-46 Deesa (Palanpur).

Elsewhere noted: Kutch: Anjar. Gujarat: Shecu River and

Virdi (Kaira Dist., specimens: H. C. Aldrich); Patan (Mehsana Dist.); Dediapada (Rajpipla); Mahal (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 3 ♂♂ | 375-390 | 44-45 | 69-76 | 139-195 |
| 1 ♀ | 420 | 45 | 75 | 227 |

Iris orange yellow; bill horny black, base and cere plumbeous; claws horny black.

Affects well wooded country with large shady mango and similar trees in the vicinity of villages. The call, heard soon after sunset and also at dusk is a far-carrying, hollow, *bu . . . bo* rather pleasant in comparison with the Brown Fish Owl's. Stomachs examined at 10 a.m., 10:30 a.m. and 6 p.m. were all empty! The gonads of the specimens were in various stages of development, but no direct evidence of breeding was obtained. K. S. Dharmakumarsinhji records a nest with 4 eggs in Bhavnagar (Saurashtra) in December (1938—*JBNHS*, 41: 174).

Bubo coromandus coromandus (Latham). The Dusky Horned Owl

Specimens collected: Gujarat: gs379 ♂ 27-11-1945 Cambay town environs; gs737 ♀ 27-12-45 Patan (Mehsana Dist.); gs810 ♀ 3-1-46 Radhanpur; gs1045 ♂ 20-3-46 Kharaghoda.

Elsewhere noted: Gujarat: Virdi (Kaira Dist., specimen: H. C. Aldrich); Kanewal (Cambay). Evidently absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 2 ♂♂ | 390-402 | 42-43 | 60-61 | 196-208 |
| 2 ♀♀ | 403-412 | 46-49 | 55-67 | 198-210 |

A very diurnal owl, often on the move and even hunting during daytime. One individual, when shot, was actively devouring a freshly killed shikra hawk (*Astur badius*). gs1045 was one of a pair together in the act of demolishing a freshly killed coot. When it was shot, its mate flew off carrying the booty with it! Besides coot's feathers the stomach of this specimen contained remains of large water beetles (*Dysticus*). I feel I have now decisively traced down the resonant, hollow 'pingpong-ball-bounce' call to this species. This call is reminiscent of a large hollow celluloid ball dropped from a height and allowed to bounce itself to silence, the sound getting fainter and quicker with each successive bounce.

Bubo zeylonensis leschenault (Temminck). The Brown Fish Owl.

Specimens collected: Gujarat: gs507 ♂ 8-12-45 Pariej (Kaira Dist.); gs645 ♀, gs646 ♂ 19-12-45 Vaghjipur (Mehsana Dist.).

Elsewhere noted: Gujarat: Dabka (Baroda Dist.); Patan (Mehsana Dist.); Nadiad (Kaira Dist., specimen: H. C. Aldrich). Evidently absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 2 ♂♂ | 420-443 | 50-54 | 80-90 | 206-210 |
| 1 ♀ | 425 | 50 | 75 | 207 |

The above series would, on the measurements given in F.B.I. (iv: 473) go with the race *hardwickii*. However, Ticehurst (*Ibis* 1923: 236 and

JBNHS, 34: 473) considers that only the one race *leschenault* is recognizable in India and both Whistler (*JBNHS*, 38: 234) and Ripley (Checklist MS) concur. The typical race from Ceylon is differentiated on darker colour and smaller size—♂ ♀ W 365-383 (*Spolia Zeylanica*, 23 (3 and 4) Aug. 25, 1944).

Not uncommon in wooded country in the neighbourhood of tanks and rivers. The eroded banks and scrub-covered ravines of the Mahi River near its mouth at Dabka (Baroda Dist.) provide an ideal habitat for this and the Great Horned Owl. Its characteristic call is an eerie, hollow, reverberating *boom-boom* heard in the gloaming soon after sundown. The gonads of the specimens were undeveloped. Their stomachs contained remains of frogs and fish.

***Glaucidium radiatum radiatum* (Tickell).** The Barred Jungle Owlet.

Specimens collected: Gujarat: gs1133 ♀ 29-3-46, gs1155 ♂+ 30-3-46, gs1187 ♂ 2-4-46 Dediapada (Rajpipla); gs1208 ♀+ 7-4-46, gs1223 ♂ 9-4-46 Songadh (Navsari Dist.); gs1271 ♀+ 14-4-46 Waghai; gs1292 ♀+ 17-4-46 Mahal; gs1308 ♂+ 20-4-46 Galkund (Surat Dangs); sd98 ♀ 1-3-48, sd106 ♂+, sd107 ♀+, sd108 ♀, sd109 ♀+, sd170 ♀+ 2-3-48 Galkund; sd169 ♀, sd170 ♂+, sd171 ♂+ 5-3-48 Pandwa; sd247 ♀+ 10-3-48 Laochali; sd309 ♂+ 14-3-48 Mahal; sd345 ♀ 17-3-48 Mheskatri (sd = Surat Dangs).

| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|-------|---------|
| 8 ♂♂ | 124-134 | 18.5-21 | 25-27 | 66-71 |
| 12 ♀♀ | 128-135 | 17-20 | 23-27 | 62.5-71 |

Common in the Dangs in moist deciduous forest country, where the most usual bird associations consist of *Crypsirina vagabunda*, *Dissemurus paradiseus* and this species. Its pleasant, distinctive and somewhat junglecock-like call is one of the commonest bird sounds here. It begins with a loud *kāo* repeated 2 or 3 times, followed by *kāo-kāk*, (or *kookāk*) *kāo-kāk*, *kāo-kāk*, and so on, in quickening tempo and lasting about 5 seconds. When calling the head is somewhat lowered giving the bird a hunch-back profile, and the tail is wagged laterally or swung from side to side. Breeding was in full swing in March and April.

***Ninox scutulata* ssp?** The Brown Hawk-Owl.

No specimens obtained. Heard and seen at Songadh (Navsari Dist.) and in the Surat Dangs at Waghai, Mahal, Galkund, Pandwa, Laochali, Mheskatri, and other places. Not otherwise in Gujarat, or in Saurashtra. Absent in Kutch.

Its wing action and habit of sweeping upward to alight on a branch at the end of a flight is characteristically hawk-like. The call is a pleasant, almost musical *oo-ūk*, *oo-ūk*, *oo-ūk* uttered in runs of 6 to 20 (mostly of 9 to 13) with a break of $\frac{1}{2}$ to 1 second between each run. Very vocal during moonlit nights, and answered by other individuals from all directions. It is particularly active in the early morning just prior to retiring for the day, and may then be seen hawking winged insects in mid-air like a flycatcher, springing up a few feet vertically for a capture and diving back to its perch on a tree stem.

Athene brama indica (Franklin). The Spotted Owllet.

Specimens collected: Kutch: ks26 ♀ + 9-8-1943 Bhujia Fort; ks28 ♀ + 10-8-43 Bhuj town environs; Gujarat: gs83 ♂, 1-11-45 Ajwa (Baroda Dist.); gs188 ♂, gs189 ♀ 8-11-45 Bodeli (Baroda, Dist.); gs738 ♀ 27-12-45 Patan (Mehsana Dist.); gs1025 ♂ + 16-3-46 Dalkhania (Amreli Dist.); gs1085 ♂ + 22-3-46 Kharaghoda; gs1224 ♀ 9-4-46 Scngadh.

Elsewhere noted: Kutch: Chaduva; Mandvi; Khari Rohar; Tuna. Saurashtra: Amreli town; Bhavnagar (specimen: Dharmakumar-sinhji). Gujarat: Cambay; Nadiad (specimen: Aldrich); Vaghjipur, etc.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|-------|
| 4 ♂♂ | 154-160 | 20-22 | 31-33 | 72-77 |
| 5 ♀♀ | 155-164 | 20-20.5 | 32-34 | 76-85 |

The subspecies is attributed as per the boundary arbitrarily fixed at 20°N between the north Indian race *indica* and the south Indian *brama* (Whistler, *JBNHS*, 38: 237).

Common. Breeding was in progress in Kutch during August; in Gujarat March and April. At Dediapada Rajpipla, (30 Mar.) 2 pairs had eggs in hollows in the trunk of the same Mhowa tree (*Bassia*) within 15 feet of each other. In another hollow in an adjoining bough was a Roller's nest containing 3 eggs!

Strix ocellata ocellata (Lesson). The Mottled Wood Owl.

Specimens collected: Gujarat: gs871 ♀, gs872 ♀ 11-1-46 Deesa environs (Palanpur); gs1148 ♀ 29-3-46 Dediapada (Rajpipla); sd245 ♀ 10-3-48 Laochali (Surat Dangs).

Elsewhere noted: Gujarat: Dabka (Baroda Dist.); Patan (Mehsana Dist.); Galkund and Mheskatri (Surat Dangs). Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 4 ♀♀ | 345-357 | 38-41 | 61-65 | 179-193 |

The two usual calls of this owl are: (1) a mellow single hoot, and (2) a quavering eerie *chuhuaa*. In addition it occasionally utters a screech similar to that of the Barn Owl. This last needs confirmation. Spends the day dozing in the branches of tamarind and such thickly foliaged trees. The gonads of the specimens provided no indication as regards breeding.

Asio flammeus flammeus (Pontoppidan). The Shorteared Owl.

Specimens collected: Gujarat: gs288 ♀ 18-11-45 Dabka (Baroda Dist.); gs812 ♂, gs813 ♂, gs814 ♂, gs815 ♀, gs816 ♂, gs817 ♀ 3-1-46 Radhanpur; sd143 ♀, sd144 ♀ 4-3-48 Galkund (Surat Dangs).

Elsewhere noted: Mandvi (specimen: M. K. S. Fatehsinhji); Gujarat: Asamli, Kaira Dist. (specimen: H. C. Aldrich). Saurashtra: Dwarka; Dalkhania (Amreli Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 4 ♂♂ | 314-325 | 30 | 46-48 | 141-150 |
| 4 ♀♀ | 305-320 | 29-31 | 43-48 | 143-148 |

Winter visitor. Not uncommon, but local and patchy. Perches on ground, for preference, at the base of bushes in tall grass and scrub

country. On one occasion (Mehmedabad, Kaira Dist.) a loose assemblage of 10 or 12 birds was met with. In flight the pointed wing, white on the underside with black tips and a blackish crossbar at about half its length, is diagnostic of this migratory owl. Its speed on the wing is much greater than is apparent. The March specimens were very fat preparatory to emigration.

Hume (*S.F.*, iii : 430) records *Asio otus*, the Longeared Owl, from Kutch on the authority of Stoliczka.

Family CAPRIMULGIDAE : Nightjars.

Caprimulgus indicus indicus Latham. The Indian Jungle Nightjar.

Specimens collected : Gujarat : GS573 ♀ 12-12-1945 Saiat (Kaira Dist.); SD103 [♀] 2-3-48 Galkund; SD173 ♂ 6-3-48, SD213♂+ 7-3-48 Pandwa.

Elsewhere noted : Gujarat : Dediapada (Rajpipla); Waghai, Malegaon, Mheskatri, etc. (Surat Dangs.) Absent in Kutch.

| Measurements : | W | B | Tar. | T |
|----------------|-----------|---------|---------|---------|
| 2 ♂♂ | 196-198 | 22.5-23 | 16.5-17 | 136-144 |
| 2 ♀♀ | 187-189.5 | 20-23 | 16-18 | 127-129 |

Common in teak and mixed deciduous forest areas. Its presence is advertised by its distinctive calls, which are of two different kinds :

(1) *chuckoo-chuckoo-chuckoo*, &c, 3 to 12 or more times quick-repeated at about 2 calls per second. There is a pause, often of only a second or two—a mere break in the continuity—before the series is resumed; pause . . . repeat . . . pause . . . repeat, and so on, for considerable periods at a stretch, the birds being particularly vocal during their breeding season, and then on moonlit nights. The *chuckoo* calls are sometimes terminated by a pleasant, hollow-sounding *wowowowowowo* tailing off at the end and reminiscent of an oil engine conking out.

(2) a not unpleasant *Uk . . . krookroo* repeated ad lib while the bird is perched lengthwise along a branch.

Only runs of either (1) or (2) are uttered at a time, and I have never heard a calling bird switch over from one type of call to the other. The significance of these alternate calls is not understood.

Stomachs contained grasshoppers predominantly. The testes of the March 7 specimens were enlarged to breeding size.

Caprimulgus europaeus unwini Hume. The European Nightjar

Specimens collected : Kutch : KS237 ♂ 17-9-43 Bhachau : KS255 ♂ ?; 21-9-43, KS261 ♀ 22-9-43, KS262 ♀, KS263 ♂, 23-9-43, KS264 ♂, KS265 ♂ 24-9-43 Rapar.

Not observed in Gujarat or Saurashtra.

| Measurements : | W | T |
|----------------|-----------|---------|
| 4 ♂♂ | 176-192 | 117-134 |
| 2 ♀♀ | 183-184.5 | 126-130 |

A fairly common and abundant autumn passage migrant through Kutch by the Arabian route to its winter quarters in Africa. Earliest date 17 September (Bhachau). Abundant about the 3rd week of September (Rapar); nearly all gone by 3rd week October. Not observed on return

passage between 3 March and 5 April. Presumably travels northward in spring by a different route.

All the specimens were excessively fat in preparation for the long journey ahead. They were silent except for an occasional quick-repeated *chuck-chuck-chuck-chuck* of the quality and volume of a House Gecko's call. Their stomachs contained dung beetles and crickets.

Caprimulgus mahrattensis Sykes. Sykes's Nightjar.

Specimen collected: Gujarat: gs290 ♀ 18-11-45 Dabka (Baroda Dist.).

Elsewhere not noted.

| Measurements: | W | B | Tar. | T |
|---------------|-----|---------------------------|------|-----------|
| 1 ♀ | 168 | 9 | 22 | 104 (dry) |
| | | from forehead feathers | | |

The specimen was one of a pair flushed on dry grassland on the edge of a jheel. Hume obtained a specimen in N. Gujarat between Deesa and Sijgam, and implies that it occurs in Kutch and Saurashtra as well (*S.F.*, iii: 455).

Caprimulgus monticolus monticolus Franklin. Franklin's Nightjar.

Specimens collected: Kutch: ks254 ♀ 21-9-43 Rapar, Gujarat: gs232 ♀ 11-11-45 Jambughoda. Saurashtra: gs990 ♂ + 15-3-46 Dal-khania (Amreli Dist.).

Elsewhere noted: Kutch: Mata-no-Madh. Gujarat: Dediapada (Rajpipla).

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| 1 ♂ | 202 | 19 | 18 | 123 |

The call of this nightjar, heard at dusk and during moonlit nights, is a characteristic sharp *sweesh* like a whip lash cutting the air. The September specimen was in heavy general moult; testes of gs990 (15 March) had enlarged to 5 × 4 mm. and the bird was evidently preparing to breed.

Caprimulgus asiaticus asiaticus Latham. The Common Indian Nightjar.

Specimens collected: Kutch: ks49 ♂ + 12-8-43 Bhuj environs; ks139 ♂ + 1-9-43 Bhujia Fort.

Elsewhere noted: Kutch: Khari Rohar; Mata-no-Madh; Khadir, Bela and Pachham Islands. Saurashtra: Dwarka. Gujarat: Baroda Dist.; Golana, Cambay, etc.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 2 ♂♂ | 142-148 | 11-13 | 20-22 | 104 (1) |

Fairly common. Its distinctive 'stone-on-ice' calls *chuck-chuck-chuck-chuck-chuck-r-r* were frequently heard at dusk after February. Although the testes of the specimens showed some enlargement (Aug./Sept.) they were both in heavy general moult which was presumably post-nuptial.

Family APODIDAE: Swifts.

Apus melba ssp. The Alpine Swift.

No specimens collected. Observed in Kutch (Nakhatrana, Bhaçhau, Bhuj) and Gujarat (Patan, Waghai, Fort Salher).

A bird of capricious movements, loose parties appearing suddenly from nowhere and after wheeling about at tremendous speed, hawking insects—chiefly around the tops of hills with cliffs and ancient forts—disappearing just as suddenly. They usually fly lower in cloudly overcast weather.

Apus affinis affinis (J. E. Gray). The Indian House Swift.

Specimens collected: Kutch: ks44 ♀ juv., ks45 ♂ juv., ks46 ♀ juv. 11-8-1943 Bhujia Fort.

Elsewhere noted: Kutch: Anjar; Rapar; Khavda; Nir; Lakhpat; Mandvi; Adesar, etc. Saurashtra: Okha; Amreli; Dhari; Kodinar. Gujarat: Baroda City; Champaner; Dabka; Patan; Cambay town; Kapadvanj (Kaira Dist.); Viramgam; Surat City, etc.

The specimens (not measured) were taken from a nest of the Striated Swallow (*Hirundo daurica*) in an open cellar under a ruined rampart of Bhujia Fort, that had been appropriated by the swifts. The differential growth of the young indicated that brooding had commenced with the first egg.

A common species over the entire area, though somewhat patchy, with old established nest colonies under arches and gateways everywhere. Also in the angle of wall and ceiling in verandahs of buildings, whether ancient and deserted or occupied and even within noisy bazaars.

Cypsiurus parvus [batasiensis (J. E. Gray)]. The Palm Swift.

No specimens collected. Observed in Gujarat at Ajwa and Bodeli (Baroda Dist.), Cambay town environs, Rajpipla, and elsewhere. Usually symbiotic with Palmyra palms (*Borassus flabellifer*), but curiously enough not as common locally as the palms would warrant, and even absent from some localities where the palms were abundant. K. S. Dharmakumar-sinhji found several nests in Bhavnagar, Saurashtra, in May and June 1946, and believes it has established itself there quite recently (*JBNHS*, 46: 724).

Hemiprocne longipennis coronata (Tickell). The Crested Tree Swift.

Specimens collected: Gujarat: gs1102 ♂+, gs1103 ♀+, gs1104 ♂+ 25-3-46 Juna Rajpipla.

Elsewhere noted: Gujarat: Songadh (Navsari Dist.); Galkund, Pimpri, etc. (Surat Dangs). Absent in Kutch.

| Measurements: | W | B | Tar. | C.T. | O.T. |
|---------------|---------|-----|-------|-------|---------|
| 2 ♂♂ | 150-155 | 7.5 | 8.5-9 | 43-47 | 112-127 |
| 1 ♀ | 157 | 8 | 9 | 43 | 123.5 |

In small numbers, hawking insects over open deciduous forest, uttering the characteristic *whittuck*, *whittuck* calls. Breeding was in progress in March.

Family TROGONIDAE: Trogons.

Harpactes malabaricus legerli Koelz. The Trogon.

Specimens collected: Gujarat: ♂ 30-12-41, gs1241 ♂, gs1242 ♀ 12-4-46, gs1255 ♂ 13-4-46 Waghai (Surat Dangs); sd100 ♂ 1-3-48, sd104 ♂, sd105 [♂ juv] sd127 ♂, sd128 ♀ 2-3-48 Galkund; sd205 ♀ 7-3-48 Pandwa; sd289 ♀ 13-3-48 Ajwa; sd317 ♂ 14-3-48 Mahal; sd352 ♂ 17-3-48, sd360 ♂, sd361 ♀ 18-3-48 Mheskatri; sd391 ♂, sd392 ♀ 20-3-48 Sarwar (Surat Dangs).

Absent in Kutch. Not noted elsewhere in Gujarat, though may possibly occur in appropriate facies in the Rajpipla area. Possibly also in the Gir Forest of Junagadh, Saurashtra.

| Measurements: | W | B. | Tar. | T |
|---------------|-----------|-----------|-------|-----------|
| 12 ♂♂ | 130.5-142 | 19.5-21.5 | 15-17 | 155-184 |
| 6 ♀♀ | 130-135 | 18.5-21 | 15-17 | 160-176.5 |

In the young male (sd105) the crimson of the underparts is replaced by pinkish salmon. The chestnut central pair of retrices is not truncated as in the adult, but has the normal rounded tip. The black terminal band of the adult tail is lacking.

As pointed out by me (*JBNHS*, 48: 806/7), this fine series is indistinguishable from specimens of *legerli* collected in Bastar (eastern Madhya Pradesh). Besides being larger than *malabaricus* from Travancore and Kanara, they differ from that race in the following respects:

Males brighter yellowish brown above, less suffused with chestnut, particularly on the upper tail coverts. Head and breast sooty black or greyish black as against deep black in southern birds. The females are also a brighter yellow-brown above than females of southern birds.

Specimens from the neighbourhood of Bombay city are intermediate. For the sake of convenience I have arbitrarily restricted the range of *malabaricus* to 'the Western Ghats country north to the 20th parallel' (loc. cit.).

Fairly common in the Dangs. Affects bamboo and mixed jungle in moist deciduous biotope. The male utters a throaty, rather musical (of oriole quality) *cue, sue, cue*, repeated unhurriedly usually 3 times, sometimes only twice. Sits bolt upright with dull coloured back studiously turned to the observer thus obliterating itself effectively in its surroundings. In this position, moreover, the broad, square-ended tail (as broad as the body) makes it look like a bit of a branch or a dry leaf. When taking off, flutters from side to side, like a dove suddenly disturbed, with the pointed lateral tail feathers and primaries spread out and twisted round looking like the points of a star—reminiscent of the tail of the American Sage Grouse in display.

Most of the March specimens were undergoing body moult. In only one male (14 March) was a fair development of the testes noticed. No other evidence as regards breeding in this area was obtained.

Family ALCEDINIDAE: Kingfishers.

Ceryle rudis leucomelanura Reichenbach. The Pied Kingfisher.

Specimens collected: Gujarat: gs563 ♀ 12-12-1945 Saiat (Kaira Dist.); gs605 ♀, gs606 ♀ 16-12-45, gs636 ♂, gs637 ♀ 18-12-45 Vaghjipur (Mehsana Dist.).

Elsewhere noted: Kutch: Chaduva; Bhuj; Anjar. Saurashtra: Kodinar. Gujarat: Baroda and environs; Golana (Cambay); Radhanpur; Kharaghoda; Juna Rajpipla.

| Measurements: | W | B (from forehead feathers) | Tar. | T |
|---------------|---------|----------------------------------|-------|---------|
| 1 ♂ | 142 | 66 | 12 | 6° |
| 4 ♀♀ | 139-141 | 57.5-67.5 | 12-15 | 70-74.5 |

Fairly common. Pairs at irrigation reservoirs and rivers, hunting in the well known spectacular manner of hovering stationary and plunging headlong. No indication of breeding was provided by the gonads of the specimens. According to Lester, it breeds in Kutch in February and March.

Alcedo atinis bengalensis Gmelin. The Small Indian Kingfisher.

Specimens collected: Saurashtra: B48 ♂ 20-10-43 Dhari (Amreli Dist.); Gujarat: gs111 ♂ 2-11-45 Ajwa (Baroda Dist.); gs562 ♂ 12-12-45 Saiat (Kaira Dist.); gs580 ♀ 15-12-45, gs638 ♂ 18-12-45, gs668 ♀ 20-12-45 Vaghjipur (Mehsana Dist.); gs947 ♀ 20-1-46 Balaram (Palanpur); gs1122 ♂ 27-3-46 Juna Rajpipla.

Elsewhere noted: Kutch: Bhuj environs; Mandvi. Saurashtra: Dwarka. Gujarat: Cambay; Radhanpur; Kharaghoda, etc.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-----------|--------|---------|
| 5 ♂♂ | 69-72 | 42-46 | 8-10.5 | 30-33 |
| 3 ♀♀ | 69-71 | 43.5-44.5 | 9.5-10 | 30.5-34 |

The specimen from Dhari (No. B48), just completing general moult, is very blue and would pass for *laprobana*; but relatively more blueness or greenness seems to me a variable and unreliable subspecific character. Several others of the Gujarat series are equally blue with B48.

Occasional solos at ditches, ponds and streams. Not common. Breeds in Kutch, according to Lester, March to May. Gonads of all the above specimens were quiescent.

Pelargopsis capensis gural (Pearson). The Brownheaded Stork-billed Kingfisher.

Specimens collected: Gujarat: gs946 ♂ 20-1-46 Balaram (Palanpur); gs1121 ♂ + 27-3-46 Juna Rajpipla; gs1147 ♂ 29-3-46, gs1163 ♀ 30-3-46, gs1195 ♀ 3-4-46 Dediapada (Rajpipla); gs1250 ♂ + 12-4-46, gs1263 ♀ 14-4-46 Waghai (Surat Dangs); sd372 ♂ + 19-3-48 Kalibel; sd435 ♂ + 24-3-48 Sakalpatal (Surat Dangs).

Absent in Kutch. Saurashtra?

| Measurements: | W | B | Tar. | T |
|---------------|-----------|-------|-------|---------|
| 6 ♂♂ | 155.5-163 | 84-93 | 19-20 | 98-110 |
| 3 ♀♀ | 159-168 | 86-90 | 19-20 | 100-105 |

Not uncommon on forest streams. Its presence is usually advertised by its loud, explosive, harsh laugh *Ke-ke-ke-ke-ke* (accent on the initial *ke*), or the pleasant soliloquy *peer-peer-pur* etc. Late March specimens were completing moult and their gonads were maturing.

Halcyon smyrnensis smyrnensis (Linnaeus). The Whitebreasted Kingfisher.

Specimens collected: Gujarat: gs112 ♀ 2-11-45 Ajwa (Baroda Dist.); gs176 ♂ 9-11-45 Bodeli (Baroda Dist.); gs302 ♂ 19-11-45, gs337 ♂ 20-11-45 Dabka (Baroda Dist.); gs454 ♀ 2-12-45 Gplana, Cambay; gs496 ♂ 6-12-45 Cambay town environs, gs607 ♂ 16-12-45 Vaghjipur (Mehsana Dist.), gs1184 ♂ 2-4-46 Dodiapada (Rajpipla).

Elsewhere noted: Kutch: Chaduva; Mandvi; Lakhpat. Saurashtra: Amreli; Kodinar. Gujarat: Radhanpur; Palanpur; Kharaghoda, etc.

| Measurements: | W | B | Tar. | T |
|---------------|---------------|-------|---------|---------|
| 6 ♂♂ | (115) 121-125 | 60-67 | 16 (19) | 76.5-82 |
| 2 ♀♀ | 122-123 | 65-66 | 16.5-17 | 81-87.5 |

I agree with Whistler's remarks (*JBNHS*, 37; 762 and *Spolia Zeylanica* 23 (3 & 4): 228—Aug. 25, 1944) that Travancore and Ceylon birds are alike and there is no constant difference in colour between birds from the rest of India and the NW. race *smyrnensis* excepting a slight increase in size as one moves northward, in keeping with Bergmann's Rule.

A common and widely distributed species, but nowhere abundant. It is much less dependent upon the presence of water than other kingfishers, and is often met with in openly wooded country far away from any ponds or streams. The Survey specimens provide no indication of the breeding season in this area.

Halcyon pileata (Boddaert). The Blackcapped Kingfisher.

Specimen collected: Gujarat: sd436 ♂ 24-3-48 Sakalpatal (Surat Dangs). Elsewhere not noted.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|------|
| 1 ♂ | 130 | 64 | 15.5 | 81.5 |

The only example met with by the Survey. A solitary on a rock pool in Ambika River. In flight the large white patch in the wing is conspicuous and strikes immediate attention.

Family MEROPIDAE: Bee-eaters.

Merops superciliosus persicus Pallas. The Bluecheeked Bee-eater.

Specimens collected: Kutch: ks290 ♂, ks291 ♀ 30-9-43 Chaduva (Bhuj Dist.); Gujarat: gs1 ♀, gs2 ♂, gs3 ♂, gs4 ♂ 28-10-45, gs16 ♂, gs17 ♀ 29-10-45 Ajwa (Baroda Dist.).

Elsewhere noted: Kutch: Rapar (21 Sept.), Bhuj (28 Sept.), Khavda (1 Oct.) Nir (5 Oct.) Absent at Chaduva (5 March). Saurashtra: Mithapur (Okhamandal, 23 Oct.), Amreli (17-20 Oct.).

| Measurements. | W | B | Tar. | O.T | C.T |
|---------------|---------|-------|-------|-------|-------|
| 5 ♂♂ | 146-155 | 47-50 | 14-27 | 88-91 | 96- |
| 3 ♀♀ | 142-150 | 46-47 | 14-46 | 85-92 | 97(1) |

Evidently an autumn passage migrant over Kutch to its winter quarters in Africa, like the Kashmir Roller. First met September 21 (Rapar); abundant in 1st week of November. Between 5 March and 5 April no return passage was observed. In Gujarat its status is not clear, although

to some extent it is certainly a passage migrant as in Kutch. In Saurashtra, K. S. Dharmakumarsinhji recently reported it as arriving in May and breeding in considerable numbers between June and August in the Bhavnagar area. (JBNHS, 46: 723).

Affects the neighbourhood of tanks and jheels. The calls *te-tew?* (repeated) heard in the distance are reminiscent of the *pelligrew* notes of the Redvented Bulbul.

Merops orientalis orientalis Latham. The Little Green Bee-eater.

Specimens collected: Kutch: ks277 ♂ 26-9-1943 Bhuj environs; ks323 o? 5-10-43 Nir (Pachham Island); Gujarat: gs157 ♂, 7-11-45, gs221 ♀, gs222 ♀ 11-11-45 Bodeli (Baroda Dist.); gs421 ♀, gs422 ♂ 29-11-45 Cambay town environs; gs991 ♂ 15-11-46 Dalkhania (Amreli Dist.); gs1055 ♂ + 20-1-46. Kharaghoda.

| Measurements: | W | B | Tar. | O.T. | C.T. |
|---------------|-------|-------|------|---------|---------|
| 5 ♂♂ | 94-97 | 28-33 | 10 | 70.5-73 | 121-141 |
| 1 ♀ | 94 | 32 | 10 | 72.5 | 126 |

Rare in Surat Dangs. Sparsely but generally distributed elsewhere in Gujarat, Saurashtra and Kutch. The Great Rann evidently acts as a barrier between *orientalis* and the paler race *biludschicus* of Sind, though individuals from Kutch and N. Gujarat may pass with either. Breeding seemed imminent by about mid March.

o **Nyctiorhis athertoni athertoni** (Jard. and Selby). The Bluebearded Bee-eater.

No specimens obtained nor completely satisfactory sight record, but at Medha near Songadh (Navsari Dist., Gujarat) the distinctive guttural *kor-r-r* was heard in foothills moist deciduous forest country—the typical biotope of this species (8-4-1946). Confirmation is desirable.

Family CORACIIDÆ: Rollers or Blue Jays.

Coracias garrula semenowi Loudon & Tschusi. The Kashmir Roller.

Specimens collected: Kutch: ks71 ♂ 17-8-43, ks98 ♀ 20-8-43 Chaduva (Bhuj Dist.); Gujarat: gs37 ♀ 30-10-45, gs88 ♂ 1-11-45 Ajwa (Baroda Dist.).

Elsewhere noted: Kutch: Anjar; Rapar; Bhachau; Khavda; Nir (Pachham Island). Saurashtra: Dwarka; Okha; Amreli; Dhari.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|------|---------|
| 2 ♂♂ | 197-205 | 35-37.5 | 25 | 124-128 |
| 2 ♀♀ | 190-201 | 36-39 | 24 | 121-130 |

A passage migrant in autumn, through Kutch and Saurashtra. Earliest date 17 August. Abundant between second week and end of September; mostly gone by end of October. The specimens of 30 October and 1 November were excessively fat in preparation for emigration to their winter quarters, presumably in Africa. Return migration to Kashmir, Baluchistan, etc., evidently takes place by a different route in spring. This species migrates during daytime, chiefly in the morning up till forenoon, but also throughout the day. The birds do not travel in flocks but rather like birds of prey, in a steady stream of spaced singles with an interval

of half to several minutes between each individual. On September 20 and 21 (1943, Rapar, Kutch) migration was observed in progress. The birds were flying steadily over a wide front, 300 to 400 ft. in an ENE.-WSW. direction. The wing beats are slow and deliberate, like a crow's, and in the distance the flight silhouette is also very reminiscent of that bird.

Coracias benghalensis benghalensis (Linn.). The Indian Roller.

Specimens collected: Kutch: ks148 ♂ 3-9-43 Nakhatrana, Gujarat; gs152 ♂, gs153 ♀, gs154 ♂ 7-11-45 Bodeli (Baroda Dist.); gs472 ♀ 3-12-45 Golana, Cambay; gs538 ♀ 11-12-45 Nadiad town environs (Kaira Dist.); gs720 ♂ 26-12-45 Patan (Mehsana Dist.); gs1071 ♂ + 21-3-46 Kharaghoda; gs1234 ♂ 9-4-46 Songadh (Navsari Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|---------|
| 5 ♂♂ | 185-193 | 39-44 | 25-28 | 122-134 |
| 3 ♀♀ | 189-190 | 40-44.5 | 26-29 | 126-134 |

Assigned to this northern race in accordance with the arbitrarily fixed boundary at 20° N. Lat. by Whistler (*JBNHS*, 37: 755).

Commonly but sparsely distributed. Not abundant anywhere. Birds in tumbling aerobatic displays were observed between December and April. Breeding was in progress during March/April. Has a curious habit, while perched, of swinging its tail slowly up and down as in the Black-winged Kite, the Forest Wagtail and the Little Green Bee-eater.

Family UPUPIDAE: Hoopoes.

Upupa epops epops Linnaeus. The Hoopoe.

Specimens collected: Kutch: ks93 ♀ 19-8-43 Chaduva (Bhuj Dist.); ks125 ♂ 30-8-43 Bhuj environs; ks408 ♀ 24-3-44 Chobari (Bhachau Dist.). Saurashtra: B27 ♀ 17-10-43 Amreli. Gujarat: gs70 ♀, gs71 ♂, gs72 ♂? 1-10-45 Ajwa (Baroda Dist.); gs143 ♀ 6-11-45 Bodeli (Baroda Dist.); gs284 ♂ 18-11-45 Dabka (Baroda Dist.); gs543 ♂ 11-12-45 Nadiad environs (Kaira Dist.); gs740 ♂ 27-12-45 Patan (Mehsana Dist.); gs1062 ♂ + 20-3-46 Kharaghoda.

Elsewhere noted: Kutch; Nakhatrana, Anjar; Khavda (Pachham Island), Nir; Saurashtra: Kodinar; Dalkhania; Gujarat. Radhanpur; Deesa; Palanpur, etc.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|---------|--------|
| 5 ♂♂ | 148-155 | 54-63 | 23.5-26 | 99-105 |
| 5 ♀♀ | 140-150 | 50-55 | 21-23 | 95-100 |

Specimen No. gs1062 was in freshly moulted plumage on 20 March and fat. The gonads were maturing, and the bird seemed getting ready to breed.

I agree with Whistler's doubts (*JBNHS*, 37: 28) as to whether the race *orientalis* of north India is worth recognizing. There seem to be no tangible or constant characters by which it can be separated from typical *epops*. The above series from Gujarat include both darker and paler birds. They measure larger than *ceylonensis* and are also distinctly paler than that race, possessing white subterminal spots to the long hind feathers of the crest.

Not common, but frequent. Presumably resident, though the numbers may be augmented during the winter months by influx of immigrants from the north.

Usually seen singly, but on occasions loose parties of 10 or more were met with feeding on a restricted piece of ground.

Family BUCEROTIDAE: Hornbills.

Teckus birostris (Scopoli). The Grey Hornbill.

Specimens collected: Gujarat: Gs1089 ♂+, Gs1090 ♂+ 25-3-46 Juna Rajpipla.

Elsewhere noted: Gujarat: Ajwa (Baroda Dist.); Hathidhara (Palanpur); Songadh (Navsari Dist.); Galkund, Malegaon, etc., (Surat Dangs).

Absent in Kutch:

| Measurements: | W | B | Tar. | T |
|---------------|-----|---------|-------|---------|
| 2 ♂♂ | 220 | 106-112 | 45-47 | 266-276 |

Not uncommon in the better wooded parts of Gujarat with a generous sprinkling of large banyan and peepal trees (*Ficus bengalensis* and *F. religiosa*). Local name: Chalotra. There is a widespread belief in its medicinal properties as a cure for after-childbirth pains in women, and the birds are persecuted to some extent on this account. A broth is prepared of the entire bird, feathers and all, which is taken internally. In addition a decoction of it is used for bathing.

Both birds had testes enlarged to breeding size and from the paucity of females at this period it is possible that they may be sitting on eggs.

Family CAPITONIDAE: Barbets.

Megalaima zeylanicus inornata Walden. The Large Green Barbet.

Specimens collected: Gujarat: Gs960 ♂, Gs961 ♂ 20-1-1946 Hathidhara (Palanpur); Gs1093 ♂+ 25-3-46 Juna Rajpipla; Gs1210 ♂+ 7-4-46 Songadh (Navsari Dist.); Sd48 ♀ 27-2-48, Sd68 ♂+ 28-2-48 Malegaon; Sd121 ♂+ 2-3-48 Galkund; Sd211 ♂+ 10-3-48, Laochal; Sd338 ♀ 16-3-48, Sd356 ♂+ 18-3-48 Mheskatri; Sd394 ♂+ 20-3-48 Sarwar (Surat Dangs).

Elsewhere noted: Gujarat: Pavagadh (Panchmahals Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-----------|---------|---------|
| 9 ♂♂ | 119-127 | 34.5-38.5 | 30-32.5 | 72-78.5 |
| 2 ♀♀ | 119-123 | 40-41 | 30-33 | 73-74 |

This race is very brown above and below with practically no streaking on the breast; or rather the streaks are much finer and less contrasty than in *zeylanicus*. The brown of the head and breast, moreover, is silky and very buff if viewed from the side. In *zeylanicus* the head and breast are almost umber brown with the whitish streaks standing out boldly.

Restricted to well wooded country; abundant and noisy where occurring. Feeds chiefly on banyan and peepal figs. Occasionally sips nectar from *Erythrina* flowers. Call: a loud *kutroo*, *kutroo*, *kutroo*, or *pocock*, *pocock*, *pocock*, repeated *ad nauseam*. Breeding was in progress during March.

Megalaima viridis (Boddaert). The Small Green Barbet.

Specimens collected: Gujarat: sp81 ♀ 29-2-1948 Malegaon (Surat Dangs). Only observed in the Surat Dangs, not elsewhere in Gujarat. Absent in Saurashtra and Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|----|
| 1 ♀ | 107 | 29 | 27 | 66 |

Restricted to moist deciduous forest in Ghats foothills country, and here not uncommon. Call: *kutroo, kutroo*, etc., rather like the Large Green Barbet's but in a higher key and distinguishable if heard side by side, e.g., at Malegaon.

Megalaima haemacephala indica (Latham). The Crimsonbreasted Barbet.

Specimens collected: Saurashtra: B25 ♂ 17-10-43, Amreli; Gujarat: GS38 ♀ 30-10-43 Ajwa (Baroda Dist.); GS208 o? 10-11-43 Bodeli (Baroda Dist.); GS376 ♂+, GS377 ♀+ 23-11-43 Dabka (Baroda Dist.); GS424 ♀ 29-11-43 Cambay town environs; GS918 ♂+ 14-1-46 Deesa (Palanpur); GS1197 ♀+ 3-4-46 Dediapada (Rajpipla); SD18 ♂+ 24-2-48 Malegaon; SD393 ♂+ 20-3-48 Sarwar (Surat Dangs).

Rare in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|-------|
| 5 ♂♂ | 78-81 | 16-19.5 | 17-21 | 34-36 |
| 4 ♀♀ | 75-81.5 | 17-19 | 18-20.5 | 30-35 |

In abraded plumage back looks more bluish grey-green, less yellowish green as in fresh plumage. This difference has no racial significance since both types are found in the same localities seasonally. Feathers of the back become abraded in nesting birds presumably due to the constant scraping in and out of nest-holes. Therefore I cannot uphold Koelz's race *confusa* from Londa, described in *Proc. Biol. Soc., Washington*, 52: 78-1939.

Common. Nesting in progress November/December—March/April.

Family PICIDAE: Woodpeckers.

lynx torquilla ssp. The Wryneck.

Specimens collected: Kutch: KS374 ♀ 15-3-44 Jakhau; KS124 ♀ 29-8-43, KS134 ♀ 8-9-43, KS275 o? 26-9-43 Bhuj environs; KS292 ♀ 30-9-43 Chaduva (Bhuj Dist.); Gujarat: GS39 ♂ 30-10-45, GS79 ♂, GS80 ♀ 11-45, GS115 ♀ 3-11-45 Ajwa (Baroda Dist.); GS351 ♂ 21-11-45 Dabka (Baroda Dist.); GS667 ♀ 20-12-45 Vaghjipur (Mehsana Dist.); GS708 ♀ 25-12-45 Patan (Mehsana Dist.); GS898 ♂ 12-1-46 Deesa (Palanpur); GS1111 ♀ 26-3-46 Rajpipla environs. Saurashtra: B36 ♂ 18-10-43 Amreli.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|-------|-----------|
| 4 ♂♂ | 87-92 | 16-18 | 20-22 | 65.5-70.5 |
| 7 ♀♀ | 86-92 | 14-17 | 18-21 | 65-70 |

I can see little constant difference in winter between the typical European race and the Asiatic form *chinensis* which breeds in Kashmir, and therefore hesitate to assign my specimens to either.

Fairly common winter visitor. Earliest date 29 August (Kutch); latest 1 April (Rajpipla). Hops along ground like finch to pick up food: ants and other insects and seeds (?). Clings to thin stems of trees like woodpecker and also perches across branches like a passerine bird. Flight often deceptively finchlike. On a fleeting glimpse, when dashing from one thicket to another, easily mistaken for Great Reed Warbler (*Acrocephalus stentoreus*) in appropriate facies. Utters a harsh quick-repeated nasal *chew, chew, chew, chew*, at about 3 per second, of timbre between call of Myna and Goldenbacked Woodpecker's 'laugh'.

Affects dry scrub jungle and semidesert country with *Prosopis*, *Euphorbia*, etc.

Micropternus brachyurus jerdoni (Malherbe). The Rufous Woodpecker.

Specimens collected: Gujarat: SD421 ♀, SD422 ♂ 22-3-1948 Pimpri (Surat Dangs).

Elsewhere not noted.

| Measurements : | W | B | Tar. | T |
|----------------|-----|----|------|------|
| 1 ♂ | 131 | 30 | 24 | 62 |
| 1 ♀ | 129 | 30 | 24 | 64.5 |

Both these specimens have crown and nape grey, contrasting clearly with the rufous of rest of upper parts. The dark chocolate and whitish squamation on the chin and throat is more pronounced in the female. In the male this is obsolete and also lacks the chocolate. A cline in size from Travancore birds is noticeable (4 ♂♂ W 116.5-120.5; 4 ♀♀ 116.5-123). A female from Andheri (Greater Bombay) in the B.N.H.S. collection has W 125.5 mm.

The above were the only 2 examples met with by the Survey. They were busy digging a hole, about 2½ inches in diameter, in a carton nest of black tree ants in secondary deciduous jungle. Gonads undeveloped.

Picus chlorolophus chlorigaster Jerdon. The S. Indian Small Yellow-naped Woodpecker.

Specimens collected: Gujarat: GS1199 ♂ 7-4-1946, GS1225 ♀, GS1226 ♂ 9-4-46 Songadh (Navsari Dist.); SD19 ♂+ 25-2-48 Malegaon; SD38 ♀ 26-2-48 Galkund; SD419 ♂+ 22-3-48 Pimpri (Surat Dangs).

| Measurements : | W | B | Tar. | T |
|----------------|-----------|-------|-------|-------|
| 4 ♂♂ | 123.5-128 | 27-30 | 22-24 | 78-85 |
| 2 ♀♀ | 124-125 | 29-30 | 22-23 | 77-81 |

Not uncommon in hilly bamboo, teak and mixed moist deciduous forest. Utters a single nasal, rather mournful note *cheenk*, about one second long, from the top twigs of a leafless tree. Breeding March/April.

Dinopium benghalense benghalense (Linn.). The Goldenbacked Woodpecker.

Specimens collected: Gujarat: GS206 ♂, GS207 ♀ 10-11-1945 Bodeli (Baroda Dist.); GS418 ♀ 29-11-45 Cambay town environs; GS707 ♂ 25-12-45 Patan (Mehsana Dist.); GS841 ♀ 6-1-46 Radhanpur; GS875 ♀+ 11-1-46 Deesa (Palanpur); GS948 ♂+ 20-1-46 Balaram (Palanpur); GS1098 ♀+, GS1099 ♂+ 25-3-46 Juna Rajpipla; GS1156 ♂ 30-3-6 Dediapada (Rajpipla); SD35 ♂, SD36 ♀ 23-2-48 Galkund; SD175 ♂4

6-3-48, sd210 ♂+ 7-3-48 Pandwa; sd248 ♀+ 10-3-48, sd281 ♂+ 12-3-48 Laochali; sd323 ♀ 16-3-48 Mheskatri. (sd series from Surat Dangs).

Elsewhere noted: Saurashtra: Bhavnagar (2 specimens: K. S. Dharmakumarsinhji). Not met with in Kutch though Hume implies its occurrence there (S.F., 3: 459).

| Measurements: | W | B | Tar. | T |
|---------------|-----------|---------|---------|-------|
| 9 ♂♂ | 136.5-150 | 37-43.5 | 24-28 | 78-95 |
| 8 ♀♀ | 136-152 | 37.5-42 | 24.5-28 | 83-94 |

Birds from Palanpur and Radhanpur—both in northern Gujarat near the Rajasthan boundary—show no obvious passage to *dilatatum* in coloration. The latter is the race with paler yellow upper parts occurring in Sind, and also recorded from Mt. Abu. Specimens from Jodhpur 'definitely belong to the typical form' (Whistler *JBNHS*, 40: 225).

Not uncommon in the better wooded tracts of the area. Breeding January to March/April. Together with *Chrysocolaptes lucidus* frequently observed taking deep draughts of nectar from blossoms of *Erythrina stricta*.

Dryocopus javensis hodgsoni (Jerdon). The Great Black Woodpecker.

Specimens collected: Gujarat: gs1214 ♂ 8-1-46 Songadh (Navsari Dist.); gs1296 ♀, gs1297 ♂, gs1298 ♂ 19-4-46 Galkund (Surat Dangs); sd225 ♂ 9-3-48, Piplaidevi; sd226 ♀ 9-3-48 Ahwa; sd234 ♀, sd235 ♂ 10-3-48, sd261 ♂, s1 262 ♀, sd263 ♀ 11-3-48 Laochali; sd341 ♀ imm., sd342 ♀ 16-3-48 Mheskatri (Surat Dangs).

Not noted elsewhere in Gujarat, or in Saurashtra or Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| 6 ♂♂ | 213-225 | 63-69 | 37-43 | 147-165 |
| 6 ♀♀ | 214-219 | 56-65 | 36-39 | 122-161 |

Iris in adult (both sexes) yellowish white; in immature pearl grey. The young female (sd341) in addition to the crimson patch on the hind-crown, as in the adult female, has the forecrown sparsely stippled with crimson.

All the specimens were in more or less heavy general moult in March/April. Their gonads were quiescent, but from the immature collected on 16 March it would appear that the breeding season is towards the end of the year?

Stomachs examined were crammed with pupae (? termites), about 10 × 2 mm. each, over 500 being taken from three specimens. A fourth stomach contained large grubs of boring beetles and ant pupae 4 × 2 mm.

The female also calls *chiank* like the male. The flight is stately with unhurried deliberate wing beats, rather reminiscent of a crow in silhouette.

Songadh in Navsari Dist. is now established as the northernmost point in the distribution of this woodpecker along the Western Ghats. Affects moist deciduous, forest in hummocky foothills country, synecologically with *Hemicircus* and *Chrysocolaptes lucidus*. The birds are greatly persecuted by the Dangi Bhils for the 'squabs' which are claimed to be an epicurean delicacy!

* *Picoides mahrattensis mahrattensis* (Latham). The Yellowfronted Pied Woodpecker.

Specimens collected: Kutch: ks35 ♂, ks36 ♀ 11-8-43 Bhuj. Gujarat: gs311 ♀ 19-11-45, gs343 ♂, gs344 ♂ 21-11-43, gs371 ♂ 2-11-43 Dabka (Baroda Dist.); gs419 ♂, gs420 ♀ 29-11-45 Cambay town environs; gs666 ♂ 20-12-45, gs681 ♀ 21-11-45 Vaghjipur (Mehsana Dist.); gs827 ♀ 4-1-46 Radhanpur; gs853 ♂ 9-1-46 Deesa (Palanpur); gs949 ♂ 20-1-46 Balaram (Palanpur); gs1144 ♂+, gs1152 ♂+ 29-3-46 Dediapada (Rajpipla); sd119 ♀ 2-3-48, sd136 ♂+ 3-3-48 Galkund; sd259 ♂+ 11-3-48 Laochali (Surat Dangs).

Elsewhere noted: Saurashtra: Kodinar; Dalkhania (Amreli Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|--------------------|---------|--------------|-------|
| 12 ♂♂ | (96) 106-104 (107) | 25-27.5 | 16-20.5 (50) | 57-64 |
| 6 ♀♀ | (94) 100-103 | 23-25 | 18-19 | 57-61 |

All the specimens are typical *mahrattensis* except gs827 (Radhanpur) and gs949 (Balaram, Palanpur) which, in their slightly more extensive white of the upper parts suggest intergrading with *aurocristatus*. On the whole these two specimens match two examples from Jodhpur in the B.N.H.S. collection determined as *aurocristatus* by Whistler (*JBNHS*, 40: 226) but which themselves seem intermediate (see Whistler's remarks, Eastern Ghats Survey, *JBNHS*, 37: 228). Kutch birds appear to go better with the typical race.

Affects the more dry scrub jungle with babul and *Prosopis* trees. Also roadside *Dalbergias*, and mango groves near villages etc. Was seen in Kutch clinging to dry *Euphorbia* stems in arid, stony, hummocky country. Breeding was in progress in March/April. From time to time during this season the male (only?) drums *dr-r-r-r-r* continuously for 1-2 seconds.

The call-note commonly heard, at other seasons also, is a sharp *click-click* or *click-r-r-r*.

Picoides nanus hardwickii (Jerdon). The Pigmy Woodpecker.

Specimens collected: Gujarat: gs213 ♀, gs214 ♂, gs215 ♂, gs216 ♀ 10-11-45, gs227 ♂, gs228 ♀, gs229 ♂, 11-11-45 Jambughoda; gs1145 ♂ 29-3-46, gs1159 ♂ 30-3-46 Dediapada (Rajpipla); gs1295 ♂ 19-4-46 Galkund (Surat Dangs); sd2 ♂ 23-2-48 Malegaon; sd118 ♀ 2-3-48, sd135 ♂ 3-3-48 Galkund; sd246 ♀ 10-3-48 Laochali; sd347 ♀ 17-3-48 Mheskatri; sd404 ♀+ 20-3-48 Sarwar; sd460 ♀ 25-3-48 Chikhli (sd = Surat Dangs).

I have seen two specimens collected in Bhavnagar, Saurashtra, by K. S. Dharmakumarsinhji. Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-----------|---------|--------------|---------|
| 9 ♂♂ | 72-75 | 14-15.5 | 12-14.5 (16) | 31.5-36 |
| 8 ♀♀ | 73-76(79) | 13.5-16 | 13-15 | 32-37.5 |

Common. Breeding March/April. An example was observed roosting at night in a crotch of upright branches about 14 ft. up in a leafless tree in bare deciduous pole forest. The bird clung at an angle of about 45°. It was not observed in the same place the following night.

Hemicircus canente canente (Lesson). The Heartspotted Woodpecker.

Specimens collected : Gujarat: gs1200 ♀, gs1201 ♂ 2-46 Songadh (Navsari Dist.); gs1248 ♂ 12-4-46 Waghai (Surat Dangs); sd304 ♀, sd305 ♂ 14-3-48 Mahal; sd373 ♂, sd374 ♀ 12-3-48, sd397 ♂, sd398 ♀ 20-3-48 Sarwar (Surat Dangs).

Not recorded in Saurashtra. Absent in Kutch.

| Measurements : | W | B | Te. | T |
|----------------|-------|---------|-----------|-----------|
| 5 ♂♂ | 93-99 | 20-22.5 | 18.5-19.5 | 33-35 |
| 4 ♀♀ | 92-94 | 19.5-21 | 17.5-18.5 | 32.5-34.5 |

For my reasons for not recognising the race *H. c. cordatus* see *JBNHS*, 49 : 786. Songadh in Navsari District now becomes the most northerly point of the distribution of this woodpecker in the Sahyadris or Western Ghats. In view of its discovery in this area, the doubt cast in F.B.I. (iv : 85) on Jerdon's record from the adjacent Madhya Pradesh is nullified.¹

Not uncommon in the moister facies of deciduous forest—in hilly bamboo, teak and mixed jungle. Its large crested head, attenuated neck and the curious broad, short rounded tail, together with its habit of perching crosswise on a bare top twig like a passerine bird, draws attention to it a long way off. Goes about in pairs. The gonads of the specimens furnished no indication of the breeding season.

Chrysocolaptes festivus festivus (Boddaert). The Blackbacked Woodpecker.

Specimens collected : Gujarat: gs1173 ♀, gs1174 ♂ 31-3-46, gs1182 ♂ 2-4-46 Dediapada (Rajpipla); sd37 ♀ 26-2-48 Galkund; sd231 ♀ 10-3-48 Laochali; sd322 ♂ 16-3-48 Mheskatri; sd409 ♂ 21-3-48, sd420 ♀ 22-3-48 Pimpri (Surat Dangs).

Not noted elsewhere in Gujarat, or in Saurashtra. Absent in Kutch.

| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|---------|-------|
| 4 ♂♂ | 155-162 | 50-54 | 29.5-31 | 72-80 |
| 4 ♀♀ | 150-158 | 43.5-51 | 26-30 | 72-87 |

Specimen sd37 marked ♀ has a paler brown back and its crest and crown feathers are tipped with scarlet. (Immature ♂?)

This species has the habit of chiselling out several holes in the trunk of a tree one below the other in 'apartment house' fashion. What the facts of their ownership are is not clear, i.e., whether they belong to one bird or are colonial, but in one instance four of such holes a few feet apart vertically, were occupied as nightly roost by one bird each on two successive evenings, and 3 similar holes in a nearby trunk by 3 more birds. A male shot whilst busily chiselling out the topmost hole of a series of 4, on dissection, showed no gonadal development. All specimens collected in March and April were in various stages of general moult involving body, rectrices and remiges. Their gonads provided no indication of breeding.

¹ The ornithological surveys of Bastar (eastern Madhya Pradesh) in 1948, and Orissa hills in 1949, actually procured several specimens in those areas.

Chrysocolaptes lucidus chersonesus Kloss. Malherbe's Golden-backed Woodpecker.

Specimens collected: Gujarat: gs1281 ♂ 17-4-46 Mahal (Surat Dangs); sd44 ♂, sd45 ♂, sd46 ♀ 27-2-48 Malegaon; sd91 ♂ + 29-2-18 Pimpri (Surat Dangs).

Elsewhere not noted.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|---------|-------|
| 4 ♂♂ | 149-158 | 43-46 | 29.5-30 | 80-91 |
| 1 ♀ | 154 | 43 | 30 | 85 |

Iris ♂♀ pale fawn or biscuit colour.

The above specimens provide a northward extension into the Khandesh area of this species and race. Stuart Baker (Fauna iv : 81) gives its range as 'India south of Bombay City and the Province of Orissa'.

Not common. Confined to moist deciduous biotope. Breeding in February, on.

Family PITTIDAE : Pittas.

Pitta brachyura [brachyura (Linn.)]. The Indian Pitta.

Not seen or heard by the Survey between August and mid April, in Kutch, Saurashtra or Gujarat. Possibly arrives in suitable localities, as elsewhere, as forerunner of the SW. monsoon at the end of May or in early June. K. S. Dharmakumarsinhji found it 'widespread and calling frequently' in the Gir forest, Junagadh, in the last week of May (1947). One pair had started to nest. (JBNHS, 48 : 189).

Family ALAUDIDAE : Larks.

Mirafra javanica cantillans Blyth. The Singing Bush Lark.

Specimens collected: Kutch: ks104 ♂ +, ks105 ♂ + 21-8-1943 Chaduva (Bhuj Dist.); ks157 ♂ + 4-9-43 Nakhatrana. Gujarat: gs530 ♀ 9-12-45 Nadiad environs (Kaira Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|------|-------|
| 3 ♂♂ | 75-81 | 13-14 | ... | 49-55 |
| 1 ♀ | 80 | 13.5 | 22 | 51 |

In very worn plumage in August/September; freshly moulted in December/January. In fresh post nuptial dress the white chin and throat are prominent; the pale edged dark brown feathers of the back are reminiscent of juvenile *Galerida* larks.

A not uncommon resident species doubtless often confused with the Skylark when soaring aloft and singing, as I myself did until specimens were actually secured of birds that had dropped to earth after the performance. Except that the singer does not, perhaps, ascend as high in the air as the Skylark, I could detect no consistent difference in the song or the song-flight of these two species, as also those of Sykes's Crested Lark (*Galerida deva*). My impression is, however, that the Singing Bush Lark and Sykes's both incorporate in their song the calls of other birds far more freely than the Skylark does. Amongst these I have heard

perfect imitations of Common Babbler, Tailor Bird, Franklin's Wren-Warbler, Rufousfronted Wren-Warbler, Jungle Wren-Warbler, Wood Shrike, Redwinged Bush Lark, Purple Sunbird and Rain Quail. The imitations run into one another in quick succession with no break in the melody.

Breeding was in progress in Kutch during August.

Mirafra erythroptera sindiana Ticehurst. The Redwinged Bush Lark.

Specimens collected: Kutch: ks17 ♂ + 9-8-1943 Bhujia Fort; ks82 ♂ + 18-8-43 Chaduva (Bhuj Dist.); ks287 ♀ 28-9-43 Bhuj environs; ks383 ♂ 17-3-44 Mata-no-Madh; ks416 ♂ 28-4-44 Bela Island (Great Rann). Gujarat: gs26 ♂ 29-10-45 Ajwa (Baroda Dist.); gs274 ♂ 17-11-45 Dabka (Baroda Dist.); gs665 ♂ 20-12-45, gs679 ♂ 21-12-45, Vaghjipur (Mehsana Dist.); gs715 ♀, gs716 ♂ 25-12-45, gs727 ♂ 26-12-45, Patan (Mehsana Dist.); gs756 ♂ 30-12-45 Radhanpur; gs851 ♂ 9-1-46 Deesa (Palanpur); gs1002 ♂, gs1003 ♂ 15-3-46 Dakhnia (Amreli Dist.).

| Measurements : | W | B | Tar. | T |
|----------------|----------------|---------|---------|---------|
| 13 ♂♂ | (73, 75) 77-84 | 12.5-15 | 20.5-23 | 46-56 |
| 2 ♀♀ | 73.5-76 | 13-14.5 | 22-22.5 | 44.5-47 |

Specimens gs26 and gs274 from Baroda District have rufous-tinged edging to feathers of back and would pass for typical *erythroptera*. So are also gs1002-Gs1003 from south Saurashtra nearer the typical race. Specimens from Kutch and Gujarat north of Baroda, as a series, seem nearer *sindiana* though it is clear that most birds are intermediate. No. gs679 has the 2nd and 3rd primaries wholly rufous—up to their tips, with only a faint brown spot near extreme tip.

Common in stony scrub country, singly or in loose parties of 3 to 5. In the breeding season, June to September, the parachuting display and song of the male described in my 'Birds of Kutch' (p. 60), is diagnostic of the species. In the appropriate biotope one can hardly go far in any direction without seeing one or more males thus advertising themselves.

Eremopterix grisea Scopoli. The Blackbellied Finch Lark.

Specimens collected: Gujarat: gs13 ♂ 28-10-45 Ajwa (Baroda Dist.); gs313 ♂ +, gs314 ♀ + 19-11-45 Dabka (Baroda Dist.); gs725 ♀, gs726 ♂ juv. 26-12-45, gs744 ♂ 27-12-45 Patan (Mehsana Dist.); gs790 ♂, gs791 ♀ Radhanpur; gs1033 ♂ juv. 19-3-46 Kharaghoda. Kutch: ks83 ♂ +, ks84 ♀ + 18-8-43 Chaduva (Bhuj Dist.).

| Measurements : | W | B | Tar. | T |
|----------------|-------|---------|-------|-------|
| 7 ♂♂ | 74-80 | 11-12.5 | 16-17 | 41-45 |
| 3 ♀♀ | 73-78 | 10.5-11 | 16 | 38-42 |

The males, as a series, are a trifle greyer above seen with 'the eye of faith' though one would expect Radhanpur birds to be definitely so, being nextdoors to Deesa, the type-locality of *siccata* Ticehurst. I agree with Dr. Dillon Ripley's action (Checklist MS) in sinking this very poorly differentiated race.

Resident, common, but like the Rufostailed Finch Lark subject to considerable seasonal local movement. There is apparently no hard and fast breeding season. Odd birds were breeding from August to April.

Ammomanes phoenicurus phoenicurus (Franklin). The Rufous-tailed Finch Lark.

Specimens collected: Kutch: ks41 ♂, ks42 ♀ 11-8-43 Padhar (Bhuj Dist.); ks65 ♂ 16-8-43 Chaduva (Bhuj Dist.); Gujarat: gs164 ♂, gs165 ♂ 8-11-45 Bodeli (Baroda Dist.); gs781 ♀ 31-12-45 Radhanpur; sp282 ♂+, sp283 ♀ 12-3-48 Laochali (Surat Dangs). Saurashtra: gs996 ♂, gs997 ♀ 14-3-46 Dakkhania (Amreli Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|----------|-----------|---------|-------|
| 6 ♂♂ | 100-107 | 15-17 | 21.5-24 | 57-64 |
| 4 ♀♀ | 98.4-104 | 14.5-15.5 | 21.5-23 | 55-63 |

Resident. Breeding March/April. Affects dry stony country, ploughed fields etc. Marked local movement was noticeable in Kutch where, in suitable localities, it was far more plentiful in March than it had been in August/September.

Alaemon alaudipes doriae (Salvadori). The Hoopoe Lark or Large Desert Lark.

Specimens collected: Kutch: ks295 ♂+ 1-10-1943 Khavda (Pachham Island); ks318 ♀+ 4-10-43, ks324 ♂+ 6-10-43 Nir (Great Rann); ks409 ♂ 25-3-44, ks410 ♀ 25-3-44 Chobari (Bhachau Dist.).

Elsewhere noted: Between Kakindia Bet and Gangli Bet; between Dholovira and Bela (Great Rann). Pung Bet (Little Rann).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-----------|---------|-------|
| 3 ♂♂ | 126-136 | 30.5-34.5 | 33.5-36 | 79-93 |
| 2 ♀♀ | 117-118 | 27 | 30.5-32 | 75 |

Affects salt-encrusted barren sandy 'pats' in the Rann, usually in pairs or singly. Some examples were seen as far away as 10 to 12 miles out on the Great Rann, on absolutely bare and featureless sunbaked terrain with not a stone or blade of grass to afford shelter from the fierce midday sun. Breeding was in progress in early October. The song and courtship display have been described in my 'Birds of Kutch' (p. 57).

Calandrella cinerea longipennis (Eversmann). The Yarkand Short-toed Lark.

Specimens collected: Kutch: ks192 ♂, ks193 ♂ 9-9-43 Bhuj environs; ks308 ♂, 309 ♀, ks310 ♀ 2-10-43 Khavda (Pachham Island); ks343 ♀, ks344 ♂, ks345 ♀, ks346 ♀ 8-3-44 Mandvi. Saurashtra: bl3 ♀ 13-10-43 Dwarka. Gujarat: gs438 ♀, gs439 ♂ 30-11-45 Cambay town environs; gs623 ♀ 17-12-45 Vaghjipur (Mehsana Dist.); gs713 ♂, gs714 ♂ 25-12-45 Patan (Mehsana Dist.); gs792 ♂ 1-1-46 Radhanpur; gs848 ♀, gs849 ♂, gs862 ♀, gs863 ♂, gs864 ♀, gs865 ♂ 9-1-46 Deesa (Palanpur); gs1034 ♂ 19-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|--------|-------|---------|---------|
| 9 ♂♂ | 95-100 | 12-15 | 20-21.5 | 54-61.5 |
| 11 ♀♀ | 88-94 | 12-14 | 20-21 | 53-56.5 |

Winter visitor. Common and abundant. Earliest date 9 September (Bhuj); latest 30 March. Affects semi-desert and open scraggy grass or weed-covered fallow land, usually in large flocks.

All the March specimens were excessively fat preparatory to emigration.

Calandrella raytal adamsi (Hume). The Indus Sand Lark.

Specimens collected: Kutch: ks208 ♂+, ks209 ♂+, ks210 ♂+ 11-9-43 Kandla; ks370 ♂+ 15-3-44 Jakhau.

Not noted elsewhere, but K. S. Dharmakumarsinhji found a very distinct dark form of this lark inhabiting marine mud flats in Bhavnagar (Saurashtra) which Dr. C. Vaurie recently described as *C. r. krishnakumarsinhji* (JBNHS, 52: 8—1 July 1954).

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|-------|
| 4 ♂♂ | 80-89 | 12-13.5 | 19-19.5 | 43-50 |

Resident. Not uncommon in the neighbourhood of salt pans and dry open sandy mudflats on the sea coast. Solos, or scattered twos and threes. Males soar about 100 ft. up to sing. The song is rather like that of Syke's Crested Lark, but short and broken: a few notes . . . pause . . . a few notes again . . . pause, and so on. Wanders here and there in the air while singing, and parachutes to earth in steps, with stiffly open wings and tail, hovering for a moment at each step in the descent. This performance is somewhat reminiscent of the song flight of the Indian Pipit. Always sings from perch on a mound. Lester gives the breeding season in Kutch as June and July, but all the specimens collected in September had enlarged gonads indicating that the season must extend through August, and later. In the March specimen also the testes appeared to be maturing (3×2 mm). In Bhavnagar, according to K. S. Dharmakumarsinhji, it breeds from March to September, principally between June and the latter month.

Galerida cristata chendoola (Franklin). Franklin's Crested Lark.

Specimens collected: Kutch: ks108 ♂+ 24-8-43, ks117 ♂+ 27-8-43 Mandvi; ks211 ♀+ 12-9-43 Kandla. Saurashtra: B20 ♀ 13-10-43 Dwarka. Gujarat: gs784 ♂, gs785 ♀, gs786 ♂, gs787 ♀ 31-12-45 Radhanpur; gs1027 ♂, gs1028 ♀, gs1029 ♂, gs1030 ♂ juv. 19-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|--------|---------|-------|-------|
| 6 ♂♂ | 98-105 | 20-23 | 23-26 | 54-62 |
| 5 ♀♀ | 92-98 | 19-22.5 | 23-27 | 51-55 |

Fairly common in the more arid portions of the area, in Kutch and N. Gujarat on the edge of the Great and Little Ranns. It affects open sandy sparsely scrubbed country, singly or in pairs and small parties. Breeding was in full swing in Kutch during August. No. gs1030 (19 March) was a juvenile just out of nest, with stub tail, wobbly flight and creamy yellow gape.

Galerida malabarica (Scopoli). The Malabar Crested Lark.

Specimens collected: Gujarat: sd220 ♂+, sd221 ♂+ 7-3-1948 Fort Salher, 5000 ft. (Navsari Dist.).

Elsewhere not noted in Gujarat, Saurashtra or Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|-------|
| 2 ♂♂ | 97-98 | 16-17 | 23.5-24 | 53-57 |

Several pairs, evidently breeding, and one flock of about 15 observed on the grassy, stony, undulating plateau on the summit of Salher hill-fort. The call notes uttered on the ground and in low hovering flight are

identical in pattern and quality with those of the Crested Lark (*Galerida cristata*).

***Galerida deva* (Sykes).** Sykes's Crested Lark.

Specimens collected: Kutch: ks63 ♂+ 13-8-43 Bhuj environs; ks72 ♀+ 17-8-43, ks80 ♀+, ks81 ♂+ 18-8-43 Chaduva (Bhuj Dist.); ks118 ♂+, ks119 ♂+ 27-8-43 Mandvi. Saurashtra: B21 ♂+, B22 ♀ 14-10-43 Dwarka; B33 ♂+ 18-10-43 Amreli. Gujarat: cs514 ♀, gs515 ♀ 8-12-5 Pariej (Kaira Dist.); gs560 ♂ 12-12-45 Saiat (Kaira Dist.); gs983 ♂, gs984 ♀, gs985 ♂ 12-3-46 Kodinar; gs1009 ♂ 15-3-46 Dalkhania (Amreli Dist.); gs1031 ♂, gs1032 ♀ 19-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|---------|
| 12 ♂♂ | 84-92 | 13-14.5 | 20-21.5 | 46-54 |
| 7 ♀♀ | 78-86 | 13-15 | 20-21.5 | 43-49.5 |

Common, resident. In non-breeding season, loose flocks of a dozen or so in open country, also dry grassy surroundings of tanks in Skylark-facies. Was breeding in August/September. Song and song-flight indistinguishable from those of the Singing Bush Lark and I was never able to be certain about the identity of an individual up in the air, and till it was shot on descent to the ground. The song contains imitations of most of the bird species associated with the lark in its habitat; curiously enough the presence of the Yelloweyed Babbler (*Chrysomma*) in a certain locality was first suggested to me by this lark's mimicry. The species was actually met with some time later!

In the Eastern Ghats Survey report [*JBNHS*, 37 (1): 105] Whistler moots the suggestion that *G. deva* might be treated as a race of *G. malabarica*. It seems to me that one very good reason why this is untenable is that in their habits, particularly in pattern of song and courtship display, these two larks are so markedly different. *G. malabarica* resembles *G. cristata* in general, whereas *G. deva* is almost identical with *Alauda gulgula* and *Mirafra j. cantillans*.

***Alauda gulgula inconspicua* Severtzoff.** The Small Skylark.

Specimens collected: Kutch: ks341 ♀, ks342 ♂ 8-3-44 Mandvi. Gujarat: gs561 ♂ 12-12-45 Saiat (Kaira Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|-------|-------|
| 2 ♂♂ | 93-96 | 16-16.5 | 23-26 | 52-55 |
| 1 ♀ | 92 | 14.5 | 22.5 | 54 |

These birds differ from *A. g. gulgula* in being markedly paler and in possession of the other characteristics assigned to the race *punjabii* by Whistler (*JBNHS*, 38: 767) now synonymized by Ripley (Checklist MS) as above.

Fairly common in suitable localities, on moist grassy margins of tanks etc. My impression is that the well-known song, uttered on the wing high up in the air, may usually be distinguished from the equally lively performance of Sykes's Crested Lark (*Galerida deva*) by its having fewer imitations of other bird calls, interwoven in it. Generally speaking, perhaps this species also sings from a loftier height than either Sykes's Crested Lark or the Singing Bush Lark.

(To be continued)

THE BIRDS OF GUJARAT

BY

SALIM ALI

PART II

(With one plate)

(Continued from p. 458 of this volume)

The families dealt with in this part appear in the following sequence:

Hirundinidae : Swallows, Martins

Campephagidae : Cuckoo-Shrikes

Irenidae : Fairy Bluebirds, Ioras

Pycnonoidae : Bulbuls

Muscicapidae :

Muscicapinae : Flycatchers

Timaliinae : Babblers

Sylviinae : Warblers

Turdinae : Chats, Robins, Thrushes

Motacillidae : Wagtails, Pipits

Laniidae :

Laniinae : Shrikes

Sittidae : Nuthatches, Spotted Creeper

Paridae : Tits

Dicaeidae : Flowerpeckers

Nectariniidae : Sunbirds

Zosteropidae : White-eyes

Fringillidae : Buntings, Finches

Fringillinae : Rosefinches

Ploceidae : Weaver Finches (including House Sparrow)

Sturnidae : Mynas

Oriolidae : Orioles

Dicruridae : Drongos

Corvidae : Crows

Family HIRUNDINIDAE : Swallows, Martins

Riparia paludicola chinensis (J. E. Gray). The Sand Martin

Specimens collected : Gujarat : GS614 ♀, GS615 ♂ 17-12-45 Vaghji-pur (Mehsana Dist.)

Elsewhere noted : Gujarat : Dabka (Baroda Dist.)

| Measurements : | W | B | Tar. | T |
|----------------|----|-----|------|----|
| 1 ♂ | 91 | 7.5 | 10 | 38 |
| 1 ♀ | 95 | 8 | 11.5 | 45 |

A colony of about 50 rather scattered nest-tunnels in the steep vertical bank of Vartak River. The owners were flying in and out of these. One tunnel dug out was 3½ ft. in horizontal depth, with a flimsy

pad of straw and a few feathers at the end. It was apparently fresh but empty. The gonads of the specimens were undeveloped.

Hirundo rupestris Scopoli. The Crag Martin.

Specimen collected: Gujarat: sd193 ♂ 6-3-48 Pandwa (Surat Dangs.)

Elsewhere noted: Gujarat: Bodeli (Baroda Dist.); Fort Salher, ca. 5000 ft. (Navsari Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|----|
| 1♂ | 128 | 12 | 12 | 54 |

Winter visitor. Numbers hawking insects in company with swallows, dusky crag martins and swifts. Somewhat larger size and paler underparts distinguish it in the air from the resident *H. concolor*.

Hirundo concolor concolor Sykes. The Dusky Crag Martin.

Specimens collected: Kutch: ks266 ♂ +, ks267♀ 25-9-43 Bhuj Gujarat: sd148 ♂ + 4-3-48 Pandwa (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|--------|-------|-------|
| 2♂♂ | 106-110 | 8.5-10 | 9-9.5 | 45-47 |
| 1♀ | 108 | 9.5 | 9.5 | 45 |

Common. Met with near rock scarps and ruined buildings, ancient forts, etc. hawking winged insects usually in company with swallows and swifts. Both males (March 4 and September 25) had enlarged testes and were breeding. Several nests in occupation were observed in Kutch during August and September.

Hirundo rustica gutturalis Scopoli. The Eastern Swallow.

Specimen collected: Kutch: ks422 ♀, ks423 ♀ 30-3-44 Bhimasar (Anjar Dist.) Gujarat: gs20 ♀, gs21 ♂, gs22 ♂ 29-10-45 Ajwa (Baroda Dist.); gs266 ♂ 17-11-45, gs1050 ♂, gs1051 ♂ 20-3-46 Khara-ghoda.

| Measurements: | W | B | Tar. | T (central) | T (outer) |
|---------------|---------|---------|-------|-------------|-----------|
| 3♂♂ | 116-123 | 11-12 | 11-13 | 40 | 80-90 |
| 3♀♀ | 108-117 | 11.5-12 | 13 | 43-55 | 68-71 |

On size all the above are *gutturalis*, but Col. Meinertzhagen points out that they have a *broad* black band separating the chestnut from white on the breast, which in true *gutturalis* from East Asia is *narrow*. He would assign the specimens to *H. r. ambigua* described by Stresemann from Sikkin (*Orn. Monatsb.* 1940, p. 88). *Ambigua* is really an intermediate race between *H. r. rustica* and *H. r. gutturalis* and since there is often already considerable difficulty in distinguishing between these two forms, the recognition of an intermediate complicates rather than simplifies the matter! In the case of wintering birds such as the above, I consider it particularly inadvisable to assign them to the intermediate race which Dr. Ripley now synonymises with *gutturalis* (Indian Checklist, MS).

A common winter visitor. Earliest date 27 October; latest 17 April. Both the specimens of 20 March were very fat, in body moult but with the wings freshly moulted, and were obviously preparing to emigrate.

Small flocks and larger gat erings hawking in the neighbourhood of irrigation reservoirs in open country.

Hirundo smithii filifera Stephens. The Wiretailed Swallow.

Specimen collected: Gujarat: gs23 ♀ 29-10-1945 Ajwa (Baroda Dist.).

| Measurements: | W | B | Tar. | T. (central) | Wires |
|---------------|-----|------|------|--------------|-------|
| 1 ♀ | 119 | 11.5 | 11 | 37 | 75 |

Observed in Kutch, Saurashtra and Gujarat, in the neighbourhood of water—irrigation tanks, temple ponds, etc. Breeding was in progress during March and April. A favourite site, both for this swallow and the Large Pied Wagtail, is an overhang of rock flanking a stream, forming a sort of miniature gorge. In such situations, at various times and at different places, I have seen the nests of the two species placed within 2 or 3 feet of each other.

Hirundo fluvicola Blyth. The Cliff Swallow.

Specimens collected: Gujarat: gs24 ♂ 29-10-45, gs58 ♂, gs59 ♀, gs60 ♀ 31-10-45 Ajwa (Baroda Dist.).

| Measurements: | W | B | Tar. | T. (central) | T. (outer) |
|---------------|---------|---|------|--------------|------------|
| 2 ♂♂ | 93.5-96 | 9 | 11 | 38 | 44 |

Undergoing general moult in October.

Resident but local. Usually in moderate numbers where occurring. Rare in Kutch, and presumably also in Saurashtra. Hawks midges in the neighbourhood of water in company with swifts and other swallows. Utters a sharp *trr, trr* in flight.

Hirundo daurica erythropgia Sykes. Sykes's Striated Swallow.

Specimens collected: Kutch: ks9 ♂ + 8-8-43 Rudra Mata (Bhuj Dist.); ks40 ♂ + 11-8-43 Bhuj Fort. Gujarat: gs425 ♂ 29-11-45 Kasari, Cambay; gs267 ♂ 17-11-45 Dabka (Baroda Dist.); sd146 ♀ 4-3-48 Pandwa (Surat Dangs).

| Measurements: | W | B | Tar. | T. (central) | T. (outer) |
|---------------|---------|---------|-------|--------------|------------|
| 3 ♂♂ | 109-113 | 10-10.5 | 14 | 42-45.5 | 73-76.5 |
| 2 ♀♀ | 104-107 | 10 | 13-15 | 45-45.5 | 71-72 |

Fairly common resident. Seen in pairs or small parties, not in large flocks like the wintering race *nipalensis*. Breeding freely in Kutch in August/September in retort-shaped nests of mud pellets stuck horizontally to ceilings of rock caves, temples and domes, and crumbling buildings in old forts. A newly-completed nest was also seen under a culvert on Songadh Fort (Navsari Dist.) on 10 April, with the birds working on it. In the flesh, the tarsi are considerably stouter than in *H. rustica*.

Hirundo daurica nipalensis Hodgson. Striated Swallow.

Specimens collected: Saurashtra: b49 ♀ 20-10-43 Dhari (Amreli Dist.); Gujarat: gs761 ♂, gs762 ♀, gs763 ♀, gs764 ♀, gs765 ♀, gs766 ♀, gs767 ♂, gs768 ♂, gs769 ♀, gs770 ♂ 30-12-45 Radhanpur; gs967 ♂, gs968 ♀ date Ghatwad (Kodinar).

| Measurements: | W | B | Tar. | T. (central) | T. (outer) |
|---------------|---------|----------|-------|--------------|-------------------|
| 6 ♂♂ | 115-121 | 9.5-11 | 13-15 | 40-43 | 65, 68.81-107 (1) |
| 7 ♀♀ | 112-119 | 9.5-10.5 | 13-14 | 37-43 | 71.5-89 |

Common in winter in enormous swarms, particularly on arrival in their winter quarters and again shortly before they leave. Packed assemblages of several hundred birds may be seen perched along telegraph wires. One such gathering in Radhanpur occupied three adjacent strands, about a hundred yards long, and must have contained several thousand birds sunning themselves on a cold morning.

Delichon urbica urbica (Linn.) The House Martin.

Specimens collected: Gujarat: Gs1238 ♀, Gs1239 ♀, Gs1240 ♀
10-4-46 Songadh Fort, ca. 1100 ft (Navsari Dist.).

Elsewhere not noted.

| Measurements: | W | B | Tar. | T |
|---------------|-----------|---|---------|-------|
| 3 ♀♀ | 107.5-114 | 9 | 12-12.5 | 51-54 |

All the above were fat and in general moult prior to emigration.

Not recorded from the area previously. Obviously a winter vagrant. About 50 birds were hawking in company with Redrumped Swallows, Dusky Crag Martins and House Swifts. In flight its diagnostic points are (a) white rump as in the House Swift, (b) white underparts as in the Wiretailed Swallow, (c) short, only slightly forked tail as in the Cliff Swallow.

Family CAMPEPHAGIDÆ: Cuckoo-Shrikes

Hemipus picatus picatus (Sykes). The Blackbacked Pied Flycatcher-Shrike.

Specimen collected: Gujarat: sd55 ♂ 27-2-48 Malegaon (Surat Dangs).

Elsewhere noted: Waghai (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|----|----|------|----|
| 1 ♂ | 64 | 15 | 13 | 58 |

Resident? Not common. Occasional pairs in mixed deciduous forest with bamboo, in foothills country, uttering its squeaky whistling *whiririri*, *winiririri*, etc. Previously recorded from the tableland of Akrani, south of Nabada River, in the adjacent W. Khandesh District (Davidson, S.F. x: 301).

Tephrodornis virgatus sylvicola Jerdon. The Large Malabar Wood Shrike.

Specimen collected: Gujarat: Gs1256 ♂ 13-4-1946 Waghai (Surat Dangs).

Elsewhere not noted.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|----|
| 1 ♂ | 118 | 30 | 21 | 82 |

Iris lemon yellow.

The specimen agrees with birds from Travancore, but has a very large bill, and is also perhaps a bluer grey (against dusky grey) on the lower

breast. This may be due to freshness of plumage. 3 ♂♂ (Kanara, Mysore, Travancore) have bills 25-27 mm; 7 ♀♀ 23.5-27 mm.

Stuart Baker (F.B.I., ii : 311) describes the Malabar Wood Shrike as occurring up the western side of the peninsula (W. Ghats) from the extreme south to 'almost Bombay City'. On this Mr. Whistler remarked (*JBNHS*, 36 : 338) that he had failed to trace any record more north than the 'jungles west of Belgaum' (Laird). The present considerable extension of range is therefore of especial interest. Waghai is about 130 miles NNW. of Bombay City, ca. 21°N × 73°30' E. Since it lies in the zone where the foothills of the northern extremity of the Sahyadris (W. Ghats) intermingles with those of the western Satpuras, there is good reason to believe that closer investigation will show the Large Wood Shrike to extend right across the peninsula along the Satpura mountain trend, inhabiting "enclaves" of the appropriate facies of moist deciduous forest scattered here and there, thus linking up *sylvicola* with the other races found in the Visakhapatnam ghats, Bastar, Orissa, Eastern Himalayas, Assam, Burma, Malaysia, etc. It will be remembered that Mr. Whistler was unable to determine the subspecific identity of Visakhapatnam ghats specimens since they did not agree with *pelvica*, the race from Nepal and Darjeeling. A possible explanation is that *sylvicola* grades into *pelvica* along the Satpuras and that Visakhapatnam birds are intermediate. However, specimens since procured by me in Bastar and the Orissa hills are certainly *pelvica*.

The loud and clear quick-repeated *witoo, witoo, witoo, witoo* uttered by the Dangs example sounded in no way different from the call of Travancore birds. The specimen was in freshly-moulted plumage and evidently preparing to breed. Testes 4 x 2 mm.

Tephrodornis pondicerianus pondicerianus (Gmelin). The Indian Common Wood Shrike.

Specimens collected: Kutch: ks53 ♂, ks54 ♀ juv., ks55 ♂ 12-8-1943 Godsar (Bhuj Dist.). Gujarat: gs148 ♂ 6-11-45 Bodeli (Baroda Dist.); gs396 ♂, gs397 ♀ 28-11-45, gs502 ♂ 7-12-45 Cambay town environs; gs881 ♀, gs882 ♀ 11-1-46 Deesa (Palanpur); gs1236 ♀ 9-4-46 Songadh (Navsari Dist.); sd23 ♀ 25-2-48 Malegaon; sd233 ♂ 10-3-48 Laochali (Surat Dangs).

Elsewhere noted: Kutch: Chaduva; Bhuj; Mandvi; Mata-no-madh. Gujarat: Pavagadh (Panchmahals Dist.); Ajwa (Baroda Dist.); Vaghjipur and Patan (Mehsana Dist.); Balaram and Gangasagar (Palanpur); Juna Rajpipla and Rajpipla town environs; Galkund (Surat Dangs). Saurashtra: Amreli and Dhari; Dalkhania.

| Measurements : | W | B | Tar. | T |
|----------------|-------|---------|-------|-------|
| 4 ♂♂ | 83-88 | 20.5-22 | 19-22 | 64-69 |
| 5 ♀♀ | 84-89 | 18.5-22 | 19-21 | 59-68 |

All the above specimens are intermediate between *pondicerianus* and *pallidus* but closer to the former, except the two from Deesa which go better with the pale NW. Indian race *pallidus*.

Resident. Common in Gujarat, less so in Kutch. Nests and other breeding activity were noted chiefly from the last week in February till mid-April.

Coracina novaehollandiae macei (Lesson). The Large Indian Cuckoo Shrike.

Specimens collected: Gujarat: gs78 ♂ 1-11-1945 Ajwa (Baroda Dist.); gs219 ♀ 10-11-45 Jambughoda; gs660 ♂, gs661 ♀ 20-12-45 Vaghjipur (Mehsana Dist.); gs710 ♂ 25-12-45 Patan (Mehsana Dist.); gs840 ♂ 6-1-46 Radhanpur; gs1036 ♂, gs1097 ♀ 25-3-46 Juna Rajpipla; sd240 ♀ 10-3-48 Laochai; sd366 ♂ 18-3-48 Mheskatri; sd405 ♂ 20-3-48 Sarwar; sd418 ♂ 22-3-48 Pimpri (Surat Dangs).

Elsewhere noted: Gujarat: Cambay town environs; Nadiad (Kaira Dist.); Deesa (Palanpur); Dediapada (Rajpipla); Songadh (Navsari Dist.); Waghai and Galkund (Surat Dangs). Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-----------|---------|---------|
| 6 ♂♂ | 165-169 | 27.5-31.5 | 25-27 | 121-134 |
| 4 ♀♀ | 158-167 | 26.5-30 | 25-26.5 | 121-129 |

Resident. Fairly common in mixed deciduous forest and openly wooded country. Feeds largely on figs of the various wild *Fici* along with other frugivorous bird species. Every time a bird alights on a branch it flicks up first one wing, then the other, repeating this in a way reminiscent of a nervous gentleman constantly tugging at his tie!

Coracina melanoptera sykesi (Strickland). The Blackheaded Cuckoo Shrike.

Specimens collected: Gujarat: gs338 ♂ 20-11-1945, gs347 ♀ 21-11-45 Dabka (Baroda Dist.)

Elsewhere noted: Gujarat: Vaghjipur (Mehsana Dist.)
Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-------|----|------|----|
| 1 ♂ | 105 | 20 | 22 | 84 |
| 1 ♀ | 102.5 | 20 | 21.5 | 78 |

Status uncertain. Rare, but presumably resident though apt to be overlooked in seasons when it is silent. Mr. R. M. Simmons observed it in Ahmedabad from May through August definitely, and records a nest at Abu Road (about 40 miles NW. of Palanpur) on June 20. (JENHS, 47:735).

Pericrocotus flammeus flammeus (Forster). The Orange Minivet.

Specimens collected: Gujarat: gs1260 ♂, gs1261 ♀ 13-4-1946, gs1265 ♂, gs1266 ♂, gs1267 ♀ 14-4-46 Waghai; gs1304 ♂, gs1035 ♀ 20-4-46 Galkund; sd64 ♂ 28-2-48 Malegaon; sd111 ♂, sd112 ♂, sd113 ♀, sd120 ♂ 2-3-48 Galkund; sd177 ♀ 6-3-48 Pandwa; sd239 ♀ 10-3-48 Laochai; sd298 ♀ 14-3-48 Mahal; sd330 ♂ 16-3-48, sd370 ♂ 18-3-48 Mheskatri; sd400 ♂ 20-3-48 Sarwar; sd447 ♀, sd448 ♀ 24-3-48 Waghai (Surat Dangs).

Elsewhere noted: Gujarat: Medha near Songadh (Navsari Dist.)
Not in Kutch or Saurashtra.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-----------|---------|
| 10 ♂♂ ad. | 89-96 | 17-19 | 15.5-17.5 | 82-94 |
| 9 ♀♀ ad. | 87-91.5 | 16-18.5 | 16-17 | 83-89.5 |

These specimens represent a considerable extension northward of the range given in F.B.I. (ii; 322) and by H. G. Deignan (*Auk*, 63: 516) for western India, namely Cape Comorin to Khandala. The Tapi River may now be accepted as its northern limit though there is good reason to believe that as in *Hemipus picatus* and a number of other evergreen and moist deciduous forest birds, this minivet extends eastward along the Satpura mountain trend to link up with the recently described *semiruber* of the Visakhapatnam ghats and other eastern races. Following Stresemann, Deignan shows that *semiruber* is really a race of *flammeus*, as is *speciosus* itself under which it was placed by previous authors.

Resident. Common in hilly bamboo and mixed deciduous forest. The February and March specimens were in body moult; April specimens in fresh plumage. Courtship chasing of females by males amongst the treetops was general in the first half of April, though no development of the gonads was as yet noticeable.

***Pericrocotus cinnamomeus cinnamomeus* (Linn.).** The Little Minivet.

Specimens collected: Kutch: ks2 ♂, ks3 ♀ 7-8-1943 Bhuj, Gujarat: gs91 ♀ 1-11-45 Ajwa (Baroda Dist.); gs135 ♂ 5-11-45 Bodeli (Baroda Dist.); gs407 ♂ 28-11-45, gs504 ♂ 7-12-45 Cambay fown environs; gs529 ♀ 9-12-45 Nadiad (Kaira Dist.); gs861 ♀ 10-1-46 Deesa (Palanpur); gs1109 ♂, gs1110 ♂ 26-3-46 Rajpipla; sd3 ♂ 23-2-48, sd84 ♂, sd85 ♀ 29-2-48 Malegaon (Surat Dangs).

Elsewhere noted: Kutch: Godsar; Chaduva; Mandvi; Ratnal; Bhachau; Rudra Mata; Jakhau. Gujarat: Kanewal (Cambay); Vaghjipur and Patan (Mehsana Dist.); Radhanpur; Balaram and Ganga-sagar (Palanpur). Saurashtra: Ghatwad (Kodinar).

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|-------|
| 7 ♂♂ | 66-71 | 12.5-14 | 15.5-18 | 66-76 |
| 4 ♀♀ | 66-69 | 13-13.5 | 16-17.5 | 68-75 |

The two Kutch specimens, and the one from Deesa, show passage to *pallidus* chiefly in the slightly paler grey of the upper parts.

In Washington DC. I recently had the opportunity of examining, with the assistance of Mr. H. G. Deignan, good series of these minivets from the U.S. National and other museums, supplemental to the Gujarat Survey collection. We both agreed with Dr. Ripley's action (Indian Checklist, MS.) in synonymising *Pericrocotus peregrinus dharmakumari* Koelz from Junagadh (Saurashtra) with the nominate race.

Resident. Common throughout the area. Several nests in all stages—building, completed, and with eggs or young—were found in Kutch during August and September, chiefly in trees of *Prosopis spicigera* between 6 and 8 feet up. Both sexes build, incubate and tend the young. Three eggs form the normal clutch.

***Pericrocotus erythropygius erythropygius* (Jerdon).** The Whitebel-
lied Minivet.

Specimens collected: Kutch: ks257 ♂, ks258 ♀, ks259 ♂? juv. 21-9-43 Rapar (Wagad Dist.) Gujarat: gs146 ♂ 6-11-45 Bodeli (Baroda Dist.);

Elsewhere noted: Kutch: Bhuj; Nir and Kala Dongar (Pachham Island).

Coracina novaehollandiae macei (Lesson). The Large Indian Cuckoo Shrike.

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|---------------|-------|---------|---------|-------|
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Elsewhere noted: Kutch: Bhuj, Nir and Kala Dongar (Pachham Island).

| Measurements : | W | B | Tar. | T |
|----------------|-------|---------|---------|---------|
| 2♂♂ | 68-70 | 12.5-13 | 14-14.5 | 75.5-87 |
| 1♀ | 69 | 13 | 15 | mduit |

Resident : Common in Kutch, though rather patchy and local. The Bodeji specimen is my only record from Gujārat; it was solitary and seemed to be a straggler. Affects more or less semidesert country, stony and broken, with bushes and stunted trees of *Prosopis spicigera*, *Capparis aphylla*, *Salvadora oleoides*, etc. and clumps of Euphorbia. When overhead, the flight is very like a wagtail or bunting's—a few flaps followed by a dipping glide . . . flaps . . . glide, and so on.

The breeding season in Kutch is July, August, September. Family parties of parents with two or three young were commonly on the wing in the two latter months, and a nest with 3 partly-fledged young was found at Rapar on September 21.

Butler (*S.F.* iii : 465) found it rare in N. Gujārat. Once or twice he met small parties in low bush jungle near Deesa.

Family Irenidae : Fairy Bluebirds, Ioras

Aegithina tiphia humei Stuart Baker. The Central Indian Iora.

Specimens collected : Gujārat : gs161 ♀ juv. 7-11-45 Bodeli (Baroda Dist.) gs212 ♂ imm. 10-11-45 Jambughoda ; gs330 ♀ 17-11-45, gs355 ♀ 21-11-45 Dabka (Baroda Dist.) ; gs382 ♂ juv., gs383 ♂ 27-11-45 Cambay ; gs611 ♀ 17-12-45 Vaghjipur (Mehsana Dist.) ; gs723 ♀, gs724 ♂ Patan (Mehsana Dist.) ; gs826 ♀ 4-1-46 Radhanpur ; gs1276 ♂ 16-4-46 Mahal (Surat Dangs). Saurashtra : gs971 ♂ 11-3-46 Ghatwad (Kodinar) ; gs1007 ♀ 15-3-46, gs1022 ♂ 16-3-46 Dalkhania (Amreli Dist.) I have seen a specimen collected in Bhavnagar, Saurashtra, by K. S. Dharmakumarsinhji.

Elsewhere noted : Gujārat : Baroda City ; Pavagadh ; Champaner ; Nadiad ; Songadh (Navsari Dist.) ; Deesa (Palanpur) ; Rajpipla ; Galkund (Surat Dangs) Absent in Kutch and about Kharaghoda (?)

| Measurements : | W | B | Tar. | T |
|----------------|-------|---------|---------|---------|
| 7♂♂ | 64-67 | 17-20 | 19-22 | 45-54.5 |
| 6♀♀ | 62-64 | 15.5-19 | 18-20.5 | 48-52 |

Nuptial moult March/April ; most males in perfect breeding plumage by mid-April. Two of the November specimens immature with imperfectly ossified skulls.

Aegithina nigrolutea (Marshall). Marshall's Iora.

Specimens collected : Kutch : ks20 ♂, ks21 ♀ 9-8-43 Bhujia Fort ; ks114 ♂ 25-8-43 Mandvi ; ks154 ♀ 3-9-43 Nakhatrana ; ks394 ♂ 21-3-44 Godsar (Bhuj Dist.) ; ks418 ♂ 28-3-44 Bela (Great Rann). Gujārat : gs876 ♀, gs877 [♂] 11-1-46 Deesa (Palanpur.)

Elsewhere noted : Kutch : Claduva ; Anjar ; Bhachau ; Rudra Mata ; Mata-no-Madh ; Lakhpat. Saurashtra : Dhari (Amreli Dist.)—unconfirmed.

| Measurements : | W | B | Tar. | T |
|----------------|-------|---------|----------|---------|
| 5♂♂ | 62-65 | 14-18 | 17-19 | 43-47.5 |
| 3♀♀ | 61-64 | 14.5-17 | 19.5 (1) | 45-51 |

* Specimen No. Gs877, collected on the same day and in the same locality as Gs876 is undoubtedly *nigrolutea*. It measures W 64, B 28.5, Tar. 19, T 48.5. It has a green tail and matches perfectly an immature male of *Ae. t. humei* in post-juvénal dress from Jambughoda (Gs212). Except for somewhat broader greenish white edges to the tertiaries (perceived only on careful examination) it cannot be told from *Ae. t. humei*. If this specimen had been obtained by itself I would have unhesitatingly assigned it to the latter.

In the Eastern Ghats Survey report (*JBNHS*, 35 : 750) Mr. Whistler points out that the juvenal plumage of *Ae. nigrolutea* is unknown. The present specimen suggests that the juvenal plumage is possibly as indistinguishable from that of *Ae. t. humei* as the post-juvénal plumage in this case appears to be. The point needs elucidation.

Ae. tiphia humei is fairly common in the well-watered portions of Gujarat inhabiting cultivated country interspersed with large trees, groves about villages, roadside avenues and wooded compounds in towns, as well as light deciduous forest.

Ae. nigrolutea is common in Kutch to the complete exclusion of *tiphia*. It affects sparse scrub and thorn jungle, so characteristic of that area, and of which kandi (*Prosopis spicigera*), peeloo (*Salvadora oleoides*), khair (*Acacia catechu*), gangi (*Grewia populifolia*) and gugar (*Balsamodendron mukul*) are some of the principal components. The only occasion on which I met it in Gujarat was also in almost identical semidesert facies.

I found the call notes of Marshall's Iora distinct from those of the common species, though of the same general pattern. The sibilant whistles of the male are more plaintive-sounding, and rather reminiscent of the Quaker Babbler. The harsh notes of concern (as when its nest is being handled) recall those of the Wood Shrike, particularly the large *Tephrodornis virgatus*. I found the notes of the two so distinct, in fact, that after having met the Common Iora all through Gujarat, I detected the presence of this species at Deesa at once by ear, and confirmed it soon afterwards by the specimens.

The breeding season in Kutch is from June through August.

Chloropsis aurifrons frontalis (Pelzeln). The Malabar Goldfronted Chloropsis.

Specimens collected : Gujarat : Gs1213 ♂ 7-4-46 Medha (Navsari Dist.) : Gs1249 ♀ 12-4-46, Gs1264 ♀ 14-4-46 Waghai (Surat Dangs) ; Gs1291 ♂ Mahal (Surat Dangs)

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|---------|-------|
| 2 ♂♂ | 97-101 | 25-26 | 20-20.5 | 71-73 |
| 2 ♀♀ | 93.5-94 | 24 | 20-21 | 69-70 |

Not met with by the Survey north of the Narbada River. Frequent in deciduous forest. Commonly seen probing for nectar into blossoms of *Firmiana colorata*, *Loranthus* spp. and *Woodfordia fruticosa*, Testes of the males showed some development, but breeding had not commenced in April.

Chloropsis cochinchinensis jerdoni (Blyth). Jerdon's Chloropsis.

Specimens collected : Gujarat : Gs144 ♂, Gs145 ♀ 6-11-45, Gs220 ♂ 11-11-45 Bodeli (Baroda Dist.) : Gs1230 ♂ 9-4-46 Songadh (Navsari Dist.) : Gs1307 ♂ 20-4-46 Galkund (Surat Dangs).

Elsewhere noted : Gujarat : Pavagadh (Panchmahals Dist.).

| Measurements : | W | B | Tar. | T |
|----------------|-------|---------|-------|-------|
| 4 ♂♂ | 90-94 | 23-26.5 | 19-20 | 73-77 |
| 1 ♀ | 87 | 23 | 19 | 65 |

Body moult in April. Testes of specimen of 20 April showed a slight development (4×2 mm) but breeding had not commenced. Frequent somewhat opener country than the Goldfronted species, and met with in large leafy trees standing amidst cultivation and grazing land. Along with sunbirds and white-eyes, amongst the most important cross-pollinators in this area of *Loranthus* flowers.

Pycnonotus jocosus [fuscicaudata Gould]. The Red Whiskered Bulbul.

No specimens obtained. A single pair was observed at Waghai in the Surat Dangs, 13-4-10946. Not met with elsewhere in Gujarat, or Saurashtra. Absent in Kutch.

Pycnonotus cafer humayuni Deignan. The Central Indian Redvented Bulbul.

Specimens collected : Kutch : ks32 ♀ 10-8-43 Tapkeshwari (Bhuj Dist.). Gujarat : gs353 ♀ 21-11-45, gs354 ♂ Dabka (Baroda Dist.); gs485 ♂ 4-12-45 Golana (Cambay); gs628 ♂, gs629 ♂ 18-12-45 Vaghjipur (Mehsana Dist.); gs1084 ♂ 22-3-46 Kharaghoda; gs1112 ♂ 26-3-46 Rajpipla.

Elsewhere noted : Gujarat : Baroda; Bodeli; Jambughoda; Ajwa; Pavagadh; Harij (Mehsana Dist.); Radhanpur; Deesa; Palanpur; Ahmedabad; Nadiad; Surat; Waghai; Mahal; Galkund; etc. Saurashtra : Kodinar; Dalkhanis; Dwarka; Okha; Morvi; Rajkot, etc. Kutch : Bhuj; Chaduva; Nakhatrana; Bhachau; Rapar; Kala Dongar (Pachham Island); Dhunara; Jakhau; Mata-no-Madh; Dholovira (Khadir Island); Bela.

| Measurements : | W | B | Tar. | T |
|----------------|-------|-------|---------|-------|
| 6 ♂♂ | 92-98 | 17-19 | 20.5-23 | 79-90 |
| 1 ♀ | 92 | 18 | 23 | 78 |

Birds from south Gujarat [e.g. Dabka (Baroda), Rajpipla, etc.] are darker, with the grey scaling to the feathers of the back and breast narrower. They go better with birds from the neighbourhood of Bombay City which are the southern peninsular Indian race *pusillus* (Blyth) (= *vicinus* Ripley). At Ahmednagar on the Deccan Plateau, in the same latitude as Bombay but about 100 miles to the east and across the ghats, the race, as pointed out by Whistler (*JBNHS*, 35: 755), is *pallidus* (= *humayuni*).

March specimens are undergoing complete moult; November specimens are in fresh plumage. Common throughout the area in every biotope save pure desert (e.g., the Great Rann of Kutch), though present along its edge. An unfailing attendant on the flowers of the wild caper (*Capparis aphylla*), and on banyan and ber (*Zizyphus*) trees with ripening fruit. Usually the most numerous bird species in gatherings on these. A large assemblage was observed roosting in a leafy mango tree in company with Brahminy Mynas (January). Breeding was in full swing in Kutch during August/September.

Pycnonotus leucotis leucotis (Gould). The White-eared Bulbul.

Specimens collected: Gujarat: gs278 ♀, gs279 ♀, gs280 ♀ 18-11-45 Dabka (Baroda Dist.); gs458 ♂ 2-12-45 Golana (Cambay); gs756 ♀ 27-12-45 Patan (Mehsana Dist.); gs776 ♀, gs777 ♂ 31-12-45 Radhanpur; gs1067 ♂, gs1067 ♀, gs1068 ♂ 21-3-46 Kharaghoda. Kutch: ks8 ♂ 8-8-43 Rudra Mata (Bhuj Dist.).

Elsewhere noted: Kutch: Bhuj and environs; Tapkeshwari; Chaduva; Mandvi; Nakhatrana; Bhachau; Pachham Island; Jakhau; Mata-no-Mach, Khadir Island; Bela Island. Gujarat: Ajwa (Baroda Dist.); Deesa (Palanpur).

| Measurements : | W | B | Tar. | T |
|----------------|-------|---------|-------|-------|
| 6 ♂♂ | 83-88 | 15.5-18 | 21-22 | 73-80 |
| 5 ♀♀ | 80-87 | 14-16.5 | 20-23 | 73-80 |

Post nuptial moult in September.

Common over the greater part of the area, but more or less restricted to semidesert tracts. Wherever found side by side with the Redvented Bulbul (e.g., Kutch, Kharaghoda, Radhanpur) its preference for semidesert is readily noticeable. It is abundant in the Capparis-Salvadora facies all along the edge of the Rann. Nectar of Capparis blossoms, and berries of Capparis and Salvadora persica are two of its main food items.

The specimens of 21 September (Kharaghoda) showed some gonadal development. In Kutch, breeding is recorded as commencing in June. It was in progress during August and September.

Pycnonotus luteolus luteolus (Lesson). The Whitebrowed Bulbul.

Specimens collected: Gujarat: gs247 ♂ +, gs248 ♀ +, gs249 ♀ 17-11-45 Dabka (Baroda Dist.); gs498 ♂ 6-12-45 Cambay.

Elsewhere noted: Gujarat: Baroda City and environs; Pavagadh (Panchmahals); Vaghjipur (Mehsana Dist.); Navagam (Rajpipla). Not noted in Saurashtra. Absent in Kutch.

| Measurements : | W | B | Tar. | T |
|----------------|-------|-------|-----------|-------|
| 2 ♂♂ | 90-92 | 19-20 | 22.5-23.5 | 85-86 |
| 2 ♀♀ | 88-89 | 20 | 24 | 81-82 |

These specimens measure somewhat larger than a series from the Eastern Ghats measured by Whistler: 5 ♂♂ W 86.5-90.5; 7 ♀♀ 82-85.5 (JBNHS. 35: 759).

Not uncommon locally. Its preferential habitat is scrub jungle in ravines such as obtain near the mouths of the Narbada and Tapti Rivers in Gujarat, and in dry erosion nullahs. A female collected on 17 November was laying. Betham took 2 clutches of eggs at Baroda in June (JBNHS. 11: 316).

Family MUSCICAPIDAE

Subfamily MUSCICAPINAE: Flycatchers

Muscicapa striata neumanni Poche. The Eastern Spotted Flycatcher.

Specimens collected: Kutch: ks140 ♂ 1-9-1943, ks178 ♂ 7-9-1943 Bhujia Fort ks170 ♀, ks171 ♀, ks172 ♂ 6-9-1943 Nakhatrana. Saurashtra: b3 ♀ 12-10-43, b17 ♂ 14-10-43 Dwarka (Okhamandal); b52 ♂ 20-10-43 Dhari (Amreli Dist.).

Elsewhere noted: Kutch: Rudra Mata; Tuna; Anjar; Bhachau; Rapar; Chaduva; Dhunara; Khavda. Not met with in Gujarat.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|-------|---------|
| 6 ♂♂ | 82-92 | 12.5-16 | 13-16 | 61-65 |
| 2 ♀♀ | 82-85 | 12.5-16 | 15-16 | 62.5-65 |

All the above were in freshly-moulted plumage and excessively fat—literally 'balls of fat'.

Autumn passage migrant through Kutch and Saurashtra to its winter quarters, presumably in Arabia or Africa. First noted September 1; last October 20. Does not winter in Kutch or Saurashtra, and evidently the return passage in spring is by a different route, by-passing these areas altogether. At the height of passage, between 2nd and 4th week of September, the birds are fairly common. Both in flight and while at rest, this flycatcher is very reminiscent of the Yellowthroated Sparrow (*Gymnorhis xanthocollis*) in the distance.

Muscicapa latirostris Raffles. The Brown Flycatcher.

Specimens collected: Gujarat: GS1228 ♂ 3-4-46 Medha (Navsari Dist.); GS1269 ♂ 14-4-46 Waghai, GS1312 ♀ 21-4-46, Galkund (Surat Dangs).

Elsewhere not noted in Gujarat, nor in Saurashtra or Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-------|----|-------|---------|
| 2 ♂♂ | 72-74 | 14 | 14-15 | 47.5-50 |
| 1 ♀ | 71 | 14 | 14 | 47 |

All in perfect fresh plumage.

Presumably resident. Singly, perched bolt upright, on bare teak and other branches in deciduous forest. Gonads quiescent.

Muscicapa parva parva Bechstein. The European Redbreasted Flycatcher.

Specimens collected: Kutch: KS313 ♂ 3-10-43 Khavda, KS320 ♀ 5-10-43 Kala Dongar (Pachham Island); KS334 ♂, KS385 ♀ 18-3-44 Lakhpat; KS402 ♂ 24-3-44 Chobari (Bhachau Dist.); KS413 ♂ 26-3-44 Dholovira (Khadir Island). Saurashtra: GS1000 ♂ 15-3-46 Dalkhania (Amreli Dist.). Gujarat: GS131 ♂, GS132 ♀ 5-11-45 Bodeli (Baroda Dist.); GS209 ♂ 10-11-45 Jambughoda; GS401 ♂ 28-11-45 Cambay; GS586 o? 15-12-45 Vaghjipur (Mehsana Dist.); GS1080 ♂ 21-3-46 Kharaghoda.

Elsewhere noted: Kutch: Bhuj; Chaduva; Nanda (near Adesar). Gujarat: Baroda City; Pavagadh (Panchmahals Dist.); Ajwa (Baroda Dist.); Nadiad town and environs; Patan (Mehsana Dist.); Radhanpur; Gangasagar (Palanpur); Rajpila town and environs; Dediapada (Rajpipla); Medha and Songadh (Navsari Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|-------|
| 9 ♂♂ | 64-71 | 12-14 | 17-18.5 | 47-52 |
| 1 ♀ | 66 | 12.5 | 17 | 49 |

Winter visitor. Fairly common. Earliest date October 3; latest April 7. Usually solo. Frequents mango topes near villages, large leafy banyan trees, and well-wooded residential compounds, etc.

Muscicapa tickelliae tickelliae (Blyth). Tickell's Redbreasted Blue Flycatcher.

Specimens collected: Gujarat: gs402 ♂ 28-11-45 Cambay; gs657 ♂ 19-12-45, gs678 ♂ 21-12-45 Vaghjipur (Mehsana Dist.); gs1118 ♂ 27-3-46 Juna Rajpipla. Saurashtra: gs980 ♀ 12-3-46 Kodinar; gs998 ♂, gs999 ♀ 15-3-46 Dalkhanja (Amreli Dist.).

Elsewhere noted: Gujarat: Pavagadh (Panchmahals Dist.); Ajwa (Baroda Dist.); Balaram (Palanpur); Medha (Navsari Dist.); Waghai (Surat Dangs). Absent in Kutch.

| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|---------|---------|
| 5 ♂♂ | 74-77 | 14.5-16 | 18.5-20 | 57.5-62 |
| 2 ♀♀ | 70.5-73 | 15-15.5 | 18.5 | 55.5-57 |

The females of this race are very similar superficially to males of the recent described *Cyornis poliogenys vernayi* Whistler of the Eastern Ghats. The latter, however, have longer tails (75.5-78.5) resulting in a different wing-tail index which is a good diagnostic clue. In female *tickelliae* the blue of the upper tail coverts is a trifle brighter, and the azure blue forehead and supercilium somewhat more pronounced. The underparts are pale ferruginous both in female *tickelliae* and in male *poliogenys vernayi*, but rather more albescent on the abdomen of the former.

Resident. Fairly common in secondary jungle. In the bamboo and mixed deciduous forest in the Surat Dangs (April) it was noted as one of the five commonest species, the others being *Dissemurus*, *Crybsirina*, *Alcippe* and *Hypothymis*. Till the first week of April, no sign of breeding activity was apparent.

Muscicapa thalassina thalassina Swainson. The Verditer Flycatcher.

Specimens collected: Gujarat: gs83 ♀ 1-11-1945 Ajwa (Baroda Dist.); gs404 ♂ 28-11-45, gs412 ♀, gs413 ♀ 29-11-45 Cambay; gs655 ♀, gs656 ♂ 19-12-45 Vaghjipur (Mehsana Dist.).

Not noted by the Surveys elsewhere in Gujarat, or in Saurashtra or Kutch.

| Measurements : | W | B | Tar. | T |
|----------------|-------|-----------|------|---------|
| 2 ♂♂ | 81-83 | 12.5-13.5 | 16 | 66-66.5 |
| 4 ♀♀ | 78-82 | 12-13 | 16 | 60-67 |

Winter visitor. Sporadic solos, or separated pairs, amongst groves of leafy trees near villages, and in wooded compounds, etc.

Culicicapa ceylonensis calochrysea Oberholser (= *pallidior* Ticehurst). The Greyheaded Flycatcher.

Specimens collected: Gujarat: gs414 ♂, gs415 ♂ 29-11-45, gs488 ♀ 6-12-45 Cambay; gs942 ♂? 19-1-46 Hathidhara (Palanpur).

Elsewhere not noted in Gujarat, nor in Saurashtra or Kutch.

| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|---------|-------|
| 3 ♂ | 63.5-67 | 12.5-13 | 13-14.5 | 52-60 |
| 1 ♀ | 62 | 12 | 13 | 53 |

According to Whistler (*Spolia Zeylanica*, 23: 154) birds from the Eastern Himalayas and peninsular India, hitherto assigned as *ceylonensis*, are in fact intermediate between typical *ceylonensis* of Ceylon and *pallidior* Ticeh. of the NW. Himalayas. Specimens collected by the Central India Survey agree with East Himalayan material; so does a specimen obtained by me in the Hoshangabad Dist. of Madhya Pradesh (BNHS Coll.). Dr. Ripley considers that birds from the southern peninsula (south of about the latitude of Madras) go better with those from Ceylon.

Presumably winter visitor. Not common. Solos. Sits upright on upwardcurving dry twigs, usually fairly low down—8 to 12 ft. Very active. Swoops at insects and loops back to the same or other similar perch nearby.

Rhipidura aureola aureola (Lesson). The Whitebrowed Fantail Flycatcher.

Specimens collected: Gujarat: GS129 ♂, GS130 ♀ 5-11-45 Bodeli (Baroda Dist.); GS410 ♂, GS411 ♀ 29-11-45 Cambay; GS612 ♂ 17-12-45 Vaghjipur (Mehsana Dist.).

Elsewhere noted: Gujarat: Baroda City; Dabka and Padra (Baroda Dist.); Nadiad town and environs (Kaira Dist.); Patan (Mehsana Dist.); Dediapada (Rajpipla); Deesa, Balaram, Gangasagar, Hathidhara (Palanpur). Saurashtra: Ghatwad (Kodinar).

According to Lester 'it occurs in Kutch but is not common'. I failed to come across it there.

| Measurements: | W | B | Tar. | T |
|---------------|-----------|---------|---------|---------|
| 3 ♂♂ | 79.5-90.5 | 14-16.5 | 18-20.5 | 84.5-97 |
| 2 ♀♀ | 76-80 | 15-15.5 | 18.5 | 86-90 |

This series, in coloration of upper parts, is darker sooty than 3 examples of *aureola* from Bahawalpur (W. Punjab) and Madhya Pradesh. 4 specimens of *compressirostris* from the Eastern Ghats are, by comparison, more rusty brown above.

The Bodeli birds (GS129, GS130) have two central pairs of rectrices all black (without white tips), a character given by Whistler for *compressirostris* (*JBNHS*, 36: 92), and the tail of the male also falls within the range of that race, '82.5-87.5'.

The Cambay male (GS410) has only one central pair of rectrices all black; the female (GS411) two central pairs all black. In a male from Mehana Dist. (GS612) the central pair is all black, the next also black but with a minute white dot at the extreme tip. The tails of the 2 males fall within the range given for *aureola* from the Punjab, namely 89-100 mm. Whistler in the Avifaunal Survey of Ceylon, 1944 (*Spol. Zeyl.*, 23: 157) was apparently no longer so sure about the validity of the characters he gave, namely 1 central pair all black for *aureola*; 2 pairs for *compressirostris*.

I attribute the above specimens to *aureola* realizing that they are probably intermediate between birds from the Punjab and Ceylon, and taking note of the small size of the pair from Bodeli.

Resident. Rather patchily distributed; normally affecting drier and less wooded localities and facies than the Whitespotted Fantail. Frequently seen on open close-cropped grazing or fallow land with sparse scattered bushes of babul, etc., prancing, pirouetting with fanned erect tail,

flycatching in looping-the-loop sallies near or actually on the ground, and riding momentarily on the backs of grazing goats and cattle. In such open country *pectoralis* is never seen, but in a few intermediate localities, e.g., Jaspur (Bafoda Dist.), Vaghjipur (Mehsana Dist.), Hathidhara (Palanpur) the two were sometimes found side by side in patches of scrub jungle or old rambling residential compounds, and there even in the same tree! The habitat preferences of the two are distinct, but otherwise there is no difference in their habits. Wherever they occur together, therefore, they are competitors for food.

No data as regards breeding was obtained.

***Rhipidura pectoralis pectoralis* Jerdon.** The Whitespotted Fantail Flycatcher.

Specimens collected: Gujarat gs84 ♂ 1-11-1945 Ajwa (Baroda Dist.); gs403 [♂] 28-11-45, gs409 ♂ 29-11-45, gs489 ♀ 6-12-45, Cambay; gs582 ♂, gs583 ♂ 15-12-45, gs613 ♀ 17-12-45 Vaghjipur (Mehsana Dist.); sd155 ♂ 5-3-48 Pandwa (Surat Dangs).

Elsewhere noted: Gujarat: Jaspur (Baroda Dist.); Hathidhara (Palanpur); Juna Rajpipla; Malegaon (Surat Dangs). Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-----------|---------|
| 4 ♂♂ | 72-77.5 | 14-14.5 | 18.5-19.5 | 86.5-90 |
| 2 ♀♀ | 69-70 | 13-14 | 18.5-19 | 89 |
| 1 [♂] | 78 | 15 | 20 | 95 |

R.p.vernayi of the Visakhapatnam ghats is a good and easily differentiated race.

Resident. Affects well-wooded, well-watered country, rambling jungly gardens with shrubbery, and groves of mango and similar low spreading trees. Never met with on open ground as *aureola* frequently is, but in borderline localities the two are sometimes found in the same patch and even in the same tree! The voice and song of the Gujarat birds was noted as appreciably different from that heard in the Bombay neighbourhood.

The male of March 5 was in freshly-moulted plumage with testes (only one!) enlarged to 8×5 mm. No other data as regards breeding were obtained by the Survey.

***Hypothymis azurea styani* (Hartlaub).** The Blacknaped Blue Flycatcher.

Specimens collected: Gujarat: gs40 ♂ 30-10-45 Ajwa (Baroda Dist.); gs1119 ♂, gs1120 27-3-46 Juna Rajpipla; gs1211 ♀, gs1212 ♀ Medha (Navsari Dist.) sd10 ♀ 24-2-48, sd93 ♀ 29-2-48 Malegaon; sd134 ♂ 3-3-48 Galkund; sd211 ♂ 7-3-48 Pandwa; sd256 ♀ 11-3-48; sd288 ♂ 12-3-48 Laochali; sd385 ♂ 20-3-48 Sarwar; sd444 ♀ 24-3-48 Waghai; sd463 ♀, sd464 ♂ 25-3-48 Chikhli (Surat Dangs).

Saurashtra: b23 ♂ (1st year) 14-10-43 Dwarka (Okhamandal).

Elsewhere noted: Gujarat: Mheskatri, Pimpri (Surat Dangs). Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-----------|---------|---------|-------|
| 8 ♂♂ | 69.5-74.5 | 15-17 | 16-18 | 67-72 |
| 8 ♀♀ | 67-72 | 15-16.5 | 16-17.5 | 65-71 |

B23, a first year male, is exactly similar to adult female.

Resident. One of the commonest birds in bamboo, teak and mixed deciduous forest. It hunts in trees and undergrowth as well as on the ground, flitting and prancing in the manner of the Whitebrowed Fantail Flycatcher, with tail spread and partly erected. None of the specimens showed any gonadal development between October 30 and April 7.

This flycatcher apparently has no song. Besides the harsh *sweech-wich* notes, no other calls were heard.

Terpsiphone paradisi paradisi (Linn.). The Paradise Flycatcher.

Specimens collected: Gujarat: gs1227 ♂ 9-4-1946 Medha (Navsari Dist.)

| Measurements: | W | B | Tar. | T | Streamers |
|----------------|----|------|------|-----|-----------|
| 1 ♂ (chestnut) | 98 | 24.5 | 17 | 119 | damaged |

Terpsiphone paradisi leucogaster (Swainson).

Specimens collected: Kutch: ks256 ♀ 21-9-43 Rapar. Gujarat: gs1107 ♂ 25-3-46 gs1117 ♀ 27-3-46 Juna Rajpipla; gs1135 ♂ 29-3-46 Dediapada (Rajpipla); sd8 ♂ 24-2-48 Malegaon; sd274 ♂ 12-3-48 Laochali; sd340 ♂ 16-3-48, sd359 ♀ 18-3-48 Mheskatri; sd434 ♂ 22-3-48 Pimpri (Surat Dangs).

Elsewhere noted (subspecies uncertain): Gujarat: Mahal (Surat Dangs). Saurashtra: Dalkhania (Amreli Dist.)

| Measurements: | W | B | Tar. | T | Streamers |
|--------------------------------------|-------|---------|---------|----------|-----------|
| 2 ♂♂ white | 94-99 | 24-24.5 | 16.5-17 | 82 (1) | 308-358 |
| 2 ♂♂ particolored chestnut and white | 95-99 | 23-26.5 | 17-18.5 | 86-101 | 239-320 |
| 3 ♀♀ | 90-91 | 23-25 | 17.5-18 | 88.5-101 | — |

The subspecific identity of the white males as *leucogaster* rests mainly on the narrower bill possessed by this race.

The status of the Paradise Flycatcher in Gujarat needs to be determined. No doubt it varies from one locality to another within the area. I hazard a guess that *paradisi* is resident and breeds in the better wooded parts, e.g., Navsari District, Rajpipla and Surat Dangs, as it has recently been reported to do in the Gir Forest of Junagadh by K. S. Dharmakumarsinhji (*JBNHS* 48: 188). *Leucogaster*, on the other hand, is purely a winter visitor and passage migrant as it is elsewhere in peninsular India. Most of the specimens of the latter were fat and suggestive of being in transit.

Fairly common in Gujarat during the winter months affecting shady, well-wooded forest nullahs, especially in the neighbourhood of pools.

In Kutch *leucogaster* is evidently an uncommon passage migrant, as it is in Sind, the only specimen recorded being on September 29.

Subfamily TIMALIINAE: Babblers

Pellorneum ruficeps ruficeps Swainson. The Spotted Babbler.

Specimens collected: Gujarat: gs1086 ♂ 24-3-46 Navagam (Rajpipla); gs1126 ♂ 27-3-46 Juna Rajpipla; gs1206 ♀, gs1207 ♀ 7-4-46 Medha (Navsari Dist.); gs1275 ♂ 16-4-46 Mahal (Surat Dangs).

Elsewhere noted: Gujarat: Ghantoli (Rajpipla); Galkund (Surat Dangs). Not met with by the Surveys in Saurashtra or Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|---------|
| 3 ♂♂ | 74.5-78 | 19-20.5 | 29-30 | 69-73 |
| 2 ♀♀ | 68-70 | 19-20 | 26-27.5 | 62.5-64 |

Occurs in Gujarat from the Narbada River southward (Rajpipla, Navsari District, Surat Dangs, etc.) in the appropriate biotope of hilly bamboo, teak and mixed deciduous secondary jungle. Frequent, but not common. Occasional song heard by mid-April, but no signs of breeding activity noted.

Pomatorhinus horsfieldi horsfieldi Sykes. The Deccan Scimitar Babbler.

Specimens collected: Gujarat: gs1215 ♂ 8-4-46, gs1237 ♂ 9-4-36 Medha (Navsari Dist.); gs1251 ♀, gs1252 ♂, gs1253 ♂, gs1254 ♀ 13-4-46 Waghai (Surat Dangs). sd49 ♀ 27-2-48 Malegaon; sd238 ♂ 10-3-48 Laochali; sd296 ♂ juv., sd297 ♀ juv., 14-3-48 Mahal; sd336 ♂ 16-3-48 Mheskatri; sd453 ♂ 24-3-48 Waghai (sd series = Surat Dangs).

Elsewhere noted: Gujarat: Dediapada and Ghantoli (Rajpipla).

Not met with by the Surveys in Saurashtra or Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|--------|
| 6 ♂♂ | 93-100 | 33-35 | 31-35 | 95-100 |
| 3 ♀♀ | 89.5-93 | 33-34.5 | 31-33 | 92-98 |

The young birds collected on March 14 are in the characteristic fluffy plumage of juvenile timalines, and rufous-brown on the back instead of olive-brown. Forehead, sides of head and neck, and side of breast bordering the white plastron, rusty rufous, continuing behind as a diffuse nuchal collar. In other words the rusty rufous cheeks extend down on either side enclosing the white chin, throat and upper breast. Bill: lower mandible and tip of upper mandible pinkish flesh; base of upper mandible horny; gape pinkish flesh. Legs and feet plumbeous. This pattern in a more accentuated form is seen in adult *Pomatorhinus schisticeps* and suggests that the two species may be more closely related than has hitherto been recognised.

This series as a whole is inseparable from *horsfieldi* from Bombay and the Eastern Ghats. *P. h. obscurus* (type locality Mt. Abu) is an easily distinguishable race, conspicuously greyer above and below with no black band separating the white of the breast from the upper plumage. Birds from north of the Tapti River show intergrading; they are a shade greyer above and surrounding the white breast, which in good light the 'eye of faith' can just perceive. If therefore some boundary must needs be fixed between the ranges of *P. h. horsfieldi* (more olive above) and *P. h. obscurus* (more grey above) I propose to make it the Tapti River. All birds north of the Tapti to be arbitrarily considered *obscurus* and all birds south of it *horsfieldi*.

The exact eastern limit of *obscurus* needs to be determined. It is said to occur in the neighbourhood of Seoni in the Satpurus, ca. 350 miles ENE. of Medha. In *JBNHS*, 31: 1032 I had recorded its extension to Orissa, but on re-examining the specimen upon which this was based (Reg. No. 2272 BNHS Coll.) I am not convinced of its identity as

obscurus. It may just be a faded example of *horstfieldi* of which Koelz obtained specimens at Mahendragiri (*JBNHS*, 47 : 129) and to which my own birds collected in Bastar and Orissa hills belong.

Fairly common in broken foothills country in southern Gujarat in appropriate biotope—bamboo and mixed deciduous forest. Pairs or parties of 7 to 10. When feeding high up amongst bamboo culms or tree-tops, it hops along swiftly from branch to branch to escape, when alarmed, and dives obliquely into the undergrowth. Calls in 'duets': *Oop-urupurupuru . . . krokant* (male . . . female).

***Dumetia hyperythra albogularis* (Blyth).** The Small Whitethroated Babbler.

Specimens collected: Gujarat; gs273 ♂, 17-11-1945, gs296 ♀, gs297 o?, gs298 ♂ 19-11-45 Dabka (Baroda District.); gs393 ♂, gs394 ♀, gs395 ♂ 28-11-45 Cambay; gs627 ♂ 18-12-45, gs675 ♂, gs676 ♀ Vaghjipur (Mehsana Dist.); gs1136 ♂ 29-3-46 Dediapada (Rajpipla).

Elsewhere noted: Gujarat: Baroda City and environs; Pavagadh and Champaner (Panchmahals Dist.); Balamam and Hathidhara (Palanpur); Juna Rajpipla; Waghai (Surat Dangs). Saurashtra: Ghatwad and Kodinar (Amreli Dist.); Bhavnagar (specimen: K. S. Dharmakumar-sinhji).

Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|--------------|---------|-------|
| 6 ♂♂ | 56-58 | (13) 13.5-15 | 18-20 | 64-67 |
| 3 ♀♀ | 53-55.5 | (13) 13.5-15 | 19-21.5 | 58-66 |

Post-nuptial moult completed by about mid-November.

Ceylon birds recently separated as *phillipsi* Whistler (*Spol. Zeyl.* 23 : 134) and also birds from Travancore, are said to have larger and sensibly heavier bills. I have seen no specimens from Ceylon, but two Travancore Survey skins in the BNHS Coll., re-examined and measured, show no appreciable difference from the Gujarat series in this regard.

Common in scrub jungle, particularly where cut up by ravines. No evidence as to breeding was supplied by the specimens.

***Chrysolinna sinense hypoleuca* (Franklin).** The Western Yelloweyed Babbler.

Specimens collected: Kutch: ks92 ♂ 19-8-1943, ks99 ♂ 21-8-43 Chaduva (Bhuj Dist.). Gujarat: gs57 ♂ 31-10-45 Ajwa (Baroda Dist.); gs299 ♂, gs300 ♀ 19-11-45, gs326 o? 20-11-45 Dabka (Baroda Dist.); gs598 o? 16-12-45 Vaghjipur (Mehsana Dist.); gs743 ♂ 27-12-45 Patan (Mehsana Dist.); gs843 o? 9-1-46 Deesa (Palanpur); gs1185 ♂ gs1186 ♀ 2-4-46 Dediapada (Rajpipla).

Elsewhere noted: Kutch: Rudra Mata (Bhuj Dist.). Gujarat: Cambay; Golana (Cambay); Nadiad, Mehmedabad (Kaira Dist.); Radhanpur; Hathidhara (Palanpur); Juna Rajpipla; Kharaghoda.

Not recorded by the Survey from Saurashtra.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|-------|
| 6 ♂♂ | 61.5-70 | 14.5-15 | 22-27 | 80-98 |
| 2 ♀♀ | 63-64 | 14-16 | 25-27 | 88-90 |

Complete post-nuptial moult in progress, or just completed, October-November.

Kutch birds are certainly *hypoleuca*, but I attribute the Gujarat specimens to this race more for convenience than from conviction. *Hypoleucus* is paler and more grey on the upper parts than *sinense*. While some freshly-moulted examples from among the Gujarat series can be matched with similarly fresh plumaged specimens of *hypoleuca* from Jodhpur and Bahawalpur, others can be matched just as satisfactorily with examples of *sinense* collected by the Eastern Ghats Survey (e.g., at Kurumbapatti in Salem Dist.) or by myself in Gwalior. At best it seems to me that Gujarat birds can only be considered intermediate. Their paleness and greyness is by no means always obvious, and in some cases even extremely doubtful. I cannot see that birds from N. Gujarat (Mehsana Dist., Palanpur) are markedly paler than those from S. Gujarat (Rajpipla).

Not uncommon, but rather local. Affects scrub-covered eroded ravines, reeds and brushwood by streams, and patches of tall coarse grass and thorn thickets separating fallow fields. In these facies commonly seen in association with the wren-warblers *Prinia socialis* and *inornata*, and *Franklinia buchanani*.

In full song and breeding in August (Kutch); full-fledged young on wing in September. Butler (*SF*, iii : 471-1875) saw several nests near Deesa in July and August.

***Turdoides somervillei somervillei* Sykes.** The Bombay Babbler.

Specimens collected : Gujarat : gs1275 ♀ 13-4-46 Waghai, gs1299 ♂ 17-4-46 Mahal (Surat Dangs); sd28 ♀, sd29 ♂ 25-2-48 Malegaon; sd236 ♂, sd237 ♂ 10-3-48 Laochali; sd310 ♂, sd311 ♂, sd312 ♂ 14-3-48 Mahal; sd446 ♀ 24-3-48 Waghai (sd series = Surat Dangs).

| Measurements : | W | B | Tar. | T |
|----------------|------------------|---------|----------------|---------|
| 8 ♂♂ | 98(1) 102-109 | 22.5-26 | 34(1)35.5-37.5 | 98-109 |
| | (mostly 108-109) | | | |
| 3 ♀♀ | 109 | 23.5-25 | 36-38 | 106-111 |

These specimens show that the northern limit of the rufous-tailed typical race *somervillei* extends at least up to the Tapti River. Unfortunately no specimens were collected in the Rajpipla area immediately north of this river, between it and the Narbada.

***Turdoides somervillei orientalis* \geq *sindianus*.** The Jungle Babbler.

Specimens collected : Gujarat : gs223 ♂ 11-11-45 Bodeli (Baroda Dist.); gs362 ♂, gs363 ♀ 22-11-45 Dabka (Baroda Dist.); gs400 ♀ 28-11-45 Cambay; gs532 ♂, gs533, gs534 ♀ Nadiad environs (Kaira Dist.); gs659 ♂ 19-12-45 Vaghjipur (Mehsana Dist.); gs933 ♀ 18-1-46 Gangasagar (Palanpur); gs1072 ♀, gs1073 ♂ 21-3-46 Kharaghoda. Saurashtra : gs965 ♂, gs966 ♀ 11-3-46 Ghatwad (Amreli Dist.).

Elsewhere noted : Gujarat : Baroda City and environs; Ajwa; Pavagadh; Jambughoda; Radhanpur; Palanpur; Juna Rajpipla; Dediapada (Rajpipla). Saurashtra : Veraval town (Junagadh); Kodinar (Amreli Dist.)

| Measurements : | W | B | Tar. | T |
|----------------|---------------|-----------|---------|---------|
| 6 ♂♂ | 94 (1)-109 | 21.5-24 | 34.5-38 | 100-117 |
| | (mostly 106+) | | | |
| 7 ♀♀ | 100-111 | 22.5-24.5 | 34.5-36 | 103-112 |

Birds from north of the Narbada River, and northern Gujarat and Saurashtra, are intermediate between *orientalis* and *sindianus*, the case being more or less parallel with that of *Crypsirina p. vagabunda* and *C. v. pallida*. The two specimens from Kharaghoda (gs1072 & gs1073), however, are paler and greyer above and distinctly closer to *sindianus*.

Fairly common in well-wooded tracts—in public gardeins, private compounds, groves of trees near villages, overgrown ravines covered with dhâk (*Butea*) and other scrub, as well as in light deciduous jungle. On the borderline of their respective preferential habitats, associating freely with both the Common Babbler (*Turdoides caudata*) and the Large Grey Babbler (*T. malcolmi*). The absence or scarcity of Jungle Babblers in any patch of jungle, I found to be a reliable indicator of the paucity of bird life therein. Everywhere these birds seem to form the nucleus of the avian foraging parties.

The breeding season is as irregular and ill-defined as elsewhere. While the gonads of the majority of specimens were quiescent, somewhere in differential stages of development and two of the three Nadiad birds (December 10) were certainly breeding.

During several months' field work in Kutch, when the country was combed fairly thoroughly, I failed to come across the Jungle Babbler though in such localities as Mata-no-Madh, and some others, all the requisite ecological conditions seemed present. Neither Hugh Palin, who originally published a list of Kutch birds in 1878, nor Capt. Lester, who revised and added to it in 1903, make mention of the species. It appears, however, that Hume had actually seen specimens collected in Kutch (*SF*, iii: 472—1875), and it is also included in Stoliczka's list of Kutch birds published in 1872 (*JASB*, vol. 51). What has happened to the species since is a point that perhaps merits investigation.

***Turdoides caudata caudata* (Dumont.)** The Common Babbler.

Specimens collected: Kutch: ks10 ♀ 8-8-43 Rudra Mata (Bhuj Dist.); ks403 ♂ 24-3-44 Chobari (Bhachau Dist.); Gujarat: gs264 ♀, gs265 ♂ 17-11-45, gs307 ♀, gs308 ♀ 19-11-45 Dabka (Baroda Dist.); gs471 ♂ Golana (Cambay); gs547 ♂? juv. 11-12-45 Nadiad (Kaira Dist.); gs1077 ♂ 21-3-46 Kharaghoda.

Elsewhere noted: Kutch: Kandla; Padhar; Mandvi; Anjar; Bhachau; Kala Dongar (Pachham); Pung Bet (Little Rann) etc. Saurashtra: Dwarka; Okha; Amreli; Dhari; Kodinar. Gujarat: Baroda City and environs; Vaghjipur (Mehsana Dist.); Deesa; Palanpur environs; Radhanpur.

| Measurements: | W | B | Tar. | T |
|---------------|------------|--------------|-----------|---------|
| 4 ♂♂ | 76-81 | 21-22.5 (25) | 26.5-28.5 | 114-117 |
| 5 ♀♀ | (73) 77-82 | 20-22 | 27-29.5 | moult |

No. gs264 was undergoing complete moult whilst laying. Oviduct distended; largest ovum 3 mm. diameter!

Common over a wide range of terrain from right away on the barren Rann through sandy cultivation with scrub interspersed, to fairly thick but dry thorn and scrub jungle. Associating with both the Large Grey and the Jungle Babbler along the seams of the preferential habitats of either. Dry sandy ravines bordered with scrub of *Capparis*, *Zizyphus*, *Acacia* and *Prosopis* are its favourite haunts. In season, feeds largely on the nectar

of *Capparis aphylla* flowers. The birds get their foreheads thickly coated with the yellow pollen and are doubtless responsible for a considerable amount of cross-fertilization.

There seems to be no definite breeding season, and odd birds may be found nesting throughout the year. Practically all the Survey specimens showed gonadal development, or gave some indication of current or recent breeding activity. The moults are also irregular, and practically every stage of moult may be seen in different individuals at any time of the year.

On two occasions pairs were observed feeding and fussing over nearly grown fledgling Pied Crested Cuckoos (*Clamator jacobinus*), a singleton in one case and 'twins' in the other.

Turdoides malcolmi (Sykes). The Large Grey Babbler.

Specimens collected: Gujarat: gs309 ♂ 19-11-45, gs341 ♂, gs342 ♀ 21-11-45 Dabka (Baroda Dist.); gs384 ♀, gs385 ♀ 27-11-45 Cambay.

Elsewhere noted: Gujarat: Baroda City and environs; Nadiad (Kaira Dist.); Vaghjipur (Mehsana Dist.); Radhanpur; Deesa; Palanpur town and environs; Kharaghoda; Juna Rajpipla. Saurashtra: Dwarka; Okha; Amreli; Dhari; Kodinar; Veraval (Junagadh).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|---------|
| 2 ♂♂ | 120 | 24.5-27 | 36 | 135-136 |
| 3 ♀♀ | 114-117 | 23-24 | 34-35 | 133-136 |

Certainly the commonest babbler in the open cultivated plain country of Gujarat and Saurashtra. Frequently seen in association with both or either the Common and Jungle Babblers in appropriate facies.

In Kutch it was not met with at all, neither does Lester include it in his list (1903). Hume (*SF*, iii: 472-1875) speaks of it, however, as being 'not uncommon in the less desert portions of Kutch'. It has also been recorded from Kutch by Stoliczka (*JASB*, 51-1872).

The specimens of November 19 and 20 were freshly moulted with partially developed gonads. No further data as regards actual breeding in the area were procured.

Alcippe poiocephala brucei Hume. The Bombay Quaker Babbler.

Specimens collected: Gujarat: gs1202 ♂, gs1203 ♂, gs1204 ♀, gs1205 ♀ 7-4-46, Medha (Navsari Dist.); gs1262 ♂ 13-4-46 Waghai; sd16 ♂ 24-2-48, sd57 ♂ 27-2-48 Malegaon; sd273 ♂ 12-3-48 Laochali; sd313 ♀ 14-3-48 Mahal; sd346 ♂ 17-3-48 Mheskatri; sd378 ♂ 19-3-48 Sarwar; sd410 ♀ 21-3-48, sd425 ♂ 22-3-48 Pimpri; sd449 ♂, sd450 ♀, sd451 ♀, sd452 ♀ 24-3-48 Waghai (sd = Surat Dangs).

Not met with by the Surveys elsewhere in Gujarat or in Kutch or Saurashtra, but Harrington (*JBNHS*, 23: 451) recorded it from Rajkot, somewhat north-west of the Surat Dangs and in approximately the latitude of Baroda City.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|---------|
| 10 ♂♂ | 66-73 | 15-17.5 | 22-34.5 | 62-66.5 |
| 7 ♀♀ | 66.5-73 | 15-16.5 | 21-23.5 | 59-65 |

One of the 5 commonest birds in hilly teak, bamboo and mixed deciduous jungle in the Surat Dangs and the Songadh area, the other species

being *Dicrurus paradiseus*, *Crypsirina vagabunda*, *Hypothymis azurea* and *Muscicapa tickelliae*. Very fond of flower nectar, and in season invariably present on the blossoms of *Firmiana colorata* and *Erythrina striata*, among others. No indication as regards breeding was provided by the specimens.

Subfamily SYLVIINAE: Warblers

Hippolais caligata caligata Licht. (= *scita* Eversm.) The Booted Tree-Warbler.

Specimen collected: Gujarat: SD461 ♂ 25-3-48 Chikhli (Surat Dangs)

| Measurements: | W | B | Tar. | T |
|---------------|----|------|------|----|
| 1 ♂ | 62 | 14.5 | 20.5 | 51 |

Hippolais caligata rama (Sykes). Sykes's Tree Warbler.

Specimens collected: Kutch: ks11 ♂, ks12 o? 8-8-43 Rudra Mata; ks67 ♂ 16-8-43 Chaduva, ks153 o? juv. 3-9-43 Nakhatrana; ks174 ♀ juv. ks175 ♂ juv. 6-9-45 Man'al; ks187 ♂, ks188 o? ks189 ♂ 8-9-43 Rudra Mata; ks233 ♂ 16-9-43 Anjar, ks240 ♂, ks244 o? juv. 17-9-43 Bhachau; ks274 ♀ 26-9-43 Rudra Mata; ks286 ♀ 28-9-43 Bhuja Fort; ks373 ♂ 15-3-44 Jakhau; ks386 ♀ 18-3-44 Lakhpat; ks411 ♂ 25-3-44 Dholovira (Khadir Island); ks420 ♀ 28-3-44 Bela Island. Gujarat: gs36 ♂ 29-10-45, gs116 ♀ 3-11-45 Ajwa (Baroda Dist.) gs202 o? 9-11-45 Bodeli (Baroda Dist.); gs621 ♀ 17-12-45, gs677 ♂ 21-12-45 Vaghjipur (Mehsana Dist.); gs699 ♂ 24-12-45, gs753 ♂ 28-12-45 Patan (Mehsana Dist.); gs924 ♂ 16-1-46 Palanpur; sd365 ♂ 18-3-48 Mehskatri (Surat Dangs). Saurashtra: B29 ♂ 17-10-43 Amreli; gs976 ♀ 11-3-46 Ghatwad (Kodinar);

Elsewhere noted: Kutch: Kandla; Khavda, Nir (Pachham Island); Mandvi; Purg Bet (Little Rann) Saurashtra: Dalkhania. Gujarat: Champaner (Panchmahals); Dabka (Baroda); Cambay; Palanpur; Rajpipla.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|-------|
| 10 ♂♂ | 60-64 | 15-16.5 | 20.5-22 | 50-56 |
| 7 ♀♀ | 59-62 | 15-16 | 20-21.5 | 49-54 |

August specimens are mostly in worn bedraggled plumage; general moult takes place about September. In fresh winter plumage *Hippolais c. rama* can be differentiated from *H. c. caligata* in the hand (but not always in the field) by its uniform mousy grey-brown upper parts with slight olive tinge, against darker more fulvous brown in the latter. *Rama* is more a bird of semidesert country whereas *caligata* prefers less arid parts. In the Surat Dangs both forms occurred in the same locality in winter (March).

H. c. rama possibly resident in small numbers, but increasing from August on, and abundant between September and January. Affects babul, kandi and similar scrub jungle, keeping to the foliage canopy. Also seen in tamarisk bushes along river beds, e.g., in Kutch. In habits and movements it closely resembles the willow-warblers (*Phylloscopus*). Usually seen singly, restlessly hunting insects amongst the leaves and twigs, uttering a harsh *chuck . . . chuck* or *chur-r, chur-r* from time to time which may be mistaken for the notes of the Lesser Whitethroat.

***Sylvia communis icterops* Menetries.** The Indian Whitethroat.

Specimens collected: Kutch: ks135 o?, ks136 ♂, ks137 ♂ 31-8-43 Bhuj; envisions; ks141 ♀, ks142 ♀ 1-9-43 Bhuj; ks155 ♂ 3-9-43, ks162 ♂ 5-9-43; ks173 ♂ 6-9-43 Nakhatrana; ks190 ♀, ks191 ♂ 8-9-43 Rudra Mata. Saurashtra: b18 ♂ 14-10-43 Dwarka; b35 ♂ 18-10-43 Amreli.

Elsewhere noted: Kutch: Kañdla; Anjar; Bhachau; Rapar; Chaduva; Nir (Pachham Island.)

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|-------|
| 8 ♂♂ | 73-77 | 11-13 | 20-22 | 60-65 |
| 3 ♀♀ | 73-76 | 13 | 21.5-22 | 58-66 |

An abundant passage migrant over Kutch and Saurashtra in autumn to its winter quarters in Egypt and NE. Africa. First observed August 31; literally swarming between September 8 and 18; progressively less thereafter, and all gone by October 10 when the last individual was recorded. On return passage from Africa the birds apparently travel by a different route. Not a single specimen was observed in Kutch between March 3 and April 3. The bulk of the autumn passage seems to avoid the mainland. None were observed in Gujarat or east of a line from Rapar in Kutch to Amreli in Saurashtra. According to F.B.I. (ii: 447) it wanders as far south as Mt. Abu and Deesa and as far east at Kanpur.

Partial to sand mounds with tufts of *Capparis* and other scrub, scattered like islets amidst cultivation. The birds were completely silent during their temporary sojourn. Most of the specimens were fat; some excessively so.

***Sylvia hortensis jerdoni* (Blyth).** The Eastern Orphean Warbler.

Specimens collected: Kutch: ks169 ♂ 6-9-43 Manjal; ks180 ♂ 7-9-43 Bhujia Fort; ks235 ♂, ks236 ♂ 17-9-43 Bhachau; ks419 ♀ 28-3-44 Bela Island (Great Rann). Gujarat: gs87 ♀ 1-11-45 Ajwa (Baroda Dist.); gs172 o?, gs173 ♀ 9-11-45 Bodeli; gs256 ♂ 17-11-45 Dabka (Baroda Dist.); gs423 ♀ 29-11-45 Cambay; gs484 ♂ 4-12-45 Golana (Cambay); gs604 ♀ 16-12-45 Vaghjipur (Mehsana Dist.); gs793 ♂ 1-1-46 Radhanpur; gs1079 ♂ 21-3-46 Kharaghoda.

Elsewhere noted: Kutch: Dholovira (Khadir Island); Rapar (Waghad Dist.); Pung Bet (Little Rann); Khavda (Pachham Island); Saurashtra: Amreli; Dhari. Gujarat: Rajpipla.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|------------|-------|
| 7 ♂♂ | 79-86 | 19.5-21 | (21) 23-25 | 66-72 |
| 5 ♀♀ | 80-83 | 19-21.5 | 23.5-25 | 67-71 |

Common winter visitor. Solos frequent. First seen September 1; last March 31. Affects semidesert country keeping to *Capparis* bushes among the sand dunes or outscoured ravines, and to *Prosopis* and babul scrub. Feeds regularly on nectar of *Capparis* flowers, and usually has a quantity of the yellow pollen adhering to feathers of forehead. Utters *chichirichich* while hopping amongst bushes. Specimens collected in March were very fat in preparation for emigration.

***Sylvia nana nana* (Hempr. & Ehr.).** The Desert Warbler.

Specimens collected: Kutch: ks366 ♀ 12-3-44 Mandvi.

| Measurements: | W | B | Tar. | T |
|---------------|----|------|------|----|
| 1 ♀ | 57 | 11.5 | 18.5 | 47 |

Colours of soft parts: Iris bright lemon yellow; bill & legs pale chrome yellow; upper mandible brownish.

Not common. Very like a miniature *Agrobates* 'in the field'. Keeps to 'khip' bushes (*Leptadenia spartium* and ground among) the rarer wind-rippled coastal sand-dunes. Fragments of a pleasant reeling song were occasionally uttered from the ground, under the shelter of a bush. When singing, often spreads and partly erects tail like *Rhipidura*, displaying the white-tipped fan which further accentuates its likeness to *Agrobates*.

Sylvia curruca blythii Ticeh. & Whistler: The Indian Lesser Whitethroat.

Specimens collected: Kutch: ks226 ♂, ks227 ♂ 15-9-43 Anjar; ks246 ♀ 20-9-43, ks260 ♀ 22-9-43 Rapar; ks276 ♀ Bhujia Fort; ks280 ♂, ks281 ♂ 27-9-43 Bhuj Environs; ks307 ♀ 2-10-43 Khavda; ks322 ♂ 5-10-43 Nir; ks333 ♀ 5-3-44 Bhuj; ks364 ♀ 12-3-44 Mandvi; 393 ♀ 21-3-44 Godsar; ks405 ♂ 24-3-44 Chobari; Saurashtra: B30 ♂ 17-10-43 Amreli; Gujarat: gs35 ♂ 29-10-45, gs117 ♂, gs118 ♂ 3-11-45; gs242 ♂ 15-11-45 Baroda city environs; gs201 ♂ 9-11-45 Bodeli; gs269 ♀ 17-11-45 Dabka (Baroda Dist.); gs479 ♀ 4-12-45 Golana (Cambay); gs603 ♀ 16-12-45 gs620 ♀ 17-12-45; Vaghjipur (Mehsana Dist.); gs794 ♀ 1-1-46 Radhanpur; gs1040 ♂ 19-3-46, gs1069 ♂ 21-3-46 Kharaghoda; sd268 ♂ 12-3-48 Laochali (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------------|---------|-------|
| 7 ♂♂ | 61-68 | 12-13.5(15) | 18-23 | 55-60 |
| 8 ♀♀ | 61-65 | 11.5-13.5 | 18.5-21 | 53-58 |

Common, abundant and widely spread winter visitor to this area. Earliest date 15 September; latest 2 April, but doubtless leaves later.

Affects groves of babul and *Prosopis* (kandi), and thorn thickets and scrub, with a preference for semidesert country. Hops about the foliage hunting insects and uttering from time to time a subdued *tek, tek* like the low clicking of ones tongue against the palate. This is distinct from the harsh *chuck* or *chur-r* of Sykes's and several other tree warblers. Feeds regularly on the nectar of Babul and *Capparis*, *aphylla* flowers and specimens usually have their forehead feathers thickly coated with the pollen of these. It was noticed that the birds—this as well as other species—for some reason avoided the luxuriant growth of *Prosopis juliflora*, an introduced species that has colonised dry tracts in the Radhanpur and Palanpur areas with phenomenal success, though *Prosopis spicigera*, the indigenous species, is greatly favoured everywhere!

In my 'Birds of Kutch' (p. 34) I have recorded a specimen of the Small Whitethroat, *S. c. minula*. On a re-examination of the skin I find that this was a mistake. In all the specimens taken in Gujarat, Saurashtra and Kutch there are no *minula* at all although it may occur in small numbers in winter.

Sylvia althoea Hume. Hume's Lesser Whitethroat.

Specimen collected: sd133 ♂ 3-3-48 Galkund (Surat Dangs)

| Measurements: | W | B | Tar. | T |
|---------------|----|----|------|----|
| 1 ♂ | 67 | 15 | 20 | 59 |

Possibly often confused with *S. c. blythii* in the field.

Phylloscopus collybita tristis Blyth. The Brown Willow-Warbler.

Specimens collected: Kutch: ks351 ♀ 9-3-1944 Mapdvi; Gujarat: gs63 o? 31-10-45, gs119 ♂, gs120 ♂ 3-11-45 Ajwa (Baroda Dist.); gs162 ♀ 7-11-45, gs199 ♂, 9-11-45 Bodeli (Baroda Dist.); gs429 ♂ 28-11-45 Cambay; gs602 ♀ 16-12-45 Vaghjipur (Mehsana Dist.); gs782 ♀ 31-12-45 Radhanpur; gs1057 ♂ 20-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-----------|---------|---------|
| 5 ♂♂ | 61-65 | 11-13 | 19-21 | 47-51.5 |
| 4 ♀♀ | 57-59 | 10.5-11.5 | 19-19.5 | 45-49 |

Common winter visitor. Latest date recorded by the Survey, March 20. The specimen of that date was very fat suggesting preparedness for emigration. Abundant in low babul scrub and bushes of *Phyllanthus reticulatus* on drying up moist margins of tanks, ponds, etc. Flits about restlessly with the characteristic phylloscopine nervous flicks of the wings. Also affects reeds standing in water. Here it feeds off the stems as well as from the water's surface, reaching down or lunging out for a floating insect, and quickly transferring itself to an adjacent stem when the perch bends over into the water with its weight. Sometimes flutters momentarily in front of Cypress grass flower-clusters to capture an insect. Except for an occasional plaintive tweet, the birds were silent.

Phylloscopus griseolus Blyth. The Olivaceous Tree-Warbler.

Specimens collected: Gujarat: gs329 o? 20-11-1945 Dabka (Baroda Dist.); gs535 o? 10-12-45 Nadiad (Kaira Dist.); sd77 ♂ 28-2-48 Malegaon; sd99 ♂ 1-3-48 Galkund (Surat Dangs).

Elsewhere noted: Gujarat: Jambughoda (Panchmahals Dist.).

Not observed in Kutch or Saurashtra.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|------|-------|
| 2 ♂♂ | 65-67 | 14 | 20 | 49-51 |
| 2 o? | 65-68 | 14.5-15 | 21 | 50-53 |

Keeps singly to tree trunks and rock outcrops scuttling up like a nut-hatch or tree creeper in search of tiny insects. Constantly flicks its wings and utters a monosyllabic finch-like *pick* from time to time. One of the easiest Phylloscopi to identify in the field: No wing bars; upper parts and wings greyish brown; breast and underparts yellow; yellow supercilium and brown streak through eye.

Phylloscopus inornatus humei (Brooks). Hume's Willow-Warbler.

Specimens collected: Gujarat: gs200 o? 9-11-45 Bodeli (Baroda Dist.); gs348 ♂ 21-11-45 Dabka (Baroda Dist.); gs430 ♂ 29-11-45 Cambay town environs; gs492 o? 6-12-45; sd52 o?, sd53 ♀ 27-2-48, sd80 ♂ 28-2-48 Malegaon; sd199 ♀ 6-3-48 Pandwa; sd336 ♂ 16-3-48, sd354 o? 17-3-48 Mheskatri (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-----------|-------|---------|
| 4 ♂♂ | 51-59 | 10.5-12.5 | 18-19 | 38.5-45 |
| 2 ♀♀ | 52-57 | 11-11.5 | 18 | 38-43 |
| 4 o? | 54-60.5 | 11-13 | 18-19 | 38-46 |

No sight records of the Gujarat or Saurashtra Surveys are given owing to the uncertainty of correct identification. This species was,

Colours of soft parts: Iris bright lemon yellow; bill & legs pale chrome yellow; upper mandible brownish.

Not common. Very like a miniature *Agrobates* 'in the field'. Keeps to 'khip' bushes (*Leptadenia spartium* and ground among the rarer wind-rippled coastal sand-dunes. Fragments of a pleasant reeling song were occasionally uttered from the ground, under the shelter of a bush. When singing, often spreads and partly erects tail like *Rhipidura*, displaying the white-tipped fan which further accentuates its likeness to *Agrobates*.

Sylvia curruca blythii Ticeh. & Whistler: The Indian Lesset Whitethroat.

Specimens collected: Kutch: ks226 ♂, ks227 ♂ 15-9-43 Anjar; ks246 ♀ 20-9-43, ks260 ♀ 22-9-43 Rapar; ks276 ♀ Bhujia Fort; ks280 ♂, ks281 ♂ 27-9-43 Bhuj Environs; ks307 ♀ 2-10-43 Khavda; ks322 ♂ 5-10-43 Nir; ks333 ♀ 5-3-44 Bhuj; ks364 ♀ 12-3-44 Mandvi; 393 ♀ 21-3-44 Godsar; ks405 ♂ 24-3-44 Chobari; Saurashtra: n30 ♂ 17-10-43 Amreli; Gujarat: gs35 ♂ 29-10-45, gs117 ♂, gs118 ♂ 3-11-45; gs242 ♂ 15-11-45 Baroda city environs; gs201 ♂ 9-11-45 Bodeli; gs269 ♀ 17-11-45 Dabka (Baroda Dist.); gs479 ♀ 4-12-45 Golana (Cambay); gs603 ♀ 16-12-45 gs620 ♀ 17-12-45; Vaghjipur (Mehsana Dist.); gs794 ♀ 1-1-46 Radhanpur; gs1040 ♂ 19-3-46, gs1069 ♂ 21-3-46 Kharaghoda; sd268 ♂ 12-3-48 Laochali (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------------|---------|-------|
| 7 ♂♂ | 61-68 | 12-13.5(15) | 18-23 | 55-60 |
| 8 ♀♀ | 61-65 | 11.5-13.5 | 18.5-21 | 53-58 |

Common, abundant and widely spread winter visitor to this area. Earliest date 15 September; latest 2 April, but doubtless leaves later.

Affects groves of babul and *Prosopis* (kandi), and thorn thickets and scrub, with a preference for semidesert country. Hops about the foliage hunting insects and uttering from time to time a subdued *tek, tek* like the low clicking of ones tongue against the palate. This is distinct from the harsh *chuck* or *chur-r* of Sykes's and several other tree warblers. Feeds regularly on the nectar of Babul and *Capparis*, *aphylla* flowers and specimens usually have their forehead feathers thickly coated with the pollen of these. It was noticed that the birds—this as well as other species—for some reason avoided the luxuriant growth of *Prosopis juliflora*, an introduced species that has colonised dry tracts in the Radhanpur and Palanpur areas with phenomenal success, though *Prosopis spicigera*, the indigenous species, is greatly favoured everywhere!

In my 'Birds of Kutch' (p. 34) I have recorded a specimen of the Small Whitethroat, *S. c. minula*. On a re-examination of the skin I find that this was a mistake. In all the specimens taken in Gujarat, Saurashtra and Kutch there are no *minula* at all although it may occur in small numbers in winter.

Sylvia althoea Hume. Hume's Lesser Whitethroat.

Specimen collected: sd133 ♂ 3-3-48 Galkund (Surat Dangs)

| Measurements: | W | B | Tar. | T |
|---------------|----|----|------|----|
| 1 ♂ | 67 | 15 | 20 | 59 |

Possibly often confused with *S. c. blythii* in the field.

Phylloscopus collybita tristis Blyth. The Brown Willow-Warbler.

Specimens collected: Kutch: ks351 ♀ 9-3-1944 Mapdvi; Gujarat: gs63 o? 31-10-45, gs119 ♂, gs120 ♂ 3-11-45 Ajwa (Baroda Dist.); gs162 ♀ 7-11-45, gs199 ♂, 9-11-45 Bodeli (Baroda Dist.); gs429 ♂ 28-11-45 Cambay; gs602 ♀ 16-12-45 Vaghjipur (Mehsana Dist.); gs782 ♀ 31-12-45 Radhanpur; gs1057 ♂ 20-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-----------|---------|---------|
| 5 ♂♂ | 61-65 | 11-13 | 19-21 | 47-51.5 |
| 4 ♀♀ | 57-59 | 10.5-11.5 | 19-19.5 | 45-49 |

Common winter visitor. Latest date recorded by the Survey, March 20. The specimen of that date was very fat suggesting preparedness for emigration. Abundant in low babul scrub and bushes of *Phyllanthus reticulatus* on drying up moist margins of tanks, ponds, etc. Flits about restlessly, with the characteristic phylloscopine nervous flicks of the wings. Also affects reeds standing in water. Here it feeds off the stems as well as from the water's surface, reaching down or lunging out for a floating insect, and quickly transferring itself to an adjacent stem when the perch bends over into the water with its weight. Sometimes flutters momentarily in front of Cypress grass flower-clusters to capture an insect. Except for an occasional plaintive tweet, the birds were silent.

Phylloscopus griseolus Blyth. The Olivaceous Tree-Warbler.

Specimens collected: Gujarat: gs329 o? 20-11-1945 Dabka (Baroda Dist.); gs535 o? 10-12-45 Nadiad (Kaira Dist.); sd77 ♂ 28-2-48 Malegaon; sd99 ♂ 1-3-48 Galkund (Surat Dangs).

Elsewhere noted: Gujarat: Jambughoda (Panchmahals Dist.).

Not observed in Kutch or Saurashtra.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|------|-------|
| 2 ♂♂ | 65-67 | 14 | 20 | 49-51 |
| 2 o? | 65-68 | 14.5-15 | 21 | 50-53 |

Keeps singly to tree trunks and rock outcrops scuttling up like a nut-hatch or tree creeper in search of tiny insects. Constantly flicks its wings and utters a monosyllabic finch-like *pick* from time to time. One of the easiest Phylloscopi to identify in the field: No wing bars; upper parts and wings greyish brown; breast and underparts yellow; yellow supercilium and brown streak through eye.

Phylloscopus inornatus humei (Brooks). Hume's Willow-Warbler.

Specimens collected: Gujarat: gs200 o? 9-11-45 Bodeli (Baroda Dist.); gs348 ♂ 21-11-45 Dabka (Baroda Dist.); gs430 ♂ 29-11-45 Cambay town environs; gs492 o? 6-12-45; sd52 o?, sd53 ♀ 27-2-48, sd80 ♂ 28-2-48 Malegaon; sd199 ♀ 6-3-48 Pandwa; sd336 ♂ 16-3-48, sd354 o? 17-3-48 Mheskatri (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-----------|-------|---------|
| 4 ♂♂ | 51-59 | 10.5-12.5 | 18-19 | 38.5-45 |
| 2 ♀♀ | 52-57 | 11-11.5 | 18 | 38-43 |
| 4 o? | 54-60.5 | 11-13 | 18-19 | 38-46 |

No sight records of the Gujarat or Saurashtra Surveys are given owing to the uncertainty of correct identification. This species was,

however, common in the Surat Dangs in February 1948 as confirmed by my companion, Mr. Horace Alexander, who has made a special study of *Phylloscopi* in the field. The following points help to identify this willow-warbler: Two wing bars of which the hind one is distinct and the front one faint. Comparatively short tail. Long whitish supercilium. Call note *tis-yip* or *chilip*. Seen up in trees as well as bushes.

***Phylloscopus trochiloides nitidis* Blyth.** The Green Willow-Warbler.

Specimens collected: Kutch: ks311 o?, ks312 o? 3-10-43 ks314 ♂ 4-10-43 Khavda (Pachham Island); ks273 ♂ 26-9-43 Bhuj; Gujarat: gsl63 ♂ 8-11-45 Bodeli (Baroda Dist.); gsl258 ♂ 13-4-46 Waghai (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-----------|-------|
| 4 ♂♂ | 58.5-65 | 12-14 | 18-20 | 45-49 |
| 2 o? | 62-64 | 13-13.5 | 18.5-19.5 | 46 |

***Phylloscopus trochiloides viridanus* Blyth.** The Greenish Willow-Warbler.

Specimens collected: Gujarat: gs428 o? 29-11-45 Cambay; sd78 ♂ 28-2-48 Malegaon; sd399 ♂ 20-3-48 Sarwar; sd430 ♂ 22-3-48 Pimpri; sd369 ♂ 18-3-48 Mheskatri (sd = Surat Dangs).

Sight records not given owing to uncertainty in field identification.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|-------|-------|
| 4 ♂♂ | 59-64 | 12-13 | 18-19 | 44-48 |
| 1 o? | 58 | 11 | 19 | 45 |

The two races are impossible to differentiate in the field, and even in the hand they present some difficulty. Both of them, moreover, have an identical call note in winter—a squeaky *chiwee*. The earliest and latest dates, supported by specimens, are September 26 and April 13. The latter specimen was excessively fat in readiness for emigration.

Perhaps the commonest species of willow-warbler in the area. Feeds mostly up in the foliage canopy of trees in openly wooded country.

***Phylloscopus trochilus acredula* (Linn.).** The Northern Willow-Warbler.

Specimen collected: Gujarat: gsl137 ♂ 29-3-1946 Dediapada (Rajpipla).

| Measurements: | W | B | Tar. | T |
|---------------|----|------|------|----|
| 1 ♂ | 63 | 13.5 | 19 | 46 |

This is an unexpected addition to the Indian list. It was kindly identified for me by Col. R. Meinertzhagen who had his diagnosis confirmed by Dr. James Harrison. It is a north European bird which normally winters in south and east Africa.

***Phylloscopus occipitalis occipitalis* (Blyth).** The Large Crowned Willow-Warbler.

Specimens collected: Gujarat: gs149 o? 6-11-45 Bodeli (Baroda Dist.); sd227 ♂, sd228 ♀ 9-3-48 Laochali; sd252 ♂, sd253 ♂ 11-3-48,

sp335 ♂ 16-3-48, sd353 ♂ 17-3-48 Mheskatri; sd441 ♀, sd442 ♀ 24-3-48 Waghai (sd = Surat Dangs).

| Measurements : | W | B | Tar. | T |
|----------------|-------|---------|-------|---------|
| 5 ♂♂ | 64-70 | 14-15 | 18-19 | 49-52 |
| 3 ♀♀ | 63-70 | 13.5-14 | 18-19 | 47-55.5 |

This is another species comparatively easy to identify in the field. Faint single wing-bar; body slim and long as in the Greenish Willow-Warbler with proportionate tail, not short as in *P. i. humei*; a coronal band; conspicuously orange bill; yellow wing shoulders and axillaries.

Most of the specimens were undergoing body moult, while some were freshly moulted. They were obviously preparing to emigrate in March. All collected in that month were fat to excessively fat and, contrary to their normal winter habit, the birds were then moving about in small flocks. The birds were silent until 24 March when the first song was heard—a squeaky but lively *chi-chi-chi*; *chwei, chwei, chwei, chwei*, quickly repeated.

Keeps to the foliage canopy of moderate sized trees, often associated with the itinerant hunting parties of mixed species.

Phylloscopus tytleri Brooks. Tytler's Willow-Warbler.

Specimens collected: Gujarat: sd50 ♂, sd51 ♀ 27-2-1948, sd79 o? [♀] 28-2-48 Malegaon (Surat Dangs).

| Measurements : | W | B | Tar. | T |
|----------------|----|------|------|------|
| 1 ♂ | 63 | 13 | 19 | 44 |
| 1 ♀ | 56 | 13 | 18.5 | 38.5 |
| 1 o? [♀] | 57 | 13.5 | 18.5 | 40 |

Field identification: No wing bar; conspicuously long slender bill reminiscent of the tailor bird's (*Orthotomus*); upper parts olive; underparts whitish with indefinite yellowish streaks; long whitish supercilium.

The species was not uncommon where the specimens were collected.

Chaetornis striatus (Jerdon). The Bristled Grass Warbler.

Not met with by the Surveys. According to Capt. A. E. Butler (*S.F.*, v : 209) not uncommon about Deesa (North Gujarat) in the rains at which season it breeds. He invariably found the birds during the rains in grass *bheerhs* overgrown with low thorny bushes of *Zizyphus jujuba*, etc., but was not certain if it was a resident species. He emphasizes its close superficial resemblance to the Common Babler (*Turdoides caudata*) and thinks that it may therefore escape notice at other seasons.

Locustella naevia straminea. Seebohm. The Eastern Grasshopper Warbler.

Specimens collected: gs468 ♂ 3-12-1945, gs478 ♂ 4-12-45 Golana (Cambay).

Elsewhere noted: Gujarat: Ajwa (Baroda Dist.); Timbi tak and Harni (Baroda City environs).

| Measurements : | W | B | Tar. | T |
|----------------|----|----|------|----|
| 1 ♂ | 61 | 14 | 19.5 | 53 |

Winter visitor. In the above localities it was not common or abundant, but one or two solos were usually to be flushed in likely patches—

tall standing or flattened down grass at the edge of drying-up tanks or in swampy depressions. On one occasion several individuals had gathered to mob a snake in a thicket. Their agitated *cht-cht-cht* sounded rather like that of *Dumetia hyperythra*.

Acrocephalus stentoreus brunnescens (Jerdon). The Indian Great Reed Warbler.

Specimens collected: Kutch: ks234 ♂ 17-9-1943 Bhachau Gujarat: gs10 ♂ 28-10-45, gs25 o? 29-10-45, gs113 o? 3-11-45 Ajwa (Baroda Dist.); gs239 ♂ 15-11-45 Baroda City environs; gs1037 ♀, gs1038 ♂ 19-3-46, gs1056 ♂ 20-3-46 Kharaghoda.

Elsewhere noted: Gujarat: Cambay town environs; Kanewal (Cambay); Kutch: Nir (Pachham Island).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|-------|
| 2 ♂♂ | 84-89 | 25-26 | 28-28.5 | 73-80 |
| 1 ♀ | 85 | 22.5 | 27.5 | 72 |

Birds collected in September and October were in very worn plumage or undergoing heavy moult. Thereafter they were mostly freshly moulted, and the specimen of March 20 was fat.

Fairly common in reed beds and shrubbery around the edges of tanks. Once seen amongst *Salvadora* thickets bordering a bajri (*Sorghum*) field a considerable distance from water. Here its close superficial resemblance to the Isabelline Shrike, as it dashed across from one thicket to another, was particularly emphasized. Very skulking and secretive, especially when moulting; also silent, only occasionally uttering a harsh characteristic *ke*. Spasmodic bursts of song were heard on April 22.

Acrocephalus dumetorum Blyth. Blyth's Reed Warbler.

Specimens collected: Gujarat: sd300 ♂, sd301 ♂, sd302 ♂ 14-3-48 Mahal (Surat Dangs).

Elsewhere not noted.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|-------|-------|
| 3 ♂♂ | 63-64 | 17-18 | 22-23 | 51-54 |

Winter visitor. Curiously enough not met with at all in Kutch, Saurashtra or elsewhere in Gujarat between August and end April.

Acrocephalus agricola agricola Jerdon. The Paddyfield Warbler.

Specimens collected: Kutch: ks352 ♀, ks353 ♂ 9-3-1944 Mandvi. Gujarat: gs114 ♂ 3-11-45 Ajwa (Baroda Dist.); gs240 ♂ 15-11-45 Baroda City environs; gs365 ♂ 22-11-45 Dabka (Baroda Dist.); gs437 ♂ 30-11-45 Cambay.

Elsewhere noted: Gujarat: Saiat (Kaira Dist.); Kharaghoda

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|-------|
| 2 ♂♂ | 58-61 | 14-15 | 21.5-23 | 54-59 |
| 1 ♀ | 56 | 15 | 21 | 53 |

Fairly common winter visitor. Keeps within reeds bordering tanks and ponds, and permits a glimpse of itself only occasionally as it mounts to the top of a stem or dashes out in pursuit of a rival. Their presence however, is always advertised by the characteristic harsh *chrr... chuck*

they constantly utter. When flushed the bird skims over the sedges with a jerky hurried flight, spreading 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.

Orthotomus sutorius guzurata (Latham). The Tailor Bird.

Specimens collected: Kutch: ks13 ♂ 8-8-1943 Rudra Mata (Bhuj Dist.). Gujarat: gs159 ♂ 7-11-45 Bodeli (Baroda Dist.); gs364 ♀ 22-11-45 Dabka (Baroda Dist.); gs1294 ♂ 19-4-46 Galkund; sd54 ♂ 27-2-48 Malegaon; sd122 ♂ 2-3-48 Galkund; sd243 ♀ 10-3-48 Laochali; sd334 ♀ 16-3-48 Mheskatri; sd403 ♀ 20-3-48 Sarwar (Surat Dangs). Saurashtra: b7 ♂ juv. 13-10-43 Dwarka (Okhamandal); gs981 ♂ 12-3-46 Kodinar; gs1006 ♀ 15-3-46 Dalkhania (Amreli Dist.).

Elsewhere noted: Kutch: Bhuj town and environs; Chaduva (Bhuj Dist.); Mandvi; Nakhatrana; Dhinodhar Hill; Bhachau; Rapar; Khavda, Nir and Kala Dongar (Pachham Island); Mata-no-Madh; Lakhpat; Dholovira (Khadir Island); Bela (Bela Island). Gujarat: Baroda City; Ajwa; Champaner (Panchmahals Dist.); Saiat, Dakor, Nadiad (Kaira Dist.); Patan (Mehsana Dist.); Palanpur town, Deesa, Balaran and Gangasagar (Palanpur); Rajpipla; Waghai (Surat Dangs). Saurashtra: Okha; Amreli; Dhari.

| Measurements: | W | B | Tar. | T. |
|---------------|-------|---------|---------|---------|
| 4 ♂♂ | 50-52 | 16-17.5 | 20-21.5 | 43.5-82 |
| 5 ♀♀ | 47-49 | 16-17 | 20-21 | 37.5-39 |

Resident. Common and generally distributed throughout the area. Affects gardens in towns, wooded compounds, stony scrub jungle as well as semidesert, but nowhere abundant. Solos or pairs usually met with.

The breeding season in Kutch is between June and August/September. Here, owing to the paucity of broad-leaved bushes the bird builds a nest of the *Cisticola* type, woven out of vegetable down with a number of narrow leaves sewed to it at the sides for support.

Prinia socialis stewarti Blyth. Stewart's Ashy Wren-Warbler.

Specimens collected: Gujarat: gs427 ♀ 29-11-45 Cambay; gs589 ♀, gs590 ♂, gs591 ♂ 16-12-45 Vaghjipur; gs748 ♂, gs749 ♂ 27-12-45 Patan (Mehsana Dist.); gs833 ♂ 5-1-46 Radhanpur. Saurashtra: gs978 ♂ Ghatwad (Kodinar).

Elsewhere noted: Deesa, Palanpur; Dediapada (Rajpipla).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|--------------|
| 6 ♂♂ | 48-52 | 13.5-15 | 19.5-21 | (60.5) 67-75 |
| 2 ♀♀ | 45.5-48 | 13-13.5 | 19.5 | 59-62.5 |

Affects reeds and herbage on the margins of streams and ponds. On the whole partial to better watered facies than the Indian Wren-Warbler, though in tall grass-Capparis-Salvadora thickets separating sandy fallow fields in the Radhanpur area the two species were often found together and in association with *Prinia buchanani* and *Chrysomma sinense*. All specimens collected during December were completing wing and tail moult into winter plumage.

Prinia inornata terricolor (Hume). The Indian Wren-Warbler.

Specimens collected: Kutch: ks4 ♂ + 8-8-43 Rudra Mata (Bhuj Dist.); ks151 ♂ + 3-9-43 Nakhatrana; ks241 ♂ + 17-9-43 Bhachau. Gujarat: gs328 ♀ 20-11-45 Dabka (Baroda Dist.); gs426 ♀ 20-11-45 Cambay; gs466 ♂, 3-12-45, gs487 o? 4-12-45 Golana (Cambay); gs540 ♂, gs541 ♀, gs542 ♂ 11-12-45 Nadiad (Kaira Dist.); gs658 ♂ 19-12-45 Vaghjipur, gs702 o? 24-12-45, gs729 o? 26-12-45 Patan (Mehsana Dist.); gs795 ♂, gs796 o? 1-1-46 Radhanpur. Saurashtra: gs977 o? 11-3-46 Ghatwad; gs982 ♀ 12-3-46 Kodinar; n34 ♂ + 18-10-43 Amreli.

| Measurements: | W | B | Tar. | T |
|------------------------|-------|---------|---------|-------|
| 4 ♂♂ Summer (breeding) | 50-54 | 12-13.5 | 19-21 | 49-56 |
| 5 ♂♂ Winter | 50-54 | 12-13.5 | 20-21.5 | 59-76 |
| 5 ♀♀ Winter | 48-50 | 12-13 | 19.5-21 | 64-69 |

A common, resident and widely-distributed species which, though frequently found in well-watered facies alongside the Ashy Wren-Warbler, is more tolerant of arid conditions, often being met with far out in sandy or stony semidesert. Breeding was in progress Kutch during August. Several nests with clutches of 3-5 eggs were seen, as also wobbly young just out of nest being fed and fussed over by the parents.

Prinia sylvatica gangetica (Blyth). The Jungle Wren-Warbler.

Specimens collected: Kutch: ks5 ♀ + 8-8-43 Bhuj; ks75 ♂ + 17-8-43 Chaduva; ks150 o? juv. 3-9-43, ks164 ♂ juv. 5-9-43 Nakhatrana; ks284 ♂ juv., ks285 ♂ juv. 28-9-43 Bhujia Fort; ks372 ♂ 15-3-44 Jakhau. Gujarat: gs292 ♂, gs293 ♂, gs294 ♀, gs295 ♀ 19-11-45 Dabka (Baroda Dist.); gs524 ♂ 9-12-45 Nadiad (Kaira Dist.); gs579 ♂ 15-12-45, gs599 o? 16-12-45 Vaghjipur (Mehsana Dist.); gs1113 ♂ 26-3-46 Rajpipla; sd186 ♂, sd187 ♀ 6-3-48 Pandwa (Surat Dangs). Saurashtra: gs1004 o? 15-3-46 Dalkhania (Amreli Dist.).

Elsewhere noted: Gujarat: Palanpur. Saurashtra: Kodinar.

| Measurements: | W | B | Tar. | Winter T |
|---------------|-------|-------|----------------|----------|
| 8 ♂♂ ad. | 62-65 | 15-17 | (21) 23.5-25.5 | 74-89 |
| 3 ♀♀ ad. | 53-56 | 14.5 | 22-25 | 71-77 |

Whistler (*Spolia Zeylanica*, 23: 178) says that *P. s. valida* of Ceylon differs from *P. s. sylvatica* of India among other things by its larger bill (12 ♂♂ *valida* 15.5-17 mm; 12 ♂♂ *sylvatica* 13-15 mm). I measure the 8 Gujarat males bill 15-17, but have seen no Ceylon specimens, and it is possible that bills of *valida* are sensibly larger otherwise than in length alone.

Fairly common in stony, hummocky grass-and-Euphorbia scrub country, cut up by eroded ravines. Breeding was in full swing in Kutch during August. The male sings excitedly both from bushtops and during the aerial courtship display which consists of a succession of quick-repeated nose dives, the bird tumbling headlong groundwards, then rising steeply again for the next dive, and so on, till he finally alights on a nearby bush. The song is a lively but unmusical *p'ty, p'ty, p'ty*, etc. While being uttered, whether from a perch or in the air, the tail is spread to show off the white outer feathers prominently. The mouth in breeding males is jet black and easily noticed in the singing bird.

In the fluffy juvenile plumage there is a distinct primrose yellow wash on the under parts.

Prinia lepida Blyth. The Indian Streaked Wren-Warbler.

Specimens collected: Kutch: ks106 ♂ juv., ks107 ♂ + 24-8-1943, ks363 ♀ 12-3-44 Mandvi; ks337 o? 6-3-44 Devisar Tank (Bhuj Dist.). Gujarat: gs464 ♂, gs465 ♀ 3-12-45, gs477 ♂ 4-12-45 Golana (Cambay).

Elsewhere noted: Kutch: Khavda, Nir, Bela, Dholovira (all along edge of Great Rann); Pung Bet (Little Rann.)

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|-----------|---------|
| 2 ♂♂ | 43-46 | 12 (1) | 16.5-18 | 72 (1) |
| 2 ♀♀ | 43-44 | 11-11.5 | 16.5-17.5 | 59-60.5 |

Resident. Affects sandy semidesert country with khup scrub (*Leptadenia*) and coarse grass tussocks among the sand dunes. Also scanty thorn scrub and grass country about cultivation and sandy dry nullahs. Flushes from cover like *Cisticola* and settles on a grass stem after a short jerky undulating flight characteristic of the wren-warblers. Has a wheezy unmusical warbling song of the Indian Wren-Warbler pattern.

Breeding was in progress in Kutch during July and August, and also in March. In the fresh juvenile there is a distinct yellow tinge on the sides of the neck and upper breast which appears to have been overlooked in published descriptions.

Prinia gracilis gracilis (Franklin). Franklin's Wren-Warbler.

Specimens collected: Kutch: ks6 ♂, ks7 ♂ 8-8-43 Rudra Mata (Bhuj Dist.) ks152 ♂ 3-9-43 Nakhatrana; ks377 ♂ 17-3-44 Mata-no-Madh; ks426 ♂ 31-3-44 Bhuj. Gujarat: gs275 ♂ 17-11-45, gs327 ♂ 20-11-45 Dabka (Baroda Dist.); gs587 ♂ 15-12-45; gs630 ♂ 18-12-45 Vaghjipur (Mehsana Dist.) sd76 o? 28-2-48 Malegaon; sd207 ♀, sd208 ♀ 7-3-48 Pandwa; sd271 ♂, sd272 ♂ 12-3-48 Laochali; sd333 ♀ 16-3-48, sd355 ♀ 17-3-48 Mheskatri (sd=Surat Dangs). Saurashtra: gs1020 ♂ 16-3-46 Dalkhanja (Kodinar).

Elsewhere noted: Gujarat: Baroda City & environs; Champaner; Nadiad Saiat, Dakor (Kaira Dist.); Radhanpur; Balgram, Gangasagar, Hathidhara and Palanpur town environs; Juna Rajpipla; Saurashtra: Dhari (Amreli Dist.), Kodinar, Ghatwad; Kutch: Chaduva; Rapar.

| Measurements: | W | B | Tar. | T |
|---------------|----------------|---------|---------|-------------------|
| 10 ♂♂ | 44.5-50.5 | 10.5-13 | 18-19.5 | 46-58 |
| | (average 47.8) | | | (summer & winter) |
| 5 ♀♀ | 44-48 | 11.5-13 | 18-20 | 45-55 |
| | (average 46) | | | (winter) |

In winter the tails in both sexes are considerably longer than in summer (breeding) plumage. Post-nuptial moult into winter plumage takes place about October.

Resident. Common and generally distributed. Frequents scrub jungle with coarse grass and thorn bushes—babul and *Salvadora* facies—in comparatively well-wooded country. In more open semidesert, in the Capparis-Zizyphus-coarse grass facies, e.g., about Patan in Mehsana Dist.,

it was completely replaced by *Prinia buchanani*. These two species appear to be ecological representatives of each other.

Over the greater part of our area the breeding season is from July to September. The nuptial display of the male is a lively and spirited performance. He mounts to an exposed perch on a bare tree or bush-top and excitedly warbles a loud squeaky *yousee-yousee-yousee-which-which-which-which*. The *yousee* portion of it starts freely, and is quickly repeated three or four times. It rises in pitch at each successive note and ends up loudly and abruptly after the third or fourth *which*. Another turn in the courtship proceedings consists of some spectacular aerobatics when the bird springs up in the air and executes a series of wave-crests and steep nose-dives in quick succession, to the accompaniment of the breeding song.

***Prinia buchanani* (Blyth).** The Rufousfronted Wren-Warbler.

Specimens collected: Kutch: ks22 ♂, ks23 ♂ juv. 9-8-43, ks334 ♂ 5-3-44 Bhuj; ks365 ♂ 12-3-44 Mandvi. Gujarat: gs700 ♂ 24-12-45, gs730 ♂ 26-12-45 Patan (Mehsana Dist.); gs759 ♀, gs760 ♂ 30-12-45 Radialpur; gs1042 ♀ 19-3-46, gs1070 ♀ 21-3-46 Kharaghoda. Saurashtra: gs1005 ♀ 15-3-46 Dalkhania (Kodinar).

Elsewhere noted: Kutch: Padhar, Chaduva (Bhuj Dist.); Nakhatrana; Bhachau; Rapar; Khavda; Nir; Jakhau; Mata-no-Madh; Khadir Island. Saurashtra: Dhari (Amreli Dist.). Gujarat: Palanpur town & environs.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|-----------|
| 5 ♂♂ | 52-55 | 12-13.5 | 18-19.5 | (53)59-66 |
| 4 ♀♀ | 47-51 | 11.5-14 | 17-18.5 | 56-64.5 |

Resident. Affects dry sparsely scrubbed semidesert country—Capparis-Zizyphus-Prosopis-coarse grass facies—where it is common. My first meeting with it in Gujarat (at Patan) corroborated the floristic evidence of the desiccated nature of the terrain, as in Kutch; and its gradual increase in northern Gujarat (e.g., Palanpur and Radhanpur) coincided with the increasing aridness, emphasized also by the appearance of such other typically semidesert birds as *Cursorius cursor*, and *Oenanthe isabellina*.

The habits of *Prinia gracilis* and *P. buchanani* differ noticeably in one particular. Whereas *buchanani* commonly hops about on the ground in amongst grass tussocks and thorn scrub, tail slightly cocked, *gracilis* hardly ever does so, being more arboreal and finding its food on the plants themselves. In the field the white tips of the rectrices show up prominently as a fringe when the tail is fanned out before the bird alights. In worn plumage, however, the tips become abraded and the bird then looks confusingly like the Indian Wren-Warbler (*Prinia inornata*). The rufous forehead alone (sometimes very faint) provides a clue to its identity.

Males mount to an exposed twig on a bush-top, with tail spread out and partially cocked, and pour forth a vehement reeling, twittering song. In overall pattern it is reminiscent of the song of the Ashy Wren-Warbler yet distinct enough to be quite unmistakable.

Nests with eggs and/or young, and other breeding activities, were observed in March as well as in August. The enlarged gonads of specimens likewise indicated that the season is a prolonged one.

Cisticola juncidis cursitans (Franklin). The Streaked Fantail Warbler.

Specimens collected: Kutch: ks66 ♂ 16-8-43 Chaduva (Bhuj Dist.); ks109 ♂, 24-8-43, ks349 o? 8-3-44 Mandvi. Gujarat: gs459 ♀ 2-12-45, gs461 ♀ juv., gs462 ♀, gs463 ♀ 3-12-45 Golana (Cambay); gs572 o? 12-12-45 Saiat (Kaira Dist.).

Elsewhere noted: Kutch: Godsar (Bhuj environs); Nakhatrana; Anjar; Pung Bet (Little Rann). Gujarat: Ajwa; Cambay town environs; Dakor (Kaira Dist.). Saurashtra: Dwarka (Okhamandal); Dhari (Amreli Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|-----------|-------|
| 2 ♂♂ | 52-54 | 10-10.5 | 19-20 | 31-34 |
| 4 ♀♀ | 45-48 | 11-12 | 17.5-18.5 | 38-42 |

Resident, but moves about locally with seasonal conditions—rain or drought—affecting its habitat. Inhabits patches of tall grass along the dry margins of tanks, lagoons, tidal creeks, etc. Breeding activity—zigzag ‘chip-chipping’ soaring display flight of males, nest building, feeding nest young, and wobbly stub-tailed juveniles ex nest—was in evidence between August and October.

Subfamily: TURDINAE

Erithacus svecicus pallidogularis (Saudrny). The Eastern Redspotted Bluethroat.

Specimens collected: Kutch: ks412 ♂ 26-3-44 Dholovira (Khadir Island); Gujarat: gs43 ♂ 30-10-45 Ajwa (Baroda Dist.); gs406 ♂ 28-11-45 Cambay; gs1039 o? 19-3-46 Kharaghoda. Saurashtra: B31 o? juv., B32 ♂ 18-10-43 Amreli.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|-------|
| 4 ♂♂ | 70.5-74 | 15-16 | 25-27 | 55-56 |

Erithacus svecicus abbotti (Richmond). The Eastern Whitespotted Bluethroat.

Specimens collected: Gujarat: gs14 ♀ 28-10-45 Ajwa (Baroda Dist.); gs332 ♂ 20-11-45 Dabka (Baroda Dist.); gs746 ♂ 27-11-45 Patan (Mehsana Dist.).

Elsewhere noted (races uncertain): Kutch: Chaduva; Rudra Mata; Devisar; Mandvi environs (e.g., Bamdai and Changdai tanks). Gujarat: Radhanpur; Palanpur; Viramgam. Saurashtra: Kodinar.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|-------|-------|
| 2 ♂♂ | 76-77 | 15-15.5 | 25-26 | 59-61 |
| 1 ♀ | 71.5 | 15 | 28 | 55 |

Col. R. Meinertzhagen, who has been good enough to determine the Bluethroats collected by the Gujarat and Kutch Surveys, remarks about *E. s. abbotti*: ‘This form is dimorphic, having usually a white spot but often a red spot on the blue. Upper parts darker than in *pallidogularis* but not so dark as in *saturation*’.

Winter visitor. Earliest date October 18; latest March 19. Common and locally abundant among reedbeds and on marshy ground bordering jheels, sugar cane and lucerne fields, and other wet cultivation.

Erythropygia galactotes (Menetries). The Greybacked or Rufous Warbler.

Specimens collected: Kutch: ks133 ♂ 30-3-43, ks143 ♀, ks144 ♂, ks145 ♀ imm. 1-9-43 Bhuj; ks160 ♂, ks161 ♀ 5-9-43 Nakhatrana; ks177 ♂ 7-9-43 Bhuj; ks216 ♂ 14-9-43 Anjar; ks247 ♂ 20-9-43 Rapar. Saurashtra: B1 ♂ 12-10-43 Dwarka (Okhamandal).

Elsewhere noted: Kutch: Khari Rohar; Bhadreswar; Bhachau; Khavda (Pachham Island); Kala Dongar; Nir; Kuar Bet.

| Measurements: | W | B | Tar. | T |
|---------------|----------------|-------|-------|-------|
| 6 ♂♂ | 85-90 | 16-18 | 24-27 | 61-67 |
| | (average 87.6) | | | |
| 3 ♀♀ | 85-87 | 15-16 | 24-25 | 64-66 |
| | (average 86.3) | | | |

Autumn passage migrant en route to its winter quarters in Africa over the south-eastern tip of Arabia. Earliest date August 30; latest October 12. Peak between September 5 and 20 (1943). During this short period the birds were quite common, and all the specimens excessively fat. As in Sind, the return passage in spring evidently follows a different route, since none were observed again by the end of April, nor has it been recorded at that season.

Keeps singly to stony scrub-covered broken country, on the ground or in low bushes. Behaviour very robin-like. Hops along the ground with wings partly drooping at the sides, tail fanned out and cocked, and flicked up from time to time as in *Saxicoloides* or *Cyanosylvia*. When only a fleeting glimpse of the flying bird is obtained, confusingly like *Lanius isabellinus* or *L. phoenicuroides* except for the black and white tips to its rectrices which show up as a terminal fringe when the tail is spread on alighting, and are diagnostic.

Phoenicurus ochruros rufiventris (Vieillot). The Eastern Redstart

Specimens collected: Gujarat: gs133 ♀, gs134 ♀ 5-11-45, gs166 ♂, gs167 ♀ 8-11-45, gs204 ♂, gs205 ♂ 10-11-45 Bodeli (Baroda Dist.). Saurashtra: B5 ♀ 13-10-43 Dwarka (Okhamandal); gs970 ♂ 11-3-46 Ghatwad (Kodinar).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-----------|-------|---------|
| 4 ♂♂ | 86-88 | 14.5-15.5 | 25-26 | 60-64.5 |
| 4 ♀♀ | 82-86 | 14-14.5 | 24-25 | 56-64.5 |

These specimens belong to the larger eastern race with blacker upper parts, and grey fringes to the feathers greatly reduced in the male. The females are darker with abdomen distinctly tinged with chestnut. 20 ♂♂ in the BNHS collection measure: W 85-93 (majority over 87 mm); 2 ♀♀ W 84-87 mm.

Phoenicurus ochruros phoenicuroides (Moore). The Kashmir Redstart.

Specimens collected: Kutch: ks182 ♂ juv. 8-9-43, ks271 ♂ 25-9-43 Bhujia Fort; ks279 ♂ 26-9-43, ks289 ♂ 28-9-43, ks336 ♂ 6-3-44 Bhuj

environs; ks404 ♀ 24-3-44 Chobari (Bhachau Dist.). Gujarat: gs631 ♀ 18-12-45 Vaghjipur, gs747 ♂ 27-12-45 Patan (Mehsana Dist.).

Elsewhere noted (subspecies?): Kutch: Rapar; Khavda; Jakhau; Lakhpur; Dholovira; Bela; Adesar; Chaduva. Gujarat: Champaner; Baroda town and environs; Dabka; Kanewal (Cambay); Nadiad town and environs; Radanpur; Deesa; Palanpur; Dediapada (Rajpipla). Saurashtra: Amreli; Dhari; Kodinar Dalkhania.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-----------|---------|---------|
| 5 ♂♂ | 81-85 | 15-15.5 | 23-23.5 | 60-65 |
| 2 ♀♀ | 80-81 | 14.5-15.5 | 23-24 | 55.5-56 |

Specimens of this race in the BNHS collection measure: 23 ♂♂ W 81-87 (majority under 85 mm); 13 ♀♀ W 76-87 (majority under 85 mm).

An analysis of the Survey specimens shows that all birds north of a line from Dwarka through Baroda (i.e. ca. 20°30' N lat.) belong to the smaller western race *phoenicuroides* with broadly grey-fringed upper parts in male.

Winter visitor. Earliest date August 30; latest April 3. Fairly common and abundant. Solos. Affects stony scrub-covered broken country, dry watercourses, kandi and babul patches in semidesert, and the neighbourhood of villages and cultivation.

Copsychus saularis saularis (Linn.). The Indian Magpie Robin.

Specimens collected: Gujarat: gs359 ♂ 22-11-45 Ajwa (Baroda Dist.); gs391 ♂, gs392 ♀ 28-11-45 Cambay; gs1196 ♂ 3-4-46 Dediapada (Rajpipla) Saurashtra: gs979 ♂ 12-3-46 Kodinar (Amreli Dist.).

Elsewhere noted: Gujarat: Baroda City and environs; Dabka Nadiad town and environs; Vaghjipur and Patan (Mehsana Dist.); Radhanpur; Palanpur; Deesa; Rajpipla; Waghai (Surat Dangs) etc. Saurashtra: Dhari (Amreli Dist.); Ghatwad (Kodinar), etc.

Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|----------|-------|---------|-------|
| 4 ♂♂ | 96.5-105 | 21-23 | 30-31.5 | 84-93 |
| 1 ♀ | 96 | 20 | 30 | 82 |

Resident. Common. Males in full song in March/April, and evidently breeding in the latter month.

Copsychus macrourus malabaricus (Scopoli). The Shafra.

Specimens collected: Gujarat: gs1245 ♂ 12-4-46 Waghai (Surat Dangs).

Elsewhere not noted.

| Measurements: | W | B | Tar. | T |
|---------------|----|----|------|-----|
| 1 ♂ | 98 | 21 | 26.5 | 156 |

A few examples were observed in this locality (Surat Dangs) in mixed deciduous bamboo and teak forest.

Saxicoloides fulicata cambayensis (Latham). The Brownbacked Indian Robin. (Local name in Palanpur *Deoli*).

Specimens collected: Kutch: ks128 ♂ juv. 30-8-43, ks134 ♂ 31-8-43 Bhuj. Gujarat: gs90 ♂ 1-11-45 Ajwa (Baroda Dist.); gs446 ♀, gs447 ♂

gs448 ♂, gs449 ♂, gs450 ♂ 1-12-45, gs503 ♀ 7-12-45 Cambay; gs884 ♂ 11-1-46, gs894 ♀, gs895 ♂ 12-1-46 Deesa (Palanpur); gs1078 ♂ 21-3-46 Kharaghoda.

Elsewhere noted: Kutch: Kandla; Padhar; Chaduva; Nakhtrana; Bhachau; Khavda; Kala Dongar; Mata-no-Madh; Dholovira; Bela; Adesar, etc. Gujarat: Daḅka; Vaghjipur; Patan; Harij; Radhanpur; Rajpipla; Waghai (Surat Dangs), etc. Saurashtra: Dwarka; Okha; Amreli; Dhari; Kodinar; Dalkhania, etc.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-----------|-------|
| 9 ♂♂ | 73-78 | 14-16 | 25-28 | 65-72 |
| 3 ♀♀ | 71.5-73 | 14-15.5 | 25.5-26.5 | 61-65 |

Resident. Common. Breeding March to July/August. Complete post nuptial moult August/September.

Turdus simillimus mahrattensis Kinnear & Whistler. The Black-capped Blackbird.

Specimens collected: Gujarat: gs44 o? 30-10-45 Pavagadh (Panchmahals Dist.); gs408 o? 29-11-45, gs494 ♀, gs495 ♀ 6-12-45 Cambay; gs1106 ♂ 25-3-46 Juna Rajpipla; gs1209 ♂ 7-4-46 Medha (Navsari Dist.); gs1274 ♀ 16-4-46, gs1288 ♀, gs1289 ♀ 17-4-46 Mahal (Surat Dang); sd36 ♀, sd31 ♀ 25-2-48; sd71 ♂ 28-2-48 Malegaon (Surat Dangs). Not met with in Saurashtra. Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|--------|
| 3 ♂♂ | 131-134 | 24.5-28 | 32-33 | 96-101 |
| 7 ♀♀ | 116-128 | 25-28 | 30-33 | 85-94 |

Winter visitor to the Gujarat plains. Affects secondary deciduous forest and scrub jungle. Capt. Butler (*SF*, iii: 470) notes that it breeds in considerable numbers at Mt. Abu (where it is absent during the cold weather) at the commencement of the rains. Presumably breeds in the other hills of the area also, e.g., Pavagadh and Salher. Even the April specimens showed no departure in the gonads from the quiescent non-breeding condition, though by the middle of that month occasional sub-song was heard.

Turdus citrina cyanotus Jard. & Selby. The Whitethroated Ground Thrush.

Specimen collected: Gujarat: gs1222 ♂ 8-4-46 Medha (Navsari Dist.).

Not noted elsewhere in Gujarat, or in Saurashtra. Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-------------|----|------|----|
| 1 ♂ | 119 (fresh) | 22 | 33 | 79 |
| | 116 (dry) | | | |

In the Eastern Ghats Survey (*JBNHS*, 36: 79) Whistler measures 7 ♂♂ Wing 109-112.5 (dry). F.B.I. (ii: 150) gives the wing ♂♀ as 106-112 mm.

Status? The above was the sole example met with by the Surveys. Solo in thickets by a pool in the bed of a forest stream. Silent.

Monticola solitarius pandoo (Sykes). The Blue Rock Thrush.

Specimens collected: Gujarat: gs175 ♂ 9-11-45 Bodeli (Baroda Dist.); gs246 ♀ 17-11-45, gs277 ♂ 18-11-45 Dabka (Baroda Dist.); gs929 ♂ 18-1-46 Balaram (Palanpur); gs1128 ♂ 27-3-46 Juna Rajpipla; sd362 ♂ 18-3-48 Mheekatri (Surat Dangs). Saurashtra: B41 ♂, B42 ♀ 20-10-43 Dhari (Amreli Dist.).

Elsewhere noted: Kutch: Rapar; Mata-no-Madh; Bhuj & environs; Adesar. Gujarat: Champaner (Panchmahals); Deesa (Palanpur); Waghai (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|-------|
| 5 ♂♂ | 116-124 | 27-28 | 27-29 | 77-85 |
| 1 ♀ | 118 | 27.5 | 29 | 78 |

The two Saurashtra specimens are not included above. They seem exceptionally large:

| | | | | |
|---|-----|------|----|------|
| ♂ | 128 | 27.5 | 28 | 85.5 |
| ♀ | 121 | 26 | 28 | 82.5 |

In other respects they do not differ from the Gujarat series.

Ticehurst (*JBNHS*, 31: 494) gives the following measurements: *M. s. pandoo* Wing ♂ 117-123; *M. s. longirostris* (= *transcaspica*) W ♂ 121-127 mm.

Winter visitor. Earliest date September 21; latest April 11. One or two examples usually seen in its characteristic facies: rocky cliffs, boulder-strewn hillsides, quarries, walls and ramparts of ancient forts, and ruined buildings.

Monticola cinclorhyncha (Vigors). The Blueheaded Rock Thrush.

Specimens collected: Gujarat: sd66 ♂ 28-2-48 Dalegaon; sd192 ♂, sd193 ♀ 6-3-48 Pandwa (Surat Dangs).

Elsewhere not noted in Gujarat, Saurashtra or Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-----------|-------|-------|----|
| 2 ♂♂ | 103.5-104 | 23-24 | 25-26 | 65 |
| 1 ♀ | 97 | 24 | 27 | 65 |

Winter visitor. Recorded by Butler at Mt. Abu *SP*, iii: 470) but nowhere else in northern Gujarat. The Survey came across it in small numbers—solos or separated pairs—in forest country in the Dangs, and it presumably also occurs in similar terrain in the Rajpipla area.

Oenanthe isabellina (Cretschm.) The Isabelline Chat.

Specimens collected: Kutch: ks224 ♂ 15-9-43 Anjar; ks245 ♂ 20-9-43 Rapar; ks288 ♀ 28-9-43 Bhuj environs. Gujarat: gs695 ♀ 24-12-45 Patan (Mehsana Dist.); gs800 ♂, gs801 ♂, gs802 ♂, gs803 ♀, gs804 ♂ 1-1-46 Radhanpur; gs920 ♂ 14-1-46 Deesa (Palanpur).

Elsewhere noted: Saurashtra: Amreli. Kutch: Jakhau.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|---------|
| 7 ♂♂ | 98-104 | 18-19.5 | 30-31.5 | 56-62 |
| 3 ♀♀ | 92.5-96 | 19.5-20 | 28.5-30 | 51.5-55 |

Winter visitor. Earliest date September 15; latest March 15. Not uncommon in Kutch and the semidesert portions of northern Gujarat.

Affects the same facies as *Cursorius cursor*; *Oenanthe deserti*, *Oe. opisthoptera* etc.—open sandy semidesert and waste land with sparse *Capparis*, babul, *Alhagi maurorum* and such-like bushes.

In the field this chat may be distinguished from female *Oe. deserti* by its plumper build, heavier head, longer legs and absence of black in the upper wing coverts. In flight the white subterminal band to the tail is noticeably broader and more glistening white against buffy white in *deserti*.

***Oenanthe deserti atrogularis* (Blyth). The Desert Chat.**

Specimens collected: Kutch: ks225 o? 15-9-43 Anjar; ks296 ♂, 1-10-43, ks302 ♂, ks303 ♂ Khavda (Pachham Island). Gujarat: gs192 ♂ 8-11-45 Bodeli (Baroda Dist.); gs282 ♂, gs283 ♂ 18-11-45 Dabka (Baroda Dist.); gs444 ♂ 30-11-45 Baduchii (Cambay); gs581 ♀ 15-12-45, gs501 ♂ 16-12-45 Vaghjipur (Mehsana Dist.); gs692 ♂, gs693 ♀, gs694 ♀ 24-12-45, gs752 o? 28-12-45 Patan (Mehsana Dist.).

Elsewhere noted: Kutch: Khari Rohar; Nanda (SW. of Adesar); Pung Bet (Little Rann); Mandvi; Jakhau; Mata-no-Madh; Lakhpat. Saurashtra: Dwarka; Amreli; Kodinar. Gujarat: Golana (Cambay); Radhanpur; Deesa (Palanpur).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-----------|---------|-------|
| 10 ♂♂ | 94-99 | 16.5-19.5 | 25-27 | 62-69 |
| 4 ♀♀ | 88-94 | 16.5-17.5 | 26-26.5 | 54-62 |

Winter visitor. Earliest date September 15; latest March 18. Fairly common. Solos or pairs on semidesert waste land, often along with other chats and Short-toed Larks.

***Oenanthe xanthopyrma chrysopygia* (De Fil.). The Redtailed Chat.**

Specimens collected: Kutch: ks297 ♂ 1-10-43, ks300 ♀, ks301 ♀ Khavda (Pachham Island); ks387 ♂ 18-3-44 Lakhpat.

Elsewhere noted: Kutch: Nir & Kala Dongar (Pachham Island); Dhoolvira & Chhaparia Hills (Khadir Island). Gujarat: Patan (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-----------|---------|
| 2 ♂♂ | 92.5-93 | 18 | 25.5-26 | 56.5-60 |
| 2 ♀♀ | 92 | 18-20 | 24.5-26.5 | 59-60 |

Winter visitor. Earliest date October 1; latest March 26. Not uncommon in its characteristic biotope and facies: semidesert, flat stony and sandy 'kallar' land with sparse *Capparis* and other bushes—especially in the tract known as Banni in northern Kutch and along the edge of the Great Rann. Almost everywhere in food competition with *Oenanthe picata* by which it was being constantly chivvied and chased about.

Hume (*SF*, iii, 476) records specimens from the base of Mt. Abu in N. Gujarat and from Morvi in Saurashtra.

***Oenanthe picata* (Blyth). The Pied Chat.**

Specimens collected: Kutch: ks37 ♂, ks38 ♀ imm. 11-8-43 Bhujia Fort; ks126 ♀ 30-8-43 Devisar Tank (Bhuj Dist.); ks131 ♀, ks132 ♀ juv. 31-8-43 Bhujia Fort; ks163 ♂ 5-9-43 Nakhatrana. Gujarat: gs285 ♀,

18-11-45 Dabka (Baroda Dist.); gs512 ♂ 8-12-45 Pariej (Kaira Dist.); gs696 ♂ 24-12-45, gs712 ♀ 25-12-45, gs733 ♀ 26-12-45 Patan (Mehsana Dist.); gs799 ♀ 1-1-46, gs835 ♀ 5-1-46 Radhanpur; gs856 ♂, gs857 ♀ 9-1-46 Deesa (Palanpur); gs922 ♀ 16-1-46 Palanpur; gs1063 ♂ 20-3-46 Kharaghoda.

Elsewhere noted: Kutch: Kandla; Mandvi; Chaduva; Bhachau; Rapar; Khavda; Nir; Sakhu; Mata-no-Madh; Chobari; Dholovira; Adesar, etc. Saurashtra: Dwarka; Amreli; Kodinar; Dalkhania. Navalkhi (Morvi); Veraval (Junagadh).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|-------|
| 5 ♂♂ | 90-96 | 15-17 | 25-25.5 | 64-68 |
| 12 ♀♀ | 86.5-95 | 14-18.5 | 22-26 | 57-67 |

It is now established that this is a polymorphic species and that *Oenanthe opistholeuca* and *Oe. capistrata* (infra) are merely colour phases of it. The females of *Oe. picata* and what was heretofore called *Oe. capistrata* are usually identical in appearance, even in the hand, though sometimes the latter's throat is a shade darker. They are seen paired with males either of the true *picata* type or with 'capistrata' or 'opistholeuca'.

The *picata* colour phase is far commoner than either *capistrata* or *opistholeuca*.

Winter visitor. Very common and abundant in Kutch and the semi-desert western portions of N. Gujarat. Earliest date August 5; latest March 20. Individuals have fixed feeding territories which are jealously guarded against intrusion particularly of chats of the same or other species with similar feeding habits. Has a pretty song (on first arrival in winter quarters) something like the Magpie Robin's. The bird is also a good mimic, and I have heard it taking off to perfection, among others, the Common Babbler, Indian Wren-Warbler, Tailor Bird, Redwattled Lapwing and Spotted Owlet; also the twittering song of the Swallow, and the musical soliloquy of the Rufousbacked Shrike.

Oenanthe capistrata (Gould). The Whiteheaded Chat.

No specimens obtained. A single male observed at Patan, Mehsana Dist., (24-12-45) in sandy fallow country sparsely dotted with *Capparis* and stunted babul bushes. Exactly like *Oe. picata* but with the crown and nape white.

Oenanthe opistholeuca (Strickland). Strickland's Chat.

Specimens collected: Kutch: ks299 ♂ 2-10-43 Khavda (Pachham Island). Gujarat: gs147 ♀ 6-11-45 Bodeli (Baroda Dist.); gs866 ♂ 10-1-46, gs833 ♂ 11-1-46 Deesa (Palapur).

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|-------|
| 3 ♂♂ | 93-95 | 17-17.5 | 25-25.5 | 64-66 |
| 1 ♀ | 90 | 17 | 23.5 | 62 |

In what has hitherto been considered this 'species' the adult female is very like the adult male, but sooty black (or dark brown) where he is jet black. It is unmistakable with females of the normal *Oe. picata* phase or with those considered typical of *Oe. capistrata*.

Both the above colour phases of *Oe. picata* are much less common than *picata* itself. For some reason, I always found them inordinately wild—far more so than *picata*.

Cercomela fusca (Blyth). The Brown Rock Chat.

Specimens collected: Kutch: ks18 ♀, ks19 ♂ 9-8-43 Bhujia, Fort; ks33 ♂ 10-8-43 Tapkeshwari (Bhuj environs); Gujarat: gs867 ♀, gs868 ♂, gs869 ♂ 10-1-46 Deesa (Palanpur); gs934 ♀ 18-1-46 Gangasagar (Palanpur).

Elsewhere noted: Kutch: Rapar; Kala Dongar (Pachham); Naliya Jakhau Dist.); Mata-nu-Madh.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-----------|---------|---------|
| 4 ♂♂ | 87-95 | 18.5-19.5 | 25-27 | 65-71.5 |
| 3 ♀♀ | 85.5-90 | 17.5-19 | 25-25.5 | 61-69 |

Very worn plumage in August.

Resident. Not uncommon in Kutch about boulders and scarps in rocky hills, ancient ruined forts, etc. In Gujarat only met with in the Palanpur area in similar facies (e.g., Bhakhar Hill, near Deesa). Evidently the principal breeding months in Kutch are June to August.

Saxicola caprata bicolor (Sykes). The Northern Indian Pied Bush-chat.

Specimens collected: Kutch: ks229 ♂, ks230 ♂ juv. 15-9-43 Anjar; ks283 ♂ 27-9-43 Bhuj; ks348 ♀ 8-3-44 Mandvi. Gujarat: gs12 ♂ 28-10-45, gs30 ♂ 29-10-45 Ajwa (Baroda Dist.); gs158 ♀ 7-11-45 Bodeli (Baroda Dist.); gs350 ♂ 21-11-45 Dabka (Baroda Dist.); gs380 ♂ 27-11-45 Cambay; gs435 ♂ 30-11-45 Baduchi (Cambay); gs456 ♀ 2-12-45, gs467 ♀ 3-12-45 Golana (Cambay); gs513 ♂ 8-12-45 Pariej (Kaira Dist.); gs836 ♀ 5-1-46 Radhanpur. Saurashtra: b28 ♂ 17-10-43, b37 ♂ 18-10-43 Amreli.

Elsewhere noted: Kutch: Pung Bet (Little Rann). Gujarat: Saiat and Dakor (Kaira Dist.); Patan and Harij (Mehsana Dist.); Deesa (Palanpur) Saurashtra: Dhari (Amreli).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-----------|-------|
| 9 ♂♂ | 69.5-77 | 13-15 | 19.5-24.5 | 50-55 |
| 5 ♀♀ | 70-75.5 | 12.5-15 | 19.5-23 | 49-53 |

Evidently a winter visitor, the first and last dates being September 15 and March 8. Fairly frequent though not common in Gujarat, less common in Saurashtra and decidedly uncommon in Kutch. Seen on reeds and bushes, particularly in the vicinity of tanks and jheels.

Saxicola caprata atrata (Blyth). The Southern Indian Pied Bush-chat.

Specimens collected: Gujarat: sd223 ♂+, sd224 ♂+ 7-3-48 Salher ca. 2,000 ft. (Navsari Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-------|----|-----------|-------|
| 2 ♂♂ | 72-73 | 14 | 21.5-22.5 | 50-51 |

The resident race. Fairly common in the broken, undulating country about the base of Fort Salher in March. Males in full song and in possession of jealously guarded territories. Breeding was either in progress or imminent. Gonads of the specimens 6 × 3 and 7 × 4 mm.

Saxicola torquata indica (Blyth). The Indian Collared Bushchat.

Specimens collected: Kutch: ks347 ♂ 8-3-44 Mandvi. Gujarāt: gs6 ♀, gs7 ♀ 28-10-45 Ajwa (Baroda Dist.); gs457 ♂ 2-12-45 Golana (Cambay); gs528 ♂ 9-12-45 Nadiad (Kaira Dist.); gs798 ♂ 1-1-46 Radhanpur; gs923 ♂ 16-1-46 Palanpur; sp286 ♀ 12-3-48 Laochali (Surat Dangs). Saurashtra: 16 ♂ 13-10-43 Dwarka; 343 ♀ 20-10-43 Dhari (Amreli Dist.); gs1008 ♂ 15-3-46 Dalkhania (Amreli Dist.).

Elsewhere noted: Kutch: Pung Bet (Little Rann). Gujarat: Dabka; Pariej; Dakor (Kaira Dist.); Patan (Mehsana Dist.); Rajpipla; Dediapada, Ghatoli (Rajpipla). Saurashtra: Muldwarka; Kodinar.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|-----------|
| 8 ♂♂ | 68-72 | 13-14 | 21-23 | 46-51 |
| 3 ♀♀ | 66-68.5 | 13-14.5 | 21-22.5 | 44.5-46.5 |

Winter visitor. Earliest date October 12; latest April, 2. Not common, but quite frequent. Singly or separated pairs about reed beds bordering tanks, and sparse scrub around fallow fields. Also amongst sand dunes near the sea-shore with sparse scrub of khip (*Leptadesia spartium*), etc. Often in the same facies as the Pied Bushchat.

Miophonus horsfieldi Vigors. The Malabar Whistling Thrush.

Specimen collected: sd174 ♂ 6-3-48 Pandwa (Surat Dangs).

Elsewhere noted only in the Surat Dangs, at Waghai.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| 1 ♂ | 158 | 32 | 49 | 107 |

Doubtless resident, but not common. In song on 25 March, 6-15 a.m.

Family MOTACILLIDAE: Wagtails, Pipits

Anthus hodgsoni hodgsoni Richmond. The Indian Tree Pipit.

Specimen collected: Gujarat: gs1277 ♀ 16-4-46 Mahal (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|----|----|------|------|
| 1 ♀ | 85 | 14 | 20.5 | 61.5 |

In my experience uncommon. Capt. Butler (*SF*, iii: 490) apparently obtained specimens in the Deesa neighbourhood and describes it as common in N. Gujarat in winter, arriving about September 5.

The specimen was excessively fat, and doubtless ready to emigrate.

Anthus trivialis trivialis (Linn.). The Tree Pipit.

Specimens collected: Gujarat: gs103 ♂, gs104 ♀, gs105 ♂ 2-11-45 Ajwa (Baroda Dist.); gs289 o? 18-11-45 Dabka (Baroda Dist.); gs405 ♀ 28-11-45 Cambay; gs469 ♀ 3-12-45 Golana (Cambay); gs619 ♂ 17-12-45 Vaghjipur (Mehsana Dist.); gs1219 ♂ 8-4-46 Songadh (Navsari Dist.); sd17 ♀ 23-2-48, sd25 ♂ 25-2-48, sd70 ♂ 28-2-48, sd88 ♂, sd89 ♂ 29-2-48, sd147 ♀ 4-3-48, sd157 ♂ 5-3-48 Pandwa; sd375 ♂, sd376 ♂, sd377 o? 19-3-48; sd379 ♂, sd380 ♂ 20-3-48 Sarwar; sd458 ♂ 25-3-48 Chikhli (sd = Surat Dangs); Saurashtra: 150 o? imm., 151 o? imm. 20-10-43 Dhari (Amreli Dist.); gs1001 ♂ 15-3-46 Dalkhania (Amreli Dist.).

| Measurements : | W | B | Tar. | T |
|----------------|---------|-----------|---------|-------|
| 12 ♂♂ | 85-94 | 13.5-15.5 | 20-22.5 | 61-68 |
| 3 ♀♀ | 84.5-88 | 13.5-15 | 21 | 59-63 |

All the above are *trivialis*, but if one chooses to recognise *haringtoni* on the basis of greater breadth of bill at the base, perhaps Nos. gs104, gs469 and gs1219, could pass for that form. I am inclined to agree with Col. Meinertzhagen, however, that *haringtoni* is not a good race, the breadth and depth of bill at base being a most variable character. In any case it is inadequate by itself for identifying winter birds.

Winter visitor. Rare in Kutch; common and abundant in Gujarat and Saurashtra. Earliest date September 9 (Kutch); latest April 19 (Surat Dahgs). All specimens after February 23 were in varying stages of body moult, and fat to excessively fat showing that they were ready to emigrate.

Anthus sordidus jerdoni (Finsch). The Brown Rock Pipit.

Specimens collected: Kutch: ks325 ♂, ks326 ♀ 6-10-43 Bhachau; ks358 ♀ 10-3-44, ks361 ♂, ks362 ♂ 12-3-44 Mandvi; ks415 ♀ 26-3-44 Dholovira (Khadir Island); Gujarat: gs8 ♂ 28-10-45, gs106 ♂, gs107 ♀ 2-11-45 Ajwa (Baroda Dist.); gs237 ♀, gs238 ♀ 15-11-45 Baroda City environs. Saurashtra: n2 ♂ 12-10-43, n14 ♂ 14-10-43 Dwarka.

| Measurements : | W | B | Tar. | T |
|----------------|--------|-----------|---------|-------|
| 5 ♂♂ | 98-105 | 19.5-20.5 | 28-30 | 80-91 |
| 5 ♀♀ | 95-99 | 18.5-21 | 28-29.5 | 80-88 |

The Perso-Baluchi race *A. s. decaptus* also occurs in India during winter and may then be easily confused with this. It is, however, paler below not so reddish.

Status? Not uncommon. Solos or loose parties of 3 or 4 on rocky, sparsely scrubbed hummocky ground, and sand dunes near the sea coast (e.g. Mandvi).

Anthus richardi godlewskii (Taczanowski). Blyth's Pipit.

Specimen collected: Saurashtra: n12 ♂ 13-10-43 Dwarka (Okhamandal).

| Measurements : | W | B | Tar. | T |
|----------------|----|----|------|----|
| 1 ♂ | 85 | 16 | 28 | 62 |

Several scattered individuals on the grassy margin of a tank at Mithapur.

(The identity of this specimen is not undoubted. It seems rather small for *godlewskii* and may only be *rufulus*!)

Anthus richardi rufulus Vieillot. The Indian Pipit.

Specimens collected: Kutch: ks51 ♂ 12-8-43 Bhuj; ks194 ♂ imm. 9-9-43 Ratnal; ks249 ♂ imm. 20-9-43 Rapar; ks332 ♀ 5-3-44 Bluj; ks359 ♀, ks360 ♀ 10-3-44 Mandvi. Gujarat: gs9 ♂ 28-10-45 Ajwa (Baroda Dist.); gs195 ♂ 9-11-45 Bodeli (Baroda Dist.); gs470 ♂ 3-12-45 Golana (Cambay); gs705 ♂ 24-12-46 gs745 ♂ 27-12-45, Patan (Mehsana Dist.).

| Measurements : | W | B | Tar | T |
|----------------|-------|---------|-----------|-------|
| 6 ♂♂ | 84-87 | 16-16.5 | 26.5-27.5 | 60-63 |
| 3 ♀♀ | 84-85 | 17 | 25 | 65 |

The Kutch specimens approximate to the pale race *waitei* of Sind and NW. India.

A common resident species, usually seen in pairs or scattered parties of 3 or 4 on fallow land, ploughed fields, etc.

Anthus campestris griseus Nicoll. The Eastern Tawny Pipit.

Specimens collected: Kutch: ks165 ♂, ks166 ♂, ks167 ♂ imm., ks168 ♂ 6-9-43 Nakhatrana; ks179 o? 7-9-43 Bhuj; ks242 c? 18-9-43 Bhachau; ks248 ♂ 20-9-43 Rapar; Gujarat: gs 196 ♀ 9-11-45 Bodeli (Baroda Dist.); gs262 ♂ 17-11-45 Dabka (Baroda Dist.); gs536 ♂ 10-12-45 Nadiad (Kaira Dist.); gs618 ♀ 17-12-45 Vaghjipur (Mehsana Dist.); gs697 ♂ 24-12-45, gs731 ♂ 26-12-45, gs751 ♂ 28-12-45 Patan (Mehsana Dist.); gs757 ♂, gs758 ♂ 30-12-45, gs805 ♀, gs806 ♀ 1-1-46, gs834 o? 5-1-46 Radhanpur; gs850 ♂ 9-1-46 Deesa (Palanpur); gs1058 ♀ 20-3-46 Kharaghoda. Saurashtra: b8 ♂, b9 ♂, b10 ♀ 13-10-43, b19 ♂ 14-10-43 Dwarka (Okhamandal); b38 ♂, b39 ♂ 17-10-43 Amreli; gs1021 ♂ 16-3-46 Dalkhanja (Amreli Dist.).

| Measurements : | W | B | Tar. | T |
|----------------|---------|-----------|-----------|--------------|
| 21 ♂♂ | 89.5-95 | 14.5-18.5 | 24.5-27.5 | 65-76 (78.5) |
| 5 ♀♀ | 85-88 | 16-17.5 | 24-25.5 | 65-70 |

Winter visitor. Common and abundant. Earliest date September 6 (Kutch); latest March 20 (Kharaghoda).

In loose parties and flocks in semidesert and on fallow land near cultivation. In flight, silhouetted against the sky, easily confused with the Greynecked Bunting (*Emberiza buchanani*) with which it frequently associates. It has the same white in the outer rectrices visible before it alights. The great preponderance of males over females in the specimens collected is noteworthy.

Anthus rufogularis Brehm [= *A. cervinus* (Pallas)]. The Redthroated Pipit.

Specimen collected: Gujarat: gs289 o? 18-11-45 Dabka (Baroda Dist.).

| Measurements : | W | B | Tar. | T |
|----------------|----|----|------|----|
| 1 o? | 87 | 15 | 22 | 65 |

Status? The only example of this species among the large number of pipits collected by the surveys.

Anthus roseatus Hodgs. Hodgson's Pipit.

I have examined two specimens (♂ ♀) collected by K. S. Dharmakumarsinhji on 3-4-51 at Gaurishankar Lake in Bhavnagar (Saurashtra). This marks the most southerly point at which the species has occurred in India. Satanwara in Gwalior (Madhya Bharat) was previously the southernmost record (*JBNHS*, 41: 105).

Several pipits were observed on 13-3-46 at the tank in Viramgam (Gujarat) which by their heavily black-streaked undersides suggested

Amis spinoletta. No specimens could be collected. This species has not been recorded in Kutch, Saurashtra or the N. Gujarat plains previously, but Turie (*SF*, iii: 491) procured it on the slopes of Mt. Abu, *ca.* 1870.

Motacilla flava thuibergi Billberg. The Greyheaded Yellow Wagtail.

Specimens collected: Kutch: ks130 o? imm. 30-8-43 Bhuj environs; Gujarat: gs42 ♀ 30-10-45 Ajwa (Baroda Dist.); gs178 ♀ 9-11-45 Bodeli (Baroda Dist.); gs616 ♂ 17-12-45 Vaghjipur (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-------|----|-----------|-------|
| 1 ♂ | 81 | 15 | 23.5 | 71.5 |
| 2 ♀♀ | 77-80 | 16 | 23.4-25.5 | 70-71 |

Motacilla flava beema Sykes. The Blueheaded Yellow Wagtail.

I have examined two specimens of this race in summer plumage collected by K. S. Dharmakumarsinhji at Gaurishankar Lake, Bhavnagar (Saurashtra) on 3-4-1951.

Motacilla flava melanogriseus (Homeyer). The Turkestan Black-headed Wagtail.

Specimens collected: Kutch: ks376 ♂ 15-3-44 Jakhau; ks414 ♂ 26-3-44 Dholovira (Khadir Island).

| Measurements: | W | B | Tar. | T |
|---------------|----|-------|---------|---------|
| 2 ♂♂ | 79 | 17-18 | 22.5-24 | 70-72.5 |

Both in heavy body moult into black-headed summer plumage. Met with on muddy grassy tank margins.

Motacilla citreola citreola Pallas. The Greybacked Yellowheaded Wagtail.

Specimens collected: Kutch: ks592 ♂ 21-3-44 Bhuj environs Gujarat: gs15 ♂ 28-10-45 Ajwa (Baroda Dist.); gs705 ♂ 24-12-45 Patan (Mehsana Dist.); gs1036 o? 19-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|---------|
| 3 ♂♂ | 82-86 | 16-17 | 24-25.5 | 71.5-75 |

Motacilla citreola werae Buturlin. The Blackbacked Yellowheaded Wagtail.

Specimens collected: Gujarat: gs141 ♂, gs142 ♂ 6-11-45 Bodeli (Baroda Dist.); gs436 ♂ 30-11-45 Baduchi (Cambay); gs616 ♂, gs617 ♂, 17-12-45 Vaghjipur (Mehsana Dist.); gs1035 ♂ 19-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|-------|---------|
| 6 ♂♂ | 81-85 | 15-17 | 23-26 | 69-74.5 |

Winter visitors. Fairly common, the two races often together, on marshy margins of tanks, inundated fields, etc. Earliest date October 3 (Khavda, Kutch); latest April 22 (Pachham Island, Kutch, and Galkund, Surat Dangs).

Motacilla cinerea melanope Pallas. The Eastern Grey Wagtail

Specimens collected: Kutch: ks231 ♀ 16-3-43 Anjar. Gujarat: sd90 ♂ 29-2-48, sd384 ♂ 20-3-48 Sarwar (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|----|------|------|------|
| 1 ♂ | 82 | 17.5 | 21 | 90 |
| 1 ♀ | 84 | 15.5 | 19 | 87.5 |

Winter visitor. Earliest date September 16 (Kutch); latest April 19 (Surat Dangs).

Motacilla maderaspatensis Gmelin. The Large Pied Wagtail.

Specimens collected: Kutch: ks52 ♂ 12-8-43 Bhuj (environs); ks222 ♂ 15-9-43 Anjar; Gujarat: gs169 ♀ 8-11-45 Bodeli (Baroda Dist.); gs669 ♂ 20-12-45 Vaghjipur (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|----------|---------|---------|---------|
| 2 ♂♂ | 97.5-101 | 20-20.5 | 27-27.5 | 101-104 |
| 2 ♀♀ | 96-99 | 19-20 | 25.5-26 | 100 |

Resident. Local and uncommon in Kutch and Saurashtra, more generally distributed in Gujarat though nowhere abundant. A pair or so usually present on every rocky section of streams and rivers. Breeding was in progress in April (cf. Wiretailed Swallow).

Motacilla alba dukhunensis Sykes. The White Wagtail.

Specimens collected: Kutch: ks317 ♀ 4-10-43 Khavda. Gujarat: gs168 ♂, gs191 ♂ 8/9-11-45 Bodeli (Baroda Dist.); gs703 ♀, gs704 ♂ 24-12-45 Patan (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|----------------|---------|---------|-------|-------|
| 2 ♂♂ | 94.5-95 | 15.5-16 | 24-25 | 89-96 |
| 1 ♀ (1st year) | 84 | 15.5 | 20 | 84.5 |

Winter visitor. Common over the entire area. Earliest date August 24 (Mandvi, Kutch); latest April 22 (Nir, Pachham).

Solos or small scattered parties running about on lawns, playing fields and dry margins of tanks, etc.

Motacilla indica Gmelin. The Forest Wagtail.

Specimens collected: Gujarat: gs1270 ♂ 14-4-46 Waghai, sd432 ♀ 22-3-48 Pimpri (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|----|----|------|----|
| 1 ♂ | 82 | 18 | 21 | 73 |
| 1 ♀ | 83 | 17 | 22 | 71 |

Winter visitor. Rare. Sporadic solos met with in moist deciduous biotope. Not observed elsewhere in the area, but possibly occurs in the Gir forest of Junagadh (Saurashtra). Contrary to what one would expect so late in the season, neither of the specimens was fat.

Family LANIIDAE

Subfamily LANIINAE: Shrikes

Lanius excubitor lahtora (Sykes). The Indian Grey Shrike.

Specimens collected: Kutch: ks91 ♀ 19-8-43 Chaduva (Bhuj Dist.); ks112 ♂ 24-8-43 Mandvi; ks375 ♂ 15-3-44 Jakhau. Gujarat

Amis spinolette. No specimens could be collected. This species has not been recorded in Kutch, Saurashtra or the N. Gujarat plains previously, but Hurje (*SF*, iii: 491) procured it on the slopes of Mt. Abu, *ca.* 1870.

Motacilla flava thurbergi Billberg. The Greyheaded Yellow Wagtail.

Specimens collected: Kutch: ks130 ♂ imm. 30-8-43 Bhuj environs; Gujarat: gs42 ♀ 30-10-45 Ajwa (Baroda Dist.); gs178 ♀ 9-11-45 Bodeli (Baroda Dist.); gs616 ♂ 17-12-45 Vaghjipur (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-------|----|-----------|-------|
| 1 ♂ | 81 | 15 | 23.5 | 71.5 |
| 2 ♀♀ | 77-80 | 16 | 23.9-25.5 | 70-71 |

Motacilla flava beema Sykes. The Blueheaded Yellow Wagtail.

I have examined two specimens of this race in summer plumage collected by K. S. Dharmakumarsinhji at Gauri Shankar Lake, Bhavnagar (Saurashtra) on 3-4-1951.

Motacilla flava melanogriseus (Homeyer). The Turkestan Black-headed Wagtail.

Specimens collected: Kutch: ks376 ♂ 15-3-44 Jakhau; ks414 ♂ 26-3-44 Dholovira (Khadir Island).

| Measurements: | W | B | Tar. | T |
|---------------|----|-------|---------|---------|
| 2 ♂♂ | 79 | 17-18 | 22.5-24 | 70-72.5 |

Both in heavy body moult into black-headed summer plumage. Met with on muddy grassy tank margins.

Motacilla citreola citreola Pallas. The Greybacked Yellowheaded Wagtail.

Specimens collected: Kutch: ks592 ♂ 21-3-44 Bhuj environs Gujarat: gs15 ♂ 28-10-45 Ajwa (Baroda Dist.); gs705 ♂ 24-12-45 Patan (Mehsana Dist.); gs1036 ♂ 19-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|---------|
| 3 ♂♂ | 82-86 | 16-17 | 24-25.5 | 71.5-75 |

Motacilla citreola werae Buturlin. The Blackbacked Yellowheaded Wagtail.

Specimens collected: Gujarat: gs141 ♂, gs142 ♂ 6-11-45 Bodeli (Baroda Dist.); gs436 ♂ 30-11-45 Baduchi (Cambay); gs616 ♂, gs617 ♂, 17-12-45 Vaghjipur (Mehsana Dist.); gs1035 ♂ 19-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|-------|---------|
| 6 ♂♂ | 81-85 | 15-17 | 23-26 | 69-74.5 |

Winter visitors. Fairly common, the two races often together, on marshy margins of tanks, inundated fields, etc. Earliest date October 3 (Khavda, Kutch); latest April 22 (Pachham Island, Kutch, and Galkund, Surat Dangs).

Motacilla cinerea melanocephala Pallas. The Eastern Grey Wagtail

Specimens collected: Kutch: ks231 ♀ 16-9-43 Anjar. Gujarat: sd90 ♂ 29-2-48, sd384 ♂ 20-3-48 Sarwar (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|----|------|------|------|
| 1 ♂ | 82 | 17.5 | 21 | 90 |
| 1 ♀ | 84 | 15.5 | 19 | 87.5 |

Winter visitor. Earliest date September 16 (Kutch); latest April 19 (Surat Dangs).

Motacilla maderaspatensis Gmelin. The Large Pied Wagtail.

Specimens collected: Kutch: ks52 ♂ 12-8-43 Bhuj (environs); ks222 ♂ 15-9-43 Aja; Gujarat: gs169 ♀ 8-11-45 Bodeli (Baroda Dist.); gs669 ♂ 20-12-45 Vaghjipur (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|----------|---------|---------|---------|
| 2 ♂♂ | 97.5-101 | 20-20.5 | 27-27.5 | 101-104 |
| 2 ♀♀ | 96-99 | 19-20 | 25.5-27 | 100 |

Resident. Local and uncommon in Kutch and Saurashtra, more generally distributed in Gujarat though nowhere abundant. A pair or so usually present on every rocky section of streams and rivers. Breeding was in progress in April (cf. Wiretailed Swallow).

Motacilla alba dukhunensis Sykes. The White Wagtail.

Specimens collected: Kutch: ks317 ♀ 4-10-43 Khavda. Gujarat: gs168 ♂, gs191 ♂ 8/9-11-45 Bodeli (Baroda Dist.); gs703 ♀, gs704 ♂ 24-12-45 Patan (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|----------------|---------|---------|-------|-------|
| 2 ♂♂ | 94.5-95 | 15.5-16 | 24-25 | 89-96 |
| 1 ♀ (1st year) | 84 | 15.5 | 20 | 84.5 |

Winter visitor. Common over the entire area. Earliest date August 24 (Mandvi, Kutch); latest April 22 (Nir, Pachham).

Solos or small scattered parties running about on lawns, playing fields and dry margins of tanks, etc.

Motacilla indica Gmelin. The Forest Wagtail.

Specimens collected: Gujarat: gs1270 ♂ 14-4-46 Waghai, sd432 ♀ 22-3-48 Pimpri (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|----|----|------|----|
| 1 ♂ | 82 | 18 | 21 | 73 |
| 1 ♀ | 83 | 17 | 22 | 71 |

Winter visitor. Rare. Sporadic solos met with in moist deciduous biotope. Not observed elsewhere in the area, but possibly occurs in the Gir forest of Junagadh (Saurashtra). Contrary to what one would expect so late in the season, neither of the specimens was fat.

Family LANIIDAE

Subfamily LANIINAE: Shrikes

Lanius excubitor lahtora (Sykes). The Indian Grey Shrike.

Specimens collected: Kutch: ks91 ♀ 19-8-43 Chaduva (Bhuj Dist.); ks112 ♂ 24-8-43 Mandvi; ks375 ♂ + 15-3-44 Jakhau. Gujarat

GS45 ♂, GS275 ♂ 17-11-45 Dabka (Baroda Dist.); GS452 ♀ 2-12-45 Goia (Cambay); GS509 ♀ 8-12-45 Pariej (Kaira Dist.); GS698 ♀, GS703 ♀ 24-12-45, GS741 ♀ 27-12-45 Patan (Mehsana Dist.); GS773 ♀ 31-12-45, GS831 ♂ 5-1-46 Radhanpur; GS893 ♀ 12-1-46 Deesa (Palanpur). Saurashtra: GS1024 ♀ 16-3-46 Dalkhania (Amreli Dist.).

Elsewhere noted: Kutch: Anjar; Ratnal; Rudra Mata; Rapar; Gedi; Lesalpur; Khavda; Mata-no-Mach Lakhpat; Dholovira; Chhaparia; Pung Bet; Adesar. Gujarat: Palanpur; Kharaghoda; Ahmedabad environs.

| Measurements : | W | B | Tar. | T |
|----------------|---------|-------|-------|---------|
| 4 ♂♂ | 108-115 | 20-26 | 30-33 | 106-122 |
| 7 ♀♀ | 105-113 | 19-25 | 29-32 | 107-118 |

First (JBNHS, 31 : 495) gives the date of hatching of *lahtora* as 117-129 which is surely too big? General moult was taking place in August.

Resident. Common. Met with singly or in pairs in stony, sparsely scrubbed semidesert country interspersed with cultivation. Breeding had commenced in March and April as evidenced by the enlarged gonads of the birds collected, and by the mutually attached and aggressively territorial behaviour of pairs. A nest with one fresh egg was taken on March 18. Butler (*SF*, iii : 462-1875) records it breeding in N. Gujarat in June and July when he found many nests.

The male at this season has a short pleasant tinkling call, rather like the Grey Tit's but more musical.

Lanius vittatus Valenciennes. The Baybacked Shrike.

Specimens collected: Kutch: KS127 ♂ juv. 30-8-43, KS185 ♀ 8-9-43, KS276 ♂ 26-9-43 Bhuj environs; KS149 ♂ 3-9-43 Nakhatrana; KS213 ♂ juv. 13-9-43 Khari Rohar; KS321 ♂ juv. 5-10-43 Nir (Kala Dongar, Pacuham). Gujarat: GS27 ♀ 29-10-45 Ajwa (Baroda Dist.); GS137 ♂ 5-11-45 Bodeli; GS241 ♂ 15-11-45 Baroda City environs; GS381 ♀ 27-11-45 Cambay; GS483 ♂ 4-12-45 Golana (Cambay); GS592 ♂ juv. 16-12-45 Vaghjipur (Mehsana Dist.); GS742 ♀ 27-12-45 Patan (Mehsana Dist.); GS832 ♂ 5-1-46 Radhanpur; GS1074 ♀ 21-3-46 Kharaghoda. Saurashtra: B24 ♂ 17-10-43 Amreli.

Elsewhere noted: Kutch: Anjar; Ratnal; Rapar; Kandla; Mandvi; Dholovira. Gujarat: Deesa; Palanpur; Rajpipla; Viramgam.

| Measurements : | W | B | Tar. | T |
|----------------|-------|-------|-------|-------|
| 3 ♀♀ ad. | 84-89 | 15-18 | 23-24 | 84-90 |

Rest of specimens not measured because of moult or doubtful sexing, or of being juveniles. Immature birds with rufous tails, are confusingly like adult *Lanius isabellinus* or *L. phoeniceoides*, but they usually show some grey on the upper tail coverts. Also the white wing 'mirror' is absent. Specimens No. KS321, a wobbly-flying juvenile just out of nest with rufous stub tail, is greyish sandy above, crossbarred on head and back with blackish fulvous.

Resident and fairly common, but subject to some local seasonal movement. Affects semidesert country as the Grey Shrike, but slightly better wooded—with babul groves, etc. From the evidence of juveniles, immature plumaged birds and moulting adults, the breeding season in the

area would appear to be between July and September. The only direct indication was provided by a nest on October 5 (Kala Dongar, Kutch) with 3 stub-tailed wobbly-flying young just out of it.

Lanius collurio Linn. The Redbacked Shrike.

Specimens collected: Kutch: ks186 ♀ 8-9-43 Bhuj; ks221 ♂ imm., ks228 ♂ 15-9-43 Anjar; ks251 ♂ imm. 20-9-43 Rapar (Wagad Dist.).

Elsewhere noted: Kutch: Dholovira (Khadir Island). Not in Gujarat or Saurashtra.

| Measurements: | W | B | Tar. | T |
|----------------|-------|-----------------|---------|---------|
| 1 ♂ ad | 92 | 16.5 | 24 | 78 |
| | | (from feathers) | | |
| 1 ♀ (1st year) | 93 | 17 | 25 | 78 |
| 2 ♂ | 92-93 | 16-18 | 23-23.5 | 72.5-75 |

A not uncommon passage migrant (regular?) to its winter quarters in Africa, Kutch (and perhaps N. Gujarat) lying on the extreme eastern fringe of its route south and west. A specimen was collected by Capt. Butler in the Deesa neighbourhood (*SF*, iii. 463-1875) who says it arrives in N. Gujarat about September 1. In 1943 my earliest date of meeting with it was September 15. Thereafter passage continued in fair strength (never abundant) till the first week of October. Only a single suspect was again seen on March 25, and it would appear that this species also follows a different route on return migration in spring.

In size and appearance this shrike is rather like *L. vittatus* from which, however, 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. The female is merely a duller edition of the male. Immature birds are almost impossible to tell with certainty from immature *L. phoeniceuroides* in the field.

Lanius schach erythronotus (Vigors). The Rufousbacked Shrike.

Specimens collected: Kutch: ks395 ♂ 21-3-44 Bhuj environs; Gujarat: gs28 ♂ 29-10-45, gs55 ♂ gs56 ♀ 31-10-45 Ajwa (Baroda Dist.); gs251 ♀ 17-11-45 Dabka (Baroda Dist.); gs481 ♂, gs482 ♂ 4-12-45 Golana (Cambay); gs527 ♀ 9-12-45 Nadiad (Kaira Dist.); gs1948 ♀ 20-3-46 Kharaghoda; sd43 ♂ 27-2-48 Malegaon; sd172 ♀ 5-3-48 Pandwa (Surat Dangs).

Lanius schach caniceps Blyth. The Southern Greybacked Shrike.

Specimens collected: Kutch: ks14 ♂+, ks15 ♀+ 8-8-43 Rudra Mata; ks73 ♀+ 17-8-43 Chaduva (Bhuj Dist.). Gujarat: gs1049 ♂ 20-3-46 Kharaghoda.

Elsewhere noted (subspecies?): Kutch: Chobari. (Bhachau Dist.) Gujarat: Patan (Mehsana Dist.); Rajpipla environs; Dediapada, Ghatoli (Rajpipla).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-----------|-------|----------|
| (both races) | | | | |
| 2 ♂♂ | 90-96 | 19-20.5 | 23-28 | 113-115 |
| 3 ♀♀ | 87-90 | 18.5-20.5 | 27-29 | 99.5-106 |

typical *erythronotus* the rufous of the rump extends on to the mantle; in typical *caniceps* it is more or less confined to the rump. But there is a regular cline and in a great many cases, especially in winter when both races are together, it is exceedingly difficult to decide where one character waxes and the other wanes and to assure oneself of the correct racial identity of individual specimens. In the Gujarat area *erythronotus* is only a winter visitor, whereas breeding birds (ks14, ks15, ks73), though clearly intermediate, are closer to and would readily pass for *caniceps*. It is this intermediate population which Koelz has recently named *kothiawarensis*. I am not convinced that any advantage is to be gained in naming this race, since it is clearly a stage in the colour cline.

Immature birds are easily confused in the field with various sub-adult plumages of *Lanius c. ph. enicuroides* and *L. isabellinus*, but *schach* has the upper parts greyer whereas in the others the upper parts are browner.

My earliest specimen of *erythronotus* is dated October 29; latest March 21.

L. s. caniceps breeds in Kutch principally in July and August. Nests with 4 newly hatched chicks in one case and 6 slightly incubated eggs in another were taken on August 8 and 17 respectively, and their owners collected. Capt. Butler (SF, iii: 463-1875) took several nests (of '*erythronotus*') about Deesa in N. Gujarat in June and July.

The preferential habitat of this shrike is a stage farther from semi-desert than that occupied by *L. vittatus*, namely fairly well wooded, well watered country. Thus while their ecological ranges may overlap along the seams, there is on the whole little competition for food among the 3 species *lahtora*, *vittatus*, and *schach*.

Lanius phoenicuroides \leq *isabellinus*

Specimens collected: Kutch: ks215 o? 14-9-43 Anjar; ks306 ♂ 2-10-43 Khavda (Pachham Island); ks335 ♂ 6-3-44 Bhuj environs Gujarat: gs310 ♂ 19-11-45 Dabka (Baroda Dist.); gs453 ♂ 2-12-45 Golana (Cambay); gs490 ♂ 6-12-45 Cambay; gs510 ♀ 8-12-45 Pariej (Kaira Dist.); gs539 ♀ 11-12-45 Nadiad (Kaira Dist.); gs566 ♂, gs567 ♀, gs568 ♂ 12-12-45 Saiat (Kaira Dist.); gs578 ♀ 15-12-45, gs593 ♀ 16-12-45 Vaghjpur (Mehsana Dist.); gs774 ♂, gs775 o? 31-12-45, gs830 ♂ 5-1-46 Radhanpur.

Elsewhere noted: Kutch: Khari Rohar; Pung Bet (Little Rann).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-----------|-------|-------|
| 8 ♂♂ | 91-97 | 17-20 | 25-27 | 80-85 |
| 5 ♀♀ | 90-94 | 17.5-20.5 | 24-25 | 78-83 |

Col. R. Meinertzhagen who kindly examined the above series, remarked as follows: 'None of your specimens are typical of either *phoenicuroides* or of *isabellinus*. They are all intermediates and agree with the form described as *Lanius collurio bogdanowi* (Bianchi) based on a bird from North Persia; it is not a good form but an intermediate or hybrid between *collurio* and *isabellinus* sometimes with a dash of *phoenicuroides*, and it is not constant within its reported breeding area. All your birds seem to be nearer *phoenicuroides* than to *isabellinus*. The form breeds in Tarbagatai.'

Winter visitor. Earliest date September 14; latest March 6. Solos, frequent in semidesert biotope, within the facies of both *Lanius lahtora* and

L. vittatus. Easily confused in the field with immature *vittatus* and *ollurio*. For points of diagnosis between immature plumages of *L. Shoenucuroides* and *L. collurio* see Ticehurst 'Birds of Sind' (*Ib.* 1922, p. 60).

***Lanius cristatus cristatus* Linn.** The Brown Shrike.

Specimens collected: Gujarat: gs1303 ♀ 20-4-46 Galkud, sd456 ♀ 25-3-48 Chikhli (Sura, Dangs).

Elsewhere not noted in Gujarat, Saurashtra or Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|-------|
| 2 ♀♀ | 80-81 | 19-20 | 25-25.5 | 32-83 |

Both in general body, wings, tail.
Winter visitor. Uncommon. Keeps singly to fairly thick secondary
ungle.

Family SITTIDÆ: Nuthatches, Tree Creepers.

***Salpornis spilonotus spilonotus* (Franklin).** The Spotted Grey Creeper.

Specimens collected: Gujarat: gs886 ♀ 11-1-46 Deesa (Palanpur), gs1149 ♀, gs1150 ♂+, gs1151 ♀+, 29-3-46, gs1162 ♂+ 30-3-46 Dediapada (Rajpipla).

Elsewhere not met with in Gujarat or Saurashtra. Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-----------|-------|
| 2 ♂♂ | 90 | 25.5-26 | 16.5 | 52-53 |
| 3 ♀♀ | 87.5-89 | 24-28 | 16.5-17.5 | 49-51 |

Col. Meinertzhagen confirms that none of these specimens belong to the race *rajputanae* described by him from near the Sambhar Lake in the Jodhpur area, which is considerably paler and sandier below.

Deesa is on the fringe of Rajasthan ca. 250 miles SW. of Sambhar. In the specimen thence (Gs886) the white of the throat extends to the upper breast, but there is no appreciable difference otherwise between it and birds from farther south, from the country between the Narbada and Tapti Rivers.

Not uncommon in the localities where met, but apt to be easily overlooked. General habits very like *Sitta* or *Certhia*. Singly or in pairs, affecting leafless pole forest of teak and other species. Clambering up tree trunks and boughs, as well as end twigs. The Pigmy Woodpecker (*Picoides nanus*), with which it is often coincident, is rather similar in appearance and actions but definitely prefers the thinner branches. When alighting on a tree-trunk after a flight the creeper 'tumbles' on to it with wings open, rather like a quail tumbling into grass, in contrast to a woodpecker which sweeps gracefully upwards with wings closed to flatten out against a bole. A feeble song of the volume and timbre of a sunbird's, of about 5 seconds' duration—*chichichiu-chi-chiu-chiu-chiu*—was heard.

Males on March 29 and 30 had somewhat enlarged testes, 3×2 and 4×2 mm. In a female on the former date the ovary was mature and the dilated oviduct indicated that she had laid.

Sitta frontalis frontalis Swainson. The Velvet-fronted Nuthatch.
 Specimens collected: Gujarat: gs1216 ♀ +, gs1217 ♂, gs1218 ♂ 8-4-46, gs123 ♀ 9-4-46, Medha (Navsari Dist.); gs1293 ♂ 19-4-46, gs1302 ♂ + 20-4-46 Galkand; sd41 ♂ 20-2-48, sd196 ♂, sd197 ♀ 3-3-48 Pandwa (Surat Dangs).

Elsewhere not noted.

| Measurements : | W | B | Tar. | T |
|----------------|---------|-----------|-----------|---------|
| 6 ♂♂ | 72.5-77 | 15-16 | 15.5-16.5 | 37.5-40 |
| 3 ♀♀ | 70-71 | 14.5-16.5 | 15.5-16 | 35-41 |

These measurements agree both with Eastern Ghats birds diagnosed by Whistler (*JBHS*, 35 : 523) as *frontalis* and with birds from Sikkim separated as *corallina* on account of their smaller size. *S. f. frontalis* from Ceylon (the type locality) and S. India are larger and inseparable from each other. Already as far north as the Dangs intergradation in size seems to be complete, and the Gujarat series would readily pass for either race. Nevertheless it might be preferable to keep this series with *frontalis* if only for the sake of indicating continuity with the southern section of the Western Ghats. It is noteworthy that contrary to the normal condition (Bergmann's Rule), northern birds are in this case smaller than South Indian and Ceylonese examples.

Fairly common in moist deciduous forest. One example was observed clinging back downwards along the underside of a bare horizontal twig near the top of a high tree, head stiffly turned down at right angles, bill pointing to ground! It remained 'frozen' thus for no apparent reason for over 3 minutes, and I had to make sure with binoculars again and again that it was in fact a bird before shooting at it!

Breeding was in progress during April. The female of April 8 had soft ovarian eggs, distended oviduct and incubation patch. A male on April 20 had enlarged testes.

Family PARIDAE

Subfamily PARINAE : Tits

Parus nuchalis Jerdon. The Whitewinged Black Tit.

Specimens collected: Kutch: ks47 ♂ +, ks48 ♀ + 12-8-43 Bhuj environs; ks88 ♂ + 18-8-43, ks94 ♀, ks95 ♂ + 20-8-43 Chaduva, (Bhuj Dist.); ks278 ♂ 26-9-43, ks282 ♂ 27-9-43 Bhuj; ks380 ♀ juv. ks381 ♂ 17-3-44 Mata-no-Madh. Gujarat: gs878 ♂, gs879 ♀, gs880 ♂ 11-1-46 Deesa (Palanpur); gs936 ♂? 18-1-46 Gangasagar (Palanpur); gs951 ♂ 20-1-46 Balaram (Palanpur).

Not noted in Saurashtra. Observed on Taranga Hill (Mehsana Dist.) by Mr. R. M. Simmons in July 1931 and February 1932.

| Measurements : | W | B | Tar. | T |
|----------------|-------------------|-------|-----------|-------|
| 9 ♂♂ | 65-71 | 11-13 | 17-19 | 48-55 |
| | (mostly above 68) | | | |
| 4 ♀♀ | 67 | 11-12 | 17.5-18.5 | 49-52 |

Complete post nuptial moult in September. All breeding birds have the white of the underparts conspicuously suffused with yellow, a point I have not seen in published descriptions.



Deciduous forest, Dediapada, Rajpipla (late March). Favourite haunt of the Spotted Tree Creeper (*Salpornis spilonotus*).



Photos

Author

Whitewinged Black Tit (*Parus nuchalis*) at nest-hole in babul trunk. Chaduva, Kutch.

The white outer feathers of the tail and the white bars across the wings are conspicuous in flight and curiously reminiscent of a rufous-tufted Magpie Robin, and also of the cock Whitebellied Minivet (*P. erythrogastrus*).

Early common in Kutch but capriciously patchy. Sparse and sporadic in the Palanpur area of north Gujarat. Inhabits broken stony hummocky semidesert country where well covered with jungle of babul, kandi (*Prosopis spiciger*) and peeloo (*Salvadora persica* and *oleoides*), and bushes of gugar (*Balanocedron mukul*), garzi (*Grewia populifolia*) and similar species. The view of the habitat which is typical of it in this area, Jerdon's observation quoted by Stuart Baker (F.B.I. p. 29) that it keeps to the tops of heavily wooded hills in the Eastern Ghats seems incongruous.

As so little is known about the habits and nidification of this tit, it may be worth while to record the following. There is no difference in its general actions and behaviour from those of its better known cousin the Grey Tit. The birds keep in pairs or family parties of 4 or 5. The individuals maintain contact with one another by a clear musical whistling *tee-who-who* or *tee-who-who-who* (or *see-pit-pit-pit-pit*) of the volume and quality of the Tailor Bird's calls. Besides these, the usual joyous harsh wheeching notes of the Grey Tit are uttered. Breeding was in full swing in July and August which are apparently the most favoured months in Kutch. Two nests were discovered at Chadva (Bhuj Dist.) on August 20 and 21. Both were about 4 ft. up in holes in trunks of a babul and peeloo tree respectively. One, into which the owners were stuffing lining material—wool, cotton thread, etc.—was empty; the other contained chicks. Both parents were busy bringing food and removing packets of excreta. I was unable to ascertain the number of chicks. Strangely enough the egg still remains undescribed.

Before I first visited Bhuj in August 1943 my cousin Humayun Abdullahi gave me the 'address' of one of these tits he had been shown about 6 years previously roosting at night in a particular hole in the cross-bar of a particular gate on the circular road round Bhujia Hill. He asked me half jokingly to try and call on his friend should I have the opportunity. On doing so at sunset on August 8 I was astonished to find the tit (same individual or successor?) at home! When peeped at through a chink, the bird swayed its head and neck deliberately from side to side. In the dim light of the hole the white cheeks and streak down the neck heightened the snake-like effect. Three evenings later I visited the roost again at the same time, caught the bird in its hole and marked it with an aluminium ring. This ringed bird was still in occupation of its roost on April 4, 1944 (i.e. 8 months later). I have no knowledge whether that gate still exists, but it would be interesting to know how much longer this bird continued to sleep there and whether the hole has since been inherited by a successor—for the original occupant can no longer be alive.

Parus major stupae Koelz. The Indian Grey Tit.

Specimens collected: Saurashtra: GS975 ♂ 11-3-46 Ghatvad; GS1015 ♂ 16-3-46 Dalkhania. Gujarat: GS210 ♀, GS211 ♂ 10-11-45, GS225 ♂, GS226 ♂ 11-11-45 Jambughoda; GS935 ♂ 18-1-46 Gangasagar (Palanpur); GS972 ♀, GS973 ♂, GS974 ♀ juv., GS1138 ♀, GS1139 ♂, GS1140 ♂ 29-3-46 Dediapada (Rajpipla); SD13 ♂ 24-2-48 SD21 ♂ 25-2-48, SD72

sd248, sd96 ♂ 29-2-48 Malegaon; sd162 ♀, sd163 ♀ 5-2-48 Pandwa
 sd230 ♂, sd230 ♂ 10-3-48, sd285 ♀ 12-3-48 Laochali (sd = Surat Dangs).
 Elsewhere noted: Gujarat: Hathidhara, Palanpur) Juna Rajpipla;
 Songad, Medha (Navsari Dist.); Waghai, Galkund (Surat Dangs).
 Absent in Kutch.

| Measurements: | W. | B | Tar. | T |
|---------------|-------|-------|---------|---------|
| 14 ♂♂ | 60-73 | 10-12 | 17-19 | 47-61 |
| 7 ♀♀ | 62-69 | 11-12 | 17.5-20 | 50.5-56 |

Resident. Rather sparsely and patchily distributed in light deciduous forest country. Inexplicably absent in many apparently suitable localities. The mutually excluding occurrence of this species and *P. nuchalis* is noteworthy. Freshly moulted in March 1949 in full song, but no evidence of breeding. The song is a musical whistle, *wit-wit-seesee*, *wit-wit-seesee*, *titwit* or *titiweesi*, *titiweesi*, *titiweesi*, *weesi* etc.

Parus xanthogenys aplonotus Blyth. The Central Indian Yellow-cheeked Tit.

Specimens collected: Gujarat: gs235 ♀ 5-11-45 Bodeli (Baroda Dist.); gs943 ♂, gs944 ♂ 19-1-46, gs962 ♀, gs963 ♂ Hathidhara (Palanpur); gs1100 ♂, gs1101 ♂ 25-3-46, gs1114 ♂, gs1115 ♀ 27-3-46 Juna Rajpipla; gs1141 ♀ 29-3-46 Dediapada (Rajpipla); sd22 ♂ 25-2-48, sd58 ♂, sd59 ♀ 27-2-48 Malegaon; sd176 ♀ 6-3-48, sd203 ♂, sd204 ♀ 7-3-48 Pandwa (sd = Surat Dangs).

Elsewhere not noted.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-----------|-----------|---------|
| 10 ♂♂ | 70-74.5 | 11.5-12.5 | 18-20 | 52-57.5 |
| 6 ♀♀ | 66-69 | 10-13 | 17.5-19.5 | 49-51 |

In this race, as pointed out by Whistler (*JBNHS*, 41: 86), the males are all black crested and black banded ventrally; all females black crested with greenish grey ventral band.

Resident. Distributed rather sparsely and capriciously. On the whole keeping to more wooded parts than *P. major*. Not uncommon about Hathidhara at the foot of Mt. Abu (Palanpur, N. Gujarat), the Rajpipla area between the Narbada and Tapti Rivers, and in the Surat Dangs.

Family DICAERIDAE: Flowerpeckers

Dicaeum agile agile Tickell. The Thickbilled Flowerpecker.

Specimens collected: Gujarat: gs701 ♂ 24-12-45 Patan (Mehsana Dist.); gs1160 ♀ juv., gs1161 ♂ + 30-3-46 Dediapada (Rajpipla); sd258 ♀ 11-3-48 Laochali; sd401 ♂ + 20-3-48 Sarwar; sd459 ♀ + 25-3-48 Chikhli (sd = Surat Dangs).

No record from Saurashtra. Absent in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|---------|
| 3 ♂♂ | 62-64 | 10-10.5 | 14-15 | 32-33.5 |
| 3 ♀♀ | 60 | 8.5-9.5 | 12.5-14 | 27-29.5 |

This flowerpecker seems to be somewhat less dependent upon *Loranthus* than *Dicaeum erythrorhynchos*, and found in localities where the latter species and its favourite 'food' plant are absent. Its distribution is

nevertheless curiously patchy. Apart from *Loranthus* berries it feeds largely on ripe figs of the peepal (*Ficus religiosa*). Breeding was in progress in March.

Dicaeum erythrorhynchos erythrorhynchos (Lath.) = Tickell's Flowerpecker.

Specimens collected: Gujarat: GS1181 ♂ imm. 2-4-46 Dediapada (Rajpipla); GS1220 ♀ juv., GS1221 o? juv. 3-4-46 Songadh (Navsari Dist.); SD188 ♂ + SD189 ♀ + 6-3-48 Pandwa; SD344 ♂ + 17-3-48 Mheskatri; SD402 ♂ 20-3-48 Sarwar (SD = Surat Dangs).

Elsewhere noted: Gujarat: Pavagadh (Panchmahals Dist.). Not observed in Kutch.

| Measurement: | W | B | Tar. | T |
|--------------|-------|---------|-------|------|
| 4 ♂♂ | 48-50 | 10.5-13 | 11-13 | 2-23 |
| 1 ♀ | 47 | 11.5 | 12 | 24 |

Apart from the difference in colour of bill (pinkish in this species), *Dicaeum concolor*, which may possibly occur in the Surat Dangs-Songadh-Rajpipla area, can be distinguished by its sullied white lores and sides of forehead continued in a narrow supercilium to behind the eyes.

As elsewhere, inseparable from clumps of the *Loranthus* plant parasite infesting mango and other trees. Wherever *Loranthus* was absent, so was this flowerpecker. Breeding was in progress during March and April.

Family NECTARINIIDAE: Sunbirds

Nectarinia zeylonica (Linn.). The Purplerumped Sunbird.

Of this I have only a single unconfirmed sight record from Pavagadh (Panchmahals Dist.) 30-10-44. It seems curious that the species should be so rare in Gujarat.

Nectarinia asiatica asiatica (Latham). The Purple Sunbird.

Specimens collected: Kutch: KS78 ♂ + 17-8-43 Chaduva (Bhuj Dist.); KS110 ♂ im., KS111 ♀ 24-8-43 Mandvi; KS243 ♂ 18-9-43 Bhachau. Gujarat: GS233 [♂] 11-11-45 Jambughola; GS372 ♂ 22-11-45 Dabka (Baroda Dist.); GS783 ♂ 31-12-45, GS797 ♂ 1-1-46, GS837 ♂ 5-1-46 Radhanpur; GS852 ♀ 9-1-46 Deesa (Palanpur); SD73 ♂ + 28-2-48 Malegaon; SD299 ♀ 14-3-48 Mahal; SD363 ♂ + 18-3-48 Mheskatri; SD427 ♂ +, SD428 ♀ 22-3-48 Pimpri (SD series = Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|---------|
| 10 ♂♂ | 55-59 | 18-23 | 14-16.5 | 31-37.5 |
| 4 ♀♀ | 51-54 | 18-20 | 14-15 | 28.5-31 |

These females, and ♂♂ in eclipse, are somewhat greener above than those from the Eastern Ghats, but the birds all seem to be of the typical race. The Great Rann of Kutch is evidently the dividing barrier between this race and *brevirostris* of Sind, etc. What the precise criteria are for the diagnosis of *brevirostris* is, however, uncertain. Baker (Fauna iii: 399) says *smaller bill* (as the name indicates) and measures it 13-15 mm. Ticehurst (Birds of Sind, *Ibis* 1923: 24) gives the bill as 14-16.5, mostly about 15 mm. Whistler measures the bill of a male collected by the Bahawalpur Survey and assigned by himself as *brevirostris* (JBNHS,

42, 19.5 mm., therefore very near the maximum for the typical race. [Bill of ♂♂ from the Eastern Ghats (*asiatica*) were measured by him 20.61 mm. (JBNHS, 42: 283)]. The Fauci (iii: 396) gives 'culmen about 16-19 mm.' for *asiatica*. Specimens from Jodhpur are identified by Whistler as *C. a. asiatica*. (JBNHS, 40: 225)

Two breeding males from the Surat Dangs have well-defined broken maroon pectoral bands as in *lotenia*, but narrower. The glistering metallic black abdomen of *asiatica* as against dull sooty black in *lotenia* is perhaps its most reliable diagnostic character. Also bill in *lotenia* is longer and much more bowed, reminiscent of *Xiphorhynchus*.

A fairly common resident usually seen probing into blossoms for nectar. *Capparis*, *Calotropis*, *Prosopis*, *Erythrina*, *Bombax*, *Loranthus*, *Futea* and *Woodfordia* are some of the most regularly patronized species. There is apparently no definite breeding season. Males in breeding plumage and birds in all stages of moult are commonly seen side by side with others in eclipse plumage (with yellow underparts and a black ventral band) at all times of the year. The gonads also show widely differential development seasonally, being mature in some individuals and with no sign of development in others. Nests with eggs or young were found in August as well as March, though perhaps the greater part of the breeding takes place around the latter month.

Aethopyga siparaja vigorsi (Sykes). Vigor's Yellowbacked Sunbird.

Specimens collected: Gujarat: gs1091 ♂ 25-3-46; gs1123 ♂, gs1124 ♂, gs1125 ♀ 27-3-46 Juna Rajpipla; gs1229 ♂ 9-4-46 Songadh (Navsari Dist.); gs1246 ♂, gs1247 ♂ 12-4-46 Waghai (Surat Dangs); sd4 ♂ 23-2-48, sd14 ♂ 24-2-48, sd32 ♂, sd33 ♂ 25-2-48 Malegaon; sd95 ♀ 29-2-48 Malegaon; sd364 ♀ 18-3-48 Mheskatri; sd396 ♀ 20-3-48 Sarwar; sd426 ♀ 22-3-48 Pimpri; sd438 ♂, sd439 ♀ 2-4-48 Waghai (sd = Surat Dangs).

| Measurements | W | B | Tar. | T |
|---------------------|-------|---------|---------|-----------|
| 11 ♂♂ | 61-65 | 23-27.5 | 15-16.5 | 50-58 |
| 3 ♀♀ | 55-57 | 21-24 | 15.5 | 38-38.5 |
| 3 ♀♀ (red breasted) | 54-56 | 22-22.5 | 15-15.5 | 35.5-37.5 |

The Juna Rajpipla specimens extend the range of this species northward to the Narbada River. It is common in the Surat Dangs.

Two females (sex confirmed personally) have the chin, throat and breast a dull orange-scarlet with greyish brown bases to the feathers showing through. This is also the case with a third female sexed by Mr. Gabriel marked as doubtful. Some of the breast feathers in these specimens are actually olive-brown tipped with orange scarlet; rest of underparts yellowish olive-brown. This red-throated phase of the female has not been described in literature.

In the three other females the chin, throat and breast are greyish brown with a faint pinkish tinge. The crown and forehead are rufous-brown, contrasting with the olive-greenish brown back.

All the specimens were in varying stages of general moult (February/March) and showed no departure from the non-breeding condition in their gonads.

Family ZOSTEROPIDAE : White-eyes

Zosterops palpebrosa occidentis Ticehurst. The White-eye.

Specimens collected: Gujarat: gs85 ♂ 1-11-45 Ajwa (Baroda Dist.); gs252 ♀, gs253 ♀ 17-11-45 Dabka (Baroda Dist.); gs584 ♂, gs585 ♂ 15-12-45, gs634 ♂ 18-12-45 Vaghjipur (Mehsana Dist.); gs896 ♀, gs897 ♂ 12-1-46 Deesa (Palanpur); gs1146 ♂ 29-3-46 Dediapada (Rajpipla); gs1278 ♂, gs1279 ♀ 16-4-46 Mahal (Surat Dangs); sd60 ♂ 27-2-42, sd86 ♂, sd87 ♂ Malegaon, sd328 ♂ 16-3-48 (Mheskatri, sd414 ♂ 22-3-48, Pimpri, sd440 ♂ 24-3-48 Waghri (sd=Surat Dangs) Saurashtra: gs1018 ♂, gs1019 ♀ 16-3-46 Dalkhopia (Amerli Dist.).

Not recorded in Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|---------|
| 13 ♂♂ | 53-57 | 11-13 | 15-16.5 | 36-40.5 |
| 2 ♀♀ | 54-55 | 11-12 | 15-16 | 37-39 |

I attribute the above specimens to this race following Ticehurst's opinion that *occidentis* occupies all Bombay Presidency south to N. Kanara and Mysore (*JBNHS*, 32: 354). Personally it appears to me that in colour, both above and below, many of the specimens would pass completely for the race *Z. p. salimalii* though series for series the bill of that race is perhaps smaller and finer, as described. Measurements alone, however, are insufficient to show this character clearly. 16 ♂♂ of *salimalii* from the Eastern Ghats have bills 11-12.5 (*JBNHS*, 37: 281).

Common, in flocks, frequently of over 50 individuals. Feeds largely on flower nectar, some of the most favourite and regularly visited blossoms being those of *Alangium lamarckii* *Woodfordia fruticosa*, *Eugenia jambolana* and species of *Loranthus*. Birds in late February and through March were in heavy pre-nuptial moult. The first indication of gonadal development was observed in the specimen of 16 April.

Family FRINGILLIDAE : Buntings, Finches

Emberiza buchanani Blyth. The Greynecked Bunting.

Specimens collected: Kutch: ks181 ♀ 7-9-43, ks183 ♀ 8-9-43, ks269 ♀ 25-9-43 Bhuj; ks382 ♂ 17-3-44 Mata-no-Madh. Gujarat: gs110 ♀ 2-11-45 Ajwa (Baroda Dist.); gs198 ♂ 9-11-45 Bodeli (Baroda Dist.); gs717 ♂ 25-12-45 Patan (Mehsana Dist.); gs844 ♂, gs845 ♂ 9-1-46 Deesa (Palanpur); Saurashtra: gs969 ♂ 11-3-46 Ghatwad (Kodinar) B15 ♂, B16 ♂ 14-10-43 Dwarka (Okhamandal; B44 ♂ 20-10-43 Dhari (Amerli Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-----------|---------|---------|---------|
| 8 ♂♂ | 86.5-93.5 | 13-15 | 19-22 | 69-77 |
| 3 ♀♀ | 82-88 | 11.5-14 | 18.5-20 | 68.5-70 |

A not uncommon winter visitor. Earliest date August 30; latest April 21. Keeps to stony, sparsely scrubbed and Euphorbia-covered hillsides and broken ground, in loose parties. Noted as abundant in Kutch during September when great numbers were presumably coming through on southward passage. Utters a subdued *click, click*.

***Emberiza striolata striolata* (Licht.).** The Striolated Bunting.

Specimens collected: Kutch: ks16 ♂ + 9-8-43, ks39 ♂ + 11-8-43, ks146 ♂ + 1-9-43, ks427 ♀ 1-4-44 Bhuj; Gujarat: gs846 ♂, gs847 ♂ 9-1-46, gs870 ♂? 10-1-46 Deesa (Palanpur).

Elsewhere noted: Kutch: Nakhatrana; Bhachau; Rajar; Nir; Mata-no-Madh; Khadir Island (Great Rann); Bela Island; Kala Dongar. Gujarat: Patan (Mehsanā Dist.), Saurashtra: Dwarka; Ghatiyad (Kodinar).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|---------|-------|
| 4 ♂♂ | 79-85 | 11-13 | 16-16.5 | 55-63 |
| 1 ♀ | 75 | 11 | 15 | 56 |

Resident. Common and locally abundant. Affects stony, sparsely scrubbed hillsides and broken country, hopping about on the ground stiffly like a sparrow, not running like pipit. Fluctuation of numbers in a given locality suggests considerable local movement. Males were in full song from about mid-March. Breeding activity first in evidence in April (enlarged gonads); actual nests with eggs (usually 3) seen as late as September. The song is a lively *which-which-whoeech-whichy-which* (first 2 syllables short, and accent on the final *which*). It is uttered from a stone, bush-top or ruined building in the vicinity of the nest.

Large numbers of Striolated Buntings gathered to drink at a water-hole in arid stony country bordering the Great Rann of Kutch regularly between 8 and 11 a.m. in March, in company with *Emberiza buchanani*. Each bird took 10 to 15 or more sips, often occupying over a minute.

***Emberiza melanocephala* Scopoli.** The Blackheaded Bunting.

Specimens collected: Kutch: ks396 ♂, ks397 ♂, ks398 ♂, ks399 ♂ 2-3-44 Chobari (Bhachau Dist.); Gujarat: gs64 ♂ 31-10-45 Ajwa (Baroda Dist.); gs345 ♂, gs346 ♂ 21-11-45 Dabka (Baroda Dist.); gs1075 ♂ 21-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|---------|
| 6 ♂♂ | 92-99 | 15-17 | 20-23.5 | 68-78 |
| 2 ♂? [♀] | 86-89 | 16-16.5 | 21.5-22 | 68-68.5 |

Females of this species are difficult to distinguish from female Redheaded Bunting (*Emberiza bruniceps*) unless in perfect adult plumage.

A fairly common winter visitor. Earliest date 31 October; latest 1 April. All specimens after 20 March were excessively fat, indicating that they were ready for emigration. A male on 23 March, had in addition, developing testes (3 × 2mm.).

Large flocks in cultivation. Roosting in enormous swarms, in association with House and Yellowthroated Sparrows in the thorn-scrub covered ravines along the banks of the Mahi River near its mouth at Dabka (Baroda Dist.).

***Emberiza bruniceps* Brandt.** The Redheaded Bunting.

Specimens collected: Saurashtra: b45 ♂ 20-10-43 Dhari (Amreli Dist.); Gujarat: gs197 ♂ 9-11-45 Bodeli (Baroda Dist.); gs574 ♂ 12-12-45 Saiat (Kaira Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|-------|-------|-------|--------|
| 2 ♂♂ | 85-90 | 16-17 | 19-22 | 70 (1) |

About equally common in winter (more so in Gujarat and Saurashtra than in Kutch) with the Blackheaded Bunting. Usually seen in flocks mixed with *melanocephala* and sometimes with *E. buchani* in stony bajri fields (*Sorghum*). The specimens of 20 October and 9 November were in heavy general moult.

Melophus lathamii subcristata (Sykes). The Crested Bunting.

Specimens collected: Gujarat: GS270 ♀ 11-11-45 Dabka (Baroda Dist.); GS1157 ♂, GS1158 ♂ 30-3-46, GS1183 ♂ 2-4-46 Dediapada (Rajpipla).

Not observed in Kutch or Saurashtra.

| Measurements: | W | B | Tar. | T |
|---------------|----|-------|---------|-------|
| 3 ♂♂ | 79 | 13-15 | 19.5-21 | 61-66 |
| 1 ♀ | 77 | 15 | — | 63 |

Local and uncommon in Gujarat. Affects stony grass country, particularly burnt patches, in or on the edge of deciduous forest. Pairs, or loose parties of 4 or 5. Song sporadic in April: *which-which-whi-whē-which* (first 2 syllables in undertone, and the last but one *whē* drawn out and accentuated).

Subfamily FRINGILLINAE

Erythrina erythrina roseatus (Blyth). The Indian Rosefinch.

Specimens collected: Gujarat: GS203 ♂ 9-11-45 Bodeli (Baroda Dist.); GS597 ♀ 16-12-45, GS632 ♂, GS633 ♀ 18-12-45, GS662 ♀, GS663 ♂ 20-12-45 Vaghjipur (Mehsana Dist.); GS950 ♂ 20-1-46 Balaram (Palanpur); GS1105 ♂ 25-3-46 Juna Rajpipla; GS1176 ♂ 31-3-46 Dediapada (Rajpipla); SD42 ♂ 26-2-48 Galkund, SD429 ♀ 22-3-48 Pimpri, SD445 ♂ 24-3-48 Waghai (SD = Surat Dang). Observed also at several places in Saurashtra and Kutch.

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|-------|
| 7 ♂♂ | 85-90 | 12.5-14 | 19-19.5 | 56-61 |
| 4 ♀♀ | 80-85 | 13-13.5 | 19-19.5 | 54-58 |

Two males (Nos. GS632 and GS950), in fresh plumage, match well with No. 227 of the Central India Survey which is one of the 4 examples in fresh plumage assigned by Whistler (*Ibis*, 1939 p. 159) to the typical race *erythrina*. These two specimens may well pass for the typical form, but it seems impossible to me to be definite on the point.

Winter visitor. Not uncommon. The latest date recorded by the Surveys is April 18 (Anjar, Kutch). Met with in forest, scrub jungle as well as cultivation—in the last often associated with flocks of Blackheaded Buntings (*Emberiza melanocephala*). When the birds first arrive in their winter quarters, the flocks consist mostly of female-plumaged brown birds. With abrasion of the feathers more and more pink males come into prominence as the season advances, and their rosy pink colour is brightest before they leave for their breeding grounds.

Family PLOCEIDAE: Weaver Finches.

Felronia xanthocollis, xanthocollis (Burton). The Yellowthroated Sparrow.

Specimens collected: Kutch: ks159 ♂ + 4-9-43 Dhodhar Hill, Nakhatrana; ks1 ♂ 7-8-43, ks425 ♀ + 31-3-44 Bhuj. Gujarat: gs139 ♂, gs140 ♂ 6-11-45, gs194 ♂ 8-11-45 Bodei (Baroda Dist.); gs325 ♂ 20-11-45, gs349 ♀ 21-11-45 Dabka (Baroda Dist.); gs680 ♀ 21-12-45 Vaghjipur (Mehsana Dist.); gs728 ♀ 26-12-45 Patan (Mehsana); gs819 ♂ 3-1-46 Radhanpur; gs899 ♂ 12-1-46 Deesa (Palanpur); gs1116 ♂ + 27-3-46 Juna Rajpipla; gs1235 ♂ + 9-4-46 Songadh (Navsari Dist.); sd15 ♂ + 24-2-48, sd75 ♂ + 28-2-48 Malegaon, sd178 ♀ 6-5-48 Pandwa, sd269 ♂ +, sd270 ♂ + 12-3-48 Laochali, sd303 ♀ + 14-3-48 Mahal, sd367 ♂ +, sd368 ♀ + 18-3-48 Mheskatri, sd395 ♂ + 20-3-48 Sarwar, sd413 ♂ + 22-3-48 Pimpri (SD = Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|-------|
| 15 ♂♂ | 81-88 | 13-16 | 16-18.5 | 47-57 |
| 7 ♀ | 76-85 | 13.5-16 | 16.5-18 | 45-55 |

Birds from about Nadiad north, i.e. Patan & Vaghjipur (Mehsana), Radhanpur, Deesa (Palanpur), and also from Kutch, are intermediate between *xanthocollis* and *transfuga* and match specimens from the Jodhpur Survey (JBNHS, 40: 222).

A common and abundant species everywhere, but subject to marked seasonal local movement. Affects dry deciduous teak, babul, kandi and catechu forest in preference to bamboo jungle. In winter very large flocks are seen, reminiscent of flocks of buntings or Short-toed Larks. Enormous assemblages, mixed with thousands of House Sparrows and Blackheaded Buntings, were observed in November/December roosting nightly amongst the thickets of *Zizyphus*, *Capparis* and *Salvadora oleoides* in the out-scoured ravines on the banks of the Mahi River at Dabka (Baroda Dist.), and elsewhere.

Breeding was in progress during March/April. Holes and cracks in tree-trunks and in snags of branches are utilized. In the breeding season the male's bill becomes black. In non-breeding males the upper mandible is horny brown; lower mandible pinkish brown.

In semidesert areas nectar of the flowers of *Capparis aphylla* is a favourite food. In quest of this, the forehead feathers become golden with adhering pollen and give to the birds an unusually distinguished and intriguing appearance in the distance!

Passer domesticus indicus (Jardine & Selby). The House Sparrow.

Specimens collected: Kutch: ks96 ♂ +, ks97 ♀ + 20-8-43 Chaduva (Bhuj Dist.) Gujarat: gs320 ♂, gs321 ♂, gs322 ♂, gs323 ♀, gs324 ♀ 20-11-45 Dabka (Baroda Dist.); gs525 ♂, gs526 ♂ 9-12-45 Nadiad town environs (Kaira Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|--------------|---------|-------|---------|
| 6 ♂♂ | (73) 78-82.5 | 13.5-14 | 19-20 | 52-61 |
| 3 ♀♀ | 75-80 | 14 | 20 | 52-53.5 |

It will be seen that the above wing measurements are larger than given by Mr. Whistler for NW. Indian birds ('12 ♂♂ 75-79 mm.') in the Hydera-

bad Survey report (*JBNHS*, 36: 902). They are also larger than 8 Punjab males measured by him as 72.5-78 in the Travancore Survey report (*JBNHS*, 58: 511). This discrepancy may be largely due to the fact that all my measurements were taken *in the flesh*. In wing length this usually differs 1-3 mm. more in birds up to about a thrush in size. I cannot see any difference in colour between northern birds and these from Gujarat.

Ubiquitous. Collects in enormous flocks during winter, feeding in scrub jungle and on the countryside far away from human habitations. Vast assemblages collected to roost amongst dense thickets of *Zizyphus oenopia*, etc. in outscoured ravines on the banks of Mahi River at Dabka (Baroda). The birds arrived in a succession of flocks from all directions a little before sunset. When shooting down into the thickets, or flying out on alarm the whirl of their thousand wings was like surf breaking in the distance.

Breeding was at its height in Kutch during July/August and September. In the town of Bhuj, the young were fed very largely on a green defoliating caterpillar which was swarming on googar (*Balsamodendron mukul*), and other bushes, denuding them completely of the newly sprouting leaves.

Ploceus philippinus philippinus (Linn.). The Common Weaver Bird or Baya.

Specimens collected: Kutch: ks77 ♂ + 17-8-43 Chaduva (Bhuj Dist.); ks406 ♂ 24-3-44 Chobari (Bhachau Dist.); Gujarat: gs65 ♂, gs66 ♀, gs67 ♂, gs68 ♂, gs69 ♀ 31-10-45 Ajwa (Baroda Dist.); gs386 ♀ 27-11-45 Cambay town environs; gs925 ♀, gs926 ♂ 16-1-46 Paianpur.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|-------|
| 3 ♂♂ | 70-73 | 16-18 | 18-21 | 45-49 |
| 2 ♀♀ | 68-69.5 | 17 | 20 | 46-47 |

In heavy post-nuptial moult in late October; fresh winter plumage late November. In suitable localities everywhere, moving about locally with seasonal conditions. Breeding was in full swing during August (Kutch). A favourite site for the nest colonies, seldom of more than 15 to 20 nests together, was trees like *Prosopis spicigera* and thorny bushes growing from the side of, or overhanging, a well in the vicinity of cultivators' homesteads and fields. The observed proportion of males to females in the colonies was, as elsewhere, approximately 1:3. The birds are very partial to the nectar of flowers of *Capparis aphylla* in season with whose pollen their forehead feathers were usually thickly coated.

Dr. Koelz has recently described a new race from Saurashtra naming it *P. p. sardarpateli*.

Ploceus benghalensis (Linn.). The Blackthroated Weaver Bird.

Specimens collected: Gujarat: gs52 ♂, gs53 ♂, gs54 ♀ 31-10-45 Ajwa (Baroda Dist.); gs555 ♀, gs556 ♀, gs557 ♀, gs558 ♀, gs559 ♀ 12-12-45 Saiat (Kaira Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|-------|
| 5 ♀♀ | 65-71.5 | 16-16.5 | 21-21.5 | 38-45 |

All the specimens of 31 October are in heavy post-nuptial moult; the December specimens in fresh winter plumage.

Not common; locally and patchily distributed. Usually affects reeds, etc., on the edge of marshes and jheels. All the 5 December birds killed in one shot from a large flock, proved to be females, suggesting that the sexes may segregate at this season (soon after breeding). Further data on this point are desirable.

Estrilda amandava amandava (Linn.). The Red Munia.

Specimens not collected. Observed at Ajwa (Baroda Dist.) and Dakor (Kaira Dist.) in reedy, swampy environs of tanks. On October 29 a male was carrying a fine flowering grass stem to a half-built nest about 2 ft. up in a tussock of coarse grass on the swampy margin of Ajwa Reservoir. Mr. R. M. Simmons (*in epist.*) observed a flock of 20-60 amongst reeds in Hathmati River at Himmatnagar (Sabarkantha) in February 1932.

Estrilda formosa (Latham). The Green Munia.

Specimens collected: Gujarat: gs931 ♀, gs932 ♂ 18-1-46 Ganga-sagar (Palanpur); gs1087 ♂ 24-3-46 Navagam (Rajpipla); gs1164 ♂, gs1165 ♀, gs1166 ♂, gs1167 ♀, gs1168 ♀, gs1169 ♂ 30-3-46 Dediapada (Rajpipla).

Not recorded in Saurashtra. Absent in Kutch.

Locally and capriciously distributed. Avoids semidesert and arid country, but also absent over large seemingly suitable areas. The specimens provided no indication as regards the breeding season. All those taken in March were in heavy body moult.

Keeps in flocks of 20 or so in lantana scrub country. Utters feeble cheeps like Red Munia.

Lonchura striata striata (Linn.). The Whitebacked Munia.

Specimens collected: Gujarat: gs1282 ♀, gs1283 ♂, gs1284 ♂, gs1285 ♀, gs1286 ♂ 17-4-46 Mahal (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|---------|
| 3 ♂♂ | 52-53 | 13-14 | 14-14.5 | 35-36 |
| 2 ♀♀ | 53-54 | 13-13.5 | 14-14.5 | 35-37.5 |

All the above undergoing complete moult, agreeing with 'March to July' as given by Whistler for the Eastern Ghats (*JBNHS*, 36: 834).

The species was not recorded in the rest of Gujarat, or in Kutch or Saurashtra. It affected open scrub country near cultivation.

Lonchura malabarica (Linn.). The Whitethroated Munia.

Specimens collected: Kutch: ks85 ♀+, ks86 ♂+ 18-8-43 Chaduva, (Bhuj Dist.). Gujarat: gs156 ♂+ 7-11-45 Bodeli ((Baroda Dist.); gs473 ♂, gs474 ♂ 3-12-45 Golana (Cambay); gs664 ♀+ 20-12-45 Vaghjipur (Mehsana Dist.).

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|---------|-------|
| 4 ♂♂ | 55-58.5 | 9.5-11 | 13.5-15 | 39-48 |
| 2 ♀♀ | 55-56 | 11-11.5 | 13.5-15 | 42-48 |

Fairly common and general. Nesting season apparently not well defined, and straggles over most months of the year. It was in full

swing in Kutch during August and September. The nest material in this area consists chiefly of fine flowering grass. In one case a large amount of bits of old newspaper was used in the exterior of the globe. An elsewhere, disused Baya nests are freely appropriated. One pair was observed entering and leaving the pile of sticks forming the nest of a King Vulture (*Sarcogyps calvus*) on which the owner was sitting on its egg!

Lonchura punctulata lineoventer (Hodgson). The Spotted Munia.

Specimens collected: Gujarat: Gs81 ♀+, Gs82 ♂+ 1-11-45 Ajwa (Baroda Dist.); Gs1177 ♀, Gs1178 ♂, Gs1179 ♀ 31-3-46 Deñiapada (Rajpipla).

| Measurements: | W | B | Tar. | T |
|---------------|-------|---------|---------|---------|
| 2 ♂♂ | 54-58 | 12.5-13 | 15-16 | 32-36.5 |
| 5 ♀♀ | 55-57 | 12.5-13 | 15-15.5 | 33.5-38 |

Fairly common in the better wooded parts of the area. Not observed in Kutch or Saurashtra, though it doubtless occurs in the latter in suitable localities. The specimens of September 1 were a breeding pair. In March the flocks consisted largely of birds in the plain brown non-breeding plumage, and contained many young of the year.

Family STURNIDAE: Mynas

Sturnus roseus (Linn.). The Rosy Pastar.

Specimens collected: Kutch: ks24 ♂, ks25 ♂ juv. 9-8-45 Bhuj; ks400 ♀, ks401 ♂+ 23-3-44 Chobari (Bhachau Dist.). Gujarat: Gs73 ♂, Gs74 ♀, Gs75 ♀, Gs76 ♂ 1-11-45 Ajwa (Baroda Dist.); Gs671 ♂ 20-12-45 Vaghjipur (Mehsana); Gs778 ♂, Gs779 ♀, Gs780 ♂ 31-12-45 Radhanpur; Gs1052 ♂, Gs1053 ♀, Gs1054 ♂ 20-3-46 Kharaghoda.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-----------|---------|-------|
| 7 ♂♂ ad. | 132-135 | 24-25 | 31.5-32 | 67-73 |
| 3 ♀♀ ad. | 125-136 | 22.5-23.5 | 27.5-33 | 65-72 |

Winter visitor. Common and abundant. Earliest date August 5. The specimen of March 23 (ks401) was very fat preparatory to emigration and also showed some gonadal development (testes 5 × 3 mm.) Between March 25 and 28 (1944) on Khadir and Bela Islands on the southern edge of the Great Rann of Kutch, strong northward migration of pastars was observed in progress. Parties, and flocks of 40 to 50 birds in an intermittent stream were flying in a N. and NW. direction (towards Sind) between 8.30 and at least 10.30 a.m. They kept about 50 feet above the ground and flew directly and purposefully. Some of the birds occasionally alighted on the bushtops for a few moments without attempting to feed, and presently took off again. On reaching the edge of the actual Rann each flock immediately rose higher. Some disorder and hesitancy was noticeable before the flocks re-formed and resumed their flight across the barren waterless expanse which is about 35 miles wide at this point.

Sturnus malabaricus [blythii] (Jerdon). The Whitehead Myna.

Specimen collected: Gujarat: Gs31 ♂ 29-10-45 Ajwa (Baroda Dist.).

| Measurements : | W | B | Tar. | T |
|----------------|-----|----|------|----|
| 1 ♂ | 104 | 23 | 25 | 62 |

This specimen has the whole head, sides of face, chin and throat silvery greyish white. The upper breast is ferruginous like the rest of the underparts, much streaked with greyish white.

Sturnus pagodarum (Gmel.). The Blackheaded or Brahminy Myna.

Specimens collected: Gujarat: gs8, 1-11-45, gs101 ♂, gs102 ♂ 2-11-45 Ajwa (Baroda Dist.); gs546 ♀ 11-11-45 Nadiad (Kaira Dist.); gs1142 ♀, gs1143 ♂ 29-3-46 Dediapada (Rajpipla).

| Measurements : | W | B | Tar. | T |
|----------------|---------|---------|---------|-------|
| 3 ♂♂ | 105-109 | 20.5-24 | 29-30 | 60-69 |
| 3 ♀♀ | 101-109 | 19.5-21 | 28-28.5 | 61-58 |

Uncommon, capricious and local in Kutch; fairly common in Saurashtra and Gujarat. Breeding in Kutch August/September. According to Lester June/July.

Sturnus vulgaris poltaratzskii Fmsch. Finsch's Starling.

Specimens collected: Gujarat: gs312 ♀ 19-11-45 Dabka (Baroda Dist.); gs564 ♀, gs565 ♂? 12-12-45 Saiat (Kaira Dist.). Elsewhere not noted.

| Measurements : | W | B | Tar. | T |
|----------------|---------|-------|------|---------|
| 2 ♀♀ | 130-133 | 29-32 | 30 | 65-68.5 |
| 1 [♀] | 130 | 30 | 30 | 65 |

Evidently an uncommon straggler in winter; also recorded as such from Kutch. Mr. R. M. Simmons (*in epist.*) saw it often round jheels in winter, e.g., at Tarapur (near Cambay) and Bareja. Dr. H. C. Aldrich met with large flocks at Pariej (Kaira Dist.) in September 1945.

Acridotheres tristis tristis (Linn.). The Common Myna.

Specimens collected: Kutch: ks407 ♂ + 24-3-44 Chobari (Bhachau Dist.); Gujarat: gs96 ♂, gs97 ♀ 2-11-45 Ajwa (Baroda Dist.); gs224 ♀ 11-11-45 Bodeli (Baroda Dist.); gs1076 ♀ 21-3-46 Kharaghoda; ss82 ♂ 29-2-48 Malegaon (Surat Dangs).

| Measurements : | W | B | Tar. | T |
|----------------|-----------|---------|---------|-------|
| 3 ♂♂ | 147-151 | 25-28 | 40-42 | 85-93 |
| 3 ♀♀ | 139-143.5 | 25-27.5 | 40.5-41 | 79-84 |

Testes of a male in Kutch on March 24 had enlarged to 4 x 3 mm. The normal breeding season in Gujarat is June to August. Post-nuptial moult October/November.

An ubiquitous species, particularly abundant near human habitations.

Acridotheres ginginianus (Latl.). The Bank Myna.

Specimens collected: Gujarat: gs98 ♀, gs99 ♂, gs100 ♂ 2-11-45 Ajwa (Baroda Dist.).

| Measurements : | W | B | Tar. | T |
|----------------|---------|------|------|---------|
| 2 ♂♂ | 120-121 | 25 | 37 | 65-65.5 |
| 1 ♀ | 114 | 24.5 | 36 | 60 |

Fairly common in Kutch, but curiously local and patchy. Commonly in attendance on grazing catde. Abundant in Central Gujarat (Viramgam, Ahmedabad, Surat, Cambay, Broach, Baroda, etc.) where large numbers are always present on railway station platforms, running about fearlessly in amongst the passengers' feet and baggage, and picking up crumbs strewn by the charitably disposed. Frequently hopping on to vendors' handcarts and filching *seo* in spite of the vehement protestations of the owners. At certain railway stations this species has more or less completely displaced the Common Myna. But even in Gujarat it is inexplicably scarce, or absent, in places within a few miles of where it may be abundant even to the virtual exclusion of *ir36tis*.

Breeding was in progress in Kutch during August and September. Favourite sites here are holes in the earthen sides of kutch wells, shared out, concurrently with House Sparrows and Blue Rock Pigeons. The nest-holes are often deep down the narrow shafts of these wells necessitating almost vertical ascent to reach the top, and one wonders how the inexperienced fledglings manage to accomplish this feat without heavier casualties than there are.

In many Gujarat towns the birds nest freely in holes in the walls of buildings even in the midst of the noisiest bazars.

Family ORIOLIDAE: Orioles

Oriolus oriolus kundoo Sykes. The Indian Golden Oriole.

Specimens collected: Kutch: ks217 ♀, ks218 ♀, 14-9-43 Tuna (Anjar Dist.). Gujarat: gs29 ♂ 29-10-45 Ajwa (Baroda Dist.); gs160 ♂ 7-11-45 Bodeli (Baroda Dist.); gs174 ♂ 9-11-45; gs335 ♂ 20-11-45 Dabka (Baroda Dist.); gs711 ♂ 25-12-45 Patan (Mehsana Dist.); gs839 ♂ 6-1-46 Radhanpur; sd324 ♂ 16-3-48 Mheskatri (Surat Dangs).

Noted in Saurashtra in Amreli town and Dhari.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|--------------|-------|
| 7 ♂♂ | 139-147 | 29.5-33 | 22-24 (26.5) | 86-93 |
| 2 ♀♀ | 138-143 | 31-33 | 23.5-24 | 89-91 |

Uncommon in Kutch; sporadic solos frequent elsewhere. Apparently only a winter visitor. The earliest specimens (of September 13 and 14) were fat. The first and last dates recorded by the Surveys are August 24 and April 19.

Oriolus xanthornus maderaspatanus Franklin (Linn.). The Black-headed Oriole.

Specimens collected: Gujarat: gs1092 ♀ 25-3-46 Juna Rajpipla; gs1180 ♂ 2-4-46 Dediapada; sd125 ♂, sd126 ♂ 2-3-48 Galkund (Surat Dangs); sd244 ♀, 10-3-48, sd264 ♂ 11-3-48 Laochali; sd315 ♀ 14-3-48 Mahal; sd325 ♀ 16-3-48, sd357 ♂ 18-3-48 Mheskatri.

Elsewhere noted: Songadh (Navsari Dist.); Waghaj, Galkund (Surat Dangs).

| Measurements: | W | B | Tar. | T |
|----------------|-----------|---------|-----------|---------|
| 4 ♂♂ ad. | 134-141.5 | 31 | 25-26.5 | 84-88.5 |
| 1 ♂ imm. plum. | 135 | 30 | 24 | 91 |
| 4 ♀♀ ad. | 132-137 | 28-30.5 | 23.5-25.5 | 83-87.5 |

The two specimens of the GS series are in fresh adult plumage with extensive yellow edging to the inner secondaries and tertiaries. In this respect they match perfectly birds from the Prome and Thayet districts of Burma (in B.N.H.S. collection) determined by Dr. C. B. Ticehurst as *xanthornus*.

Common and resident in the better wooded portions of the area. Affects deciduous forest, particularly where lilly and with a mixture of teak and bamboo. The hot hours of the day ring with its fluty melodious calls and harsh *kwaaks*. One in a leafy banyan, during the mid-day heat, spent over 15 minutes at a stretch soliloquising in broken notes—syncopated mellow calls jumbled with harsh ones—reminiscent of the composition of a Rufousbacked Shrike. Not observed in Kutch or Saurashtra, though in the latter it doubtless occurs in the Gir area of Junagadh.

Family DICKURIDAE: DRONGOS

Dicrurus macrocercus peninsularis Ticeh. The Indian Black Drongo.

Specimens collected: Kutch: ks100 ♀ 21-8-43 Chaduva (Bhuj Dist.); ks115 ♀, ks116 ♂ 25-8-43 Mandvi; ks424 ♀ 31-3-44 Bela Island (Great Rann). Gujarat: gs136 ♂ 5-11-45 Bodeli (Baroda Dist.); gs218 ♀ 10-11-45 Jambughoda; gs732 ♀ 26-12-45 Patan (Mehsana Dist.).

Saurashtra: gs1016 ♂, gs1017 ♂ 16-3-46 Dalkhania (Amreli Dist.).

Elsewhere noted: Kutch: Khari Rohar; Anjar; Khavda; Chobari (Bhachlau Dist.); Khadir Island (Great Rann); Pung Bet (Little Rann). Gujarat: Baroda; Dabka; Cambay; Radhanpur; Deesa; Palanpur. Saurashtra: Amreli; Okha; Dwarka; Ghatwad (Kodinar); Rajkot; Jamnagar.

| Measurements: | W | B | Tar. | T |
|---------------|-----------|---------|-------|---------------|
| 2 ♂♂ ad. | 141.5-142 | 26 | 21-22 | 93-145/95-152 |
| 2 ♀♀ ad. | 140-142 | 22.5-25 | 20-23 | 94-151/98-154 |

Rest of the specimens not measured as either 1st year or in moult.

Resident. Common. Evidently subject to considerable local movement the nature of which is not properly understood. During the Kutch Survey, at the extreme NW. tip of Khadir Island (26-3-44) I counted one morning at about 9-30 o'clock at least 20 birds in about 45 minutes coming over steadily in loose twos and threes, roughly in a NE. to WSW. direction at a height of 20 feet or so, across the wide expanse of the open treeless Rann. The passage appeared to be continuing.

The Black Drongo is also met with commonly on the 'bets' or small flat grassy 'islets' in the Little Rann which are virtually tiny oases. One was observed riding on the back of a grazing wild ass (*Equus hemionus*)!

The nesting season in Kutch is April to July. Complete post-nuptial moult takes place about August.

In Cambay, where the local name of the bird is 'Kosita', a villager supplied the following prescription which is apparently fairly generally known and believed to be efficacious: 'Boil a kosita, feathers and all, in about 4 seers of water. Pour over head and bathe the woman after childbirth. All pains in back etc. vanish.' Curiously enough, in another part of Gujarat (Palanpur) the same treatment is practised with much alleged success, but using the Grey Hornbill ('Chalotra') as the basic ingredient!

Dicrurus leucophaeus longicaulatus Jerdon. The Indian Dark Ashy Drongo.

Specimens collected. Gujarat: GS416 ♂ 29-11-45 Cambay; SD27 ♂ 25-2-47 Malegaon; SD251 ♀ 11-3-48, SD265 ♂, SD266 ♂ 12-3-48 Lachali; SD320 ♀, SD327 ♀ 16-3-48, SD349 ♂, SD350 ♂, SD351 ♀ 17-3-48 Mheskari; SD382 ♀ 20-3-48 Sarwar (SD = Surat Dangs).

Elsewhere noted Gujarat: Songadh (Navsari Dist.).

Not met with in Kutch. I have examined a vagrant shot in the well-wooded grounds of Vijaya Vilas Palace, Bhuj, by K. S. Fatehsinhji on 17-11-54.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------------|
| 5 ♂♂ ad. | 136-148 | 25-28 | 18-20 | 90-98/140-173 |
| 5 ♀♀ ad. | 136-144 | 25-28 | 18-20 | 89-96/155-168 |

Status? Presumably winter visitor (from the peninsular hills?; Himalayas?). All the March specimens were in more or less heavy moult, and most of them very fat suggesting that the birds were preparing to emigrate. Its favourite habitat was broken hilly country under bamboo and mixed deciduous forest.

One of its commonest calls is a pleasant, musical, querulous *kil-kil-kil-kil-kil*, very like that of the Striped Squirrel (*Fumambulus pennanti*). It also utters a harsh, challenging *chees-chees-chichuk*.

Commonly seen hawking winged insects from tree-tops well into evening-dusk.

Dicrurus caerulescens caerulescens (Linn.). The Whitebellied Drongo.

Specimens collected: Gujarat: GS92 ♀ 1-11-45 Ajwa (Baroda Dist.); GS417 ♀ 29-11-45 Cambay; GS654 ♀ 19-12-45 Vaghjipur (Mehsana Dist.); GS930 ♂ 18-1-46 Balaram (Palanpur); GS1134 ♂+ 29-3-46 Deciapada (Rajpipla); GS1299 ♂, GS1300 ♀ 20-4-46, SD101 ♀ 1-3-48 Galkund; SD12 ♂+ 24-2-48 Malegaon; SD167 ♀+, SD168 ♂+ 5-1-48, SD190 ♂+ 6-3-48 Pandwa; SD383 ♂+ 20-3-48 Sarwar (SD = Surat Dangs).

Elsewhere noted: Gujarat: Patan (Mehsana Dist.); Songadh, Medha (Navsari Dist.); Radhanpur; Juna Rajpipla; Mehal, Ahwa (Surat Dangs). Saurashtra: Okha.

| Measurements: | W | B | Tar. | T |
|---------------|---------|---------|-------|---------------|
| 7 ♂♂ ad. | 122-135 | 24-25.5 | 19-20 | 88-89/115-130 |
| 6 ♀♀ ad. | 120-129 | 23.5-27 | 19-21 | 91-95/116-128 |

Resident. Common in secondary mixed deciduous jungle, and here partial to the bamboo facies. Also affects wooded compounds, and is fond of hawking winged insects from tree-tops through evening dusk till almost quite dark. Has a number of pleasant musical calls, and is a good mimic of other birds.

All the specimens collected in March had enlarged gonads and were evidently breeding or about to breed. On March 2 (Galkund, Surat Dangs) a nest was found 30 ft. up a teak sapling in a fork of the end twigs of a bare horizontal branch. It was almost completed with the bird sitting within and turning round and round to give shape to the cup.

The sight record from Okha (Saurashtra) is noteworthy. The bird—the only example seen—was obviously a newcomer. It must have

travelled a considerable distance over practically treeless country, totally unsuited to its requirements, and was keeping to some recently grown trees in the port area. The advent and establishment of *Eciton* species at Okha—heretofore a barren semi-desert tract—following on its development as a seaport and the planting of trees around the human habitations, is an interesting subject for ecological study.

***Dicrurus paradiseus malabaricus* (Latham).** The Malabar Racket-tailed Drongo.

Specimens collected: Gujarat: GS1094 ♂ +, GS1095 ♂ + 25-3-46. GS1127 ♀ 27-3-46 Juna Rajpipla; GS1268 ♂ + 14-4-46 Waghai; SD11 ♂ 24-2-48, SD94 ♀ 29-2-48 Malegaon; SD249 ♂ +, SD250 ♀ 11-3-48 Laochali; SD291 ♀ 13-3-48, SD294 ♂ 14-3-48 Mahal, SD339 ♀ 16-3-48 Mheskatri (SD = Surat Dangs). Absent in Kutch.

| Measurements: | W | B | Tar. | Centr. T | Rackets |
|---------------|-----------------|---------|-------|----------|---------|
| 5 ♂♂ ad. | 156-166 | 35-5-41 | 26-28 | 133-142 | 285-385 |
| | (average 160) | | | | |
| 5 ♀♀ ad. | 150-160 | 35-37 | 26-27 | 129-136 | 310-352 |
| | (average 153.8) | | | | |

All the above have the short crest and short hackles on hindneck which characterize this race.

Resident. Common in bamboo and mixed deciduous forest south of the Narbada River. In the Surat Dangs it is one of the 5 commonest bird species in this biotope, the others being *Hypothymis*, *Glaucidium*, *Dicrurus caerulescens* and *Crypsirina*. The specimens of March and April showed progressively enlarged gonads indicating that breeding was imminent.

Exceedingly noisy in the mornings, starting before dawn (ca. 4.30 a.m.) with a desultory, monotonous *kit-kit-kit-kit* etc. which is kept up almost continuously till daybreak. An accomplished mimic, imitating to perfection almost every bird call in the forest. On one occasion the report of a gun set it off crowing like a Grey Junglecock. It repeated this several times and so flawlessly, with all the appropriate pauses, that even the Dangi Bhils accompanying me were completely deceived. The bird gave itself away only when it stopped abruptly once or twice right in the middle of a crow. I frequently found bunches of this drongo's feathers scattered on the ground in forest, suggesting that it sometimes falls a prey to predatory hawks. Can it be that its general obstreperousness and mimicry of their calls bring about its undoing? On one occasion, at any rate, this undoubtedly was the case. I heard one imitating—almost mocking—a Shikra (*Astur badius*) for a considerable time. Very soon afterwards this individual was seen hotly pursued by a shikra which finally struck it down and devoured it on the ground, leaving bunches of its feathers strewn about. On another occasion a bird echoed back, promptly and without hesitation, the signal whistle of a member of my party with the identical note!

Family CORVIDAE: Crows

***Crypsirina vagabunda pallida* Blyth.** The Northern Tree Pie.

Specimens collected: Gujarat: GS399 ♂ 28-11-45, GS491 ♂ 6-12-45 Cambay; GS577 ♀ 15-12-45, GS600 ♀ 16-12-45, GS622 ♀ 17-12-45, GS626 ♂

18-12-45, gs651 ♀, gs652 ♀ 19-12-45 Vaghjipur (Mehsana Dist.); gs734 ♀ 26-12-45 Patan (Mehsana Dist.); gs85 ♀ 11-1-46, gs919 ♂ 14-1-46 Deesa (Palanpur); gs1301 ♀ + 20-4-46 Galkund (Surat Dangs); sd20 ♀ 25-2-48 Malwad; sd34 ♀ 26-2-48, sd16 ♀ 2-3-48, sd138 ♀ 3-3-48 Galkund; sd349 ♀ 17-3-48 Mheskatra; sd388 ♀, sd389 ♂ + 20-3-48 Sarwar; sd431 ♀ 22-3-48 Pimpri (sd = Surat Dangs). Saurashtra: b26 ♀ 17-10-43 Amreli; gs988 ♂ + 15-3-46, gs1014 ♀ 16-3-46 Dalkhania.

Absent in Kutch.

Measurements:

| | W | B | Tar. | T |
|-------|---------|---------|---------|------------------|
| 6 ♂♂ | 155 | 33-36.5 | 32.5-37 | 247-270 |
| 17 ♀♀ | 144 (1) | 30-34.5 | 32-37 | 205 (1), 209-267 |

In size this series averages larger than either *vagabunda* or *vernayi*, but the birds are somewhat smaller than *pallida* of NW. India. In colour they are inseparable from *pallida*. A specimen from Amreli (No. b26) is very small (W 146 mm.) and would pass for immature *vagabunda*, but on the whole Saurashtra birds go better with those from Gujarat.

Common in all the better wooded portions of the area. Abundant in the Mehana District, the Songadh section of Navsari Dist. and the Surat Dangs. In the latter locality it was one of the five commonest bird species in bamboo and mixed deciduous forest, the others being Quaker Babbler, Blacknaped Blue Flycatcher, Tickell's Blue Flycatcher and Racket-tailed Drongo. Its complete absence from Kutch seems noteworthy since there are many localities there which seem eminently suitable for it. It is not uncommon in N. Gujarat, parts of the Kathiawar peninsula and portions of the Indus Valley and canal areas of Sind. The Great and Little Ranns which insulate Kutch from the mainland to N. and E., and the Gulf of Kutch which cuts it off from Saurashtra to the south, appear to constitute effective barriers to its spread, as they seem also for another common bird, the Jungle Babbler, which is likewise absent in Kutch.

From the state of the gonads and the noisy and excited, yet characteristically secretive, behaviour of the birds it was evident that nesting was in progress during March and April. The pair of March 20 (Nos. sd388/389) were courting noisily, bobbing up and down stiffly at each other like mechanical toys—bills, almost touching—and uttering musical croaks and harsh chuckles.

Corvus splendens splendens (Vieillot). The Indian House Crow.

Specimens collected: ks29 ♂ + 10-8-43 Bhuj; ks339 ♀, ks340 ♀ 8-3-44 Mandvi. Gujarat: gs187 ♂ 8-11-45 Bodeli (Baroda Dist.); gs838 ♀ 5-1-46 Radhanpur. Saurashtra: b11 ♂ 13-10-43 Dwarka (Okhamandal); gs1010 ♀, gs 1011 ♂ 16-3-46 Dalkhania (Amreli Dist.).

Measurements:

| | W | B | Tar. | T |
|------|---------|---------|-------|---------|
| 3 ♂♂ | 271-284 | 51.5-56 | 45-51 | 166-175 |
| 3 ♀♀ | 263-282 | 45-50 | 44-48 | 158-175 |

General post-nuptial moult in October-November.

Very common and abundant in the whole area, in towns and villages. Also out on the countryside, often in greater numbers than the available scavenging there would appear to warrant. Enormous numbers fight

at sunset over considerable distances to roost in groves of large trees in concert with parakeets, mynas and (in season) rosy pastors.

Noted as particularly destructive in Kutch, to eggs and young of egrets, pond herons, white ibises and spoonbills etc., nesting in mixed heronries. Does useful scavenging in towns, but also quite appreciable damage to groundnuts in outlying areas, pilfering the pods from the fields as well as from stacked sacks.

It is worth remarking that the House Crows of Kutch belong to the Indian race and not to the pale-collared form, *zugmeyerii*, of Sind as one would expect from the physiography of the country. The Great Rann apparently acts as a barrier to the spread of *zugmeyerii* here. The breeding season is chiefly between June and August.

Corvus macrorhynchos culminatus Sykes. The Indian Jungle Crow.

Specimens collected: gs121 ♀ 3-11-45 Ajwa (Baroda Dist.); gs608 ♂ 17-12-45 Vaghjipur (Mehsana Dist.); gs1131 ♀, gs1132 ♀ 29-3-46 Dediapada (Rajpipla).

Absent at Kharaghoda; Radhanpur; Patan (Mehsana Dist.); Deesa; Palanpur. I did not come across it in Kutch, but according to the late Maharaja Vijayarajji the bird has (or had in 1943) established itself in small numbers at Mandvi within recent years, and breeds there. A pair had also been reported from the Bhuj neighbourhood and its further spread to the blank areas may be watched for with interest.

| Measurements: | W | B | Tar. | T |
|---------------|---------|-------|-------|---------|
| ♂ ad. | 319 | 58 | 59 | 185 |
| ♀ ad. | 290-297 | 59-60 | 52-54 | 165-180 |

Observed damaging standing bajra crops, occasionally wrenching off an entire cob and carrying it to a nearby tree to deal with.

No signs of breeding was noted.

Corvus corax leucurus Hume. The Punjab Raven.

Specimens collected: Kutch: ks428 ♂+, ks429 ♀ 25-2-46 Nanda, near Adesar (Little Rann).

Elsewhere noted: Kutch: Nir (Pachham Island); Dholovira (Khadir Island) in the Great Rann.

| Measurements: | W | B | Tar. | T |
|---------------|-----|----|------|-----|
| ♂ | 420 | 74 | 65 | 229 |
| ♀ | 410 | 69 | 62 | 223 |

Both completing primaries moult, otherwise in fresh plumage. Testes 5×4; ovary dormant. Apparently a sparse winter visitor. Singly or pairs seen about outlying homesteads and shepherds' encampments in semidesert country.

The above was a pair feeding near my camp on the edge of the Little Rann at the carcass of a wild ass, in company with *C. splendens*.

Concluded.



TOULOUSE

B

