

CATALOGUE OF BIRDS IN THE INDIAN MUSEUM, CALCUTTA.

II. PTEROCLETES (SAND-GROUSE OR PIGEON-GROUSE).¹

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INTRODUCTION.

Part I of this *Catalogue*² dealt with the Columbæ (Pigeons and Doves), and also contained a brief history of the bird collections of the Indian Museum. The present part follows, with certain modifications, nearly the same general plan as Part I, but Indian and extra-Indian forms have not been separated into different sections because of the comparatively small number of species dealt with.

CLASSIFICATION OF THE PTEROCLETES.

The Sand-grouse, or Pigeon-grouse as they are sometimes called because of their close affinity to the pigeons, constitute a single, well-defined order, the Pterocletes, coming in between the Columbæ (pigeons and doves) and the Gallinæ (pheasants, partridges and quails).³ In this order, a single family, the Pteroclididæ, is recognized. The family has been generally divided in recent years into only two genera, *Syrrhaptes* Illiger and *Pterocles* Temminck. Some authors (*e.g.*, Sclater, 1924, p. 157; 1930, p. 848; and Mackworth-Praed and Grant, 1937, p. 179), however, recognize a third, *Eremialector* W. L. Sclater, which replaces *Pteroclorus* Bonaparte of the older authors such as Ogilvie-Grant (1893). In the present *Catalogue*, I have not accepted this genus.

INDIAN SPECIES OF THE PTEROCLETES.

The Sand-grouse are confined to the Old World where they range practically over the whole of Africa (including the Canary Islands off N. W. Africa), Madagascar, S. W. Europe (Iberian Peninsula and

¹This part was completed towards the end of 1942 but, owing to the temporary stoppage of the *Rec. Ind. Mus.*, it could not be published earlier.

²Roonwal, M. L., *Rec. Ind. Mus.* XLIII, pp. 281-360 (1941).

³Some authors, *e.g.*, Peters (1937), assign only subordinal rank to the Pterocletes and the Columbæ, the two together being combined into the order Columbiiformes.

S. France), and S. W. Asia (including Arabia, Asia Minor to Iran, Afghanistan and India); Central Asia, and north up to about lat. 51° N. in S. E. European Russia; and North China. In certain years, known as "irruption years", large numbers of the Pallas's Sand-grouse, *Syrrhaptes paradoxus*, break the normal western limit of their range, namely S. E. European Russia, and invade the whole of W. Europe as far west as Ireland and as far north as N. Norway; similarly, the eastern limit is extended to N. E. China.

Within Indian limits the range covers practically the whole of India, with the exception of certain areas mentioned hereafter. In the east the range extends to Sikkim, the Santal Parganas in E. Bihar and Sambalpur in W. Orissa. E. Orissa, Bengal, Assam and Burma are outside the range. In Peninsular India the west coast from the neighbourhood of Bombay down to N. Travancore, and, again, the south-eastern portion of the Madras Presidency from the south of Vellore downwards, are outside the range. All over the Deccan Plateau, however, Sand-grouse are found. They are absent in Ceylon. The existence of these blank areas in India is probably due to excessive humidity in such areas, except in E. Orissa which has not been adequately surveyed.

According to Peters (1937), there are 16 world species, several with a number of subspecies—both totalling 45.

Within Indian limits are represented all the known genera and 9 out of the 16 species. Of each species, as a rule only one subspecies occurs within Indian limits, though in a few cases more have been claimed by certain authors.

The nomenclature adopted here is almost identical to that followed by Stuart Baker (1928), with the exception of *Pterocles exustus erlangeri* Neumann. It has now been shown (see p. 68) that the correct name of the subspecies occurring in India is *P. exustus ellioti* Bogdanow.

Of the 9 Indian Sand-grouse, 6 breed with certainty within Indian limits. Two, namely, *Pterocles coronatus atratus* Hartert and *Pterocles alchata caudacutus* (S. G. Gmelin), most probably breed within Indian limits, though neither breeding birds nor eggs have as yet been obtained. The remaining one, *Syrrhaptes paradoxus* (Pallas), is only a winter visitor.

In India the Sand-grouse largely occur and breed in the dry, sandy north-western region, but three species, viz., *Pterocles orientalis*, *P. indicus* and *P. exustus ellioti*, cover between themselves practically the whole of India, reaching east to E. Bihar and south to Travancore. Those species that breed only in N. W. India migrate south and east in winter.

GENERAL PARTICULARS REGARDING THE *PTEROCLETES* SKINS IN THE INDIAN MUSEUM.

The total number of registered Sand-grouse skins in the Indian Museum is only 64. Of these, 55 are of forms occurring within Indian

limits, the remaining 9 being extra-Indian. The desiderata are given below and skins of these species will be gratefully received.

The following persons have largely contributed to the Pterocletes collection of the Indian Museum :—

Mr. W. T. Blanford (a few skins from the Central Provinces, 1867 ; several skins from Abyssinia-Eritrea region collected during the British Abyssinian Expedition of 1867-68 and described by Blanford in *Obs. Geol. Zool. Abyssinia*, 1870, pp. 419-429 ; and a few skins from S. and E. Iran collected during the travels of the Persian Boundary Commission of 1870-72 and described by Blanford in *Eastern Persia*, Vol. II, *Zool. & Geol.*, 1876, pp. 271, 272). Mr. G. King (a few skins from various places in Rajputana, 1868). Major St. John and "Mus. Coll." (a few skins from S. Iran, 1869). Mr. A. O. Hume (a few skins from the Punjab, 1869). Dr. F. Stoliczka (a few skins from Kashmir and E. Turkestan, collected during Forsyth's Second Yarkand Mission of 1873-74, and described by B. Sharpe in *Sci. Results Second Yarkand Miss. : Aves*, Vol. I, 1881, pp. 119, 120). Mr. V. Ball (some skins from Orissa, 1876). Surgeon J. E. T. Aitchison and others (several skins from W. and S. Afghanistan collected in 1884 during the travels of Afghan Delimitation Commission of 1884-85, and described by B. Sharpe in *Trans. Linn. Soc. Lond.* (2) V, 1889, p. 85). Dr. F. P. Maynard (a few skins collected in S. Afghanistan during the travels of the Afghan-Baluch Boundary Commission of 1896, and described by F. Finn in *Journ. Asiat. Soc. Bengal* LXV, Pt. 2 (*Nat. Hist.*), 1897, pp. 566, 567). Sir Henry McMahon (a few skins from British Baluchistan collected in 1907 for the Quetta Museum). Drs. B. N. Chopra and M. L. Roonwal (a few skins from the Mewar State, Rajputana, 1941). Besides these, there are a few skins collected by the "Mus. Coll." or the official collector of the Indian Museum ; and a few other stray skins.

The following Indian Sand-grouse are unrepresented or poorly represented in the Indian Museum. The number indicated within the square brackets gives the number of skins present.

1. *Pterocles lichtensteini arabicus* Neumann.—[No skin.]
2. *Pterocles coronatus atratus* Hartert.—[No Indian skin.]
3. *Pterocles alchata caudacutus* (S. G. Gmelin).—[Only two skins.]
4. *Pterocles senegallus* (Linnaeus).—[Only one Indian skin.]
5. *Syrrhaptes paradoxus* (Pallas).—[Only one, juvenile ; no Indian skin.]

GENERAL REMARKS.

For measurements, localities, abbreviations used, etc., the same procedure was followed as indicated in Part I of this series (Roonwal, 1941, p. 289). The only difference is in the bill ("B.") which has been measured from the base, *i.e.*, from the junction with the skull to the tip, in contrast to the culmen-length ("C.") given in Part I.

SYSTEMATIC ACCOUNT.

The following species and subspecies are listed in the present *Catalogue* :—

PTEROCLES Temm.

- P. orientalis* (Linn.) (subsp. ?), p. 60.
P. indicus (J. F. Gm.), p. 62.
P. lichtensteinii Temm., p. 63.
P. l. lichtensteinii Temm., p. 64. (Extra-Indian.)
P. coronatus Lichten., p. 64.
P. c. ?atratus Hart., p. 65.
P. coronatus (subsp. ?), p. 66. (Extra-Indian.)
P. alchata (Linn.), p. 66.
P. a. caudacutus (S. G. Gm.), p. 66.
P. exustus Temm., p. 67.
P. ex. ellioti Bogd., p. 68.
P. senegallus (Linn.), p. 69.

SYRRHAPTES Illig.

- S. tibetanus* Gould, p. 70.
S. paradoxus (Pall.), p. 71.

Order PTEROCLETES.

Family PTEROCLIDIDAE.

Genus **Pterocles** Temminck.**Pterocles orientalis** (Linnaeus) (subsp. ?)

(The Large, Imperial, or Black-bellied Sand-grouse.)

1758. *Tetrao orientalis*, Linnaeus, *Syst. Nat.* (10th ed.) I, p. 161. ("In Oriente" = Anatolia, Asia Minor, ex Hasselquist.)
 1849. *Pterocles arenarius*, Blyth, *Catal. Birds Mus. Asiatic Soc. Bengal*, p. 249, No. 1489.
 1928. *Pterocles orientalis*, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.) V, p. 262.
 1937. *Pterocles orientalis* (subsp. ?), Peters, *Check-list Birds World III*, p. 6.

This species is resident from the Canary Islands, over S. W. Europe (Iberian Peninsula), N. W. Africa, Cyprus, Asia Minor, Palestine, S. E. European Russia (the Volga lowlands and the Orenburg District), south to the Turko-Iranian frontier, Afghanistan and N. Baluchistan. It overwinters in the whole of N. W. India, and specimens have been shot as far east as the central United Provinces and Nepal and as far south as Mysore.

Some recent workers have recognized the following four subspecies one of which is doubtfully distinct: *orientalis* (Linnaeus), type-locality Anatolia; *koslovae* Meinertzhagen, type-locality Emba R., Orenburg, Russia; *enigmaticus* Neumann, type-locality Rann of Cutch, N. W. India; and *aragonica* (Latham) (*vide* Meinertzhagen, 1940, p. 229), type-locality Aragon, Spain. Of these, *enigmaticus* is regarded as doubtfully distinct.

In the Indian Museum collection the skins from S. Iran, W. and S. Afghanistan, Kashmir, the Punjab and Rajputana cannot be separated. In none of the females is the lower breast pure white as in *koslovae*, but varies from sand colour to pale grey-white with sand-coloured tinge. In view of the diversity of opinion regarding the various subspecies, it is not possible to assign the skins in the Indian Museum to anyone. Skins from S. Iran, Afghanistan and N. W. India seem to belong to a single subspecies.

The male No. 20394, labelled "Ruschk" (coll. by Dr. D. G. Radde, June 27, 1886) has a darker back than all the other males,

Pterocles orientalis is represented in the Indian Museum collection by the following skins :—

Reg. No.	Sex.	Locality.	Date.	Collector or Donor.	Measurements (mm.).			
					W.	Tl.	Tr.	B.
9895	♂	"Oak forest near Shiraz, 6000 ft." (S. Iran).	July 1869 ..	Major St. John & "Mus. Coll."	243	110	..	17
9896	♀	"Oak forest near Shiraz, 6000 ft." (S. Iran).	July 1869 ..	Major St. John & "Mus. Coll."	..	..	..	21
14521	♂	Karez-Dasht (W. Afghanistan).	Nov. 9, 1884 ..	Surg. Aitchison (Afghan Delimit. Comm.).	244	110	..	19
14524	♀	Zagin (W. Afghanistan).	Nov. 5, 1884 ..	Capt. Cotton (Afghan Delimit. Comm.).	231	106	..	17
14522	♂	Jagin or Zagin (W. Afghanistan).	Nov. 6, 1884 ..	Capt. Cotton (Afghan Delimit. Comm.).	241	107	..	18
14523	♀	Kin (S. W. Afghanistan).	Nov. 3, 1884 ..	Major Yate (Afghan Delimit. Comm.).	229	102	..	20.5
21861	(♂)	Shorawuk (S. Afghanistan).	1896 ..	Dr. F. P. Maynard (Afghan-Baluch Bound. Comm.).	233	107	..	19
21859	♂	Shofawuk (S. Afghanistan).	1896 ..	Dr. F. P. Maynard (Afghan-Baluch Bound. Comm.).	240	103	..	21
21860	♂	Shorawuk (S. Afghanistan).	1896 ..	Dr. F. P. Maynard (Afghan-Baluch Bound. Comm.).	241	103	..	21
21864	♀	Shorawuk (S. Afghanistan).	1896 ..	Dr. F. P. Maynard (Afghan-Baluch Bound. Comm.).	237	100	..	18.5
17378	♀	Gilgit, 5000 ft. (Kashmir).	Dec. 20, 1880	Mr. J. Biddulph	233	85	..	18
4163	(♀)	Sirsa Dist. (Punjab).	Dec. 24, 1869	Mr. A. O. Hume (exchange).	247	114	..	20
4164	♂	Sirsa Dist. (Punjab).	Dec. 31, 1869	Mr. A. O. Hume (exchange).	234	100	..	20.5
25396	(♂)	Lahore (Punjab).	Dec. 11, 1911	Mr. D. Ezra ..	..	..	..	19
17380	(♀)	"Rajpootana."	(?) ..	Mr. G. King ..	243	104	..	..
17379	(♂)	"Burras L. E."	Nov. 17, 1865	Dr. J. Scully ..	244	103	..	20
20394	♂	"Ruschk" ..	June 27, 1886	Dr. D. G. Radde	221	96	..	2
25947 (Mounted in Gallery).	♂	(?) ..	1929 ..	Zool. Garden, Calcutta.	..	..	..	..
25948 (Mounted in Gallery).	♀	(?) ..	1929 ..	Zool. Garden, Calcutta.	..	..	..	..

Remarks.—The skins from Iran, Afghanistan and N. W. India are indistinguishable either on plumage characters or on measurements. The sexes are alike in measurements as shown by the following lengths (in mm.) :—

			Wing	Tail	Bill
♂♂	::	::	221-244	90-110	17-21
♀♀	::	::	229-247	85-114	17-20.5

Distribution.—In addition to the specific distribution given above some further remarks are necessary regarding breeding. Within Indian limits, Stuart Baker (1928, p. 263; 1935, p. 177) considers it only as a winter visitor. Actually, it breeds in N. Baluchistan, records having been obtained from the following places (*vide* Ticehurst, 1927, p. 74; 1930, p. 479):—Chaman; around Quetta; Kushdilkhan; Zhob Valley; Harboi; probably also south of Kalat around Panjgur.

Pterocles indicus (J. F. Gmelin).

(The Painted Sand-grouse.)

1786. *Tringa fasciata*, Scopoli, *Del Flor. et Faun. Insubr.*, fasc. 2, p. 92. ("In Indis" = Coromandel Coast, *ex* Sonnerat.), Name preoccupied. (Not *Tringa fasciata* S. G. Gmelin, 1774.)
 1789. *Tetrao indicus*, J. F. Gmelin, *Syst. Nat.* I, pt. 2, p. 755. (Coromandel, India).
 1849. *Pterocles fasciatus*, Blyth, *Catal. Birds. Mus. Asiat. Soc. Bengal*, p. 249, No. 1490.
 1928. *Pterocles indicus*, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.) V, p. 264.
 1937. *Pterocles indicus*, Peters, *Check-list Birds World III*, p. 9.

This species is peculiar to India. No subspecies are recognized.

Pterocles indicus is represented in the Indian Museum collection by the following skins :—

Reg. No.	Sex.	Locality.	Date.	Collector or Donor.	Measurements (mm.).			
					W.	Tl.	Tr.	B.
17382	♂	Jodhpur (Rajputana).	Mar. 1868 ..	Mr. G. King ..	175	..	26	..
17381	♂	Sirohi (Rajputana).	Sept. 19, 1868	Mr. G. King ..	174	81	24	19
26572	♂	Parsad (Mewar State, Rajputana).	Oct. 23, 1941	Drs. B. N. Chopra & M. L. Roonwal.	180	85	27	18
26574	♂	Parsad (Mewar State, Rajputana).	Oct. 23, 1941	Drs. B. N. Chopra & M. L. Roonwal.	188	75	26	19.5
26573	♀	Parsad (Mewar State, Rajputana).	Oct. 23, 1941	Drs. B. N. Chopra & M. L. Roonwal.	170	..	28	17
4155	♂	"Near Nagpoor" (Central Prov.).	Jan. 17, 1867	Mr. W. T. Blandford.	179	80	25	17
4154	♀	"Jungles W. of Nagpoor" (Central Prov.).	Jan. 12, 1867	Mr. W. T. Blandford.	174	79	25	15
7634	♂	Sambalpur (Orissa).	Mar. 3, 1876 ..	Mr. V. Ball ..	170	69	23	15
7683	♀	Sambalpur (Orissa).	Jan. 24, 1876	Mr. V. Ball ..	169	76	..	15

Remarks.—The two males, Nos. 26572 and 26574, from Parsad (October 23, 1941) had the testes in the non-breeding condition, measuring about 2×2 mm. They were shot in the evening at a pool where they congregate at dusk (about 7 p. m.) in large numbers to drink.

Females are smaller than males as shown by the following measurements (in mm.) of the Indian Museum skins :—

			Wing	Tail	Bill
6♂♂	..	..	170-188	69-85	15-19.5
3♀♀	..	..	169-174	76-79	15-17

Distribution.—Practically the whole of India excluding certain areas in the north (Kashmir, Sikkim and Bhutan, but not Nepal), east (E. Bihar, E. Orissa, Bengal and Assam), west (Sind and Baluchistan) and south (S. W. coast from Bombay to Cape Comorin and the south-eastern portion of the Madras Presidency south of the neighbourhood of Madras and Vellore). Breeds throughout its range. (Hartert (1920, p. 1513) says that though Zarudny records it from the southern portion of Iranian Baluchistan, this may be an error.) Does not occur in Burma and Ceylon.

Some further remarks about its range may be given. In the North-West Frontier Province it has been recorded from Rustom near Mardan (Peshawar District), from Orakazi between Peshawar and Bannu (Kohat District) and from Shinauri, 3,800 feet. It is found in the Punjab, the United Provinces, Nepal (Ogilvie-Grant, 1893, p. 29), Rajputana, Kathiawar and Cutch. Its occurrence in Sind is doubtful (*vide* Ticehurst, 1923, p. 647). Does not occur in Baluchistan. Absent from the West Coast from Bombay downwards. Common in Central India, the Central Provinces, Hyderabad State, and south to Mysore. Absent from S. E. Madras Presidency, south of Madras and Vellore (*vide* Whistler & Kinnear, 1936, p. 680). In the east it has been recorded up to the Santal Parganas (E. Bihar), and there are two skins from Sambalpur (W. Orissa) in the Indian Museum.

***Pterocles lichtensteinii* Temminck.**

This species ranges from the Central Sahara in N. Africa south to Kenya, and east *via* Egypt, Abyssinia, Somaliland and S. Arabia to S. Afghanistan, Baluchistan and Sind west of the R. Indus. Peters (1937, pp. 9, 10) admits seven subspecies of which *arabicus* Neumann is the one which occurs from S. Arabia to India. Ticehurst (1930, p. 479 : 1937, p. 408) says that *arabicus* is indistinguishable from the typical *lichtensteinii* from E. Africa, while Mackworth-Praed & Grant (1937, p. 181) and Bates (1937, p. 824) hold the contrary view. I follow Mackworth-Praed & Grant who have carefully studied this species and have recognized only four subspecies.

Pterocles lichtensteinii lichtensteinii Temminck.

(The Close-barred Sand-grouse.)

1825. *Pterocles lichtensteinii*, Temminck, *Pl. Color. d'Oiseaux*, livr. 60, pl. 355 ♂, pl. 361 ♀. (Nubia, Sudan, E. Africa.)1937. *Eremialector lichtensteinii lichtensteinii*, Mackworth-Praed & Grant, *Ibis* (14) I, p. 181.

Pterocles lichtensteinii lichtensteinii is represented in the Indian Museum collection by the following skins which were obtained from Eritrea by W. T. Blanford (1870, pp. 419-421) during the Abyssinian Expedition.

Reg. No.	Sex.	Locality.	Date.	Collector or Donor.	Measurements (mm.).			
					W.	Tl.	Tr.	B.
4157	♀	Amba (Samhar, Eritrea).	Aug. 22, 1868	Mr. W. T. Blanford.	179	73	..	18
4167	♀	Ailat (Samhar, Eritrea).	June 29, 1868	Mr. W. T. Blanford.	174	..	24	18
4166	♀	"Ain on R. Lebkara" (Samhar, Eritrea).	July, 5, 1868	Mr. W. T. Blanford.	179	..	..	17
9280	♀	Ain, 1200 ft. (Samhar, Eritrea).	(?) ..	Mr. W. T. Blanford.	..	..	..	..
9279	♂	"Koomeylee" (=Kamayli or Komayli), 500 ft. (Eritrea).	June 3, 1868	Mr. W. T. Blanford.	186	74	..	17
4156	(♂)	Near Zoulla (=Zula) (Annesley Bay, Red Sea Coast, Eritrea).	Dec. 29, 1867	Mr. W. T. Blanford.	172	73	25	18

Distribution.—"Sudan, Eritrea, British Somaliland, and Abyssinia" (Mackworth-Praed & Grant, 1937, p. 181).

Pterocles coronatus Lichtenstein.

(The Coronetted Sand-grouse.)

This species ranges from the eastern Sahara in N. Africa, *via* Algeria, Tripoli, Egypt and N. Sudan to Palestine, Arabia and the deserts of Iraq, Iran, Afghanistan and N. W. India south to Sind. Peters (1937, pp. 6, 7) admits four subspecies of which one, *atratus*, or possibly two, occur within Indian limits.

The subspecies of the Coronetted Sand-grouse have been subject to some discussion in recent years. In the Indian Museum there are three skins (1♂, 2♀♀) from Shorawuk (S. Afghanistan) which seem to be *atratus* Hartert. Three others (1♂, 2♀♀) from Iranian Baluchistan and southern and central Iran are much darker, the difference being specially noticeable in the females. On the upper parts the dark bands fuse together in several places, giving the impression of a black bird with light spots ;

on the underside there are distinct dark bands instead of small spots on the abdomen; the dark streaks on the throat and chin are also very prominent. These skins must be separated from the Afghanistan ones; they might possibly be *saturatus* Kinnear.

The lumping together of the birds from Afghanistan, Baluchistan and Iran into a single subspecies does not appear to be justified. Possibly, two races, a darker and a paler, might be found within the Indian limits. The skins available to me are, however, too few for the elucidation of the question.

***Pterocles coronatus atratus* Hartert.**

1902. *Pterocles coronatus atratus*, Hartert, *Bull. Brit. orn. Cl.* XII, p. 48. (E. Iran).

1928. *Pterocles coronatus atratus*, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.) V, p. 267.

1937. *Pterocles coronatus atratus*, Peters, *Check-list Birds World* III, p. 7.

Pterocles coronatus atratus is represented in the Indian Museum collection by the following skins:—

Reg. No.	Sex.	Locality.	Date.	Collector or Donor.	Measurements (mm.).			
					W.	Tl.	Tr.	B.
22896	♂	Shorawuk (S. Afghanistan).	1896	Dr. F. P. Maynard (Afghan-Baluch Bound. Comm.).	200	114	...	19
21883	♀	Shorawuk (S. Afghanistan).	1896	Dr. F. P. Maynard (Afghan-Baluch Bound. Comm.).	191	91	(24)	18
21884	♀	(Shorawuk, S. Afghanistan).	1896	Dr. F. P. Maynard (Afghan-Baluch Bound. Comm.).	187	101	24	18

Distribution.—Peters (1937, p. 7) gives the following range of *atratus*: “Deserts of Iraq, Persia, Afghanistan, Baluchistan and northern India to the Indus and Sind.”

Ogilvie-Grant (1893, p. 24) lists three skins (coll. by Lt.-Col. Swinhoe in February) from “Mhow District” (Indore State, Central India), but none else seems to have obtained it so far east—these Mhow birds were probably winter stragglers.

Some further remarks are necessary regarding the range. In the west, Bates (1937*a*, p. 307; 1937*b*, p. 824; 1938, p. 463) refers birds from western, central and southern Arabia to *atratus*.

Persian and Baluchistan skins in the Indian Museum are different from those from Afghanistan, as stated above.

The range in India is given by Stuart Baker (1928, p. 268) as follows: “West of the Indus all along the North-West Provinces to the south of Sind. Swinhoe obtained three specimens from Mhow in Dhar¹.”

It most probably breeds in Sind, but breeding birds and eggs have not so far been obtained. Breeding, however, is suggested by the following observations: Stuart Baker (1935, p. 182) refers to oviduct eggs (April and May) from Sind; and Ticehurst (1923*a*, p. 471) mentions having met the birds, in June in Sind.

¹ Actually in Indore State, as pointed out above.

Pterocles coronatus (subsp. ?).

Reg. No.	Sex.	Locality.	Date.	Collector or Donor.	Measurements (mm.).			
					W.	Tl.	Tr.	B.
10284	♀	"Bahu Kelat, Persian Baluchistan".	Feb. 4, 1872 ..	Mr. W. T. Blandford.	191	90	24	15
9936	♀	"Kadreu, E. of Shiraz" (S. Iran).	May 31, 1872	Mr. W. T. Blandford.	185	..	..	17
9935	♂	"Yezdikhast, between Shiraz and Ispahn, 700 ft." (S. Iran).	July 1872 ..	Mr. W. T. Blandford.	186	86	24	..

Remarks.—These skins from S. and E. Iran are much darker than the Afghanistan skins listed above under *P. c. ?atratus*.

Pterocles alchata (Linnaeus).

1766. *Tetrao alchata*, Linnaeus, *Syst. Nat.* (12th ed.) I, p. 276. ("Monspeli, in Pyrenaeis, Syria, Arabia"—Spain, S. W. Europe, *vide* Bagdanow, 1881.)

The species ranges from S. W. Europe to N. Africa south to the Sahara and east to Asia Minor, Arabia, the Caucasus, Transcaspia, Iraq, Afghanistan and N. W. India. Peters (1937, p. 4) admits two subspecies of which one, *caudacutus*, occurs within Indian limits.

Pterocles alchata caudacutus (S. G. Gmelin).

(The Large Pin-tailed Sand-grouse.)

1774. *Tetrao caudacutus*, S. G. Gmelin, *Reise Russld.* III. p. 93, pl. 18. (N. Iran.)

1928. *Pterocles alchata caudacutus*, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.) V, p. 268.

1937. *Pterocles alchata caudacutus*, Peters, *Check-list Birds World* III, p. 4.

Pterocles alchata caudacutus is represented in the collection of the Indian Museum by the following skins:—

Reg. No.	Sex.	Locality.	Date.	Collector or Donor.	Measurements (mm.)			
					W.	Tl.	Tr.	B.
26570	(Juv. ♂)	"Saiyad Hamid" (Quetta Dist., Baluchistan).	Nov. 4, 1907 ..	Sir Henry McMahon. (Quetta Mus.)	[210	98	..	18]
26571	(Juv. ♀)	"Saiyad Hamid" (Quetta Dist., Baluchistan).	Nov. 26, 1907	Sir Henry McMahon. (Quetta Mus.)	[210	83	26	20]

Remarks.—No. 26570 is labelled ♀ on the original Quetta Museum label, but is a juvenile ♂; the central rectrices are not greatly prolonged. No. 26571 is apparently a juvenile ♀; the breast is marked with smoky bands and the rufous collar has not yet developed; the central rectrices are rather short.

Distribution.—“ Resident in northern Africa from central Morocco to Cyrenaica and south to Sahara ; resident also from Asia Minor, the Caucasus, Transcaspia, Afghanistan and northwestern India, south to Palestine, Mesopotamia, and Baluchistan ” (Peters).

Bates (1937*a*, p. 305) records it from central Arabia. This is probably the first Arabian record.

Stuart Baker (1928, pp. 269, 270 ; 1935, p. 183) gives the Indian distribution as follows : Occurs in enormous numbers in the N. W. Trans-Indus area, and again between the Indus and the Chenab ; occurs in the Punjab north-east up to the Beas, east *via* Ludhiana to Delhi ; south across the Rajputana desert to Deesa in Palanpur State. Breeds only in Baluchistan and probably also around Peshawar in the N. W. Frontier Province.

Ticehurst (1923*a*, p. 468) says that it is common as a winter visitor in Jacobabad District (Upper Sind), but is either very rare or does not occur at all in Lower Sind.

Ticehurst (1927, p. 75) again remarks that though actual breeding in Baluchistan has never been observed, breeding probably occurs on or over the Afghan-Baluchistan boundary and in central Mekran (around Panjgur) where birds have been observed in July. In N. Baluchistan it is a spring and autumn passage migrant.

In the remaining portion of its Indian range it is a winter visitor, coming in huge flocks.

***Pterocles exustus* Temminck.**

1825. *Pterocles exustus*, Temminck, *Pl. Color. d'Ois.*, livr. 60, pl. 354 ♂, 360 ♀ (W. coast of Africa, Egypt and Nubia=Senegal.)

This species ranges over the whole of N. Africa and *via* Palestine, S. Arabia and S. Iran to practically the whole of India east to E. Bihar and south to Travancore.

In recent years its specific and subspecific nomenclature has been subject to many changes, and with regard to the name of the subspecies occurring in India unanimity has been lacking. Peters (1937, pp. 5, 6) admits seven subspecies ; of these the S. W. Arabian form is *erlangeri* Neumann, while the Indian form is *hindustan* Meinertzhagen. Stuart Baker (1928, p. 271) does not separate these two forms. Hartert (1920, p. 1510) considers *elliotti* Bogdanow as a synonym of *P. e. exustus*. Friedmann (1930, pp. 197-200) and Archer & Godman (1937, pp. 559-561) also discuss the question of the races, without, however, coming to any definite conclusions. Mackworth-Praed & Grant (1937, pp. 179, 180), who have examined the question of races *de novo*, have come to the conclusion that only three races, namely, *exustus* Temminck, *elliotti* Bogdanow and *floweri* Nicoll, can be recognized. I follow the last named authors.

Pterocles exustus ellioti Bogdanow.

(The Common Indian Sand-grouse.)

1849. *Pterocles exustus*, Blyth, *Catal. Birds Mus. Asiat. Soc. Bengal*, p. 249, No. 1492.
1881. (Dec.). *Pterocles Ellioti*, ♂, Bogdanow, *Bull. Acad. Imp. Sci. St. Petersburg XXVII*, Col. 167. (Abyssinia.)
1881. *Pterocles ellioti*, Bogdanow, *Mel. Biol.* XI, p. 54. (Eritrea and S. Abyssinia.)
1909. *Pterocles exustus erlangeri*, Neumann, *Orn. Monatsb.* XVII, p. 154. (El Hota, Lahej, S. Arabia.)
1920. *Pterocles senegalensis erlangeri*, Hartert, *Vögel paläark. Faun.* II, p. 1511.
1923. *Pterocles senegalensis hindustan*, Meinertzhagen, *Bull. Brit. orn. Cl.* XLIII, p. 158. (Sambhar, Rajputana, India.)
1928. *Pterocles exustus erlangeri*, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.) V, p. 271.
1937. *Pterocles exustus*, subsp. *erlangeri*, *hindustan*, etc., Peters, *Check-list Birds World III*, p. 5.

Pterocles exustus ellioti is represented in the collection of the Indian Museum by the following skins:—

Reg. No.	Sex.	Locality.	Date.	Collector or Donor.	Measurements (mm.).			
					W.	Tl.	Tr.	B.
22895	(♂)	Sirsa Dist (Punjab).	Dec. 18, 1869	Mr. A. O. Hume (exchange).	188	149	..	..
4161	♀	Nagpur (Central Prov.).	Jan. 30, 1867	Mr. W. T. Blandford.	167	91	..	15.5
4160	♀	Nagpur (Central Prov.).	Jan. 30, 1867	Mr. W. T. Blandford.	182	108	..	17
4148	♂	"S. of Nagpore" (Central Prov.).	Jan. 31, 1867	Mr. W. T. Blandford.	184	129	27	15
4149	♂	"S. of Nagpore" (Central Prov.).	Jan. 30, 1867	Mr. W. T. Blandford.	181	151	..	16
4151	♂	"S. of Nagpore" (Central Prov.).	Feb. 1, 1867 ..	Mr. W. T. Blandford.	185	176	..	19
4159	(♀)	Chanda (Central Prov.).	Feb. 16, 1867	Mr. W. T. Blandford.	168	102	..	17
18927	♂	"Gya" (=Gaya, Gaya Dist., Bihar).	(?) ..	"Mus. Coll." ..	183	126	..	18
18928	♀	"Gya" (=Gaya, Gaya Dist., Bihar).	(?) ..	"Mus. Coll." ..	188	122	..	18
18929	♀	"Gya" (=Gaya, Gaya Dist., Bihar).	(?) ..	"Mus. Coll." ..	175	101	22	18
4152	♂	"Near Zoulla" (=Zula), 300 ft. (Eritrea).	June 5, 1868 ..	Mr. W. T. Blandford.	174	133	..	16.5
4153	♀	"Near Zoulla" (=Zula), 300 ft. (Eritrea).	June 5, 1868 ..	Mr. W. T. Blandford.	168	100	..	15

Remarks.—The three skins listed by Blyth (1849, p. 249, No. 1492 A, B, C) from "S. India" (coll. by T. C. Jerdon, 1844) are not present in the Indian Museum collection.

The females are appreciably smaller than the males, as shown by the following measurements (in mm.) :—

		Wing	Tail	Bill
7♂♂	.. ..	174-188	122-176	15-19
5♀♀	.. ..	167-182	91-108	15.5-18

Distribution.—“ Eritrea, central and northern Abyssinia, British Somaliland, Arabia, and India ” (Mackworth-Praed & Grant, 1937, p. 180).

Bates (1937*a*, pp. 305, 306 ; and 1939, pp. 148, 149) is of the opinion that the birds from western and southern Arabia are not *elliotti* Bogdanow but *erlangeri* Neumann.

The Indian range is given by Stuart Baker (1928, pp. 272, 273) as follows : Practically everywhere in the plains where the rainfall is not too heavy. Does not occur in Ceylon, but is found in the open parts of Travancore, whilst Blanford shot them near Trichinopoly. East it is found as far as Ranigunj and Birbhun in W. Bengal. Common in parts of Sind and in the Punjab, and has been killed in Kashmir.

Ogilvie-Grant (1893, p. 14) lists two skins (♂ and ♀ adults) from Nepal, collected by B. H. Hodgson.

***Pterocles senegallus* (Linnaeus).**

(The Spotted Sand-grouse.)

1771. *Tetrao senegallus*, Linnaeus, *Mantissa Plant., Reg. Anim., Appendix*, p. 526. (Senegal, *errore*=Algeria, *vide* Hartert, *Nov. Zool.* XXXI, 1924, p. 7.)
1928. *Pterocles senegallus*, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.) V, p. 273.
1934. *Pterocles senegallus remotus*, Neumann, *Verh. orn. Ges. Bayern* XX, p. 471. (Kunaria, Cutch, N. W. India.)
1937. *Pterocles senegallus senegallus* and *P. s. remotus*, Peters, *Check-list Birds World* III, p. 6.

This species ranges from N. Africa to S. W. Asia, including the Indian Desert. Neumann (1934, p. 471) distinguishes the birds inhabiting the Indian Desert as *remotus*. They are said to differ from the typical *senegallus* of Africa in the following particulars :—Ground colour darker and more ochre-brown ; crown pure grey, not with sand-coloured tinge ; the spots and middle of abdomen in the female darker, being quite black. Peters (1937, p. 6), however, considers *remotus* doubtfully distinct from *senegallus*. The specimens in the Indian Museum are too few to enable me to give an opinion. For the present, I retain the Indian skins under the typical *senegallus*.

Pterocles senegallus is represented in the collection of the Indian Museum by the following skins :—

Reg. No.	Sex.	Locality.	Date.	Collector or Donor.	Measurements (mm.).			
					W.	Tl.	Tr.	B.
21885	♂	“Lazechah to Lijji Karez” (N. Baluchistan).	Mar. 11, 1896	Dr. F. P. Maynard (Afghan-Baluch Bound. Comm.).	206	148	..	19
9937	♂	Bampur, 2000 ft. (S. E. Iran).	Apr. 6, 1872 ..	Mr. W. T. Blanford.	200	143	25	(20)
9938	♀	Bampur, 2000 ft. (S. E. Iran).	Apr. 6, 1872 ..	Mr. W. T. Blanford.	200	120	..	19

Remarks.—Nos. 9937 and 9938 are listed by Blanford (1876, p. 271).

Distribution.—*P. s. senegallus*: “Resident in northern Africa from Algeria to Egypt, south to El-Golea, Air, Fezzan, Khartoum and Somaliland; in southwestern Asia from Palestine, Iraq and Afghanistan to Arabia” (Peters).

P. s. remotus: “Baluchistan, Sind and the Indian Desert south to Cutch” (Peters).

Stuart Baker (1928, p. 274) gives the Indian distribution as follows: Occurs in Baluchistan; common in Sind east of the Indus, rarer in the west; not rare in Rann of Cutch; occurs in Jaisalmere and Jodhpur States, and in Shahpur District in the Punjab.

Ogilvie-Grant (1893, p. 15) lists in the British Museum collection a ♀ adult skin from Mhow, Central India (coll. by Lt.-Col. Swinhoe in May).

Genus *Syrrhaptes* Illiger.

Syrrhaptes tibetanus Gould.

(The Tibetan Sand-grouse.)

1850. *Syrrhaptes tibetanus*, Gould, *Birds Asia*, Pt. 2, pl. and text (=vol. VI, pl. 61 of bound vol.). (Tsomoriri Lake, Ladak, Tibet” =? Tsho Marari Lake, Ladak, Kashmir.)

1850 (after May 14). *Syrrhaptes tibetanus*, Gould, *Proc. zool. Soc. Lond.*, p. 92. (“Stumerri Lake”, “Ladakh in Thibet” =? Tsho Marari Lake, Ladak, Kashmir.)

1928. *Syrrhaptes tibetanus*, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.) V, p. 277.

1937. *Syrrhaptes tibetanus*, Peters, *Check-list Birds World* III, p. 3.

Syrrhaptes tibetanus is represented in the collection of the Indian Museum by the following skins :—

Reg. No.	Sex.	Locality.	Date.	Collector or Donor.	Measurements (mm.).			
					W.	Tl.	Tr.	B.
23152	(Juv.)	Spti (Kangra Dist., Punjab).	About 1900 ..	Mr. H. H. Hayden	[244	134	29	13]
20291	(?)	Chagra (Ladak, Kashmir).	Sept. 21, 1873	Dr. F. Stoliczka (2nd Yarkand Miss.).	251	126	26	14
20292	(?)	Gogra (Ladak, Kashmir).	Sept. 25, 1873	Dr. F. Stoliczka (2nd Yarkand Miss.).	252	139	25	17
7866	(?)	"Tibet N. of Sikkim".	Nov. 10, 1870	Mr. Rutledge ..	..	..	25	21
7867	(?)	"Tibet N. of Sikkim".	Nov. 18, 1870	Mr. Rutledge ..	..	..	26	20
26569	(?)	(?)	Jan. 18, 1903	Mr. F. Finn. ..	260	194	28	(17)

Remarks.—No. 23152 is evidently a juvenile ; the whole of its upper parts and the secondaries are barred with black ; the ochreous patch at the sides of the head and neck is only faintly seen. The pinnate median rectrices are present only in No. 26569 ; in others they are either trimmed artificially or absent.

Stuart Baker's (1928, pp. 277, 278) description of the plumage is confusing and, in places, incorrect. He omits to mention the ochreous patch at the sides of the head and neck. Again, he refers (p. 278) to the presence of "yellow on the breast" ; no such yellow is present in any of the Indian Museum skins, nor has it been described by other workers.

Distribution.—"Breeds in inner Asia at elevations ranging between 12000 and 16000 feet from the Pamirs to Kokonor, south to Lahul and Sikkim ; in winter descending to somewhat lower altitudes" (Peters).

Within the Indian limits, it occurs in Ladak, the Upper Sutlej Valley and N. Sikkim.

***Syrrhaptes paradoxus* (Pallas).**

(Pallas's Sand-grouse.)

1773. *Tetrao paradoxa*, Pallas, *Reise Versch. Prov. russ. Reichs.* II, p. 712 (Southern part of the Tartarian Desert.)
1928. *Syrrhaptes paradoxus*, Stuart Baker, *Faun. Brit. Ind., Birds* (2nd ed.) V, p. 276.
1937. *Syrrhaptes paradoxus*, Peters, *Check-list Birds World* III, p. 3.

Syrrhaptes paradoxus is represented in the collection of the Indian Museum by the following skin :—

Reg. No.	Sex.	Locality.	Date.	Collector or Donor:	Measurements (mm.).			
					W.	Tl.	Tr.	B.
20293	(Juv. ?)	East of Kizil (E. Turkestan).	May 19, 1874	Dr. F. Stoliczka (2nd Yarkand Miss.).	[168	83	20	16]

Remarks.—The specimen is evidently a juvenile and is much smaller than the adults; the black patch on the underparts is well marked. Regarding this specimen Sharpe (1891, p. 120) wrote: "A female bird, which Mr. Ogilvie Grant thinks to be not quite mature."

Distribution.—"Breeds in the steppe region of extreme southeastern and central Asia from the Government of Ufa and the lower Volga east to Mongolia, north to about lat. 51° N. on the Kirghiz Steppes, the Altai, northwestern Mongolia and southern Transbaikalia, south to the Tian Shan, Zungaria and northeastern Kansu. Winters somewhat irregularly to the plains of northwestern China; sporadic irruptions occur from time to time, during which large numbers sometimes reach western Europe" (Peters).

In invasion years it also breeds in Jehol in N. China (Hartert & Steinbacher, 1936, p. 463).

Regarding the Indian range, Stuart Baker (1928, p. 276) writes: "Its only record is that of the Nawab of Dhar who shot a single specimen." He does not state when and where the specimen was shot.

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